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THE

GARDENER'S AND BOTANIST'S

DICTIONARY;

CONTAINING

THE BEST AND NEWEST METHODS OF CULTIVATING AND IMPROVING THE

KITCHEN, FRUIT, AND FLOWER [illegible]EN, AN[illegible]

OF PERFORMING [illegible]

PRACTICAL PARTS OF AGR[illegible]

OF MANAGING VI[illegible]

A[illegible]

OF PROPAGATING ALL SOR[illegible]

BY TH[illegible]

PHILIP [illegible]

GARDENER TO THE WORSHIP[illegible]

AN[illegible]

ENUMERATI[illegible]

GEN[illegible]

PLACES C[illegible]

WITH THE ADDITION OF [illegible]

PARTICULARI[illegible]

WITH PLATES EXPLANATO[illegible]

THOMAS [illegible]

REGIUS PROFESSOR OF BOTANY IN T[illegible]BER.

IN TWO VOL[illegible]

VOL. II. PART II. Q—[illegible]

LONDO[illegible]

PRINTED FOR F. C. AND J. RIVINGTON, J. JOHNSON, G. AND W. [illegible]
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M DCCC VII.

THE

GARDENER'S AND BOTANIST'S

DICTIONARY.

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Q.

QUA

QUADRIFOLIUM. See *Ornithopus.*
QUAI-FA. See *Olea.*
QUAKING GRASS. See. *Briza.*
QUALEA.
Lin. gen. Schreb. n. 12. *Juſſ.* 424. *Aubl. guian. t.* 1.
Claſſ. 1. Monandria Monogynia.

GENERIC CHARACTER.

CAL. *Perianth* one-leafed, deeply four-parted: ſegments ovate, coriaceous, concave, unequal, the two lower larger, gaping.
COR. *Petals* two, unequal, inſerted into the calyx: *upper* erect, roundiſh, emarginate, ending at the baſe in a horn-ſhaped, ſhort, blunt *Nectary*, prominent between the upper ſegments of the calyx: *lower* larger, bending down.
STAM. *Filament* one, ſhort, aſcending, inſerted between the lower petal and the germ. *Anther* oblong, grooved, recurved.
PIST. *Germ* globular. *Style* filiform, aſcending, the length of the ſtamen. *Stigma* blunt.
PER. Berry? one-celled.
SEEDS very many, neſtling in the pulp.

OBS. *The corolla has the form of a bilabiate one. The genus is allied to* Cucullaria.

QUA

ESSENTIAL CHARACTER.

Cal. four-parted. *Cor.* two-petalled. *Berry.*

SPECIES.

1. Qualea roſea.
Lin. ſpec. ed. Willd. 18. *Aubl. guian.* 1. 5. *t.* 1.
Lower petal blunt, leaves acuminate.
2. Qualea cœrulea.
Lin. ſpec. ed. Willd. 18. *Aubl. guian.* 1. 7. *t.* 2.
Petals emarginate, leaves acute.

DESCRIPTIONS, *&c.*

1. This is a tree attaining the height of ſixty feet and more; and two feet in diameter: the bark is wrinkled, and the wood reddiſh and compact: at the top it has large branches, ſome growing right up, others horizontal, ſpreading wide in all directions: the twigs are oppoſite. Leaves ſmooth, ſhining, firm, entire, oval: from the midrib ſpring many lateral nerves, ſimple and parallel. Petiole cylindrical, nine lines in length, accompanied at its origin by two deciduous ſtipules. Flowers in terminating panicles; the branches and branchlets oppoſite. Bractes in pairs, ſmall, deciduous, at the [illegible] the branchlets. The flowers ſmell very a[illegible] This tree is called *Laba-Laba* by the G[illegible] grows in the foreſts of

 Guiana

Guiana, which extend to the bank of the river Sinemari, twelve leagues from its mouth.

2. This alſo is a tree from ſixty to eighty feet in height, and three feet in diameter, with a bark and wood like the former. The branches and branchlets alſo are the ſame. The leaves are ſhort, in moſt reſpects like the other, but terminating only in a ſhort point. The petiole is ſhort. The flowers are in large panicles, with ſome of the branches alternate. The upper petal is aſh-coloured without, and blueiſh within; the lower is blue, except towards the claw, where it is yellow marked with black: whereas in the other ſpecies the upper petal is white on the outſide, and roſe-coloured within; the lower in opening is reddiſh, but when expanded becomes white towards the claw, the reſt yellow. The flowers have a ſweet pleaſant odour. This tree has the name of *Qualé* among the Galibis, whence the generic name. It is found in the ſame country, but higher up the river, namely forty leagues from its mouth[1].

QUAMOCLIT. See *Convolvulus, Creſſa, Ipomœa.*

QUARARIBEA. See *Myrodia.*

QUASSIA. (*So named by Linneus, in memory of Quaſſi a negro ſlave, who found and diſcovered to Rolander the wood of this tree.*

Lin. gen. n. 529. *Reich. n.* 578. *Schreb. n.* 728. *Amoen. acad.* 6. *monogr. Gærtn. t.* 70. *Juſſ.* 282

Claſſ. 10. 1. Decandria Monogynia.

Nat. order of *Gruinales. Magnoliæ*, Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* five-leaved, very ſhort: *leaflets* ovate, permanent.

COR. *Petals* five, lanceolate, elongated, ſeſſile, equal. *Nectary* of five ovate villoſe ſcales, inſerted into the interior baſe of the filaments.

STAM. *Filaments* ten, filiform, equal, the length of the corolla. *Anthers* oblong, incumbent.

PIST. *Receptacle* fleſhy, orbicular, elevated, wider than the germ. *Germ* ovate, compoſed of five. *Style* filiform, the length of the ſtamens. *Stigma* ſimple.

PER. five, lateral, diſtant, inſerted into the fleſhy orbicular receptacle, ovate, obtuſe, two-valved.

SEEDS ſolitary, globular.

ESSENTIAL CHARACTER.

Cal. five-leaved. *Petals* five. *Nect.* five-leaved. *Peric.* five, diſtant, each having one ſeed.

SPECIES.

1. Quaſſia amara. *Bitter Quaſſia.*

Lin. ſpec. 553. 1679. *ſyſt. ed.* 13. 333. *ed.* 14. 401. *Reich.* 275. *mat. med.* 114. *Woodv. med. bot.* 215. *t.* 77. *Amæn. acad.* 6. 421. *t.* 429. *Suppl.* 235. *Patris in Roz. obſ. t.* 9. *p.* 140. *Febr. t.* 2. *Plenck ic.* 333.

Flowers hermaphrodite, leaves unequally pinnate, leaflets oppoſite ſeſſile, petiole jointed winged, flowers in racemes.

2. Quaſſia Simaruba. *Simaruba Quaſſia.*

Lin. ſyſt. 401. *ſuppl.* 234. *Gærtn. fruct.* 1. 340. *Woodv. med. bot.* 211. *t.* 76. *a. Lond. med. journ.* 11. 1. *Tranſ. edinb.* 2.

Simaruba amara. *Aubl. guian.* 859. *t.* 331. 332.

Flowers monoecous, leaves abruptly pinnate, leaflets alternate ſubpetioled, petiole naked, flowers in panicles.

3. Quaſſia excelſa. *Lofty Quaſſia.*

Swartz prodr. 67.

Flowers hermaphrodite five-ſtamened panicled, leaves unequally pinnate, leaflets oppoſite petioled, petiole naked.

DESCRIPTIONS, *&c.*

1. This is a lofty tree, with many ſtrong branches; the wood white and light, the bark thin, and of a gray colour. Leaves alternate, interruptedly pinnate, conſiſting of two pairs of oppoſite leaflets at the joints of the petiole, and an odd one at the end. Leaflets elliptic, entire, veined, ſmooth, acuminate at both ends, ſeſſile, deep green on the upper, paler on the under ſurface. Common petiole two-jointed, and winged like the ora[illegible] with a leafy membrane gradually ſpreading to [illegible]. The flowers terminate the branches in elongated racemes or ſpikes, directed one way, all hermaphrodite, of a bright red colour. Bractes lanceolate or linear, coloured, alternate. It is eaſily known by its leaves, which are very different from all others.

Native of South America, particularly of Surinam; and alſo of ſome of the Weſt India iſlands[a].

The figure given in the Amoenitates Academicæ is not a juſt one, the flowers only, as the younger Linneus has obſerved, being right, but the branch with leaves belonging to another plant, hence the figures of Buchoz, Lettſom, &c. copied from this, are inaccurate: thoſe of Patris and Woodville are right.

The root, wood, bark, and indeed all the parts of this tree are intenſely bitter. Linneus ſays that the wood of the root is a noble remedy, but that the wood of the ſmall branches which has ſince been ſubſtituted for it is good for nothing. The wood of both is now thought to be leſs intenſely bitter than the bark, which is at preſent regarded as the moſt powerful medicine.

Quaſſia has no ſenſible odour; its taſte is that of a pure bitter, more intenſe and durable than of almoſt any other known ſubſtance; it imparts its virtues more completely to watery than ſpirituous menſtrua, and its infuſions are not blackened by the addition of martial vitriol.

The negro Quaſſi, Quaſs, or as it is written by Fermin Coiſſi, is ſaid to have employed it with uncommon ſucceſs, as a ſecret remedy in the malignant endemic fevers, which frequently prevailed at Surinam. For a valuable conſideration this ſecret was diſcloſed to Daniel Rolander, a Swede, who brought ſpecimens of the wood to Stockholm, in the year 1756; and ſince that time the effects of this drug have been generally tried in Europe. The medicinal qualities aſcribed to Quaſſia are thoſe of a tonic, ſtomachic, antiſeptic and febrifuge.

Dr. Cullen believes Quaſſia to be an exeellent bitter, and thinks it will do all that a ſimple bitter can do, but no more: he aſcribes the extraordinary commendations which are given it, to the partiality ſo often ſhown to new medicines.

It may be given in infuſion, or in pills made from the watery extract; the former is generally preferred in the proportion of three or four drams of the wood to twelve ounces of water[a].

It is ſaid that conſiderable quantities of this drug are uſed by the brewers inſtead of hops.

2. This tree grows to a conſiderable height and thickneſs, with alternate ſpreading branches: the bark on the trunk of old trees is black and a little furrowed, but that of younger trees is ſmooth, gray, and here and there marked with broad yellow ſpots: the wood is hard, white, and without any remarkable taſte. Leaves numerous, alternate, compoſed of ſeveral leaflets (from two on each ſide to nine) oblong or nearly elliptic, ſharp at the end, ſmooth above, and of a deep green colour, beneath whitiſh, placed alternately on very ſhort foot-ſtalks. Flowers on branched ſpikes, or long wide axillary panicles, of a yellow colour.

According to Linneus and others, the male and female flowers are mixed in the ſame panicle; but Dr. Wright ſays that the female flower is never found on the ſame tree with the male, in Jamaica. The ſmall calyx is cut into five obtuſe erect ſegments in both; the five petals are ſeſſile, equal, lanceolate, bent outwards, three times the length of the calyx, into which they are inſerted. Nectary compoſed of ten roundiſh or ovate villoſe ſcales, inſerted in a ring at the interior baſe of the filaments. Receptacle marked with ten grooves. The male flowers have an abortive germ, depreſſed, five-ſtreaked, covered by the nectaries, but without any ſtyle or ſtigma. The fertile flowers have no ſtamens, but five roundiſh germs adhering together, with a cylindrical erect ſtyle, about the length of the corolla, divided at the top into five recurved permanent ſtigmas. The fruit is ovate, black, ſmooth, pulpy, compoſed of five drupes, but

[1] Woodville & Linn. ſuppl.

[a] Woodville.

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Leaves obovate acuminate ſerrate at the tip glaucous underneath.

6. Quercus cuſpidata.
Lin. ſyſt. 858. *Thunb. jap.* 176.
Leaves ovate cuſped ſerrate ſmooth.

7. Quercus ſerrata.
Lin. ſyſt. 858. *Thunb. jap.* 176.
Leaves oblong parallel-nerved.

8. Quercus denſata.
Thunb. jap. 177.
Leaves obovate-oblong obtuſe gaſh-toothed tomentoſe underneath.]

9. Quercus Ilex. *Evergreen* or *Holm Oak Tree.*
Lin. ſpec. 1412. *ſyſt.* 858. *Reich.* 4. 160. *hort. cliff.* 448. *Gouan monſp.* 491. *Du Roi harbecc.* 2. 261. *Scop. carn. n.* 1182. *Villars dauph.* 3. 793. *Allion. pedem. n.* 1980. *Regnault bot. Ait. kew.* 3. 355.

α. *Common Evergreen Oak.* With lanceolate quite entire leaves.
Ilex folio anguſto non ſerrato. *Baub. pin.* 424.
Smilax Dalechampii. *Baub. hiſt.* 2. 101.

β. *Serrate-leaved Evergreen Oak.*
With lanceolate ſerrate leaves.
Ilex oblongo ſerrato folio. *Baub. pin.* 424. *Tourn. inſt.* 583. *Duham. arb.* 1. 314. *t.* 123.
I. arborea. *Baub. hiſt.* 1. 95. *Raii hiſt.* 1391.
I. major glandifera. *Ger. emac.* 1344.
I. major aculeata & abſque aculeis. *Park. theat.* 1395.
I. coccigera. *Blackw. t.* 186.

γ. Q. oblonga. *Long-leaved Evergreen Oak.*
With ovate-oblong ſerrate-toothletted leaves, toothlets pungent.
Ilex folio rotundiore molli modiceque ſinuato. *Baub. pin.* 425. *Duham. arb.* 1. 314. *t.* 124.
Leaves evergreen lanceolate or oblong tomentoſe underneath, calyxes ciliate, anthers ovate, bark even.

10. Quercus graminntia. *Holly-leaved Evergreen Oak Tree.*
Lin. ſpec. 1413. *ſyſt.* 858. 8. β. *Reich.* 4. 160. 3. γ. *Ait. kew.* 3. 355.
Ilex foliis rotundioribus & ſpinoſis, e luco gramuntio. *Magn. monſp.* 140.
Leaves roundiſh-ovate cordate at the baſe ſinuate-toothletted pungent waved tomentoſe underneath, anthers roundiſh.

[11. Quercus Ballota.
Deſfont. atlant. 350.
Leaves evergreen elliptic toothletted or entire tomentoſe underneath, acorn very long.

12. Quercus cornea.
Lour. cochinch. 572. *ed. Willd.* 700.
Leaves oblong-ovate repand ſerrate, glands.

13. Quercus concentrica.
Lour. cochinch 572. *ed. Willd.* 701.
Leaves lanceolate-ovate quite entire incurved, calyxes looſe very ſhort excavated with concentrical circles.]

14. Quercus Suber. *Cork-barked Oak* or *Cork Tree.*
Lin. ſpec. 1413. *Reich.* 4. 160. *hort. cliff.* 448. *mat. med.* 202. *Gouan. monſp.* 491. *Du Roi harbecc.* 2. 263. *Hunt. Evel. ſylva*, 2. 68. *Regnault, bot. Duham.* 2. *t.* 80. *Blackw. t.* 193. *Allion. pedem. n.* 1981.
Suber. *Camer. epit.* 115.—latifolium. *Cluſ. hiſt.* 22. *Lob. ic.* 2. 159. *Ger.* 1163. *emac.* 1347. *Park. theat.* 1397. *Baub. hiſt.* 1. 103. *Raii hiſt.* 1393.
S. latif. perpetuo virens. *Baub. pin.* 424. *Tourn. inſt* 584.
Phellos ſ. Suber. *Dod. pempt.* 830.
Leaves evergreen ovate-oblong tomentoſe underneath waved, bark cloven fungoſe.

15. Quercus coccifera. *Kermes Oak Tree.*
Lin. ſpec. 1413. *Reich.* 4. 161. *Gron. orient.* 291. *Gouan. monſp.* 491. *Sauv. monſp.* 96. *Scop. carn. n.* 1183. *Villars dauph.* 3. 793. *Allion. pedem. n.* 1982. *Deſfont. atlant.* 348. *Ruſſ. alepp. t.* 15. *f.* 2.
Ilex coccifera. *Camer. epit.* 774.
I. aculeata cocciglandifera. *Baub. pin.* 425. *Duham. arb.* 2. 314. *t.* 125.
I. coccigera. *Ger.* 1159. *emac.* 1342. *Baub. hiſt.* 1. 106. *Raii. hiſt.* 1392. *Cluſ. hiſt.* 24. *Tabern. ic.* 969.
I. aquifolia ſ. coccigera. *Park. theat.* 1394. *t.* 1395. *f.* 3. *Tournef. inſt.* 583. *Garid. aix.* 245. *t.* 537.
Coccus infectoria. *Lob. ic.* 2. 153.
Leaves ovate cordate at the baſe tooth-ſpiny ſmooth on both ſides waved.

16. Quercus virens. *Live Oak Tree.*
Ait. kew. 3. 356.
Q. Phellos β. *Lin. ſpec.* 1412.
Q. virginiana. *Mill. dict. n.* 16.
Q. ſempervirens, foliis oblongis non ſinuatis. *Cateſb. car.* 1. *t.* 17.
Leaves evergreen coriaceous lanceolate-oblong ſubtomentoſe underneath undivided and ſinuated.

17. Quercus Prinus. *Cheſtnut-leaved Oak Tree.*
Lin. ſpec. 1413. *Reich.* 4. 161. *hort. cliff.* 448. *Gron. virg.* 149. *Du Roi harbecc.* 2. 276. *t.* 6. *f.* 3. *Ait. kew.* 3. 356.
Q. caſtaneæ foliis, procera arbor, virginiana. *Pluk. phyt. t.* 54. *f.* 3. *Cateſb. car.* 1. *t.* 18. *Duham. arb.* 18.

α. Q. Prinus lata. *Broad Cheſtnut-leaved Oak.*
With ovate leaves.

β. Q. P. oblongata. *Long Cheſtnut-leaved Oak.*
With oblong leaves.
Leaves deciduous ovate-elliptic pubeſcent underneath deeply toothed, teeth very wide blunt almoſt equal.

18. Quercus aquatica. *Water Oak Tree.*
Ait. kew. 3. 357.
Q. nigra α. *Lin. ſpec.* 1413. *Gron. virg.* 117. 149. *Du Roi harbecc.* 2. 272. *t.* 6. *f.* 1.

α. Q. aquat. cuneata. *Common Water Oak.*
Q. folio non ſerrato in ſummitate quaſi triangulo. *Cateſb. car.* 1. *t.* 20.
Leaves wedge-ſhaped ſublobed at the tip.

β. Q. aquat. heterophylla. *Various-leaved Water Oak.*
Leaves wedge-form-oblong acute ſinuate.

γ. Q. aquat. elongata. *Long-leaved Water Oak.*
Leaves wedge-form-oblong obſoletely ſinuate ſomewhat waved.

δ. Q. aquat. indiviſa. *Entire-leaved Water Oak.*
Leaves wedge-form oblong moſtly quite entire.

ε. Q. aquat. attenuata. *Narrow-leaved Water Oak.*
Leaves oblong-lanceolate ſomewhat wedge-ſhaped acute ſlightly ſinuate.
Leaves annual ſomewhat wedge-ſhaped attenuated at the baſe lobed ſmooth.

19. Quercus nigra. *Black Oak Tree.*
Ait. kew. 3. 357.
Q. nigra β. *Lin. ſpec.* 1413.
Q. marilandica folio trifido ad faſſafras accedente. *Cateſb. car. t.* 19. *Gron. virg.* 140. *Du Roi harbecc.* 2. 274. *t.* 6. *f.* 2.
Leaves annual wedge-form ſomewhat cordate at the baſe, obſoletely lobed, lobes dilated.

20. Quercus rubra. *Red Oak Tree.*
Ait. kew. 3. 357.
Q. rubra α. *Lin. ſpec.* 1413. *Du Roi harbecc.* 2. 265. *t.* 5. *f.* 2. *Pluk. phyt. t.* 54. *f.* 4. *Cateſb. car.* 1. *t.* 23.

α. Q. rubra latifolia. *Champion Oak.*
Leaves wide, calyxes abbreviated flatiſh underneath.

β. Q. rubra coccinea. *Scarlet Oak.*
Leaves middle-ſized, calyxes pitcher-ſhaped.

γ. Q. rubra montana. *Mountain Red Oak.*
Leaves ſmaller, calyxes abbreviated flat underneath, acorns roundiſh.
Leaves annual ſmooth on both ſides obtuſely ſinuate, ſinuſes divaricating, ſegments acute ſetaceous-mucronate.

[21. Quercus diſcolor. *Downy-leaved Oak Tree.*
Ait. kew. 3. 359.
Q. rubra β. *Lin. ſpec.* 1414. *hort. cliff.* 448. *Du Roi harbecc. t.* 5. *f.* 3. *Cateſb. car.* 1. *t.* 21. *f.* 1. *Pluk. phyt. t.* 54. *f.* 5.
Leaves annual pubeſcent underneath ſinuate, ſinuſes ſpreading, ſegments ſetaceous-mucronate.]

22. Quercus alba. *White Oak Tree.*
Lin. ſpec. 1414. *Reich.* 4. 162. *Kalm. it.* 2. 357. *Gron. virg.* 117. 149. *Cateſb. car.* 1. *t.* 21. *f.* 2.

Leaves

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* '' &55&- -2' 30' *' 40 -3 ' 3=&'' * & O5' *' 6; 1' 2 &&-' O-

F =6-@' F*4

their upper ſide, but whitiſh and downy on their under, ſtand upon pretty long foot-ſtalks, and do not fall till they are thruſt off by young leaves in the ſpring. The acorns are ſmaller than thoſe of the common Oak, but of the ſame ſhape.

[Scopoli remarks, that the leaves are faithleſs ſpecific characters in this genus, and that the bark, cups of the fruits, and galls, afford more certain diſtinctions.

Native of the South of Europe, Cochinchina and Barbary.—It is a ſtranger in England, ſays Gerarde, (1597) notwithſtanding there is here and there a tree thereof, that hath been procured from beyond the ſeas; one groweth in his Majeſties garden of Whitehall, near to the gate that leadeth into the ſtreet. Our old authors name it the Holm Oak, an appellation correſponding better with the next ſpecies, which has leaves much reſembling the Holly or Holm. In French it is *le Chêne verd:* in Italian *Elice*; in Spaniſh *Enzina.*

The wood, ſays Evelyn, is ſerviceable for ſtocks of tools, mallet-heads, mall-balls, chairs, axle-trees, wedges, beetles, pins, and paliſadoes in fortifications: it ſupplies almoſt all Spain with the beſt and moſt laſting charcoal.—Mr. Boutcher affirms that theſe trees ſoon make warm and lofty hedges, forty or fifty feet high; but that they ſhould not be planted near the houſe or in the gardens, becauſe they make a great litter in april and may, when they caſt their leaves.

Mr. Bradley ſays, that the Ilex produces admirable timber, particularly valuable for knee timber, being much tougher than Engliſh Oak; that many ſhip's lading of it have been brought to England; that it is of quick growth; that Robert Balle, Eſq. raiſed ſome thouſands of theſe trees from acorns at Mamhead in Devonſhire, ſome of which, in thirty years, have grown to a conſiderable ſize; and that within the compaſs of ſix years (1724) many millions of them have been raiſed in England, from acorns brought from Italy and Virginia, as well as great numbers of Cork-trees *. The latter were killed by the froſt; but what is become of the millions of Ilexes?

10. This is hardly a diſtinct ſpecies from the common Evergreen Oak [r]. It is a native of the South of France; and appears to have been cultivated here in 1730. It flowers in june [s].

11. This tree is allied to the Ilex; but the leaves are tomentoſe and white underneath, and the acorn is almoſt twice as long, with a ſweet pleaſant taſte; it differs alſo in height and habit from the Ilex, and from the Cork-tree eſpecially in not having a fungoſe bark. It varies by ſoil and age: in ſome trees the leaves being ſmall and orbicular; in others elliptic; in others again lanceolate and acute. It ſeems to be the ſame with Ilex major of Cluſius. (hiſt. 22.)

Native of Barbary, about Algier, Belide, Maſcar, Themſen, &c. and of Spain, if it be Cluſius's tree. The acorns are eaten both raw and roaſted. The wood being compact and very hard is uſed for many purpoſes.

This very uſeful tree, according to Monſ. Desfontaines, was not unknown to the ancients: for Pliny ſays—"glandes opes eſſe nunc quoque multarum "gentium etiam pace gaudentium conſtat, nec non & "inopia frugum arefactis molitur farina, ſpiſſaturque "in panis uſum." *L.* 16. *c.* 5 [t].

12. This is a large tree, with aſcending branches. The wood is very hard, heavy, and brown. Leaves ſomewhat acuminate, ſmooth, hard, alternate, petioled. Both male and female flowers are ſeſſile, on long, linear, terminating aments: the former have five ſtamens; the latter three ſimple ſeſſile ſtigmas. Fruit ſomewhat woody, turbinate, truncate, three-celled, one-ſeeded, covered up to the ſhoulders with a thick rough cup, regularly marked with polyhedrous ſegments.—Native of high woods both in China and Cochinchina.

13. This alſo is a high tree with aſcending branches. Leaves acuminate, ſmooth on both ſides, petioled, ſcattered. Male flowers on linear aments, heaped, erect, terminating: females on the ſame ament, but lower and peduncled. Fruit oblong-ovate, acuminate, ſmooth, rufous; with the cup permanent, hollow within like a diſh, engraved on the outſide with five parallel circles.—Native of high woods in Cochinchina.

Though this ſpecies ſeems to reſemble Q. molucca in the leaves, yet it is very different in the curvature of them, and in the cup.

Both ſpecies, as well as the common Ilex, afford excellent timber for ſhip-building, and all domeſtic and rural purpoſes, but Q. *cornea* is ſuperior to the others for bearing great weights [u].]

14. Of the Cork Tree there are two or three varieties; one with a broad leaf, a ſecond with a narrow leaf, both evergreen; and one or two which caſt their leaves in autumn; but the broad-leaved evergreen is the moſt common. The leaves of this are entire, about two inches long, and an inch and quarter broad, with a little down on their under ſides, on very ſhort foot-ſtalks: theſe leaves continue green through the winter till the middle of may; when they generally fall off juſt before the new leaves come out; ſo that the trees are often almoſt bare for a ſhort time. The acorns are very like thoſe of the common Oak.

The exterior bark is the cork, which is taken from the tree every eight or ten years; but there is an interior bark which nouriſhes them, ſo that ſtripping off the outer bark is ſo far from injuring the trees, that it is neceſſary to continue them; for when the bark is not taken off, they ſeldom laſt longer than fifty or ſixty years in health; whereas trees which are barked every eight or ten years, will live 150 years or more. The bark of a young tree is porous and good for little; however it is neceſſary to take it off when the trees are twelve or fifteen years old, for without this the bark will never be good: after eight or ten years, the bark will be fit to take off again; but this ſecond peeling is of little uſe: at the third peeling the bark will be in perfection, and will continue ſo for 150 years, for the beſt cork is taken from old trees. The time for ſtripping the bark is in july, when the ſecond ſap flows plentifully: the operation is performed with an inſtrument like that which is uſed for diſbarking the Oak.

[Native of the South of Europe, Barbary, &c. Pliny ſays that there were no Cork trees in France or Italy in his time. At preſent there are conſiderable woods of them in the South of France, between Rome and Naples, between Piſa and Leghorn, where all the underwood is Myrtle, &c. It was cultivated here in 1699 by the Dutcheſs of Beaufort [w]. The tree which I remember to have ſeen in the botanic garden at Cheſſea, which was killed in the ſevere winter of 1739-40, muſt at leaſt have been of that age, if not older.

The uſes of Cork, ſays Mr. Evelyn, are well known amongſt us both at ſea and land, for its reſiſting both water and air: the fiſhermen who deal in nets, and all who deal with liquors, cannot be without it. Antient perſons prefer it before leather for the ſoles of their ſhoes, being light, dry and reſiſting moiſture; whence the Germans name it *Pantoffel-holtz* or Slipper-wood; but it was firſt applied to that purpoſe by the Grecian ladies, whence they were called light-footed: from them it is likely the Venetian dames took it up for their monſtrous choppines; affecting or uſurping an artificial eminency above men, which nature has denied them. The poor people in Spain lay broad planks of it by their bed-ſide to tread on; as great perſons uſe Turky and Perſian carpets, to defend them from the floor; and ſometimes they line the walls, and inſide of their houſes built of ſtone, with this bark, which renders them very warm, and corrects the moiſture of the air. Alſo they employ it for bee-hives [x]. For this laſt purpoſe they roll the bark of young trees and of the branches into a cylinder, in Barbary, where this tree abounds [y].

Desfontaines has a ſpecies which he names Q. Pſeudo-

* Improvements, p. 47. ed. 1719. Huſb. and Gard. vol. 3. 2. 66. and 3. 161.
[r] Scopoli. [s] Hort. kew. from hort. angl. 41. Ilex 3. [t] Desfontaines.
[u] Loureiro. [w] Hort. kew. [x] Sylva, b. 2. ch. 5. [y] Desfontaines.

Suber,

6@& ' 5 0 8' 39 ' =* : - 2' *' 56 - 205&' @* G ' @63"F - ' *'
1&2 &&' 3=*-' - '3=&' 3 6&' 6@& ' =&' '06 - 2& ' @ * - ;=&1'
* &' 30 8 &- 305&' =0* '' * - 1' 53 *3&1 ' 3 46 &9' 6@6 *3&'
8 &8 @ * - *;&0 69 ' 1&; 160 69 ' &* :&9' 1&; 160 69 ' 0 : *3&'"
0@ 0 - 2 ' 5 8 00 3=' *@0 :&' 46@&5&&- 3' 6 - 1& - &*3=' * =*"
;0 06 ;1 ' *;6 3&' 5& *3&1 3=&' 5& *36 &9' 50 8 &>=*3 &H
8 0 3&' 0 - 2& ' 0 ' 5=0 3& '* ; ;0 1 - 2' 30 '3=&' *2&' 05' 3=& 3 &&'
0 ' 1 &' 50 ' 6 3' 0 - ' *' =0 3' 4&1 6 - ; &' 64' &;= '"
- *3&' > 3=' 5;* &9' 00 5 =' *3' 3=&' 3 4 ' 6 3' 0@ 0 - 2 ' 0 : *3&'
05' 3=&' 5* 8 &' 5) &' *9 -' 3=&' &?' &*: &9' -' '06 - 2&*
3 &&9' 1&&4 '' - 6*3&' *- 1' 5& *3&1 ' -' 0 1&' 0 - &9' D 2=3 "
5& *3&' =&' 5 0 > & 9' ;0 8 &' 06 3' &* "' -' 4 - 2 ['
06 - 1' *@06 3' & 8 5 ; -]
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5 - 2' *@0 : &' 3 > & : &' 0 ' 506 3&&- ' 5&&3' = 2 - ' J* @0 6 3' > 0 '
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0 - ' & : & '' 5 1&' 50' *9 30' 50 8' *' @65='' = 6@' &*: &9'
* 8 &1 ' > 3=' 4 ;G &9' G&' 3=0 &' 05' 3=&' 0 ' ' ;0 - 9'
5 8 * ; ' 3=*-' 3=05&' 05' 3=&' ;0 8 8 0 - ' *G ' ^ =&' &*: &9'
&5& 8 @G' 3=05&' 05' 3=&' &?* @63 3=&'' * &' &59' 3= - - & '
*- 1' 2 &&- ' 0 - '@0 3=' 5 1&9'
*3 ' &' 05' 3=&' 063=' 05' 6 04&' 3=&' &: *- 3 ' (* H
@* ' ' W ; ' ' 6 3 : *3&1' -' /QCL ' @'' ' * 8 &9' 63=& H
*- 1 ' 3' 5 0 > & 9' -' 8 *'
0 8 ' 3=9' 54&; &9' 3=&*' ;0 & '3=&' & 8 &9' 0 ' ;* &3'
* - ' *' 33' &' &1' 2* ; ;*5 0 - &1' @'' 3=&' 4 - Q36 ;' 05'
- ' - D& 1 3 ; &1' 0 ; ;6 9' ; 9 [3=' 3=9'' 3=&' *- ; &- 39'
65&1' 30' 1 '&' ; 03=' 05' *' @&*63 56 ' ;0 06 ' ;* &1' & '
0 ' ' & @& - 2' 1 55& &- 3' 5 0 8' 3=&' ' 0 5' 3=&'
=;&- ; * - 9' 0@3* - &1' 5 0 8 ' 3=&' 5=& "5 5=' ;* &1' 1 >'
-' ;06 5&' 05' 3 8 &' 3=&' 6 &?' > *9 - &2G53 ; 1 ' *- 1' 3=&'
& 8 &9' > *9' -3 016 ; &1 ' = 9' 56440 3&1' 39' &463*H
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2 *: &' 4 *; &' 30' 3=&' ' :' *-' - 5&53 506 - 1' - ' 3=&'
&? ; *- ' > 00 19 ' 640 - ' 3=&' * `569 '
; ;0 1 - 2' 30' (& 0 - ' *- 1' *6 > 0 5 ' 3=&' & 8 &9' 9
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1 03=' &1
=&' 50 0 > - 2' *; ;06 - 3' 05' 1 &' & 8 &9' 9' 2 :&- ' @''
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%6& ;69' ;0 ;; 5& *' 65&0F*' -' 4*- 5=' 2 0 > 9' *@06 3'
;*- 3' 5 0 8' 3 > &' - ;=&9' 30' 3 > 0' 5&&3' -' =& 2=3'
=&' ' B # ' *4 4&*' 0 - ' 3=&' 53& 8 9' 0 ' 5 8 * '
@ *- ;=&9 ' 50 8 ;' - &*' 3=&' @0 33 0 8 ' @63' 8 05 3 '' 0 - ' 3=&'
64 4&*' @ *- ;=&9 ' '&3' * >*' 9' 4 03&1 &1' @''3=&' &*: &9'
- 1' 5 ?&1' '3=&' 53& 8 @ ''' 2 6&' &5& 8 @ - 2' 3= - ' >= 3&'
&*3=& ' 4 &*1' 0 : &' 3=&' 53& 8 ' * - 1' ; 0 : & - 2' G&' 5 3* -
; 64' 05' 3=&' *; 0 - ' *' ; 2 8 &- 3' 05 3=&' 2 * - *' &' *2H
2 63 - *3 - 2' ;0*3 8 *'' @&' 3 *; &1' 3= 062=' *' 5 8' 0 - &' 6 2=3=' 30'
- 30' 3=&' 2 * - *' 5 0 8' >=& - ; &' 3 4 0 ; &&19 ' *- 1' >=& &' 3
4 &*19' G&' 3=&' 4 *; &- 3* ' 0 - '3=&' - 3& - *' 56 5*; &
=&' 2 * - *' * &' 05' : * 06 9' 5) &9' 5 0 8' 0 - &' & 2=3=' 30'
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*- 1' ; 0 : & &1' > 3=' *' >= 3&' 40 > 1& ' > = ; =' & - 2' 6@@&1'
05 5' 3=&' 56 5*; &' *44&* 9' &1' 5 8 00 3=' *- 1' 40 5=&1'
- ' 3=&' * 8 &' 53& 8' 3=&' 2 * - *' 8 *'' @&' 0@5& : &1' - ' 5& : ; "
* ' 53*2 &9 [*9' - ' 3062=' 8 & 8 @ * - &9' 5 &1' > 3=' *' &1'
F6 ; &' &5& 8 @ - 2' @ 00 1' @63' 0 - ' 4*4&' &*: - 2' - *' 53* - '
*9' @ 2=3' *- 1' @&* 63 56 ' *9' 3=&' @& 3' ; * 8 - &' - ' 3=&'
5&; 0 - 1' 53*2&' 6 - 1&' 3=&' 5 53' ; 0*3' 0 ' 4& ; &' 9' *' 3= - '
3062=' 8 & 8 @ * - &' - ; 05 - 2' 3=&' &229' - 0 > ' 8 05 3' 8 H
- 63&' * - 1' 5 ; * ; & '' 30' @&' 1 53 - 26 =&1 ' > 3=06 3' 3=& *5"
5 - ;&' 05' *' 2 *59 ' (&3 > &&- ' 3=9' 8 & 8 @ * - &' * - 1' 3=&
4& ; &' 9 3=&' 5* 8 &' &1' <60 ' @63' ;59' -' <6* - 3 3 ' '
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@ * - &' @'' > =*3' 5& 8 9' 30' @&' 3=&' : 5&& *' * - 1' @ 00 1"
: ; D5& 9 ' @63' - &* ' 3=&' =0 &' 3=&5&' 3 > 0' ;0*39' *1=& &
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;' - 3& 0 ' 8 & 8 @ * - &' 9' 3= - ' > = 3&' * - 1' 3062='
> 3=' *' 6 - * ' &436 - ' 50 8 - 2' 3=&' 0 : * ' ' > = ; =' 3' 5 53
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& - * 2&9' 3 ' - ' 3=&' 3= 1' 53 * 2&' 3' 0 ; ;64 &9' 3=&' > 0 &
54 *; &' > =& - ' 3=&' 1 - 53 6 - 2' F6 ; &' 1 5 * 44&* 9 ' * - 1' 0 - '
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8 &- 3' 5 0 8' 3=&' 4 * - 3' @ * ' > = ; =' 3' 9' 5 ?&1 ' * - 1' 5 0 8'
39' 40 5 ; 0 - '3' 5&&8 9' 3=*3' 3=&' 33' &' * - 8 * ' ; =00 5&9' 3=&
F' & ' > = ; =' - ' 39' 4 ; G '' &*5 &5&8 @ &9'
\ '' 0 - '' 50 ' 3=&' * G&' 05' 5=; 3& '' * - 1' 4 03&5@ 0 '
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0 8 \Y4 5' 3=&' 2 * - *' @& - 2' 43 3' - 30' *' ; 055&&"; 64' 0 - '
3=&' L/53' ; 8 *'' 0 - ' 6 - &' 3=&' / , 3=' * 8 6 3 361&' K D * - '"
8 * ; 6 *' > & ' 1 5&0 : &' 05' *' @ 2=3 &1' ; 0 06 ' &?H
; &&1 - 2 '' 8 - 63&' 6 - - - 2' * @063 3=&' 164' > 3=' *530 - '"
' *4 1 3' ' @63' "5 ; ' 5=0 ;' - ; ; : * 9' 0 8 &' 2 * - *'
@& - 2' 463' - 30' *' 5 - 65 "@0?' > & &' 50 203&* *3' 3=&' 1 5'
3* - ; &' 05' *' 5&>' > && G 9 ' 30 4' > *9 5 06 - 1' ; 0 : & &1' - H
3& - * '' > 3=' 1&>' * 1' &*' 8 6 3 361&' 05' > - 2&1' - 5&539 '
* ' 1&*1 ' *1=& - 2' 30' 3
(; 5 1 ; 9' 3=&' G& 8 &9' 3=& &' * &' 8 * - ' * 2&' &1' &?'"
; &5 ; &- ; &9' 0 - '3=&' % 6 ' ; 0 ; ; 5& *' 5& 8 &' 50 8 &1' 0 - ' 3=&
&*5' 03=& 9' 0 - '3=&' ; 0 8 8 0 - ' 4&1 6 - ; &' 05' 3=&' * 8 &- 3*H
; &06 9' 5 0 > & 9' =&5&' 8 0 @ 1' 36 - > F6 9' =*: &' 8 * - '
4& 50 *3 0 - 9' ; 0 8 8 6 - ; *3 - 2' > 3=' 33' & ; & 9 ' > ;=
; 0 F3* - ' &*; =' *' 5 8 * ' > = 3&' 2 6 @' =&' ; & ' 9 50 8 &1'
@''*' 53 0 - 2' 8 & 8 @ * - &' @63' 3=&' 56@53* - ; &' 05' 3=&' 36H
8 0 ' 9' 5 46 - 2' ' Y
G 9 50 - ; * - ;9' =*9' *' 54&; &9' > = ; =' =&' - * 8 &9 9 '
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0 ' & 43 ; ' = - - 2' 2 1 ' 5 8 00 3=' 0 - ' ; & '' =0 3' 4&H
3 0 &9' - 2=3 ''5& *3' 3=&' &12&' > 3=' 54 - 6 05&' 5& H
*36 &9' 6 3' 5 ; 5 &' 0 ' 0 - ' =0 3' 4&16 - ; &9' * '7'
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* - ' - ; =' * - 1' =* 5' @ 0 * 1 ' &- 3 &' 05' *' 1 * G' 2 &&- ' 3= ; G'
; 0 - 5 53&- ; &' * - 1' 4 * ; &1' 0 - ' =0 3' 5 00 3 "53 * G9 ' ;0 - 9'
5 8 * ' 0@ 0 - 2 ' > 3= =0 3' ; 64 9' F 3=&' * ' & : & '' 5 > &&3'
* - 1' * &' &*3&- ' @''3=&' - 1 * - 9 ' > =0' * ''3=& 8 ' 64' - ' 53 0 ;'
50 ' > - 3& * 3=&'' * 50' 1 * > ' * : ''5 > &&3' 0 '5 0 8' 3=& 8 '
33 &' - 5& 0 ' 30' 3=* 3' 05' 5 > &&3' 8 0 - 19
^ 3' > * 9' ; 6 3 : *3&1' @'' ' &' - ' /ELPG ' - - &6 9'
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@6 ' 3= 9' 8 * '' @&' 0 ; ; *5 0 - &1' @'' 3=&' 50 ' 50 ' 3=&' * 2&53
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- 03' 05' *' : & ''5 - &' 2 * - ' @63' 9' : & ''5 ; : ; &* @ &' A 3=&'
@* G' 9' 2 * ''* - 1' 5 ; ' A 3=&' &*: &9 * &' 5 : &' 0 ' 5 7' - ; =&9
0 - 2 * - 1' 3 > 0' - ; =&9 * ; ' * 0 * 1 ' - ' =* 5' @ 0 * 1 ' - 3=&' 8 11 &'
- 1& - 3&1' 0 - '3=&' &128&' > 3=' 8 * - ' 3 * - 5 : & 5&' : & - 9' 6 - H
- ' - 2' 5 0 8' 3=&' 8 1 @ 30' 3=&' @ 0 1& 9 4 3=&* ' &' 05' *
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/C ' =&' *3&' * G' 9' ; 0 - 506 - 1&1' @'' - - &6 . '
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1 * 3&' =&' &*: &9 ' * ' 8 6 ; = ' @63' * ' * 44 0 * ; =' 3 ;'
> 12&" =* 4&1 ' * 9' 8 * '' @&' 5&&- ' - ' 3=& 506 ' : * &3 &9'
& - 6 8 & * 3&1 ' * @0 : &' ' &' ; 6 3 : * 3&1 ' 3' - ' / E + C &'
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4 * 39' 05' 0 3=' 8 & ; * ' > =& &' ' - &: &' * 33 * - 9' 30' *
* 2&' 5) &' * - 1' 3=& > 001' 9' 05' 33 &' ; * 6&' =&' @ * G'
9' 05' *' 1 * G' @ 0 * 1 ' - ' ; 0 6 ' =&' &*: &9' * ; ' : & ''
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- * 0 > A' 3=&'' * &' 5 8 00 3=' 05' *' 6 ; 1' 2 &&- ' * - 1' =* : &

' * 3' 9' - 30' 4 * - ' ' , K ' f' 0 3' G & > '
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f' 1& 8

ſhort foot-ſtalks. The acorns are ſmaller than thoſe of the common Oak, and have ſhort cups.

[Mr. Bartram mentions ſome gigantic black Oaks in North America, many of which meaſured eight, nine, ten, and eleven feet in diameter five feet above the ground, and aſcending perfectly ſtraight with a gradual taper, forty or fifty feet to the limbs[x]. The above deſcription therefore of Miller's cannot belong to theſe black Oaks of Bartram's, which he names Q. tinctoria, the bark affording a valuable yellow dye; and ſays they are called black Oaks in Pennſylvania, New Jerſey, New York and New England. Miller's deſcription of the leaves agrees rather with the Water Oak.—According to the Kew catalogue, he cultivated the Black Oak in 1739.]

20. This arrives at a large ſize in North America, where it grows naturally. The bark is ſmooth, of a grayiſh colour, but that of the younger branches is darker. Leaves ſix inches long, two inches and a half broad in the middle, obtuſely ſinuate, each ſinus ending in a briſtly point, bright green, ſtanding upon ſhort foot-ſtalks: the leaves continue their verdure very late in autumn; ſo that unleſs hard froſt comes on early, they do not fall till near Chriſtmas, and do not even change their colour much ſooner. Acorns a little longer than thoſe of the common Oak, but not ſo thick.

[There are ſeveral varieties of the Red Oak. It was cultivated in 1691, by Biſhop Compton at Fulham[y].

21. This, which has been confounded with the preceding, was introduced in 1763, by Mr. Murdock Middleton[z].]

22. The wood of the White Oak is eſteemed preferable in America to any of their other ſorts for building, being much the moſt durable. The bark is grayiſh; the leaves are light green, ſix or ſeven inches long, and four broad; they are regularly cut almoſt to the midrib, and ſtand on ſhort foot-ſtalks. The acorns greatly reſemble thoſe of the common Oak. [It was cultivated here in 1724[a].]

23. The leaves of the Eſculus or Italian Oak are ſmooth and deeply ſinuated; ſome of the ſinuſes are obtuſe, and others end in acute points; they are on very ſhort foot-ſtalks: the branches are covered with a purpliſh bark when young: the acorns are long and ſlender; the cups rough and a little prickly, fitting cloſe to the branches. Theſe acorns are ſweet, and frequently eaten by the poor in the South of France: in times of ſcarcity they grind them and make bread with the flour. [From this eſculent quality of the fruit, this tree was named by the Latins *Eſculus*. It is probable that the Φηγος of the Greeks is the ſame tree: but the *Fagus* of the Latins is the Beech. Profeſſor John Martyn is of opinion that the Eſculus is our ſeſſile-fruited Oak; this variety having a broad, dark green, firm leaf, not ſo much ſinuated about the edges as that of our firſt variety, agreeing better with the "nemorum Jovi quæ maxima frondet" of Virgil. And it is remarkable that the very expreſſion—

"——Quantum vertice ad auras
"Ætherias, tantum radice ad Tartara tendit,"

which the Poet uſes of the Eſculus in the Georgics, he applies to the Quercus in the fourth Æneid.

This ſpecies is a native of the South of Europe; was cultivated in 1739 by Mr. Miller, and flowers in may[b].

The Romans made their civic crowns, firſt of the Ilex, but afterwards of the Eſculus. "Civica iligno "prima fuit, poſtea magis placuit ex Eſculo Jovi "ſacra[c]."

The Eſculus alſo furniſhed a wreath of honour in the games.

"His juvenum quicunque manu, pedibuſve, rotave
"Vicerat, *ſcalea* capiebat frondis honorem[d]."

24. The Common Oak, as is well known, attains a very great ſize, but ſlowly. In woods it riſes to a very conſiderable height, but ſingly it is rather a ſpreading tree, ſending off horizontally immenſe branches, which divide and ſubdivide very much. The trunk is covered with a very rugged brown bark. Leaves alternate, oblong, blunt and broader towards the end, the edges deeply ſinuate, forming obtuſe or rounded lobes, dark green and ſhining above, paler underneath and finely netted, five inches or more in length, two inches and a half in breadth: they are deciduous, but often remain on the tree till the new buds are ready to burſt. The male flowers come out on aments in bundles, from the buds, alternately and ſingly from the axils of the leaves; they are pendulous, cylindrical, a little above three inches long, and two lines wide, conſiſting of yellow, ſhort, roundiſh, ſcattered bundles of anthers, the upper ones nearer, the lower farther diſtant from each other: a ſhort membranaceous toothletted (ſix to nine-toothed) calyx collects the globules of (ſix to nine) anthers. Above the males the aments of female flowers come out, each compoſed of three or four ſmall reddiſh florets placed alternately, having at the baſe little reddiſh ſcales, (involucre) which afterwards become the cup and form the rugged external ſurface of it: there are three reddiſh ſtyles, connected at the baſe, ſtanding out beyond the ſcales, and three ſhort, broadiſh, reddiſh, reflex ſtigmas[e]. According to Gærtner, one ſhort pyramidal ſtyle, with three ſtigmas. Acorn ovate-cylindrical, coriaceous, very ſmooth except at the baſe, where it is as if raſped, one-celled, valveleſs, received at bottom in a hemiſpherical cup, which is tubercled on the outſide. The germ is three-celled, with two embryos in each cell, faſtened to the baſe; but the fruit when ripe has only one cell, and commonly one ſeed, ſometimes two, very ſeldom three, correſponding exactly with the cavity of the nut, of a ferruginous colour[f].

Native of Europe; flowering in april. The fruit ripens in october.

Varieties.

Mr. Miller has made four ſpecies out of this:] 1. Q. Robur, the common Oak. 2. Q. fœmina, with the acorn on long peduncles. 3. Q. ſempervirens, or broad-leaved evergreen Oak. 4. Q. humilis, or dwarf Oak.

The firſt is the moſt common Oak of this country. The leaves have pretty long foot-ſtalks, and the acorns have none, but ſit cloſe to the branches.

The ſecond is not ſo common as the firſt, but in the wilds of Kent and Suſſex there are many large trees of this kind. The leaves are not ſo deeply ſinuated, nor are they ſo irregular, but the indentures are oppoſite; they have ſcarce any foot-ſtalks but ſit cloſe to the branches: but the acorns ſtand upon very long foot-ſtalks. The timber of this ſort is accounted better than that of the firſt, and the trees when growing have a better appearance. Theſe two have been generally regarded as ſeminal varieties, but having ſeen ſome young trees with acorns on them, which were raiſed from acorns of this ſecond ſort, and finding they retain their difference, I am inclined to believe they are different.

The third grows upon the Apennines and alſo in Suabia and Portugal. The leaves are broader and not ſo deeply ſinuated as thoſe of the common Oak; they are of a lighter green on their upper ſide, and pale on their under; they have very ſhort foot-ſtalks, and their points are obtuſe; the acorns have very long foot-ſtalks, which frequently ſuſtain three or four in a cluſter.

The fourth grows in the South of France and Italy; this is a low buſhy Oak, which riſes but ſix or ſeven feet high, ſending out many ſlender branches the whole length. Leaves oblong and obtuſely indented, about three inches long, and an inch and half broad, ſtanding upon ſlender footſtalks: acorns ſmall, growing in cluſters. The galls grow three or four together.

[Mr. Miller is miſtaken in affirming that the tree which bears ſeſſile acorns is the moſt common Oak of this country; and in referring us only to the wilds

[x] Travels, p. 37. [y] Hort. kew. from Plukenet.
[z] Idem. [a] Idem. from Forſter's catalogue. [b] Idem.
[c] Pliny. [d] Ovid. metam. 1. f. 9.
[e] Pollich. [f] Gærtner.

05' &-3'*-1' 655&?' 50 '3=&'03=& ' =9'8 53*G&' =*9 @&&-' ;04 &1' @'' R ' 6-3& ' -' = 9'&1 3 0-'05' ; ; '- ' 5 :*' 9' 3= 1'50 3' 9' 0- ''*' :* &3''05'= 9'5&;0-1' *-1' 3' 9' -03'6-656*' 50 ' 50 8&' *G9' 30' &3* -'3=&' &*:&9' 3 ' 3=&' 54 -2' 9 506 3=' 9' 4 0@*@ '' *' : *H &3'' * 50' 05' 3=&' 5&;0-1' 0> -2' 30' 50 '*-1' 5 36*3 0-

3' 9' >& ' 0@5& :&1 '@'' 0-5 ' R6' *8 & ' 3=*3 *G7 -' 5@ &39' @& 62' 4 04*2*3&1' 5 0 8' 3=&*;0-' 3=& &' *-' @' 8 *-'' :* &3 &9' 3=*3' 3' 9 1 55 ;6 3' 30' 5 -1' 3>0' ;5; 8'' @ -2' &*;=' 03=& ' -' &:&'' &F &13' =9' 9 -' 2 &*' 8 &*56 &' 3 6&' > 3=' &4 &53' 30' 33 &' :* *3 0-9' -' 3 -' =*4&' *-1' 5)&' @03=' 05' 3=&' &*:&9' *-1' 5 6 3' *-1' 5@ 8' 03=& ' 56@0 1 -*3&' ; ;6 8 53*-:;9' =& &' * &' * 50' 8 *8' :* &3 &9' 05' *G' >=;=' 1&* & 9' -' 3 -@&' *-1' >001 H 8 &-' 1 53 -26 5=' @'' 3=& ' 65&' <6* 3 &@' *-1' *:; 1&-39' *-1' 30' >=;=' 3=&'' 2 :&' 1 55& &-3 -*8 &9=' @6'3 =&5&' @&H -2' 8 &, &'' 0;* ' *-1' -03' 506-1&1' 0-' 4& 8 *-&-3 ;=*'' *1 & 9' 3' 9 1 55 ;6 3' 30' *5&& 3* -'3=&8

R6' *8 & ' 50 0> -2' 06 -&50 3' 5&39' 10>-' 3=& 54&; &9' 0 ' :* &3 &9' >=;=' * &' 30' @&' 506-1' -' 3=&' 4 -*? 05' *4*' (*6= -' 30' 3=&' -6 8 @&' 05' 506 3&&-' *-1' *119' 50 8 &' 03=& 9' 5 0 8' 06 -&50 3!9' ;0 0 * '' W; ' 8 *G -2' 3>&-3'"3= &&' -'3=&' >=0 &'7 @6'3' 06'3' 05' 3=&5&' 5&:&-' * &' -*3 :&9' 05' 8 &;*' 0 '3=&' &:*-3' *-1' * & 4 0@*@ '' 1 53 -53' 54&; &9' (0& =**:&' 2 :&9' 0-'' 5 :& 50 39' -' =9 ;*3* 026&' 05' 3=&' &'1&-' 2* 1&-' @6'3' 9 5* 1' 3=*3' =&' ;6 3 :*3&1' 3=& &' -0' 5&>&' 3=*-' 5&:&-3'' 54&; &9' 5' 50' =&' 8 65'3' =*:&' =*1' @03=' 8 *-'' 1 5 -53' 05 9' 05' *G' *-1' 8 *-'' :* &3 &9' 05' 3=&' ;0 8 8 0-' 0-&

0-5' 062& 06?' -' *-' -2&- 06'9' &5 *'' 0-' 3=9 6@F&1 7' 4 -3&1' -' 3=&' &8 0 9' 05' 3=&' &-;=' ;*H 1&8 '' 50' /EC/' &8 * G9' 3=*3' *G9' ;0 8 0-' 6 &1' 50' 3 8 @&' 8 *'' @&' 3=6 9' 1 53 -26 =&1 & ' - 0' % '# 8 ! '% & '% ' (' ,' ;- #' ! ' & ' ' (' L' - % '# ' ' 0' (' ;*&1' -' &-;=' ' ' 5 0 8' 3=& 1* G' ;0 06' 05' 3=&' >001 *-1' ' ' 5 0 8' 3=& >=3&' 10>-' 0-' 3=&' 6-1& '56 5*;&' 05' 3=&' &*:&9' =9' =&' *55 8 9' 30' @&' 3=&' ;0 8 0-' *G' 05' -2 *-1' 3=& 3 6&' 2 '05' 3=&' *-;&-39' *-1' 3=&' 50 3' 3=*3' 9 3*G&-' @'' @6 1& 9' 50' =&53 G&

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=&' 5 26 &9' -' 0 1' *63=0 9' *' 5&& 8' 30' @& 0-2' 30' 06' 5 53' :* &3' ' 3=&' *;0 -9' @&-2' &: 1&-3 '' 4&16-;&1' *-1' 3=&'' 10' -03' -03 ;&' 3=&' 03=& ' 0=-' (*6= -1' 5' 3 -26 5=&1' 3=&' *G' > 3=' *;0 -9' 0-' 0-2' 4&16-;&9' 5 0 8' 3=*3' >=;=' @&*' 9' 3=& 8' 0-' 5=0 3' 0-&9F *-1' *'' >=0' 3 01' :& '' 8 6;=' -' = 9' 53&49' 3= -G9' 3=*3' 3=&5&*' &54&;5;* '' 1 55& &-3' @&;*65&' 3=&' *33&' =*9' 3=&' 5 6 3' -03' 8 & &'' 0-' 5=0 3' 4&10 5;&9' @6'3' > 3=' 3=&' ;64' &5 &' 0' *1=& -2' ;05;'30' 3=&' @ *-;=-' =&' 50 8 &' @ > 3=' 3=&' *;0 -9' 0-' 0-2' 4&16-;&9' =&' &2* 19' *9 3=&' ;0 8 80-' *G' 05' -2 *-1' *-1' >=&-' =&' > 3' =' 9' -3 0 G-0>-' *@06 3' &>@& '' @'' 3=&' -*8 &' 05' (*'' *GU' 3' =*9' @&&-' 0@5& :&1' 5 -;&' -' 0 >001' 6 &'' ' 622 &9' 1 5&0:& &1' 0-&' 0-' '*' : 20 06 9' 40 * 1' *3' &*53' 3>0' =6-1 &1' '&* 9 0 1' -' = 9' 4*110;G' *3' 0@=*8' -' 6 &'' *-1' ;06 1' -03' 5 -1' 0' =&*' 05' *-03=&' -' 3=&' -& 2=@06 H =001' 3' 0;;6 9' =0>&:&' -' 8 *-'' 0;=&' 4 *;&9' 3=062=' 3' 9' ;& 3* -'' 8 6;=' &53' ;0 8 80-' 3=*-' 3=& 53* G''5 6 3&1' *G' (&5 1&9' 3=&' 4 -; 4*' 1 5 & ;-;&9' 40 -3&1' 06 3' -' 3=&' 54;;5 ;'; =* *13& 9' 3=&' 5&55 &''5 6 3&1

0 ' *'' *G' =*9 3=& * &9 05' *' 1&&4& '2 &&-' -03' 5 0 1&&4 '' -1&-3&1' *9 -' 3=&' ;0 8 80-' 0-&' 3=&'' * 50' *4 H 4&*' *3& ' *-1' 5 &<6&-3'' &8 *-' 0-' 3=& &' * > -3& &' 3=&' 5 0>& 9' * 50' ;0 8 &' 06'3' *3& ' *-1' 05' ;06 5;' 3=&' *;0 -' 9' *3& ' 9' &' -' ; 653& 9' 5 0 -' 3=' &&' 0' 506 ' 30' 3>& :&' 2=&5003' 5*'9' ;=*3' 3' @&* 5 7 O' 5&:&-' *;0 -9' -*' ; 65'& ' 0-' :& '' 500 3' 50 03''53* G9 3=*3 3=&' &*-1' 9' 1 9' 1 : 1&1' 05' *' 5 8 &' *-1' 80' &' *6 &'' G&' J=&' 5=06 1' 6F:&' 5* 1' @*'' G&H' 3&?3& &' ;=*3' 3=&' 3 &&' ;5;5' 9' 80' &' =6 8 @ &' *-1' 1' &' 3 8 @&'

1&' *-1' = 2=& '';0 06 &1' R6' 0' *55 8' 9' 3=*3' 3=&' 3 8 @&' 9' &11 =' *-1' @ 33 &' >=& &*' 9 3=*3' 05' 3=&' 53* G''5 6 ;;1' *G' 9' >= 3 5 ' *-1' =* 1' 5' 3=9' 5 <6 1' 36 -' 06'3' 30' @&' 3=&' ;*5&' 3' @&=0:&9' 4 *-3& 9' 05' *G' 50' 3 8 @&' 30' *33&-1' 30' 3=&' 1 53 -;3 0-9' 2 :&-' *@0:&' *-1' 30' *:0 1' 2*3=& -2' *;0 -9' 50' 4 *-3 -2' 5 0 8' 56;=' 3 &&9' *9 =*:&' 3=&' &*:&9' 0' 5003'' 3* G9' >3=' 5& &' 5 6 39'

=6' >001' 05' 3=&' *G' >=&-' 05' *' 2001' 50 3' 9' >&' G-0>-' 30' @&' =* 1' 3062=' 30 & *@ '' 5 &?' @ &' *-1' -03' ;*5 '' 54 -;& -2' 53 0-2' >3=06'3' @& -2' 300' =&*:' '*-1' -03' ;*5 '' *1 8 33 -2' >*3& &' 50' 3=&5&' &?;& &-3' <6* 3 &9' 3' 9 4 &5& &1' @&50 &' *' 03=& ' 3 8 @&' 50' @6 1 -2' 5 49' 3' 9 *50 *1*43&1' 30' *-05' &:& *' 46 405;' 05' 3=&' ;* 4&-3& *-1' 3' >06 1' @&' 1 55 ;6 3' 30' &-6 8 & *3&' *' 3=&' 65&9' 30' >=;=' 3' 8*'' @&' *44 &1' =& &' 9' *' G-1' 05' 3' 5*'9' :& '-' 50' 3062=' *-1' ;0 8 4*5 ' 3=*3' 06 ' 5=*' 4&53' 300' 9' >' =*' 1 *' &-3&' 3' =062=' 50 8 &' 3 &&9' @&' =* 1& ' '&3' >&' 5 -1' 3=&8' 80 &' 5 *2 &' *-1' -03' 50' >& ' <6* 5 &1' 30' 56440 3' 2 &*?>& 2=39' -0 ' 9' 3=&' &' *-'' 3 8 @&' 80 &' *5 -2' >=;=' >*'' 50' &:&' 65&1

=*3' >=;=' 9' 3>-&1' *-1' *' 33 &' >&*3=&1' 9' @&53' 30' 56440 3' @6 3=&-9' 50' 40539' ;0 6 8-9' 56 8 8 &9' W; ' 50' * '>=;=' 06' -2 5=' *G' 9' 2 &*3'' 4 &5& *@ &' 30' 3=&' &-;=7 *-1' 3' 9 506-1' 3=*3' 3=&' 062=''2 * -&1' @01'' 05' *' 5 6@@&1' *G' 9' 5 33&53' 50' 3=&' ;* &' 05' *' ;'1& "8 ' *-1' 56;=' G&' &-2 -&9' *9 @&53' &-16 -2' 3=&' 6-<6 ;3-&5 9' 05' *' 40-1& 06 9' 0 -2' 530-&' 0' 5 -2 &9' 4* &9' *3=9' ;004& \9' >* &' ; *4"@0* 1' 50' >* -5&03' 8 6;=' &53&&8 &1' -5' 0 8 &' 3 8 &9&' 50' >=&& "54 0G&9' 4 -9' *-1' 4&2 9' 50' 3 53 -2' *G' 9' &?;& &-3' =&' G-033 &53' 9' 8 05 3' 4 04& ' 50' >*3& "> 0 G9' 4 &9' W; '@&;*65;' 3' >1 :&@&53' *-1' *53' 0-2 &53' 3=&' ;00G&1' '&3' 5 8' 50' G-&&"3 8 @&' -' 5 44 -2' 8 H >=&& 9' W; ' 044 ;&' *G' 8 *G&9' 3=&' @ &53' =0049' =&' 5 8 *&' 3 6-;=0-9' *-1' 54 *'' 8 *G&' @ &' @*:-&' *-1' ;0 * 9\' 40 &9' ;612& 9' *-1' >* G -2' 53 *559' 5' 3=& 00 39' >&&' 50 8 &' *8 *1&' =*53' 50 ' 1*22 &9' =*-2& 9' *-1' G-:&9' =*-1 &9' 50' 53*:&9' @0 7&9' 8 *3=& 8 *3 ;'* -53 6 8 &-39' W; ' W;

G' 5>"1653' 9' 3=&' 4 -;4*' -1 2&-06 9' :&2&3*@ &' 6501' -' 1' -2' 5653 *-7 *' 3=&' :* &3 &9' 05' 1 *@9' *-1' 1 55& &-3 5=*1;9' 05' @ 0>-'*& 8 *1& >3=' *G' 5*>"1653' :* 065'' 8 *-*2&1' *-1' ;08 406-1&1 [*G''*44 &9' * & G&>&' 65&1' -' 1' -2' *9 *' 50 @53 363&' 50' 2* @7 3=& @ *;G' 203' 5 08' 3=& 8 ' @'' 3=&' *11 3 0-' 05' ;044& *9' 9 80 &' @&*63 56' 3=*-' 3=*3 5 08' 2* 9' @63' -03 50 16 *@ &' =&' 2* 9' 640-' 3=&' &*:&9' *;' 0;;*5 0-&1' @'' *' 5 8 *' -5&53' ;* &1' ' *8 *' >=;=;=' 1&405 39' *-2' &22' -' 1 &' 56 @53*-;&' 05' 3=&' &*5' @'' 8 *G -2' *' 5 8 *' 4& 50H *3 0-' 0-' 3=&' 6-1& '56 5*;& [=&' @*G' 9' 6-:&5*' 65&1' 30' 3*-' &*3=& 7 *-' -5 65 0-' 05' 3' > 3=' *' 5 8 *' <6*-3 3'' 05' ;044& *9' 9' 65&1' @''3=& ;0 8 80-' 4&04 &' 30' 1' &' >00 &-' 05' *' 46 4 55' @ 6&H 3=&' ;0 06 ' 3=062=' -03' :& '' @ 2=3' 9' 16 *@ &' =&' =2=*-1& 9' -' ;03 *-1' 1' &' 3=&-' '*-' -' > 3=' 3' 05' *' @ 0>-' ;0 06 7' *' =& 15 8 *-' 3=&' &' >06 1' 3=-G'=*5& 5' *-1' =9' 5 0;G' 6-H 50 36-*3&' 5' =&=*1' -03' *' 53*55' 05' 3 [=&' &*>"1653' *-1' &:&-' 3=&' &*:&9' 8 *'' @&' 65&1' 50' 3*-' -2H @63' 3=&' *' &' 86;=' -5& 0' 30' 3=&' @' G' 50' 3=*3' 46 405&' &' &*:&9' *&:&' *' 56@F&1' 30' @&' ;0:&' &1' >3=' *5>&&3 :5& 1' F6 ;&' ;*&1' =0-&' "1&>' >=;=' @&&9' *-1' 03=&' -5&3539' *&:' *' 50-1' 05' 3=&' *-' 5&59' 5&&1' 640-' 3=&8' ' =&' &' *' 50-1' 05' 8 *-' -

Suppoſing Oak-bark to be ſold at five guineas a ton: in its marketable ſtate, it is by no means ſufficiently dry for preſervation; the tanners therefore are obliged to dry it more perfectly: they likewiſe get it cleaned from much extraneous matter at a conſiderable trouble and expenſe. The loſs of weight from theſe operations cannot be eſtimated at leſs than 20s. the ton. The ton of bark therefore ſtands the tanner in 6l. 5s.; for the ſake of eaſier calculation ſay 6l. The Rev. Mr. Swayne, of Pucklechurch, near Briſtol, had Oak-leaves collected for making hot-beds, at 3d. and 4d. the ſack of four buſhels; which, according to experiments made by him, are equal to thirty-two pounds of bark; which, at 6l. the ton, come to 1s. 8¾d. and a fraction. It follows then that the tanner might obtain as much aſtringent matter in leaves for 4d. as coſts him in bark five times that ſum: whether it would equally anſwer his purpoſe, remains to be proved. There would be much trouble and ſome expenſe in drying the leaves, and they would occupy much room. Perhaps for theſe reaſons, the moſt œconomical plan would be, to obtain a concentrated extract from them, on or near the place where they ſhould be collected, which might be conveyed and ſtored in caſks. This likewiſe remains as the ſubject of experiment; but before leaves can be legally uſed by the tanner, the act of parliament confining him to the uſe of Aſh and Oak bark muſt be repealed. This reſtriction was probably laid; not ſolely from the belief that thoſe ſubſtances were the moſt proper for tanning leather, but likewiſe to encourage the planting and nurturing of thoſe valuable timber trees. Be this as it may, at preſent it rather operates to their deſtruction, than preſervation or increaſe; ſince the high price which Oak-bark now bears, proves an irreſiſtible temptation with needy proprietors to cut down their Oaks before they arrive at a proper age for timber. Should Oak leaves ever be in much requeſt for tanning, this doubtleſs would prove an antidote to the rage of felling, and an effectual preſervative of timber; ſince no one ſurely would ever think of felling his Oaks prematurely, whilſt they yielded him an annual profit by ſtanding *.

Acorns were of conſiderable importance formerly, when a great proportion of this iſland was foreſt, for feeding ſwine. About the end of the ſeventh century King Ina, among the few laws which he gave to regulate the ſimple œconomy of our Saxon anceſtors, gave particular directions relating to fatting ſwine in woods, ſince his time called *pawnage* or *panuage*.

In a ſucceeding century, Elfhelmus reſerves the pannage of two hundred hogs for his lady, in part of her dowry.

Maſt is particularly mentioned about the middle of the eleventh century in a donation of Edward the Confeſſor.

It appears from Domeſday-Book, that in William the Conqueror's time, Oaks were ſtill of no farther conſequence than from the food they afforded to ſwine; for the value of the woods, in ſeveral counties, is aſcertained by the number of hogs they would fatten. The ſurvey was taken ſo accurately, that in ſome places woods are mentioned of one hog.

Swine fed in the woods furniſhed ſo conſiderable a part of the food of former ages, that a ſcarcity of maſt was one of the cauſes of the frequent famines that then happened. The author of *Chronicon Saxonicum*, after deſcribing the extraordinary famine and mortality of the year 1116, records particularly the failure of maſt in that year.

Our Norman line of Kings, in their rage for extending foreſts for the chace, took away the right of pawnage from thoſe on whoſe lands they had encroached: this was one of the grievances that King John was compelled to redreſs in the *Charta de Foreſt*.

In Strabo's time, Rome was chiefly ſupplied with hogs, which were fatted on maſt in the woods of Gaul. That author alſo ſays, that in the mountainous parts of Spain, the inhabitants ground their acorns into meal. Pliny, who deſcribes very minutely the different effects of the various ſorts of acorns in the fattening of ſwine, informs us, that in his time, acorns were brought to table in Spain, for the deſert. It is probable that they ſtill continue to be eaten by the common people of that country, for they are produced after the repaſt of the goat-herds of Cervantes, and Tereſa ſends the Ducheſs a preſent of the choiceſt ſhe could collect *. But we muſt not eſtimate the taſte of the peaſants in the ſouthern countries of Europe, by the quality of our acorns: for the fruit of our common Oak is probably leſs bitter in a warmer climate: and the acorns generally eaten there are from another ſpecies.

The aſtringent effects of the Oak were well known to the ancients, by whom different parts of the tree were uſed; but it is the bark which is now directed for medicinal uſe by our pharmacopœias.

Oak bark manifeſts to the taſte a ſtrong aſtringency, accompanied with a moderate bitterneſs, qualities which are extracted both by water and ſpirit. Like other aſtringents it has been recommended in agues, and for reſtraining hæmorrhages, alvine fluxes, and other immoderate evacuations. A decoction of it has likewiſe been advantageouſly employed as a gargle, and as a fomentation or lotion in procidentia recti et uteri. Dr. Cullen frequently employed the decoction with ſucceſs in ſlight tumefactions of the mucous membrane of the fauces, in prolapſus uvulæ, and cynanche tonſillaris, to which ſome perſons are liable upon the leaſt expoſure to cold: in many caſes this decoction, applied early, has appeared uſeful in preventing theſe diſorders. Dr. Cullen almoſt conſtantly added a portion of alum to theſe decoctions; but he did not find a ſolution of alum alone ſo effectual.

Some have ſuppoſed that this bark is not leſs efficacious than that of the Cinchona, eſpecially in the form of extract; but this opinion now obtains little credit; though there is no doubt that Oak bark will cure intermittents, both alone and joined with chamomile flowers.

Galls appear to be the moſt powerful of the vegetable aſtringents, ſtriking a deep black when mixed with a ſolution of green vitriol, and therefore preferred to every other ſubſtance for the purpoſe of making ink. As a medicine they are to be conſidered as applicable to the ſame purpoſes as Oak-bark, and by poſſeſſing a greater degree of aſtringent and ſyptic power, ſeem to have an advantage over it, and to be better ſuited for external uſe. Reduced to fine powder, and made into an ointment, they have been found of great ſervice in hæmorrhoidal affections. Their efficacy in intermittent fevers was tried by Monſ. Poupart, by order of the Academy of Sciences, and from his report it appears, that the Galls ſucceeded in many caſes; but that they failed in many others, which were afterwards cured by the Peruvian Bark.

Two ſorts of Galls are diſtinguiſhed in the ſhops; one ſaid to be brought from Aleppo, the other from the ſouthern parts of Europe. The former are generally of a blueiſh colour, or of a greyiſh, or black, verging to blueneſs, unequal and warty on the ſurface, hard to break, and of a cloſe compact texture: the others are of a light browniſh or whitiſh colour, ſmooth, round, eaſily broken, leſs compact, and of a much larger ſize. The two ſorts differ only in ſtrength, two of the blue Galls being ſuppoſed equivalent in this reſpect to three of the others *.

The Oak is remarkable for its ſlowneſs of growth, longevity and bulk.

It has been remarked that the trunk has attained to the ſize of twenty inches, and ſometimes not more than fourteen inches in diameter, in four-ſcore years. I have juſt meaſured an Oak in my poſſeſſion, which is nearly of that age, and is in circumference five feet three inches, at five feet above the ground. But ſize will depend much upon ſoil and ſituation.

The age of an Oak is commonly eſtimated at three

* Tranſact. Arts, vol. 10, for 1792. p. 153—165.

* Thomas White, Eſq. in Gent. Mag. vol. 55. for 1785. p. 111.
* Woodville.

hundred years. Tradition carries ſome trees which have eſcaped the axe to an antiquity much more remote. Mr. Gilpin ſpeaks of a few venerable Oaks in the New Foreſt, that chronicle on their furrowed trunks ages before the conqueſt[e]. Mr. Evelyn mentions three fine Oaks in Dennington-park, as an inſtance of the bulk and ſtature to which this tree may arrive within leſs than three hundred years. Sir Edward Harley relates, that he was aſſured by an inquiſition taken about three hundred years ſince, that a park of his, and ſome adjacent woods, had not then a tree capable to bear acorns; yet that very park he had ſeen full of great Oaks, and moſt of them in the extremeſt wane of decay. Mr. Evelyn informs us, that from three to four hundred rings were diſtinguiſhed in ſome trees cut down in the New Foreſt.

The ſame great planter ſets down the age for felling the Oak at between fifty and ſixty years growth[f]. This is when the trees in general are in the greateſt perfection. The Biſhop of Landaff mentions it as a general opinion, that it is more profitable to ſell Oak timber at this age, than to let it ſtand to eighty or one hundred; according to the price now paid for it, he believes the opinion to be founded in truth, and it is confirmed by Mr. Marſham's tables of the growth of trees in the Philoſophical Tranſactions for 1759. The learned Prelate lays down a general rule, that conſidering profit only, every tree of every kind ought to be cut down and ſold, when the annual increaſe in value, by its growth, is leſs than the annual intereſt of the money it would ſell for. From obſervation on Mr. Marſham's tables the Biſhop fixes upon 30s. as the value of trees which ſhould be cut down for mere profit, the proprietor being a loſer, if they are cut ſooner or later. Unleſs therefore the Navy-board would give 8l. or 9l. a load for timber trees containing one hundred cubic feet or upwards, inſtead of 4l. or 5l. it is every man's intereſt to cut down his trees before they attain that ſize, and conſequently little dependance can be placed on private property for a ſupply of naval timber[g].

Of the bulk, ſtature and extent of the Oak we have abundance of recorded inſtances. In Worksſop-park there was a tree ſpreading almoſt three thouſand yards ſquare, ſo that under the ſhade of it near a thouſand horſe might commodiouſly ſtand at once. Dr. Plot mentions an Oak at Narbury, of fifteen yards in girth, which being felled, two men at either ſide on horſeback could not ſee one another.

An Oak at Reedham in Norfolk in Sir Richard Berney's park, was valued at 40l. and 12l. the lopping wood.

Of the three Oaks, ſaid to be planted by Chaucer, in Dennington-park near Newbury, one called the King's Oak was fifty feet in height before any bough or knot appeared, and cut five feet ſquare at the but-end, all clear timber. The ſecond, called the Queen's, held forty feet excellent timber, ſtraight as an arrow in growth and grain, cutting four feet at the ſtub, and near a yard at the top: beſides a fork of almoſt ten feet clear timber above the ſhaft. The third, called Chaucer's Oak, though it were not of theſe dimenſions, yet was it a very goodly tree. The diameter of the Oak that afforded the beams of the Royal Sovereign was four feet nine inches, and yielded four ſquare beams of forty-four feet in length each. It grew near Framlingham in Suffolk.—Dr. Plot mentions an Oak between Nuneham Courtney and Clifton, ſpreading eighty-one feet, ſhading in circumference five hundred and ſixty yards of ground, under which two thouſand four hundred and twenty men may commodiouſly ſtand in ſhelter. And a bigger than this near the gate of the water-walk at Magdalen College, Oxford, the branches of which ſhoot ſixteen yards from the ſtem; likewiſe another at Ricot, extending its arms fifty-four feet, under which three hundred and four horſes or four thouſand three hundred and ſeventy-four men may ſufficiently ſtand[h].

Mr. Evelyn has given an account of many other large Oaks in Yorkſhire, Nottinghamſhire, &c. from Mr. Halton, auditor to the Duke of Norfolk.

In the St. James's Chronicle, n. 5038. it is ſaid that an Oak was felled a few days before at Morley in Cheſhire, which produced upwards of a thouſand meaſurable feet of timber. Its girt was fourteen yards, and one branch contained two hundred feet. Its exiſtence can be traced back for eight hundred years, and it was ſuppoſed to be the largeſt tree in England; as a proof of it; the trunk has been uſed ſome years for houſing cattle; and it is ſaid Edward the Black Prince once dined under it.

In Dodſley's Annual Regiſter for 1758, p. 116. mention is made of an Oak in Langley-wood, near Downton, Wilts, the property of the Biſhop of Saliſbury, ſuppoſed to be of near one thouſand years growth. It was ſix feet two inches in diameter, contained about ten tons of timber, and was ſold for 40l.

An Oak on Sir John Barnard's eſtate in Huntingdonſhire, contained ſeven hundred and fifty feet of timber, which at 2s. a foot was worth 75l.

The contents of an Oak felled at Withy-park, near Wenlock in Shropſhire in 1697 were as follows:

The ſpread from out bough to out bough was forty-eight yards. The trunk was nine feet in diameter, beſides the bark. It contained twenty-four cords of yard wood, worth 9l. 10s. and eleven cords and a half of four feet wood worth 12s. per cord: two hundred and fifty-two park pales, ſix feet long: ſix tons and a half of timber in the boughs: one load of cooper's ware: twenty-eight tons of timber in the body. All this beſides faggots. The ſtem was ſo wide, that two men might threſh on it without ſtriking each other. Several boughs dropped off in Mr. Weld's father's and grandfather's times.

In Holt-foreſt in Hampſhire, near Bentley, not far from Farnham in Surrey, an Oak in 1759 girted thirty-four feet, at ſeven feet from the ground. In 1778 this tree was increaſed only half an inch.

In Worksſop-park were three Oaks: the firſt of which girted thirty feet: the ſecond ſpread one hundred and eighty feet or 2827 ſquare yards, which is above half an acre: the third had forty feet of timber in it, two feet ſquare at the top end, and contained ſix tons and a quarter of timber.

Shire Oak, near Worksſop-park, is ſo named becauſe it drops into three ſhires, viz. York, Nottingham and Derby: the ſpread ninety feet, or 707 ſquare yards.

Lady Oak was five feet ſquare for forty feet in length; it had twenty tons of timber, and the boughs yielded twenty-five cords of fuel wood.

An Oak at Cowthorpe, near Wetherby in Yorkſhire, within three feet of the ſurface meaſures ſixteen yards in girt, and cloſe to the ground twenty-ſix yards: its height in 1776, was about eighty-five feet; and its principal bough extended ſixteen yards. It is now thin of leaves, and in a ſtate of decay. It is figured in the ſecond volume of Dr. Hunter's edition of Evelyn's Silva, at p. 197. Mr. Marſham ſays, that in 1768, at four feet it girted forty-ſix feet ſix inches: at five feet thirty-ſix feet ſix inches: and at ſix feet thirty-two feet one inch.

Mr. Marſhall gives the following account of the Boddington Oak, growing in the old orchard ground belonging to Boddington Manor farm, near the turnpike road between Cheltenham and Tewkſbury in the vale of Gloceſter. The ſtem is remarkably collected and ſnug at the root, the ſides of its trunk being more upright than thoſe of large trees in general; nevertheleſs its circumference at the ground, as near to it as one can walk, is twenty paces: meaſuring with a rule, it is ſomewhat more than eighteen yards. At three feet high it meaſures forty-two feet, and at its ſmalleſt dimenſions, namely from five to ſix feet high, it is thirty-ſix feet. At about ſix feet it begins to ſwell out larger; forming an enormous head, which heretofore has been furniſhed with huge, and in all probability extenſive arms. But age and winds have robbed it of a principal part of its grandeur; and the greateſt extent of arm in 1783 was eight yards from the ſtem. From the ground to the top of the trunk

[e] Foreſt ſcenery, 2. 63. [f] Sylva, b. 3. ch. 3.
[g] Survey of Weſtmoreland, prelim. obſ.
[h] Evelyn's Silv. 3. 3.

is about twelve feet, and the greateſt height of the branches by eſtimation forty-five feet. The ſtem is quite hollow, being, near the ground, a perfect ſhell, forming a room, which at the floor meaſures one way more than ſixteen feet in diameter; it is a natural dome at top, and no light is admitted except at the door, and an aperture in the ſide. That year it had a fine crop of acorns on it. The leaves, as generally on old trees, are very ſmall; not larger, for the moſt part, than thoſe of the Hawthorn.

Theſe very old Oaks have generally ſhort ſtems, at ſix, eight, ten, or twelve feet high throwing out large horizontal arms. The Oak however will acquire a great length of ſtem, but then it rarely ſwells to any conſiderable girt. Mr. Marſham indeed mentions one in the Earl of Powis's park near Ludlow, which in 1757 meaſured, at five feet high ſixteen feet three inches, and which ran quite ſtraight and clear of arms near or full ſixty feet.

Mr. Lightfoot mentions an Oak belonging to Lord Powis, in Broomfield-wood, near Ludlow in Shropſhire, in the year 1764, the trunk of which meaſured ſixty-eight feet in girt, twenty-three in length, and which, reckoning ninety feet for the larger branches, contained in the whole one thouſand four hundred and fifty-five feet of timber, round meaſure, or twenty-nine loads and five feet, at fifty feet to a load.

There are ſeveral fine Oaks in Welbeck-park. Sixty pounds was offered for one of them. That which is called the Duke's walking-ſtick is one hundred and eleven feet ſix inches in height; ſeventy feet ſix inches up to the branches; the circumference at bottom twenty-one feet, at one yard high fourteen feet, at two yards high twelve feet; ſolid contents four hundred and forty feet; weight eleven tons.—Two Oaks called the Porters: the height of one ninety-eight feet ſix inches; the circumference at bottom thirty-eight feet, at one yard high twenty-ſeven feet, at two yards twenty-three feet; ſolid contents eight hundred and forty feet: the other eighty-eight feet high, the circumference at bottom thirty-four feet, at one yard twenty-three feet, at two yards twenty feet; the ſolid contents ſeven hundred and forty-four feet.

The Greendale Oak, thought to be above ſeven hundred years old: the circumference thirty-five feet three inches [1]. Dr. Hunter gives the dimenſions thus: Circumference at one foot from the ground thirty-three feet one inch, at two feet twenty-eight feet five inches, at ſix feet twenty-five feet ſeven inches: ſpread eighty-one feet: the whole height eighty-eight feet. There are prints of this tree in its ſtate of ruin in the ſecond volume of Dr. Hunter's edition of Evelyn's Silva.

In this park is a fine grove of large Oaks meaſuring from twelve to twenty-two feet in circumference.

On the hills at the eaſt end of the park are plantations, chiefly of Oak and Cheſtnut, with ſome Beech, Larch, Weymouth Pine, and Firs, near four hundred acres, all planted by the preſent Duke of Portland.

There are ſeveral fine Oaks in Welbeck-park in full vigour, above five hundred years old.

On Sherwood-foreſt, five miles from Welbeck is a beautiful wood of above ten thouſand old Oaks, with Birches intermixed, whence it is called Birchland; the whole about one thouſand eight hundred acres. On the north ſide of the great riding is a curious ancient Oak, meaſuring near the ground thirty-four feet four inches, at one yard twenty-ſeven feet four inches, at two yards thirty-one feet nine inches. It cannot be leſs than one thouſand years old.—An Oak cut down in Birchland, had the letters J. R. more than a foot within the tree, and about a foot from the centre; ſo that it muſt have been near ſix feet in circumference when the letters were cut out. A tree of that ſize is judged to be about one hundred and twenty years growth. If we ſuppoſe the letters to be cut about the middle of James the Firſt's reign, it is one hundred and ſeventy-two years to the year 1786, when the tree was cut down, which added to one hundred and twenty, makes the tree two hundred and ninety-two years old. It was perfectly ſound, and had not arrived to its higheſt perfection. It was about twelve feet in circumference [2].

Fiſher's Oak, about ſeventeen miles from London, or half way to Tunbridge, of a monſtrous bulk; the trunk only remaining of above four fathoms in compaſs. When King James the Firſt made a progreſs that way, a ſchool-maſter of the neighbourhood and all his ſcholars dreſſed in oaken garlands came out of this tree in great numbers, and entertained the King with an oration. They have a tradition at Tunbridge, that thirteen men on horſeback were once ſheltered in this Oak.

In the hall at Goodrich-caſtle in Herefordſhire was a beam of Oak without knot, ſixty-ſix feet long, and near two feet ſquare the whole length [3].

At Selborne, in the county of Southampton, about the year 1768, twenty trees were felled in a little wood, tall and taper like firs, with only a little bruſh at the top, and without any large limbs, from fifty to ſixty feet in the trunk, and twelve inches diameter at the ſmall end: they ſold for 20l. a tree.

The lawn of the Duke of Bolton's Lodge at Burley is adorned with ſome very grand Oaks, which from the dignity of their form, and venerable appearance, as well as the number of the moſt reſpectable of them have obtained the name of the twelve Apoſtles [4].

An Oak was felled in april 1791, in the park of Sir John Ruſhout, Bart. at Northwick, near Blockley in Worceſterſhire, judged to be about three hundred years old, perfectly ſound and fine timber.

	Feet.
Girt at five feet from the ground	21
Smalleſt girt	18
Length to the branches	30
Solid contents of the body	634
Eſtimated timber in the arms	200
	834

	L.	s.
At 2s. a foot, worth	83	8
Firewood eſtimated at	6	6
Bark ſold for	5	5
	94	19

In Whittlewood foreſt Mr. Arthur Young meaſured Wake's Oak, which is the ruins of a noble tree, twenty feet three inches in circumference at five feet from the ground; and twenty-five feet eight inches at two feet. Raven's Oak, ſixteen feet inches at five feet. The Lawnhead Oak, ſixteen feet ſix inches [5].

In Hainault foreſt, Eſſex, ſtands a remarkable tree, well known by the name of Fairlop Oak. The ſtem, which is rough and fluted, meaſures, at three feet from the ground, about thirty-ſix feet in girt. The boughs extend about three hundred feet in circumference. Under their ſhade, on the firſt friday in july, is held a fair, founded by Mr. Daniel Day, who uſed annually to dine there on that day with a ſelect party of friends. The tree is now fenced round with a cloſe paling about five feet high, and Mr. Forſyth's compoſition has been applied to its decayed branches, to preſerve it from future injury. The Hainault Foreſters, one of the ſocieties formed for the purpoſe of enjoying the amuſement of archery, held their meetings near this Oak [6].

Mr. Gilpin mentions Arthur's table, in the town-hall of Wincheſter, cut out of a tree of immenſe girt. The Cheltenham Oak, which as near its roots as you can walk, exceeds twenty paces round. The Swilter Oak in Needwood foreſt, which he believes was equal to any of them [7]. He is very particular on the Oak which ſtood by the gate of the water-walk at Magdalen college in Oxford, mentioned above. He amuſes himſelf with the idea that it was a ſaplin

[1] Rooke's Oaks at Welbeck, qu. 1790.
[2] Idem.
[3] Groſe's Antiq. vol. 2.
[4] Gilpin's For. ſcen. 2, 110.
[5] Annals, 16. 515.
[6] Lyſon's, env. of Lond. 4. 56. and 646.
[7] Foreſt ſcenery, 1. 120, 121.

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5O ' /+ .

- O >OO1' -' 3=&' ;O6-3'' O5' 3& -2' 53*-1' 3=&'
6 -9' O5' *-' 5O44O5&1' 3O' @&' 3=&' * 2&53' 3 &&' 3 *3
&:& '2 &>' -' ;O3 *-1' 3' 9' -O>' =O O >' @63' 5 O 8'
>=*3' &8 *-9' 3' 9' &: 1&-3 3=*3' 3=&' 1 * 8 &3& ' O5' 3=&
3 6-G' ;O6 1' -O3' =*:&' @&&-' &5' 3=*-' & &:&-' O ' 3>& :&'
5&&3' ;' 9 4 O@*@'' *' 3 &&' O5' 2 &*3' *-3 <6 3' 1' 3=&'
:&53 2&9' %' *' ; ;&' O6-1' 3' &5;8@&' 3=O5&' >O GG'
>=;=' * &' ;O8 8O-''*33 @63&1' 3O' 3=&' R 6 19' =&-'
*8' * *;&' OO5&1' 3=&' ;O3;=' -*3 O-' 3O' O44O5;'
3=&' 3' *-' 5' O5' 1>* 1' =&' O53&-' * &8 9;1' 9* 8''
*3' O5>OO1' *-1' 3=&-' 3=9' *G' 9' 5* 1' 3O' =*:&'-&&-'
=9' =&*1' <6* 3& 9% =&-;&' 3'=*9 &:& '5 -;&' @&&-' G-O>-'
@''3=&' -*8 &' O5' 4 ' '.

&'-&%9 *G' ;& @ *3&1' @'' =*G54&* ;' 9' 5* 1' 53 '
3O' ;?53' -'3=&' 33 &' 4* G' *3' -1 5O ' -' %6&&-')*H
@&3=%9 >*G' *' 3=&' 3 &&9' -' >=;=' * &' 8 9' &?;&43
3=9' ;' 9' *' * 2&' 3 &&' 8 &*56 -2' *@O63' 3>&-3''506'
5&&3' -' ; ;6 85& &-;&' *-1' 5&& O9' &3' 3OO' :2O 6 6' 3O'
=*:&' @&&-' *' 4 O4& '3 &&' 5O ' & -&' 3=&' =6-3& '3O'=*:&'
1*-;&1' O6-1' 8O &' 3=*-' 3>O' ;&-36 &9' 5 -;&
-' *G' -'3=&' 2 O6-19' O5' ' & * 1' *-' &;G' *3'
&:&- -2=*8' -' 655O G' ;* &9' 69' G&> 5&' -3O' 3=&'
3 8 &9' O5')*@&3=' 3' 9' -O>' 5* -2' 5*53' -3O' 3=&'
1&; -&' O5' &* 9' 39' 3 6-G' >=;=' 8&*6 &9' 3=-'"5 :&'
5&&3' -' ; ;6 85& &-;&' 53 ' 8 *-3 -9' 39' 2 *-1&6 ' @63'
-' *4F &* *-;&' O- ' ' 5O ' ;' 9' *' 8 &' 5 ; ' -' %6&&-'
)*@&3=!9' 3 8 &' 3' >*9' =O O>' =*3' 4 -;&59' >=O'
5 O 8' =&' ;* ;5' *2&' O:&1' 8 *5;6 -&' *8 65& 8 &-39'
65&1' O53&-' ;' 9' 5* 1' -'=&' '06 3=' 3O' 3*G&' =&' 53*-1'
-' 3=' 9' 3 &' *-1' 53 OO ' 3=&' 1&& ' *9' 3=&' *4*55&1' O8'
3=*3' 3 8 &' 3' =*9' @&&-' G-O>-' @'' 3=&' -*8 &' O5' %6&&-'
)*@&3=!9' *G=

9' 1&8 '4' /L#
' 1&8 '5 O8' 5563;= -9!9 RO 5&3= &' >=&' &' *' 4 -3' O5' 3
.' 1&8 '5FO*' 8 8 *!9 3& '4' /+#' ℓ' 1&8 '4' /+#' /+E

=&' *G' 3 &&' -' 3=&' &>' O &53' -' *8 45= &'
2 -53' >= ;=' 3=&' * O>' O5' ' * 3&' '5 &' 2 *-;&1'
A*-1' G &1' -2' *8' 65O94 *@O*3' 5 73' '&* 9 *2O'
@&;*8 &' 5O' 1&;*' &1' *-1' * - * &1' ;=*3' 3=&' 54O3' >O6 1
O@*@'' =*:&' @&&-' 5O 2O33&-=*1' -&3' O=-' O 1'
& *>* &' >=O' :&1' -' O-&' O5' ; > -& 25&@O6 *2O12;9'
; & &1' *' 3 *-26 *' 53O-&' > 3=' * ' -5& 4> =' O-' &5*;=
5O;&' @&5O &' J=&' 536 8 4' >*9' & *1 &*3&1 U'

=&' *1&-=*8' *G' -' 3=&' &>' O &53' -&* 3=&'
:*2&' O5' *1&-=*8 F *@O63' 3=&&' 8 &9' 5 O 8' -1'*
=6 53' @619' &:& '' '&* ' -' 1 &*1&43=' T@5 > 3& ' \/?/
G&' 3=&' *53O-@6 '' =O -' 9' @& &:&1' @' 3=&' ;O6-3 ''
4&O4 &' 3O"4 O16;&' 39' @619' O-'' O-' O 1' ;= 53 8 *9"1*'7
3=&5&' 4 & 8 *36 &' @619' *53&' 6-5O 1 -23=& 8 5&' &9' 8 *G&'
-O' 5O 3=& ' 4 O2 &5 ' @63' 5= -G' *-1' 1 &' 3=& &&' :&H
2&3*3 -2' *2* *' *3' 3=&' 656*' 5&*5O-' *-1' @& -2' -' 56 '
&*5' -' 3=&' 8 11 &' O5' 56 8 8 &' > 3=O63' *-'' 1 55O &-;&'
5O 4' O '5O *2&' 5 O 8' O3=&' *G9.

=&' *G' >=;=' >*9' 4 *-3&1' *3' ;-5= 53' O-7 '
=53 4' 1-&'!9' @ 3="1*'' 53 ' &8 *-9' *-1' 9' 3>&-3''"
3>O' 5&&3' O6-1'.

O -5O-' 8 *G&9' 8&-3 O-' O5' *-' *G' *3' 65 '"
&' -' O 8 &5&3=& ' >=;=' @&*39' *;O -9' 8 O5&' 3=*-'
3= ;&' 3=&' 656*' 1 8 &-5 O-9 4 *-1' @' 5O 8 &' &?4& 8&-;'
8 *1&' @'' *-' &8 -&-3' -*3 6 *53' 3' 44&*9' 3=*3' 3=&
4 *2&9>=;=' 3=&''4 O16;&' 2 O>' 3>;&' *9' 5*53' *9' 3 O&
5&5 '5 O 8';O 8 8 O-1';O -9'.

*-'' 4 *;&9' -' -2 *-1' *;' -*8 &1' 5 O 8' 3=' 9' 5*H
:O6 3&' 3 &&' 7 *9 (* G5= &' 5 O 8' *' @*' &' *G' *3' >=;='
3=&' 4&O4 &' O5' 3=*3' = &' 65&1' 3O' *5 &8 @ &' G -2''
=*8' *G=*8 43O-' *G -23O-' 6G *-1' ?&-*8'
(*10;G' *35 &1' (O*1'' *G' ;;*' -' O 8 &' 5&3=&'
>*9 &8O:&1' >=&-' *@O 0 =' =O65&' Y553H!@6 3' -'
4' *8 &9!9"4* G' "

=&' 4* 3 ;6 *' *-1' 8 O5' :*6&1' <6* 3 &9' O5' "3=&
G' 5'9' ' 4 -' *&' &' %' *-1' C '
(O7' *-1' @O-'' *&' =* 1& 'e &>' *-1' =' *&' 3O62=&'
3=*-' K A' @63' -O' 3 8 @&' ' 9' 4O55&5&1' O5' @O3=' 3=&5&
<6* 3 &9' 3O2&3=&' -' 5O' 2 &*3' *' 1&2 &&' *9 (; =' *G'
8 3 ' *' 39' *-1' 8 *-65*536 &9' *&' -1&@3&1' 3O' 3A'
@63' -5 M 4"@6 1 -2' *-1' @&*-2' @6 1&-9' 39' &*53 ; 3"
*-1'53 &-23=' *&' *44 &1' 3O' 8 O53' *1:*-3*2&' 3' 9' -O3' 3=&'
&&`3'53*3&''3 &&' 3=*3' 9' *>*' 9' 3=&' 8 O53' 6 &56' -' =4"
@6 1!-2F @63' 8 O &' O53&-' 3=&' ;OOG&1' O-&' 5O 8 -2'
=O 3' 36 -9' *-1' &@O>9' ;O 8 O-'' ;*&1' 7 #
O' 9' 3' 3=&' 53 * 2 3' 3* ' 53&8 ' > 3=' 3=&' 5 @ &9' 6-"
-' -'4* * &' -&9' 3=*3' 9' 3=&' 8 O53' 65&56' -' @&* -2'
@ O-9'@63' 3=&' a' 6->;12;*&@' *-F' 2-* &1' *G b' *9
=*G54&* &' ;* 9' 3

2 '=*9' @ O62=3' 3O2&3=&' -'5&>' >O 19' 3=&' 8 O53'
O@: O69' <6* 3 &9' O5' 3=9' -O@&' 3 &&' -' O-&' 4O -3' O5'
:&>7

a' ;6 O9' 8 4 8 9' <6 *:3-8' :; 3 ;&' *1' *6 *9'
b' `3=:&*9' 3*-3 8' *1 ;&' -' * 3* 9' 3;-1 ;
a' 2O' -O-' =;8 &9' *8 ' -O-5 O *' -&<6& 8 @ &9'
a' O :; 6-7 7 8 -O!9'' *O&3' *6=O5<6&' 4& ' *8 O9'
a' * 2*' : 6 8' :O ::-9' 16 *-1O' 5&:; : -:; 3
T' 6 *5O 3&9' *3&' *8O9' *;' @ *: *'3;-1& 9'
' 6&' 6;' 8 &1 *' 45*' 62& 3;3-' 5653 6;3' 6 8 @ *8 a b

5 =&' 5 53' ;=* *53& 53 ;' O5' 3=&' *G' >=;=' 2'
8 &-3 O-9' 9' 39' 5 8 -&59' O' 3=&' 53 &-23=' >3=' >=;='
3' 3*G&9' =O 1' O5' 3=&' 2 O6-1' F 1 :-2' 39' 3*4" OO3' 3O' *'
1&43=' &<6*' 3O' 3=&' =& 2=3' O5' 3=&' 3 &&' O' 3 &&' 3=& &H
5O &' &5 539' 3=&' @ *53' 5O' 53;*1 '' *-1' >&' 5; 1O 8' 5&&' ;'
3*G&' *' 3> 53&1' 5O 8' 5 O 8' 3=&' >-19' '5&;O-1' ;=*'
*53; 53 ;' 9' 3=&' 53O63-&5O' 5' 39' 8 @9' &' G-O>'
-O3' *-'' 3 &&' &?;&43' 4& =*49' 3=&' &1*' O5' '&@*-O-'
5O' &8 *G*@&' -' 3=&' 9' &54&53' =&' 8 @9' O5' 8 O53'
3 &&9' 54 -2' 5 O 8' 3=&' 3 6-G' -' 3=&' *G' 3=&'' 8 *'
@&' *3=&' 5* 1' 3O' 1 :1&' 5 O 8' 3' e O6' =* 1 '' G-O>'
>=;=' 9' 53&8' *-1' >=;=' @ *-;=' *-1' 3O>* 19' 3=&
3O4' 3=&' 53&8' 9' &-3 &'' 053' -' 3=&' @ *-;=&9' =9'
2 :&9' 4* 3 ;6 *' 4 O4 &3'' 3O' 2 !9' &4 =&3D; D B+' -

1&8 '4' Q:;' .' 1&8 '/Q#' /' O62 9' *'*1&6'
.' O8 &5&3@ &'' ,+ &O 2',' ,PK

5;=* *`3) -2' 3=&' @062=3'9 O5' 3=&' *G ' * 1' =3 53 ;' 39 5 8 &>'' & @0>9' * &' 05' 56;=' 4&;6 * ' 65&' -' = 4"@6 1"
-2' =&' -&?3 ;=* *53& 53 ;' 05' 1 &' *G' -03 ;&1' @'' 3=&' 40&3' 9 3=&' 3> -2' 0 5' 39 * *97 ' & ' '
' ?* 8 -&' * 8 O5 3' *-'' 03=& ' 3 &&' *F 1' 06' 8 *'' @0 5& :&' -' >=*3 1 &5 3' *-1' 53 * 2=3' -&9' 3=&' @ *-;=&9' =003' 5 0 8' 3=&' 53& 8 7 >=& &*9 3=&' 8 @9' O5' *-' *G' * &' ;0-3 -6* '' 8 *G -2' :* 06 9' ;0-3 0 3 0-9' *-1' 540 3' *-1' 4 *'' -' &:& '' 4O 55 @ &' 1 &5 0 - -03=& ' 4&;6'' * 3'' >= ;=' 2 ' -03 ;&9' -' 3=&' *G ' 9 39' &?4* - :& ' 54 & ' = 9' 9 *' F65 3 ;=* *:; & 53 ;' O5' 3A' 50 ' 39 *62=9 ' =0>&:& ' 3> 53& 1 ' ;0-3 -6* '' 3*G& *' =0)0-3* ' 1 ;53 0-' 0:& =*10>' *' * 2& 54*:;& O5' 2 06-1 ' -1&&1 ' >=& & 3' 9' 50-1' 05' 39' 5 36*3 0-' *-1' =*9 00 8' 520' 54 &*1 ' 3' &?3&-19' 80 & 3=*-' *-'' 03=& ' 3 &&' *-1' G& *' 80-* ;=' 3*G& 9' 405 &53 0-' 05' 3=&' 50 ' =&' *53 2 *-' ;=* *53& 53 ;' O5' 3=&' *G' 9' 39 ! ' -' !2' 3' &?;&&19' *-'' 03=& ' 3 &&' &?;&43' 4& =*49' 3=&' e&>
=&' *G' 9' ;0-5; &1 *' 3=&' 80 53' 4 536 &5<6& 3 &&' -' 3 &5' *-1' 3=& 80 ' *;;0 8 80 1*1-2' -' ;0 8 405 3 0-' 3' ;5 5&9 -0' 56@F&53' & 3=& ' -' -*36 1' 0 ' -' * 3 5 ;*' *-15;*4& ' 3' 9' -3&1' 30' 3=&' 2 *-1&53' *-1' 8 *'' > 3=' 4 04 &3'' @&' -3 016;&1' -30' 3=&' 80 53' 4*530 * ' 3' *119' -&>' 1 2-3'' 30' 3=&' 6 -&1' 30>& ' *-1' 203=;' * ;=' F 3' 3= 0>9' 39' * 8 9' > ;=' 4 04 &3'' 0:& ' 3=&' 46 -2' @ 00G' 0 ' 3=&' 8 *-3 -2' 400 ^ *-1' 8 *'' @&' =*44 '' -H 3 016;&1' &:& -' -' 3=&' 0 >;53 5 ; ; -&A

a' * 1' @'' *' ;O33*2&' ;= 8 -&'' 5 8 0G&.
a' 0 8 ' @&3>&&-' 3>0' *2&1' 0*G9. b g

S .' F' = 9' 9' 0-&' 0 5' 3=&' 5& &53' 54&; &9' O5' *G' =&' 3 6-G' 5&9' *9' = 2=' *9' 3=*3 0 5' 3=&' ;0 8 80-' *G ^ 3=&@ *-;=&9' &?3&-1' :& '' > 1&' 0-' &:& ''5 1&' *-1' * &' ;OH :& &1' > 3=' *' 2 *' =' @*G' -3& 8 ?&1' > 3=' @ 0 >-' 54O39' &*:&9' @06 3' 3= &&' -;=&9 0-2' *-1' * 8 053' 3>0' -;=&9 @ 0*1' 1&&4 '' ;6 3' > 3=' 8 053' 05' 3=&' 3&&3=' 36 - -2' @*;G' *-1' 3& 8 -*3 -2' -' *;63&' 40 -9 &' 3=&'' * ;' 53 53 &' 05' *' 4* &' 2 &&-' 0-' 3=& ' 644 &' 5 1&' *-1' 10 > -'' 0-' 3=&' 6-1&' =&' *;0 -9' =*:&' :& * '2&' 5;*'' ;6 @\' \ > ;=' * 8 053' ;0:& ' 3=& 8 A 3=&' 5;* ;9' * &' >001'' *-1' 40 -3&1' 53*-1 -2' 06 3' *' <6* 3& ' 05' *-' -;=* 50 8 &' 05' 3=&' ;649' * &' *9 * 2&' *9 8 11 -2' 44 &9
3 :&' 05' 3=&' &:-3' >=&-;&' 3=&' *;0 -9' * &' *-H -6* *' @ 062=3 30' 6 04&' 50' 1' & -2A 3=&'' * &' ;* &1' & '*-1' 3=&' 3 &&' * & '@''3=&' &&G9' ' *3' &-;&' @ 0*' R&:0-=&' 5&&-' -' 1 &' 5 ?3''5&;0-1' :0 6 8 &' 05' 3=&' = 0504=;* *-5*53 0-9
' 4-' 5*' 9' 3' 9 -&* '' *-' &:& "2 &&-' -*8 &1' 5 0 8' 3=& 4& 50 -' >=0' * &1' 3' 4 016;&1' 5 08' *-' *;0 -' 05' 3=&' ;0 8 80-' 6 G&'' *G' 5 08' >=;=' * ' 3=&5& =*:&' @&&-' 2 *53&1' 3' 9' 5* 1' 3=&' 2 0>3=' 9' *4 1' F @63' 5 0 8' 5& >' 3 &&9' *-1' 3=0 ;' @6;' 06-2' -0' F6 12 8 &-3' ;*-' >& ' @&' 50 8 &1
' H 8 H
' 3=&' 50 39' 05' *G' * & 4 04*2*3&1' @'' 50>-2' 3=& ' *;0 -9' *-1' 3=&' 500-;' 3=&'' * & 463' -30' 3=& 2 06-1' *53&' 3=&'' * & 4& ' 3=&' @&33& ' 3=&'' > ' 56;=' ;& &1 A' 50 ' 3=&'' * & :& '' *43' 30' 54 063' >=& &' 3=&'' * & 54 &*1' 3= -' *-1' 5' 3 &'' * & * 1' -' =&*49' 3=&'' 5& H 8 &-3' *-1' 03' -' *' 33 &' 3 8 &' 3=&@ &53' 5& *50-' 3=& &50 &' 50 ' 50>-2' 3=&8' 9' 3=&' @&2 -- -2' 05' -0:& 8 @& ' @'' >=;=' 3 8 &' 3=&'' > ' @&' 5* &-' 5 0 8' 3=&' 3 &&9 ^ = 9' &* ''50>-2' 5& &8 9' 30' @&' 3=&' 8 053' -*36 * ' @63' 3=&' 1&53 65 0-' 8 *1& @'' 3=&' & 1' 065& =*9' -H 16;&1' 8 *-'' 30' 4 &5& ' 4 -2''50>-2

' O 'G& > ' .' 26 &9''
D' O &53' 54& -' ' PE

;&15 -&-' =&-' 3=&'' 4 &5& :&' *;0 -9' 50 ' 3=9' 4 -'' 405&' *'' 3 &8' 3=-' 640-*'' @0* 1&1' 5 00 ' >=& &' 5 56 ' 4& ' 3=&'' > ' &3* -' 3=& ' :&2&3*3 :&' 40 >&/ 16 -2' 3=&' > -3&' . M
' -=* '5 53' 2 :&' 1 &53 0-9' 50 ' * 5 -2' 3=&' 5&:& ' 50 39' 05' *G' -' *' -6 & '' >=&-' 3=&'' * &' -3&-1&1' 30' @&' 4 *-3&1' 063' 50 ' 0 -*8 &-3 ' *-1' ;' 3 8 @&' 9 -03' &2* 1&1' =&5&' *;0 -9' 8 *'' @&' 50 >-' -' @&19' 506 ' 5&&3' > 1&' > 3=' 4*3=9' 05' 3>0' 5&&3' @ 0*1' @&3>&&-' 3=&8' 7 -' 3=&5&' @&19' 3=&, &' 8 *'' @&' *506 ' 0>9' 50>-' *3' *@063' -' -&' -;=&9 1 53*-;&' 5 0 8' &*;=' 03=&' ^ 3=& & 9' * 0>' 0-''506 ' -;=&9' @&3>&&-' 3 &' 0>9]' R *>' 53 *2=3 1 9' > 3=' *' =0&' -30' >=;=' 1 04' 3 &' *;0 -9' 3>0' 0 3=& &' -;=&9' *4 *3' ;0:& -2' 3=&8' ;* &56 '' > 1' 3=&' &* 3=''' 3>0' -;=&9 3=;G
-' 3=&' 54 -2' >=&-' 3=&' 4 *-39' @&2 -' 30' *44&* ' ;&* ' 3=&8' ;* &56 ''5 0 8' >&&19' *-1' 5' 3=&' 58*50-' 4 0:&' 1 ' ' &5 & =' 3=&8' -0>' *-1' 3=&-' > 3=' *' 33 &' >*3&' &3' 3=&8' & 8 * -6-3 '3=&50 0> -2' *636 8 -' 7 *3' >=;=' 3 8 &' =*:&' *' 003' 05' 2 06-1' -' 5)&' 4 040 3 0-&1' 30' 3=&' <6*-3 3'' 05' 4 *-39' >& ' 3 &-;=&1' *-1' &:& &1' F *3 3=&' 8 11 &' 0 ' &-1' 05' 01 0@&' ;* &56 '' 3*G& 64' 3=&' 4 *-39' 50' *9' -03' 30' -F6 &' 3 & ' 0039' *-1' 4 *-3' ;&-F 063' -' 0>9' 3=&& 5&&3' *56-1& ' *-1' & 2=3&&-' -;=&9 *4 *3' -' 3=&' 0>9'' -&:& ' 5655& -2' 3=&' 4 *-39' 30' *@ 1&' 0-2' 063' 05' 3=&' 2 06-1' 50' *9' 3=&' 0039' 8 *'' @&;0 8 &' 1 '
^ = 9' >0 G' 8 *'' @&' 10-&' -' 8 *;=' 5' 3=&& &' >*9' -03' 3 8 &' 50 ' 3' -' 3=&' *63 6 8 -' R&&4' 3 &-;=-2' 0 ' 106 @&' 1 22 -2' @&-2' :& '' &?4&-5 :&' 3=05;' >=0' 4 *-3' 0-' * * 2&' 5;*&' 8 *'' 3*G&' *' ; 04' 05' *39' *4&' 0 ' 6 '' $ -&49' 055' 3=&' *-1' 3=&' '&*' @&50 &' 3=&'' 4 *-3' @'' >=;=' 8 &*-9' 3=&' 5>* 1' 8 *'' @&' &55& 136* '' 1&53 0' &1' *-1' 3=&' *-1' ;&*-&1' 53& 1' 3=&' ; 04' 9' 055' &3' 3=&' 2 06-1' @&' 3 &-;=" 4 62=&1' *-1' 3=&-' =* 0>&1' > 3=' =&*:'' =* 0>9' @06 3' 3=&' &-1' 05' 0 53 0@&' &3' 3' @&' *2* -' 4 062 &1' ; 059" > 5&' *-1' =* 0>&1' *9' @&50 &' 4 &: 069' 30' 3=&' 4 *-3 -2' 05' 3=&5&9
-' 4 *-3 -2' 3=&5&' =*: -2' ;* &56 ''3*G&-' 3=&8' 063' 05' 3=&' &&1 ''@&1' 5 0 3&-' 3=&' 3*4" 003' *-1' 3*G&' 0 5' 4* 3' 05' 3=&' 5 1&' =00;9' *;=' -&' =06 1' =*:&' *' 8 *-' *-1' @0'' 7 3=&' 8 *-53 G&9' = 9' 54*1&' -30' 3=&' &* 3=' ; 0 &' 30' 3=&' -&# =&' 2 :&9' *-03=&' 53 OG&' *3 2=3' *-2 &9' > 3=' 3 7 3=&-' 3=&' @0'' =*: -2' *' 4* ;&' 05' 4 *-39' 6-1& ' = 9' &53' * 8 ' 3*G&9' 0-&' > 3=' = 9 2=3' =*-1' *-1' 463 9' ;' -30' 3=&' ; &:;&' 8 *1&' @'' 1 &' 54*1&' *3' 3=&' 5;;0-1' 53 OG&' / *53&' 3=9' 3=&' 8 *-' 2&-3 '' 4 &5 &9' 3=&' 8 06 1' 30' 3' > 3=' = 9' 5003' -' *1 :&' 8 *-' *-1' @0'' > '3=69' 4 *-3' 5 53&&-' =6-1 &1' 0' 3>0' 3=065*-1' -' *' 1 *' ^ 1' *-1' >= 53' 3=&'' *&' 4 *-3 -2' 03=&' 9' 5=06 1' @&' &8 4 0' &1' -' 3*G -2' 64' 5 &5=' 5&&9' 50 3 -2' 3=&8 *-' 1' 4 &4* -2' 3=&' 0039' =&' &' 5=06 1' @&' *' 655 ;&-3 -6 8 @&' 05' =*<19' 50' 3=&' 2 06-1' ;*-03' @&' 300' 500-4 *-3&1' >=&-' 3' 9 &*1' ^ -&3=&' ;*-' 3=&' 4 *-39' @&' 463' -30' 500-' *53&' 3 &'' * &' 3*G&-' 64' =&' >&*G&33' 4 *-39' 8 *'' @&' &53' *' '&*' 0-2& 30' 2*-' 53 &-23=.]
=&-' 3=&' 4 *-39' =*:&' 3*G&-' 003' -' 1 &' -6 5&' '' 3=&'' > ' &<6 &' 33 &' 80 &' ;=&' 3=*-' 30' G&& 3=&-*' ; &*' 5 0 8' >&&19' *-1' 1 2' 3=&' 2 06-1' @&3>&&-' 3=&' 0>9' &:&'' 4 -2 ^ -' 10 -2' >=4=' 06' 5 06 1' ;6&' 055' 56;=' 0039' *9' &?3&-1' :& ''5*' 5 0 8' 1 &' 3 6-G' 05' 3=&' 3 &&9' >=;=' > ' &-1&' 3=&8' @&33&' 50' 3 *-' ' 4 *-3 -2' *2* -' 06' 5=06 1' * @' 4 6-&' 055' 56;=' 5 1&*' @ *-;=&9 *9' &?3&-1' 3 &8 5& :&9' :&'' 5* ' *-1' >06 1' &3* 1' 3=&' 64 2=3' 5=003*' @63' 06' 5=06 1' @'' -0' 8 &*-9' ;6' 055' * '3=&' 58 *' *3&*' @ *-1 &9' 50 8 &' 05' >=;=' * &' *@50 63&'' -&:&' * '' 30' @&' &53' 0-' 30' 3 &*' 3* -' 3=&' 5*4' 50' 3=&' *62 8 &-3*3 0-' 05' 3=&' 3 6-G 50' ' =*:&' 053&-' 0@5& :&1' >=&' 3 &&9' =*:&' @&-' ;05& ''4 6-&1' ;=*3 3=&' =&*19' =*:&' 0:& 2 0>-' ;=3' @01 &9' 50' 3=*3 3=&'' =*:&' @&-3' 10>-> * 1' *-1' @&;0 8 &' ; 00G&1
=&-' 3=&5&' 3 &&9' =*:&' &8 * -&1' -' 3=&' -6 5 '' 3=& &0' 506' *&* 9' =&'' > ' 3=&-' @&' * 2&' &-062=' 30' ; *-54 * 3' 30' 3=&' 4 *;&9' >=&' &' 3 &'' * & 30' &8 * -' A 50 3' 9 -03' 4 04&' 30' &3' 3=&8' 2 0>' &'' * 2&' @&H 50 &' 3=&'' * &' 4 *-3&1' 063' @&;*65;' 3 ;5&' * ;' :&'' *'')* 1069' 3 &&9' 30' &8 0:&' >=&-' 0 1' 0 ' '*53&' 3=&'' =*:&' 3*G&-' 1&&4' 003

D .'*$/ ' #$H3'

@

=&' 5;*50-' 5O '3= 9 >0 G 9 J*9 D* 1' @&5O &M -'3=& 6= 8 -'Á *3' >= ;=' 3 8 &' 5'3=&'' * &';* &56 '' 3*G&-' 64' =& &' > ' @&' 33 &' 1*-2& ' O5' 3=& ' 56;;&&1 -2' ' *-54 * -3 -2 3=;5&' 3 &&9' @'' -0 8 &*-9' ;63' 3=& '=&*19' B=;=' 9 3OO' 8 6;=' 4 *1 5&1'F '3=*3 J-1 6=2 1' @&' 10-&' ^-663' @&' O- '' 3O' ;63' O55' *-'' @ 6 5&1' O ' "4 *;&1' @ *-;=&9' >= ;=' =O6 1' @&' 3*G&-' O55' ; O5&' 3O' 3=&' 4 *;& >=& &'3=&'' * &' 4 O16;&1'Á @6'3=& &';*-'@&'-O' 2 &*'3& '-F6 ''10-&'3O' 3=&5&' 3 &&9' 3=*-' 3O' =O 3&-' 3=& ' =O2&5'# 50 ' >=&-' 3=&' &*'1 -2' @6'1' J>= ;=' 9'*@5O 3& '' -&;& * '' 3O' 1 *>' *-' 1' *33 *1' 3=&' -O6 =8 ;-3M' 9' 3*G&-' O55' 3=& @ *-;=' O53&-' 1&;*''9' &=& ' ' O ' *3' &*53' 1O>-' 3O' 3=& -&?3 : 20 O6 9' @61

=&' 3 &&9' 3=6 9' * 5&1' *-1' 8 *-*2&1' ' ' J 5'4 *-331' -' *' 4 O4& ' 5O M 2 O>' 3O' *' ;O-=1; *@ ;' 8 *2- 361& ' *-1' * &';& '' 4 O4& ' 5O ' *' > 1& -&5 9 -' * 2& 2* 1&-9' O ' 3V 4 *-3 -' ; 6 8 4 9 -' 4* G9' W ; ' @6'3 5' 3=&'' * & 1&5 2-&1' 5O '3 8 @& ' 3 9 8 6;=' 3=& @&33& ' 8 &3=O1' 3O' 5O>' 3=& *;O-9 -' 3=& 4 *;&9 >=& &' 3=&'' * &' 3O' &H 8 *-'Á -' O 1& ' 3O' >= ;=' 4 O: 1& ' O6 5; 5 -' *6368-' > 3=' *' 56 55 ; &-3 <6*-3 3'' O5' *;O-9' >= ;=' =O6 1' @& * >*' 9 3*G&-' 5 O 8' 53 * 2=3' 64 2=3' : 20 O6 9' 2 O> -2' 3 &&9Á 3=&5&' =O6 1' @&' 2*3=& &1' 5 O 8' 6-1& ' 3=&' 3 &&9 *9' 5OO-' *9 8 *'' @&' *53& ' 3=&'' * & 5* &-'F *-1' 5' 4O '' 5 @ &' -' *' 1 ''3 8 &' * 1' 3=-' -' 5O 8 &' O4&-' OO 8' 3O' 1 'Á *53& ' >= ;=' 3=&'' 8 *'' @&' 46 3' -3O' 1 '' 5GY1 * -1' 4 &5& :&1' -' *' 1 '' 4 *;&' 6-3 '3=&' @&2 - - -2' O5' -O:&8 *'' @& ' >=&-' O6' =O6 1' 4 &4* &' 3=&' 2 O6-1' 5O '4 *-3 -2' 3=& 8

=&' 1 &53 O-9' @&5O &' 2 :&-' * &' 1&5 2-&1' O- '' O' 5 8 * '4 *-3*3 O-9' -' *' 2* 1&-' O '4* G' >= ;=' * &' O- '' 5O' 4 &*5O &'Á @6'3 >=& &' 3=&5&' 3 &&9 * &';6 3 :*3&1' > 3=' *' : &>' 3O' 4 O5 3' 3=&' *;O-9'' 5=O6 1' @&' O>-' >=& &' 3=& 3 &&9 * ;' 1&5 2-&1' 3O' 2 O>' 'SO' 3=O &' >= ;=' * &' 3 *-5'' 4 *-3&1' > '-&:& ' 2 O>' 3O' 3=&)&' O5' 3 O &' >= ;=' *-1' >=& &' 3=&'' * &' 5O>-' -O' > '3=&'' *53' -&*' 5O O-2' @6-1' O ' -' @8&' 4 *;&9' >=& &' 3=&5&' 3 &&9 =*:&' @&&-' 35*5 54 *-3&1' > 3=' 3=&' 2 &*3&53 ;*&' *-1' 3=&'' =*:&' 2 O>-' :& ''5* 5O' 5&:& *' '&* 9' *53& ' '&' 3=&'' * &' -O>' 1&;*' -2' >=&-' 3=O &' >= ;=' &8 *-' -' 3=& 4 *;&' >=& &' 3=&'' ;* 8 &' 64' 5 O8' 3=&' *;O-9' * &' 53 ' & '3= : -2' *-1' =*:&' -O3' 3=&' G*53' 5 2-' O5' 1&;*'' =& &5O &' >=O&:& ' 1& 2-9' 3O' ;6 3 :*3&' 3=&5&' 3 &&9' 5O' 3 8 @&' =O6 1' -&:& '3= -G' O5' 3 *-54 *-3 -2' 3=&8 ' @63' O>' 3=&' *;O-9 O-'3=&' 5*8&' 2 O6-1' >=& &' 3=&'' * &' 3O' g 5O' 3=&' 3 8 @&' O5' * '3=O5&' 3 &&9' >= ;=' * &' 3 *-5'' 4 *-3&1' 9 -O3' -&* '5O' :* 6*@ &' *9 3=*3' O5' 3=&' 3 &&9 5 O8' ' *;O -9' ' =* '3=& &5O &' *11' 5O 8 &' 4 *-' 1 &53 O-9' % 'OO> -2' *;O -9' *-1' 8 *-*2 -2' '06-2' 3 &&9 16 -2' 3=& ' 8 -O 3'' 6-3 ' 3=&'' * &' O6 3' O5' 1 *-2& ' F6 1' &H <6 &' -O' 5 * 3=&' ;* &

=&' 5 53' 3=-2' 3O' @&' 1@-5' 9 3=*3 O5' 5&-;-2' 3=& 2 O6-1' :&'' >& ' 3O' G&&4' O6 3' ;*33 &' =*:&9 * 1' *@H @&39Á 50 ' 5' 3=&5&' ;*-' 2&3 -3O' 3=&' 2 O6-1' 3=&'' > ' 5OO-' 11 O'' * '3=&' '06-2' 3 &&9 -1&&1' 3=&'' > ' -' *' 5&>' &* 9' 2 O>' 3<' @&' O6 3' O5' 1*-2& ' 5 O8' =*:&9' *-1' 3=&-' 3=&' 3 &&9 > ' =*:&' 2O 3' *@O:&' 3=&' &*;=' O5' =* &9' *-1' *@@&39' 5O' 3=*3 3=&'' *--O3 -F6 &' 3=&8 ' 5O' 3=&' @* G' O5' 3=&' 3 &&9 > '=O' 3OO' =* 1' 5O '3=& 8' 3O' 2-*>

53& '3=&' 2 O6-1' 9 >& ' 5&-;&1' 3' 5=O6 1' @&' 4 &H 4* &1' @'' 4 O62=-2' 3' 3=& &O ' 5O6 ' 3 8 &9' *-1' *53& ' &*;=' 4 O62=-2' 3O' =* O>' 3' >& ' 3O' @ &*' G' 3=&' ; O19' *-1' ;G*-5&' 3=&' 2 O6-1' O6;=' *-1' 3=&' 0O3' O5' * '@*1' >&&19' -1&&1' 5' 3=&' 2 O6-1' 9 2 &&-' 5>* 1' 3' > '@&' @&33& ' 3O' =*:&' O-&' ; 04' O5' (&*-9' &*9 O' 6 -&49' O55' 3=&' 2 O6-1' @&5O &' 3=&' *;O -9 * &' 5O>-' 4 O: 1&1' 3=&5&' ; O49' * &' >& ' =O&1' 3O' 53 ' 3 &' 56 5*;;' *-1' 3 ;55 O'' 3=&' >&&19 50 ' 5' 3=' 9 O@5&' :&1' 3=&' ; O4' >Á ' 8 &-1' *-1' 8 4 O:&' 3=&' *-1' 5O' 5O>-2Á @63' -' 3=' 9 ;*5&' 3=&' 2 O6-1' 5=O6 1' @&' 5O>-' *9 8 *'' @&' *53& ' 3=&' *;O -9 * & 4&Á 5O' * ;=O7'2=' 3=&5&' 8 *'' 4 &5& :&1' -' 5*-1' 5O' 5O 8 &' 1 8 &' '&3' 3=&'' >-' @&' *43' O3'

3O' 5FF @63Á' *-1' 5'' 3=&' 5=O&< 9 * &' -' 1*-2& ' O5' @& -2' @ OG&-' *-1' 54O &1Á 3=& &5O &' 1*-1: 5&' 5O>-2' &* '' >=;=' 9D&& 3* -'' 3=&' @&53' 8 ;3 O1Á

-' 8 *G -2' ;=O ;&' O5' 3=&' *;O -9' *' 3=O5&' =O6 1' @&' 4 &5& &1' >=;=' * & 3*G&-' 5 O 8' 3=&' * 2&53' 1-1' 8 O53' 3= : -2' 3 &&9Á' *-1' 3=O5&' O5' 4O * "1"3 ;&9' 5=O6 1' * H >*' 9' @&' &F&53&1' 3=O62=' 3=&' *33&' * & 2&-& * ''3=& 8 O53' 4 O1 :;' O5' ;O 8 9' @63' 3=O &' O5' 3=&' * 2& 3 &&9 ;O 8 8 O-'' 4 O16;&' 3=&' 53 O-2&53' *-1' -O53' 3= :H -2' 4 *-39'

=&' 5&*5O-' 5O '5O>-2' 3 .' *;O -9' @& -2' ;R 8 &' *-1' 3=&' 2 O6-1' =*: -2' @&&-' 4 O62=&1' *-1' &:& &1 8 O@3=F 3=&' -&?3 >0 G' 9 3O' 5O>' 3=&' *;O -9' >= ;=' 8 653' @&' 10-&' @'' 1 *>-2' 1 9' *; O59' 3=&' 2 O6-1' *3' *@O63.' 5O6 ' 5&&3' @ 6-1& ' *-1' 3>O' -;=&9' 1&&4Á' -3O' >= ;=' 3=&' *;O -9' =O6 1' @&' 5;*3;& &1' *3' 3>O' -;=&9' 1 53*-;& ' =&5&' 1 9'' 8 *'' @&' 1 *>-' &3=& ' >3=' *' 1 '4 O62=' O' @'' =*-1' >3=' *' =O&' @63' 3=&5O &' 8 O53' &?4&1 3 O6 9' 8 &3=O1' 3=& &5O &' -' * 2&' 4 *-3*3 O-9' 5=O6 1' @&' 4 &5& &1' -' 1 *>-2' 3=& 1 9' 5' 3=& *-1' =*9 *-'' 5 O4&' 3O' O-&' 5 1&' 3=&5&' 5 O 1' @&' 8 *1&' 3=& 5* 8 &' >*'' *9 3=&' 2 O6-1' 5 O4&9' 3=*3 3=& &' 8 *'' @&' -O' 53O44 *2&' O5' 3=&' >&3' @'' 3=&' O>9 O5' 4 *-39' ;O55 -2' 3=&' =*-2-2' O5' 3=&' *-1Á =9' 5=O6 1' @&' 4* 3 ;6H * '' O@;;&1' -' *' >&3 2 O6-1' O' >' =&' 3=&' >%&3 9 56@F&5' 3O' &-' >-3& ' @63' -' 1 ''*-1' ' 9' -O3' O5' 8 6;=' ;O-5&<6& ;;.' U =&-' 3=&' *;O -9' *&' 5O>-' 3=& 1 9 5=O6 1' @&' ;* &56 ''5 &1' -' 5O' *9 3O' ;O:&'3=& *;O -9' 5&;6 &'Á 5O' 5' *-'' O5' 3=&8' * &' &?4O5&1' 3=&'' >' 8 *G&' 2 &*3'=*:O;G' >3=' 3=&8

=&' ;*5O-O5' 8 ''1 &53-2' 3=&' 1 9' 3O' @&' 8 *1&' *3' 3=9' 1 53*=&&' 9 5O' 3=&' 8 O &' ;O-:&-&-3' -2' 3=&' 2 O6-1' @&3>&&-' 3=&' O>9' 3O' G&&4' 3=&' O6-2' 4 *-39 S 1&*5 O 8' >&&1 95O ' 5' 3=' 9' -O3' ;*&56 ''10-&' 3' ;*--O3' @&' &?4&5 &1' 3=*3 3=&' O -2' 4 *-39' =O6 1' 8 *G&' 8 6;=' 4 O2 &59 #*-1' '&3' 3=' 9' 2&-& * '' -&2 &53&1' @'' 8 *-' >=O' 4 &3&-1' 3O' @&' 2 &*3 4 *-3 9' >=O' *&O53&-' *3' *' * 2& &?4&-5&' 3O' 4 *-3' @63' 5& 10 8' &2* 1' 3=&8' *53& Á' 5O 3=*3' 3=&' O6-2' 4 *-39' =*:&' 3=&' 1 55;6 3'' 3O' &-;O6-3&' 3=&' >&&19' >=;=' * &' 5 &<6&-3 ''5O6 ' O' 5:&' 3 8 &9' 3=&' =& 2=3 O5' 9=&' 4 *-39' *-1' -O3' O-'' 5=*1&' *-1' 1 *>' 3=&8 ' @63' * 5@' &?=*65 3'' * 5O&' 2001-&59' O5' 3=&' 2 O6-1' *-1';O-5&<6;-3 ''53* :&' 3=&' 4 *-39' =& &H 5O &' >=O&:& ' =O4&9' 3O' =*:&' 56;;&9' -' 3=& ' 4 *-3*H 3 O-9' =O6 1' 1&3& 8 -&' 3O' @&' *3 3=&' &?4&-5&' O5' G&&4' H -2' 3=&8' ;&*-' 5O ' & 2=3' O '3&-' '&* 9' *53& ' 5O>-2' @'' >=;=' 3 8 &' 3=&' 4 *-39' >'' =*:&' O@3* -&1' 53 &-23=' &-O62=' 3O' G&&4' 10>-' 3=&' >&&19 F 3=&' -&2 G53 -2' O5' 3=9' =*9 O;;*5O-&1' 5O' 8*-' 4 *-3*3 O-9' 3O' 8 5&* '' *9 *&' 5 &<6&-3 '' 3O' @&' 8 &?>3=' 1-' 1 :&' 9' 4* 39' O5' -2 *-1

@O63' 3=&' 8 11 &' O5' *4 '3=&' '06-2' 4 *-39' >' *4H 4&* ' *@O:&' 2 O6-1Á' @63' @&5O &' 3=' 9' 5' 3=&' 2 O6-1' 5=O6 1' 4 O16;&' 8 *-'' '06-2' >&&19' 3' > ' @&' 2001' =65@*-1 '' 3O' 5&655 &' 3=&' 6 5*;&' O:&' >3=' R63;=' =O&9' -'*' 1 ''3 8 &' &?3=&' *33&' &-1' O5' 8 *-;=' O ' 3=& @&2 --2' O5' *4 3O' 1&53 O'' 3=&' >&&19' >=&&@'' 3=& 2 O6-1' >' @&' G&43' ;&*-' 6-3 '*' 3=&' 4 *-39' *&;O8 &' 64' 5O' *9 3O' @&' 4 *-' '' 1 5&&8 &1Á @'' >=;=' 3 8 &' 3 8 *'' @&' 4 O4& ' 3O' =O&' 3=&' 2 O6-1' O:&' * =' 5O' @'' 10-2' 3 &*' '' >=&' 3=&' >&&19 *&' 5 -*c' *' 8 *-' >' 4& 5O 8' 8O &' O5' 3=9' O G' -O-&1*'' 3=*-' =&;*-' -' 3=&&' O' 5O6 ' >=&-' 3=&' >&&19' *;' 2 O>-' *2&' F @&'' 5 1&9' 3=&&' >' @&' 2 &*3' =*)*1' O5';6 33 -2' O55' O' -H F6 -2' 3=&' O6-2' 4 *-39' O>=&-' 3=&'' &' =1' @'' 3=& >&&19Á *-1' 5 -*' >&&19' @&-2';63Á' *;' 5OO-' 1 &1' 4' $ @'' 3=&' 56-Á' @63' * 2&' >&&19' O53&-' 3*G&' 5 5' OO3' *-1' 2 O>' *2*-' &54&1*'' 5' *-' =O6 1' 5*' 5OO-' *53&' *-1' 3=&-' 3=&' >&&19' >' 2 O>' 3=&' 5*53&' 5O' @&H -2' 53 &1Á 3=& &5O &' 3' 9 -O3' O-'' 3=&' @&53' 8 &3=O1'' @63' * 5O' 3=&' ;=&*4&53' =65@*-1 '' 3O' @&2 -' ;&*-2' &* '' -3=&' 4 -2' *-1' 3O' &4&*3' 3' *9 O53&-' *9' 3=& >&&19' * &' 4 O16;&1

=&' 5 53' 56 8 8&' >=&' 3=&' 4 *-39' * &' 06-2' 3' > ' @&' 3=&' @35 3' >*'' 3O' 4&5O 8' 3=&5&' =O;-29' @'' =*-1' @63' *53&' >* 19' 3' 8 *'' @&' 10-&' > 3=' 3=&' =O&*4 O62=&1' *9 *@3=&' O>9' * &' 5O6 ' 5&&3' *56-1& ' 3=& &' > ' @&' O0 8 ' &-O62=' 5O ' 3=' 9 4 O62=' 3O' >0 G' *-1' *9 9' >53 ' *-1' 005&-' 3=&' 2 O6-1' 3' > ' @&' O5' 2 &*3' 5;:;,' 3O' 3=&' 4 *-39' @63' 3=& &' > ' &<6 &' *' 33 &' =*-1'' *@O6 ' /K' e' >=& &

=; &' 3 &' 4 062=' 9 65;1 ' -'0 1& '30'1&53 0''3=&'>&&19' >= ;=' > ';0 8 &' 64' -' 3=&' 0>9 @&3>&&- ' 3=& 4 *-39' ' 50 ' 3=&&' > ' @&' 063 05' 3=&' &*;=' 05'3=&' 4 062=' *-1' 5 3=&'' * ;' -03' 1&53 0 '&1 ' 3=&'' > ' 50O-' 0 :& 2 0>' *-1' @&* '10>-' 3=&' '06-Z 4 *-39

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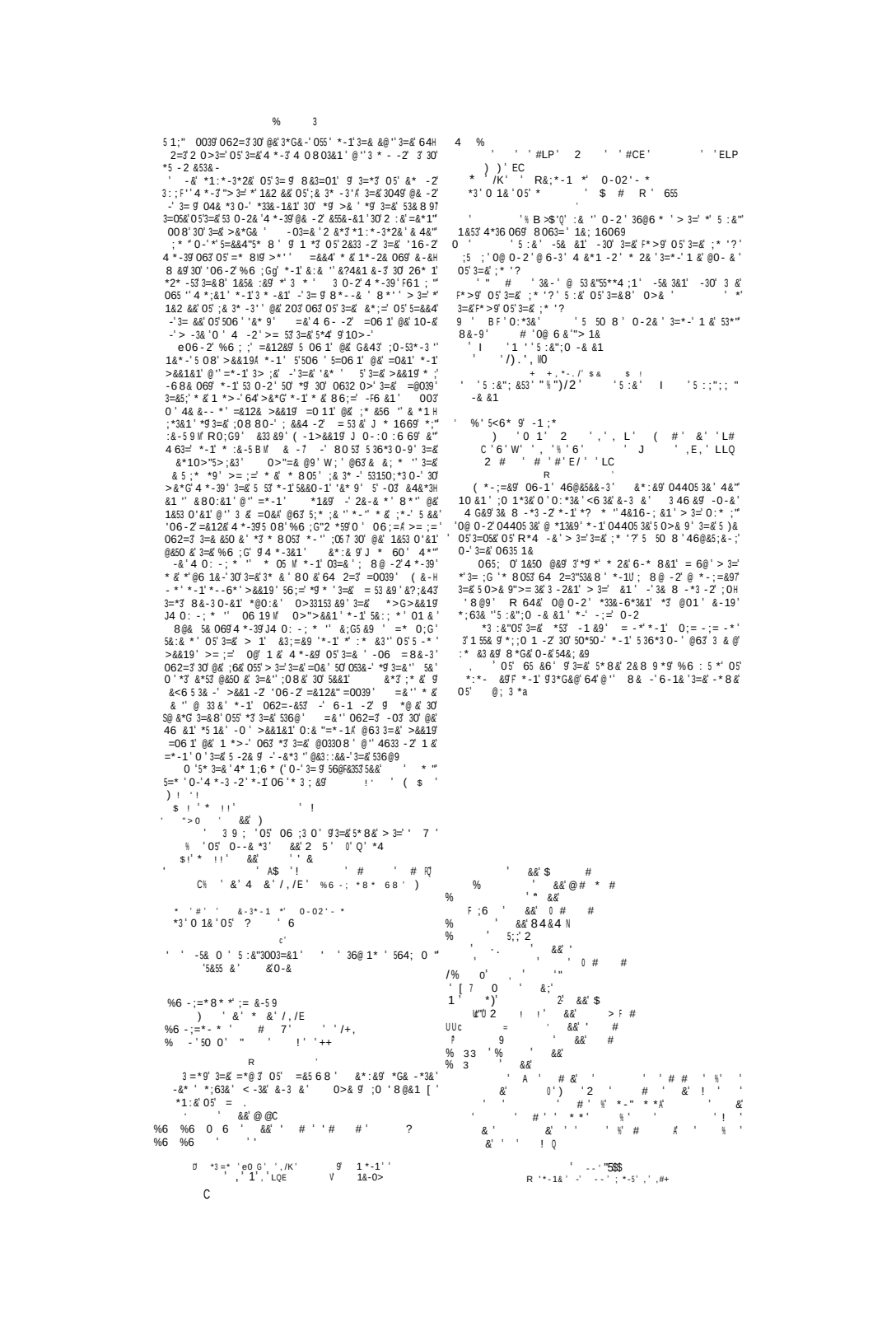

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5 0 3 ' * 3& - *3&' 1 : * ;*3 - 2 ' &*:&9' * 3& - *3&' *-H ;&0 *3&' *;63&' -& :&1 ' 58003=' 4& 5&5 '' &-3 &' 0 ' &5&' 3003=&1' 80 &' 0 ' &59Á 3=&' 3&&3=' @ 6-3' 6-&<6* ' ;* 069 05'*@ 0>- 5=' ;0 06 Á 3=&' 0>& &*:&9' * &'0:*3&'' *-;;0 *3&' *-1'0-' 0-2& '5003''53* G9'F >= ;=' * &' ;=*-H -& &1 ' *-1> 1&-' *3' 3=&' @*5&' 7 3=&' 644& 80 7 *-1' 3=0 &' -&?3' 3 &' 5 0>& 9' * &' -&* ' 0>& 9' 3& 8 -*3 -2 ' 50Æ 3* ' ' 0-' 06-1' 4&16-; &9' 64 2=;' * '; -&' &*5 &39' @&-3' @*;'G' @ 6-3' J 2=3 '' : 0 &' ' &>' 5= * &3*' 3= ;&' *9' 0-2' *9 3=&' ;* '?' 06-1 =' *-1' J 2=3 '' 0@*' ;0 1*3&' 54 &*1 -2' J 2=3 '' ;0-;*:&' 05'*' 20 1&-' ' &H 0>' ;0 06 ' 2 0 5'' 0-' 3=&' 644& ' 5 1&' * Æ1 * &06 9' ;*: 3'' :& ''58* ' 3* 8 &-9' -68 & 069' 30' 3= ' ' &&19' 58003=' *-1' &:&-

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3' 2 0>9' 4 &-3 56 '' -' 8 * 5='' 4 *;&9' &54;; * '' -' 3=&' >&3 *-1' @022'' 4* 39' 05' =&*3=9' *-1' 0 8 80-9' >=&&' 3' 5 0>& 9' 5 0 8' 6-&' 30' 5&43&8 @& Y

= 9' 54&; &9' 9 :& '' *; 1' 44 &1' &?3& -* '' 3' -5 * 8&9' *-1' @ 5 & 9' 3=&' G - ' 39' *; 80-'' 5&9' -1 53 *3 0 - ' 0 8&' '&* 9' *20'*' 8 *-' 3 *:& &1' -' 5&:& * ' 4* 39' 05' -2 *-1' *1 8 - 53& -2' :0 8 39' >= ;=' G&' >=3&: 3 0 ' 04& *3&1' 3=&' - *-' 3=&*' >& &' 5>* 0>&1' =&' 1 53 &1' >*3& ' 05' 3= 9' 4 *-' 3 >*9' = 9' 8 &1 ; -&' *-' 1' 5 08' 3=&' &?4& &-;&' '=*:&' =*1' 05' 3' 5*'9' R ' 3=& -2' '5&&' 8 '5& 5 *63=0 5&1' 30' *55& 3' 3=*3' -' 3=&' ;*5&' 05' 40 50-' @& -2' 5>* 0>&1' 0 ' 03=& ' ; ;6 8'' 53*-;&9' :0 ;6 -2' -' >= ;=' 3' 9 1&5 *@ &' 30' 8 *G&' *' 4*3 &-3' :0 8 3' -53*-3*-&O65 '' 3' 9 4 &5& *@ &' 30' *-' 03=& ' 8 &1 ; -&' '&3' G-0>-' *-1' 10&9' -03' &?; 3&' 3=0 &' 4* -56 ' :0-3 *53 0-9' -' 3=&' 644& ' 4 ' 3' 05' 3=& 530 8 *;=' >= ;=' 3=&' >= &' :3 0 ' 50 8 &3 8 &9' 10&9' 3=& &@' 1&' 5&* -2' 3=&' -3&-3 0-' 50 ' >= ;=' 3' >*9' 2 :&-'.

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=&' *53' :* &3'' 9' &2* 1&1' @'' --&6 9' *-1' 03=& 9' *9' *' 1 53 -53' 54&; &9' &' * 0>9' 3' 30' @&' :& '' -&* '' *' &1' 30' =&' ;0 8 80-' 4& * >0 3' @ 63' 1 53 -26 53 &9' 3' @'' 39' -&* ' &*:&9' *-1' 39' 5 50 8' 0-2& ' ; &&4 -9' 6--& 9' -' F9 0 *' *440-;*' =&' 1&5& @&9' 3=&' 3&8 *9' <6 3&' 5 8 4 &' 3=&' &-23=' 05' *' 5 -2& '0 ' *' 54*-' *3' 8 053 ' 4 0;6-F@;-' *-1' ' -2' ; 05&' 30' 3=&' 2 06-1' =*: -2' 5&:& *'FO -39' *-1' *3 &:& ''FO -3' 3= 0> -2' 063' *' J &-1&' 5 @ 069' 003' F 0-&' 33 &' 5 0>& ';0 8 80-''3& H 8 -*3&9' 3=&' 53&8' F 50 8 &3 8 &9' @63' 5&; 0 8 ' 3=& &' * &3>0' =& &' * &' 3>0' 3= &&' 0 ' 506 ' 64 2=3' J& &&*:&9' *3' &*:=' FO -3Á *-1' -03' 6-5 &<6;-3 '' *' -2 &' 5 0>& ' 5 6&9' 5 0 8' &*:=' G' =&5&' 1 55& &-;&9' 8 *' 4055 @ '' @&' 0> -2' 30' 39' 566*3 0-' 0-' 3=&' @0 1& 9' 05' * 4 -&' *G&9' ;040 ' &*3&9' 3=*3' =&' =*9' 54&; 8 &-9' >= ;=' 2 *16* '' ;0--&1 3' 3=&' ;0 8 80-' ' ## ' > 3=' 3=&' ;&&4 -2' :* &3'' Á 3=*3' *' @022'' 50 ' 4 0803&9' 3=&' 2 0>3=' 05' 3=&' 4 *-3' @63' 3=&' 003' @&-2' >&*G ' ;*=0 ' 56440 3' 3' 50' *9' 30' &-*@&' 3' 30' 2 0>' ; &1 3' F =&-;&' 3' 9' 1&; 68 @&-3' *-1' 4639' 50 3=' 5 @ &9' 5 0 8' 3=&' FO -39Á @63' 5' 3=&' 2 06-1' @&' =* 1& ' *-1' 0' 1 '' 3=&' 003' =*9' 5*53&' =0 1 ' *-1' 56440 39' 3=&' 4 *-3' -' *' 80 &' &;3' 4 0536 ; [1&-0>' -5 539' 3=*3' 3' 9' -03' *' :* &3' 3' 9 506-1' -' >&1&-' 655 *' > 3) &' *-1' *-1' & H 8 *-' ' 0-' 3=&' @*-G9' 05' *G&9

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--&6 9' 1&5& @&9' 3=&' 53& 8' *9' @ *-;=&1' &*5' ' 053&-' *' 5003' *-1' =* 5 = 2=' Á 3=&' &*:&9' *9' 51 8 &>=*' 3' 3003=&1' 622&1' > 3=' 5=0 ;' =* 9' 4 & ;'1 ; 05&Á 3=&' 4&16-; &9' 0440 05 3& 30' 3=&' &*:&9' *-1' 0-&''5 0>& &1

=&' =& @' 9' *; 1' G&' 8 053''05' 39' 3 @&'' --&6 9' 2 :&9' 3' 3=&' 3 :*' -*8 &' 05' 0 ' @&;*65&' R* &'' ;=*8 4 6 9' 26& 5&1' 3' 50' @&' 3=&' ' 05' --' ' 3' 2 0>9' 2&-& * '' -' 8 611'' 1 3;=&9' J@029' 0 ' @'' 3=&' 5 1&9' 05' *G&9Á 5 0>& -2' -' F6 ' ' =&' 003' 9' 4 &H &--* ' G&' 3=&' 4 &;&1 -2

-' -2 *-1' 3' 9 &;GO-&1' *8 0-2' 3=&' * &' 4 *-39' @63' G' 0;;6 9' -' 8 *-'' 4 *;&9' *9=* ' 0-10-' @&3>&&-' 0'' 3=& = 3=&' *-1' R&4350 1' Á 0-' :&3' =&*3=' -&*' ?@ 12&1 # -' &:& *' 4* 39' 05' 0 50 G' Á 0-' &:&5 =*8' 8 00 ' -&*' *8@ 12&' *-1' -' 3=&' 5' &5' 05' ' Á 0 1 53231-' *-1' *G&'' -' (&150 15 &' -' 1 3;=&9' -&*' *' 400' 05' >*3&' ;* &1' (*'50 1' -' -;0 - = &' Á 0-' 3=&' @*-G9' 05' 3=&' =; ">&' -' &*' -2 19' G' 8' ?50 1 =' &' 7 @029' 0-' *:& -' =*;& ' 0 ;&53& 5= &Á ' -;@-' 400' -&*' 3*5 ;5 1' 5 1&9' 05' -;0;3' 400 ' * 04Á' -' 5&:& *' 4* 39' 05' =&' 0 3=' 05' -2 *-1' -' ;03 *-1' *9' -' R611 -253 0-' 0;=' -&*' 1 -@6 2=' *-1' *@063' &53&--&3' -' -269"J= &

L' = 9' 9 506-1' *@063' * 9' *-1' -' 8 * 5=''4 *;&9' -' 3=&' 5 *-1' 05' ; '' -' =*@ 3' 3' 9 -03' 6- G&' ID'' # 0 ' 8 -

+' 003' 4& &-- * ' &*:&9' 0-2' *-1' -* 0>' G&' 3=05&'' 05' *59' 5&5 &' 3& 8 9' 31& 8 0 &' 3=*-' *' 5003' = 2=' 1 ' 1 -2' *3' 3=&' 304' -30' 3= &' 0 ' 506 ' 5 &-1& ' 5003''53* G9' >= ;=' *&' 3& 8 -*3&1' @'' -2 &' & 0>' 5 0>H & 9' G&' 3=05&' 05' 3=&' ;0 8 80-' (633& 5 0>&

^ 003' @6 @069' 36@& 069' ;' -1' ;* ' 5 @ 05;' *3' 3=&' 304' 4633 -2' 063' 3=&' 5 @ &9' * ' 06-1' G&' *' 9' 3& 8' 64 2=3' 06-1' 58003=' 5&>''5 0>& &1' > 3=' -03''8 *-'' &*:&9' 0-' 3' &*:&9' <6 3&' &-3 &' 2 *6;06 9' * '?' :& '' 58003=' 54 &*1 -2' @63' -03' @&-3' @*;G ' OH 0 *' 4* &' &' 0>' 50 8 &>=*3' 58 * &' 3=*-' 3=*3' 05'

3' 9 1 53 -26 50&1' 5 08' 2 ' @'' 39' '& 0>' 5 0>& 9' *-1' 36@& 069' 003' -' 3=*3' 1 &' 5 0>& 9' * &>= 3&' *-1' 3=&' 003' @ 6 @ 0 6 9 ' ' *3 :&' 05' 3=&' 063=' 05' *-;&' *-1' 05 4* -Á 0-' 1 '' * 4 -&' 4*536 &9'' 3 5 0>& -2' -*4 ' *-1' 8 *'' 4&H ; 8 &-9' 5*'9' R ' 3=& -2' >& &' @ 062=3' 5 08' 0 3=' * &9' @'' ' 3;=* 1

* G - @-' 5 26 &9' 3' > 3=' 106@ &' 5 0>& 9' @63' 1&H 5& @&9' 3' > 3=' 5& 8 "106@ &' 0-&9' 0 - ']' ' &' *55 8 9' 3=*3' *' :* &3'' > 3=' 106@ &' 5 0>& 9' 9' -' 3=&' * 9' 2* 1&-' @63' 3=*3' >&' =*:&' -03' *&3' 20 3' 3' -' -2H *-1' ^ 0@*@'' 3' =*9' 5* &-' *' : 13 8 ' *9' ' 6 3 9' &?4 &5 &9' 3' 30' 3=&' *2&' 50 -0:&3' . [=*3' > 3=' -2 &' 5 0>& 9' >*9' ;6 3 :*3&1' @'' &* 1&' -' /#PQ

#' 3& 8' 5;* ;& '' =* 5' *' 54*-' -' =& 2=3' <6 3&' 8 H 4 &' 06-1' 64 2=3' 505 '' =* ''5 0 8' 3=&' 8 11 &' 30' 3=&' 304' Á =*: -2' *' -2 &' 5& &' *-;&0 *3&'' -&* '53 '' *3&1' 4& 5&;3 '' &-3 &' &*5' *@063' 3=&' 8 11 &' 05' 3' *-1' 0-&' 5 0>& *3=&' 304' Á 5 0 8 &3 8 &9' @63' 5; 10 8' *' -2 &1 4&16-; &' @&* -2' 0-&''5 0>& ';0 8 &9' 063' 5 0 8' 3=&' *? ' 05' 3=&' &*5Á *3' 3=&' @ 6 @' ;0:& &1' > 3=' 00 @ 0-2' 8 H @ ;*3&' @ 0>-' 5;* &9' >= ;=' 5&& 8' 30' @&' 3=&' &8 * -9 05' 3=&' 003'' &*:&9Á 506 ' 0 ' 8 0 &' 06-1' >= 3 5 ' 3=;G 5=' 5 @ &9' 54 -2' 5 0 8' 3=&' @*5&' 05' 3=&' @6 @ ' *-1' 54 &*1' 063' =0) 0-3* ''Á -' 3=& ';0 8 80-';&-3 &' @ -1H -2' 64' *' 58 * ; ' @6 @' * 05' *' 54=& 0 1*' 50 8' *-1' @ *;G 5 ';0 06 ' -&33&1' > 3=' 5 @ &9' 003'' &*:&9' 5&>' 64 2=3' = 2=& ' 3=*-' 3=&' 8 11 &' 05' 3=&' 53&8 ' &5&8 '' @ -2' 3=05&' 05' ' @63' 80 &' *;63&' -' <6&1' @ 2=3' 2 &&-' > 3=' 1* G&' -&9' <6 3&' &-3 &' 6-- -2' * 0-2' 3=&' 4&3 0 &' 0>&' * 2&' -' 4 040 3 0-' 30' 3=&' 5) &' 05' 3=&' 4 * -37 ;*' ;-&' &*5 &39' 0:*3&'' *-;-2' >= 3&' *3' 3=&' &12&9' 46@&5&&-3' *3' 3=&' @*;G' *3' 5 53' 2 &&-' 3=&-' '& 0 > ' =' >= 3&' Á 4&3* 9' 9' * 2&' 0@0:*3&'' 06-1&1' 5-0>''>= ;&' &-3 Á 53' ;' 0 3' =00G&1' 063>* 197 3' 3 28 *' 5 84 ;V

003' *' 50 3' 05' @6 @' ;0:& &1' > 3=' *' 08 &-305&' -&3' *-1' =*: -2' 5 @ &9' -' @6-1 &9' 3& 8 64 2=3' 5 50 8

S' 6 69' 8 3=' 6 3 9' ;' 3=& -2' ' 2=35003 :' *' Á' -' ' 9-' *44' '56;;

' 8 3=' *8 5 * ;' -2 @03' ' 8 3=' :' 3=& -2' -- ' 0 3 G&> Ñ *;<6 -

5;&-' -' 2* 1&-9' > 3=' *' 106@ &' 5 0 > & ||' &* 5* '9' =&' 506-1' ;' > 1 ' *-1' &3 3 -' 9 2* 1&- ' *-1' 3=*3 8 053 05 3=&' 4 *-39' -' -2 *-1' ;0 8 &' 5 08' 3= 9' 003

/K' 003' 5 @ 069' > 3=' 3= ;G& ' 5 @ &9' *8 0-2' 6 &-5 &-1; ' 0-&9' &*: &9' *1 ;* ' -6 8& 069' 3= ;G' ;0-;*:&' &-3 &' *3' 1 &' 5 1&9' @63' > 3=' 3>0' 0 ' 3= &&' 3&&3=' *3 3=&' &-1' -' 3=&' *33& ';*5&' >= ;=' 9 8 053 5 &-H <6&-3' 3=&' 8 11 &' 3003=' 9 3=&' * 2 &53 ' 3=&' 0 1& ' &*: &9' * ;' 2&-& * '' &-3 &' *-1' @ 6 -3 4 3=&'' * ;' -& :&1' :& '' * 2&' 3:D0' -;=&9' 0-2' *-1' *-' -;=' *-1' =* 5' > 1& ' :& '' 5 8 003=' *5&&-1 -2' 4;3 0 &1' &3 0 &' ;=* --& &1' 46@&5&&-3' 3= ;G' 5 *33&-&1' *3' 3=&' @*5&' 8 &8 @ *-*;&06 9' *3'=&' &12&' 3> ;&' 0 '3= ;&' *9' 0-2' *9' 3=&' &*5' 4 0H ;6 8@&-3' *5&&-1 -2' *3' 3=&' &-1' *;=' 4 *-3' =*9 0-&' 3>0' 0 ' 8 0 &' 6 --& 9' & 8 & 2 -2' > 3= -' 3=&' 4&3 0 &' 05' *' &*5 ' 5 08' 3>0' 3D' 506 '5&&3' -' &-23=' 06-1' 5403&1' > 3=' &1' ;0>* 19' 3=&' 304 ' 46@&5&&-3' 53 * 2=3' 3=&' -'' 3& -01;9 *' 54*-' 0-2' 003 -2 *3' 3=&' FO -39' f *-1' *3 &*;=' 05' 3=& ;' 9 0-&' &*5'' 26 &' 0 ' 53 46 &' 05' *' -&* '' *-H ;&0 *3&' 50 8 ' 5=&* = -2' -1&?&1' 0>& -2''5&8 9 0-&' 0 ' 80 &' *' =*-1' *-1' =* 5' -' &-23=' 4 0;6 8@&-3' *5&&-1 -2' *3' 3=&' 304 ' 8 4 &' 0 ' 50 8 &3 8 &&9 1 : 1&1' -3D' 3>0' 4&16-; &9' 05' 1 55& &-3' &-23=9' * 8 053 -*G&1' 06-1' &:&-' 0 ' 0@5;6 ; '' 53 &*G&1' 54033&1' > 3=' &1' =*: -2' 0-&' 0 '3>0' &*5'' *-;&0 *3&' 0 ' -&*' 26 &9' 0 ' 5 46 ;9' 0>& 9' 50 3* '' 3& 8 -*3 -2' * 2&' &5& 8 '' @ -2' 5=05&' 05' 2 ' 0 ' * '?' *& 0>' &3* 9' 5 :&' 0 ' 5 ?' 30' 3&-' '& 0>' 4 &*1 -2' :& '' 8 6;=' * -1' &:&-' &;6 :&1 ' 0-2&' 3 *-' 3=&' ;* '?' 0 :*3&"0@ 0-2' &&F 9 0@ 0-2' 50 8 -2' *' 2 0@6 * ' @01 '' 3' 4 04 *H 2*3&9 350 5@'' 6 --& 9 G&' 3=&' 3 *>@& ' [*3 :&' 05' @& *' @&' 0-1' (* G* ' -' 3=&' 5* 39' .

' 003' 06-1' @ 0 > - =' 5 0 8' 0-&' 30' 3>0' -;=&9 9' & 0>' 5 8 * 0-2' 4& 4&-1 ;6 * ' 3=&' 3= ;G-& 9' 05' *' 53 *>' *-1' 4& 8 *-&-3' -' 39' >=0 &' &-23=' 4633 -2' 50 3= 8 *-" 565 50 8 ' 0-2' 4* &' 56@ 8 @ ;*3&' 5 @ &9' =&' >=0 &' 4 *-3 5 - -2' 3&8' 06-1' 5 0 8' *' =*-1' 30' *' 5003' -' &-23=' 64 2=3' 46 4 5= -&?3 3=&' 2 06-1' 003*' &*:&9' 56@ &- 50 8 ' ;0 *;&0 69' 5 8 ' :&-&1' ; ;-*3;' 0-' 3=&' 1&9' -03' ;63' F-' 3 &' 5* 8&' 8 *-&-' *3 304' @63' 053&-' ;365; ' - 3=&' 5 0 > ; -2' 4 *-3' ;=&5;' * &' 053&-' 50 3* '' * >*' 9' :& '' 5&>' >=&-'' *-'' 50 ' 50 8 &3 8 &9 $ 3=& &' * &' -0-&' 6;=' *' &*5 ' 0- '' 8 6;=' * 2& ' *-1' 0-' '' *' 8 6;=' =0 3&' 4&3 0 &' 5' -03' 5&55 ;' 0 ;;64 &9' 3=& 3 4 4&' 4* 3' 05' 3=&' 53& 8' 7 5 0 8' 3=&' *?' 05' 3= 9 ;0 8 &9' 06 3' *' 0-&"5 0 >& &1' @ *-;= &3' V >= 53' 3=&' 53& 8' 35; 5' 9 3& 8 -*3&1' @'' *' 5 8 *' 0-&' 0 ' -' 53 <-2&' 4 *-39' 9 1 : 1&1' -3D' *' 5&>' 80 &' g 03=& > 5&' 3=&' 53*' G9' &-1' -' *' -2' &' 5 0 >& ' :13=063' *-' @ *-;= ' =&' &*:&' 05' 3=&' @ *-;= &;9' * &' *-;&0 *3&' *;63&' <6 3&' &-3 &' *-1' 5; ;'0 -' 4 *-39' 3=*3' * &' 80 &' @ *-;=&1' 3=&' 0>&53 &*:&9' >=&3=&' @ 5 1' 0 ' 3 5 1' =*:&' 3=&' 0@&9' G&' =0D;' 05' 3=&' 644& 8 053' &*:&9' -' 50 8 ' &3* 9' 50 *&" @ 8&9 5 ?' '& 0>' > 3=' 3=&' ; *>' 4* & ' 4 &*1 -2' * '?' 5 0 3& '" &&1 9' 53>' 5 8 003=' @ 0>-' 5 *3 5 ' 0-' 0-&' 5 1&' 06-1 =' > 3=063' &-1 -2' -' *' 6-* 8&1' &5 &?&1' 40 -3

*3 :&' 05' 3=&' 49' 05' > 3)& *-1' *-1' 653 *&' 3=&(' &-&&9 ' R*64= -;' &1 8 0-3' &5 *' 3' *4&* 9' 5 0 8' * 8 0-!@ & @*' JQ QM' 3=*3' 3' >150 ;' 54&; &9' 3= &&' 0 ' 506 ' 5&&3 = 2=' *-1' @ *-;=&1 ' 3& 8' =0 0>' > 3=-' *:&' 0>& ' &*:&9' * 2& ' *-1' *' 33 &' =* '' *@063' 3= &&' -1 &9' 0-2 *-1' 506 ' @ 0*1' 1&&4 '' ; &-*3&' 1 : 1&1' 656* *' -3D' 5 :&' 0@&9' *-1' 0-' =* "50035 * G9' 3& 8 9 - -&' 0 ' 3&-' -;=&9 = 2=' =*: -2' 3>0' 0 '3= &&' &*:&9' 0-' 3=& 8 ' ;63' -3D' 3=&& 5&2 8 &-39' *-1' &-3 &' F 1 : 1 -2' *3' 304' -3D' 5 ; : ' *' 4&16-; &9' &*;=' 5653* - -2' 0-&' * 2&' 4* &' & H 0>' 5 0>& ' 3' (0>& 9' 3=&' @&2 - - -2' 05' 6-&

*3 :&' 05' 3=&' 5 *-1' 05' *-1 *' 0 ' &3&' ^ 6 3 H :*3&1' @'' ' & ' -' /E#P

/L' = 9' &5& 8 @ &9' ') ' 3& 8' * 2& ' 0>& 9' * 2&' '& 0>' 1&53 363&' 50 8 &3 8 &9' &3=& ' 05' ;* '?' 0 ' ;0 0 *'.

/+' 003' 5 @ 069' 4& &- - *' 3& 8 9' *' 5003' = 2=9' 64 2=3' 1 : 1 -2' -30' 3>0' 0 ' 3= &&' @ *-;=&9' ;*5' ' 06-1' 053&-' 5 2=1 '' 10>-' 0-' 0-2' 500 3*53' G9' 8 053 '' 3= &&*; &53 ' 1&&4 '' -03;=&1 A' 50 8 &3 8 &9' 5 :&*1&53' 53& 8 *' &*:&9' 5&5 &' 1 : 1&1' 30' 3=&' @* &' -30' 8 *-' -&* ' 0@&9 ' >= ;=' * ;' 5& 10 8' 56@ 1 : 1&1' 0 ' ;63' 0>& 9' 3& 8 -*3 -2' ; &53 ' 50 3* '' 05' *' @ 2=3' 20 1&-' =6&' ?0-' 06-1' 46@&5&&-3' 4&16-; &9' * '?' 4* &' & 0>F =* '' 5 * ;& '' *3 * ' &5 &?&1' &13* '' *' -*G&1' 40 &' -03' ; 05&1' @'' *-'' 5;* ;' -';0 1' @*;G>* 1' 5&*50-9' -' 2* 1&-9' -'6- =& 3& &1' 5 36*3 0-9' *-1' -' 8 0 &' -0 3=& -' ;06-3 &9' 3=&' &*' 4&3* 9 * & 50 8 &3 8 &9' >*-3 -2' 3=&' ;* '?' @& -2' 1 *3&1' *-1' 8 0 &' ;0 06 &1' 3=*-' 656* * 5D' *9 3D' 5644 '' 3=& '4 *;&' 3' =*9 @&&-' ;* &1' & 7 ' *-1' + '@ ;- &' +% 0 3=&' &4 3=&3) + '@& -2' -'' 3&-1&1' 30' ;?4 & 9 ' 3=*3 3' =*9 -0-&' 05' 3=&' *; 1' 0 ' ;* 653 ;' 5 *:06 ' 656* ' -' 3= 9 2& -6 9 7 3=&' 03=&' &4 3=&3' 9' ;?4 &5 :&' 05' 39' 4 *;&' 05' 2 0>3=' 3' 5 0>& 9' -' *4 ' *-1 8 *'

= 9' 54;; &9' 9' &*5 '' 1 53 -26 =&1' 5 0 8' 3=&' 03=&' $ > 1' 0>5 00 39' @' 39' & 0>' 4*3 6 06@ ;* '?' F 3=&' -*G&1-&5 9' 05' 39' -&1 *' ' >= ;=' 9' * 5 8 * '0@ <6&' =0 &' 6 -- -2' 10>-> * 19' *3' 3=&' @* &' 05' &*;=' 4&3* 'F @'' 3=& @03 0 8' &*:&9' @& -2' &5 3 ;63' *-1' 3=&' 64 4&' 0-&9' - * H 0>& '3=* -' -' 8 0 3' 05' 3=&' 03=& 9' F @'' 3=&' 4&3* 9' @& -2' 5 &<6&-1'' >*-3 -2 g' *-1' @'' 39' 4 *;&' 05' 2 0>3=V ' ;' *5 &13 9' ;= &5 '' *' ; *' &'' 50 ' = 9' 54&; ;9' =*9' 50 8 &'' 1 8 &9' 106@ &' 5 0>& 9

/#' *3 :&' 05' 2 - *' *-1' *-*1 *' -' 8 * =&9' 003'' &*:&9' 4;3 0 &1' F 53& 8 '' &*:&9' 5&>' 5& 53 &' 0>H /Q' 003' *--6* ' ;0 8 405&1' 05' 8 *-'' >= 3 =' 5 @ &9' & @';* 06 9' -' 5);' *-1' 6?6 *-;&' 05' *' 4 *' & = - -2' 2 &&-' ;0 06 ?6 ; '' *-' 1 :& '' 5 8 003=' &?;&4 3=&5 <>; '' 53* G9' *-1' 644& ' 4 * 3' 05' 3=&' 53& 8 ' >= ;=' * &' 0;;*'' 5 0-* '' =* '' 3& 8' 53 * 2=3' 06-1' =0 0>' 3= ;G' @ *-;=&1' &*5'' 0>& ' &*:&9' 0-' 0-2' 5003 53* G9' 0@&1' *-1' ;63' @63' &53' 1&&4 '' 3=*-' 3=&' 644& ' 0-&9' >= ;=' * ;' 1 : 1&1' 30' 3=&' :& '' @*5&' *-1' 5;5 ;'g ;=& ' 5&2 8 &-39' -&*' *-1' &-3 &' 0>& 9' -6 8 & 069 ' 4&'' 16-; ;1' 5 8 * ' 05' *' 4 * 5=' '& 0>' * '?' 1&5 &?&1' =*22 '' 0-&' *'40 &' 50 8 &>=*' 36@6 * ' 6 3 ''0 :*3&'' 0@ 0-2' ;0 8 40 &1' 05' *' 8 6 3 361&' 05' 5 8 * '5&&19 G = 9' 4&; &9' 9' &*5 '' 1 53 -26 =&1' @'' 39' @ 0*1' = - -2' @03 0 8' &*:&9' 3=;G' 53* G ' 8 *' '& 0>' 5 0>& 9' *-1' 5 8 003=' 0@ 0-2' 5&&1'' =&*19.

3' 9' :& '' ;0 8 8 0-' -' >*3& '' 4 *;&9' >=& &' ;' 8 *'' @&' 506-1' -' 5 0>& ' *-1' 5&&1 ' 5 0 8' F6 -&' 30' 3=&' &-1' 05' *626 53

= 9' 9' 0-&' 05' 3=&' 8 053' : 6 &-3' 05' 06 ' -*3 :&' 4 *-39' (6 5&1' *-1' *44 &1' 30' 3=&' G -' 3' 50 0*1' *' @ 53& ' *-1' 8 *G&9' *' 50 &' @'' -0' 8 &*-9 ;*5'' 30' =&* ' 3 0 -2' @&22* 9' =*:&' @&&-' 5* 1' 30' 6 &' ;' 50 ' 3=*3 46 405&' -' 0 1&' 30' &?; 3&' ;0 8 4*5 0-' =&' &-'';=&>H &1' 3' -5 * 8 &9' 3=&' 30 -26&9' *-1' >=&-' 3*G&-' -30' 3=&' 530 8 *;=' 3' 4 016;&9' 0 &-3' &55& 539' 3' 9 56J4&T' &1' 30' =*:&' 4 0 :&1' 40 @ -069' 30' 5=&&4 G

/E' = 9' 9' *' :& '' =*-150 8 ;' 54&; &9' 3= &&' 0 ' 506 ' 5&&3 = 2=' *-1' @ *-;=&1 ' 3&8' =0 0>' > 3= -' &*:&9' * 2& ' 1 2 3*3&' 3= ;;'' @&&1' 1 : 1&1' 30' 3=&' @*5&7 5&2*'' 8 &- 9' *-;&0 *3&' 5& *3&' *' 06-1' 50 8 &>=*3' 2 = 563&' &54&; * '' *3 3=&' @*5&' 0>& 3 ;&' 3& 8 -*3 -2' &*;=' @ *-;='' &3* 9' 06-1' 50 *3&' *' ?' 562*; 069' 46 4 5= [*3 :&' 05' 3=& 49' 05' 6 04&]

=&' 106@ &'' 5 0>& -2' :* &3 '' =&' 9' @&&-' 0@3* -&1' @ '' 5&&19 *-1' 9' 4 &5& :&1' -' 8 *-'' ;6 069' 2* 1&-9' 50 ' 3=&' @&*63 '' 0 ' 39' 5 0>& 9' 3' 9' @'' 50 8 ;' 2* 1&-& 9' ;* &1' '' 1 &' %'' =&' 00 3' 9' 4& &- - *' *-1' ;0 8 405&1' 05' 8 *-'' 53 0-2' 5 @ &9' 3=&' &*:&9' * &' 1 : 1&1' -30' 5 :&' *-;&0 *3&' 0@&9' 3=&' 506 ' 5 1&'' 0@&9' * &' 640-' 5003 53* G9' ;0 8 -2' 5 0 8' 3=&' 5 1&' 05' 3=&' 4 -;' 4 *53* G ' *-1' 3=&' 8 11 &' 0-&' 3& 8 -*3&9' 3 &3=&'' * &' 1&&4 '' 5& *3&' *-1' =*:&' 5;-& *' 0-2 361 -*' :&-9' =&' 53* G9' 5&' *' 500 3' *-1' =* 5' = 2=' * -1' @ *-;=' 063' *3 3=&' 304' -30' 3=&' &&' 0 ' 506 ' 1 : 5 0-9' *3' &*;=' 05' >= ;=' 3=&' &' 9 0-&' &*5' 05' 1 &' 5 * 8 &' =*4&' > 3=' 3=&' 0>&

' 6 3 9' 0 *' 655 ;*' 8 3=' 2=35003 .' 6 *'' ' .' *653 ' .' 0 3 ' G&> O&G&

f' -2 ' @03 ' .' 6 3 9' .' 6 3 9 .' -2 ' @03

@ 3' 58* & ' =&' 5 0>& 9 * & 46 & >= 3&' *-1 :& '' 106@ &' &*;=' *-1 -2 640-' *' 5 0 3' 500;"53* G' 3 5 0>& 9 -' 8 *'' ^ & * 1& -' /# PE 5*'9' a' 3 0>& 3= -' 3=&' 2* 1&-9 05' & @* 539' *-1' 0:& 9 05'53 *-2;' a' 4 *-39' >=& &05>&' =*:& 2001'4 &-; &' 50 ' 3' 2 0>&3=' a' -03' > 1' >=& & b' & * 1&' >*9 -03' *>* &' 3=3' 3' 9 *' :* &3'' 05' >=*3'=&' =*1 5 26 &1' 6-1& '3=&' -*8& 05'2 ' ' & F /C' = 9' =*9 3=&' 53*36 &' 05'2 ' % ? ' *-1' 3'=*$6;=' *18 &1 * 50' >= 3&' 5 0>& 9' 9 3=&' &*:&9' =0>&:& ' ;' -03' ;0 8 H 406-1' @63' 4* 8 *3&' &53' 3= ;G' *-1' 80 &' ; 8 7' 3=&' 5 0>& 9 * &' * 2& ' -' 3=&' 4 &;&1 -2' 3=& 0'&9' 05' 3=& &*:&9' * ;' *;68 -*3&' *-1' 3=&' 5&2 8&-39' 05' 3=&' 644& ' 5 0 *' &*:&9' *-;&1*3& *3 :&' 05' 3=&' 806-3*-9' 05' & 8*-'' *-1' 3*' '' *=1' 05' 3=&' ' &-&&9 ' -3 016;&1' -' /EQP' @'' & 539' & -&1 '' *-1' &' 5 F2' 003' 36@& 069' 3& 8' *' 5003' = 2=' 06-1' 64 H 2=3' 1 :1&1' *3' 304' -30' *' 5&>' 0-&"5 0>& &1' 4&16-H ; &9' 003" &*:&9' -' '06-2& '4 *-39' <6 3&' &-3 &' 3=& &53' 4;3 0 ;1' *-1' 3& -*3&1' 3=&' 644& ' 0-&9' @ -*' &' *-1' @@ ; &' 0' &:&-' 5 84 &' -' 03=&' -1 :16* 9' 3=&'' *' &' 053&-' 80 &' &26 * '' ;0 8 406-1' &*5 &39' *-H ;&0 *3&" -&* ' 0-2' *;63&' &-3 &' 3& 8 ' 4&16-; &9' *-1' &*:&9' ;0 :& &1' > 3=' *' 505 3' =0* '' 10>-' * ';-& ;*55&;9 2 &&-' 0-' 3=&' F5 1& > 3=' *' >= 3& &12& ' 0-' 3=& 0635 1& >00 '">= 3&' >=0 '' 36 -&1' @*;G' &3* 9 * 2& ' *' 3= 1' 0F 2& ' 3 *-' 3=&' ;* '?' 0-' 3=& 84 & ' 56 5*;& =-;-2' *-1' 1&&4' & 0:D' > 3 ' *' 2 &&-=' ;*>'& 0-' 3=& 0>& ' 6 5*;& 2 &&-=' & 3=&'' * & 5 *3 *-1' 4 ;*1' :& '' 86;=' *-1' 50 8 &3 8 &9' * & 5 7' -' -6 8 @& ' &*1' 05' 2& 8 9' 0:*3&"0@0-2' ';0 5=' 2 &&-' > 3=' :05;' 53 2 8 *9' &&19' 5 8 003=' *-1' *;63& *3 :&' 05' 3=& 063=' 05' 6 04& ' 0-' 1 '' = ''4*5*' 36 &9' 6 3 :*3&1' -' /#PQ' @'' & * 1& ' 3' 5 0>& 9 -' 8 *'' *-1' 6-&b 0' 3& 8' 06-1' > 3=' 4 &*1 -2' =* 9' @ *-;=&1' &*:&9' 5 2=3 '' 8 * G&1' > 3=' -&9' &*5 &39' 3 5 1' *;63& ';63' *-1' 5& *3&' &16-;&9' 06-1' &:&-' >*-H 1& -2' * ';-&' &*5 &39' 0:*3&' ;0-;*:&' &3* 9' '& 0>' 5;* ;& '' *9 @ 2' *9 3=&' ;* '?' 3* 8 &-9 5 8 * ' 3=&' &-23=' 05' 3=& ;0 0 *' &*1' 05' 2& 8 9' 0:*3& ' 0-2& ' 3=*-' 3=& ;0 0 *' &&19' 0:*3& ';0 8 4 &5 &1' 8 ; 0-*3& 3' 9 *-' *--6*' 0 ' @ &-- *' 4 *-3' -*3 :& 05' *-*1*' *-1' ;--5' :*- *' -3 016;&1' -' /ECP' @'' =&:* & ' =6-@& 2 * ' 06-1' @'' =6-@& 2' -' 3=& 5 *-1' 05' 40-' -' *4*-' 5 0>& -2' -' 8 *' **' 3& 8' 64 2=3' @ *-;=&1' 46@&5&&-3' 06-1' *9 * & ' 5 0 3=& 4 6-1 &9' 0>& ' &*:&9' 8 4 & ' 0&09' *' 2* =&1' *;63& ' 46@&5&&-3 6-1& -&*3=' *9 * & ' 5 0 3=& 4 &3 0 &9 ? 3944& ' &*:&9' 3= &&"4* 3&1' *-1' @ 3& -*3& ' * '?' -03' &5 &?. ' =6-@& 2' &8 * G9' 3=*3 * ' 3=& 4* 39 * & =* ' &?;&43' 3=& ;0 0 * 003' ;0 8 40 D 1' 05' 8 *-' 3=;G' 5 &5=''5*-29' 0 '5 @ &9' 6-3-2' *3' ;04' -30' *' =&*1 5 0 8' 3=&5& * & 5&-3' 50 3=' 8 *-' 5 &-1&' 0-2' 5 @ &9' 53 G -2' 1&&4' -' 3=& 2 06-1' 0 8' 3=& 304' * 5& 5&:; *' &*:&9' ;0 405 &1' 05' 3=& &5 7' 0' - -&' 0@&9' 05' &26 * ' 50 89' *-1' ;63' *3' 304' -30' :* 06 9' 5&2 8 &-39' (&3>&&-' 3=&53 * 53' 3=& 5 0>& '* 53* G9' *@; 3 *' 500 3' = 2=' 3*4& ' =* '' *-1' @ ;= -2' 063 *3 *' 33 &' 1 53* -;&' 5 0 8' 3=&' 003' 3& 8 *' &*:&9 1 H : 1 -2' -30' 3= && 4* 39' 3=&53 *2* -' ;63' *-1' 2&-& * '' 3& 8 -*3&1' @ '3 5 1' 40 -39 7 3=&' 4&3 0 &9 * ;' & 8 @ *; -2' *3 =&' @*5&' =&' &*:&9 * & ' *' =* '4 =&' 0>& '0-&9 8 6;=' * 2& ' *-1' 80 &' ;0 8 406-1' 3=*-' 3=& 644& ' 0>& 9' 3& 8 -*3 -2' >3=' 3=&' 53& 8' -*G&1' 50 ' *' ;0-'' 5 1& *@ &' &-23=' @& 0>' 3=& 8 ' =& '' :* '' 86;=' -'5);' *-1' ;0 06 ' * 1' 3=&' 4&3 *9 * & 5 &<6&-3 '' 05' 1 55& &-3 ;0 06 9 0-' 3=&'3>0'5 5*;&9' =& '' *44& *' -' 8 *'' *-1' -' 801& *3&' 53*50-9' 0 ' >=& & 3=&'' * & 5 *1&1' 5 0 8' 3=&' 56-' -' 3=&'=&*3 05' 3=&' 1*'' 3=& &'' > ' @&' *' 56;;&5'' 5 0-' *3 &*53' 16 -2' *' 80-3=' =&' 5&1 9 4&-' -' /#PQ' S] ' & ' 5*: ' 3' >*9' 0 2 -*'' @ 062=3' 5 0 8' & 5 *F @63' 5 -;&' 3' =*9 @&&-' -' 6 04&' 8 *-'' -&> :* &3 &9' =*:&' @&&-' 0@3* -&1' 5 0 8' 5&&19' 4* 3 ;6 * '' 05' 53 8 106@ &' 5 0>& 9' =&5&' * &' 5 0' * 2; ' *-1' 05' 5<' 8 *-'' @&*63 56 ';0 06 9' *9 30' &?;&&1' 8 05 3' 03=& '5 0>& 9' 05' 3=& ' 5&*50-' *-1' &:&-' 30' :&' > 3=' 3=&' * -*3 0-' 353 57 3=&'' * & 8 *-' 05' 3=& 8 5-' 5&&-3 &1 f *-1' 3=&' 0039' >=& -' 53 0-2' 2&-& * '' 4 016;&' 5 0 8' 3>&-3'' 30' 3= 3'' 5 0>& 9' -' 5 ;;;5 0-' f >=;=' <6* 3 &9' =*:&' &-H 1& &1' 3=&' * 1&-' * -&' 6 69' -' 39' 8 4 0:&1' 53*3;' 6;=' *18 &1 ' & '-*9 8*1&' *' 1 53 -m3' 54&;&9' 05' 3=&' @ 001'' 5 0>& &1' * -6-;6 69' 6-1& ' 3=&' -*8&' 05' 2) ' = 9' *' 9' =&' =*9 @&&-' * 8 05 3' @*- =&F 5 0 8' 06 ' 2* H 1& -9' 5 -;&' 50' 8 *-'' 5 -&' :* &3 &9' =*:&' @&&-' 0@3* -&1' 5 0 8' 5&&19' 05' 3=&' & 5 *-' *-6-;6 69' = 9' =*9 *' 2 6 8 06 9' 003' ;& 3=*37' 3=&' &*:&9' * &' 1 :1&1' @'' 3= &&9' 3> ;&' *2* -' 1 :1&1' @'' 3= &&9' *-1' 0@365 ;' F 3=&' 53* G' 539' *@06 3 - -&' -;=&9' = 2=' *-1' 9' 3& F- -*3&1' @'' 0-&' * 2& 106@ &' &1' 5 0>& ' 3' *44& *' 9' *3 3=&' &-1' 05' *4 g *-1' 50 8 &3 8 &9' 0-&' 0 3>' 0 :& ''5 8 *' 5 0>& 9 @ *-;=' 06 3' 5 0 8' 3=&' 5 1& ^ * G -50-' &-6 8 &*3&9' 3=&' 50 0>-2' :* &3 &9' 05' 3=& * 1&-' *-6-;6 69' 0' 0>5003' *9 =&;* 9' 3 /' =&' @ 0*1' *&5&1' *-1'' 0>5003 ,' =&' >=3&' *-1'' 0>5003 L' =&' 2&-3-&' 0' 103=' 05' 5 :;' 0>5003 +' >' -2' &1' 0>5003' 05' *' 0' 40 #' =& * 2&' -2' &1' 0>5003' 05' 5 * 0' =&' &1' 53 43' -2' &' 0>5003' 05' 5 * E' =&' '& 0>' 53 43' 0>5003' 05' 5 * C' =&' 106@ &' &1' 0>5003' 05' 5 * *' J= 53' #P+ l' @&5 1&9' 5&:& * ' >=;=' =&' &-6 8 &H *3&9' *9 54&;&9' =*9 3>&-3'' :* &3 &9' 5 0 8' 3=&';*3*H 026&' 05' 3=&' 0' *' 2* 1&-' *3' * 9' 05' 3=&' '&* ' /QQ# &*' =*9 [=&' 106@ &' >=3&' 0' 0>5003' 05' *-1' 03=' 05' 5 :& 'U05' *-1' R06@ &' '& 0>' 05' 5 * R06@ &' &1' 05' 5 * -1' 3=& -' 03=& 9' >3=@* @* 069' -*8 &9 *-6-;6 69' 05' 5 *' >3=' -2 &' 5 0>& 9 A' 05' >=;=' & & :&-' :* &3 &9 * &' 533' 10>- (63' 3 &' :* &3 &9' 4 016;&1' 05' *3&' '&* 9' 5 0 8' 3=& 5&&19' 05' 5& 8 106@ ;' 5 0>& 9' * & 6-06-1&1' 7 *-1' *110;G' &8 * G9' 3=*3 3=&'' * ;' 80 &-68 & 069' 3=*-' 05' *-'' 03=& '5 0>& ' ;;0 1 -2 '' = 9' ;*3* 026& @0*539' -&* '' & 2=3' =6-1 &1' * ' >3=' 3=& ' 4 04& ' -*8 &9' * -2&1' 6-1& '3=&' =&*19' 05 /' R* G' *-1' 1* G' 46 4 &' ,' 2=3' 46 4 &' *-1' *'' W;' L' 8 503' W;' +' &19' W;' #' 05'. W;' Q' *-2& ' W;' E' e& 0>' *-1' '& 0>' 5403 &1' W;' C' = 3&' *-1' >= 3&' 5403 &1' W;' P' :& ' W;' /K' 6 4 &' *-1' 055 &53 4 &1' W;' // &1' *-1' & 0>' 53 4 &1' /,' &1' *-1' >= 3&' 53 4 &1] ,L' = 9' =*9 *' 36@& 069' 003' 5 =&' &*:&9' * ' 1 &H ;0 8 406-1 &1' *-1' 5 8 003=' & 3=&' 53* G9' 53' ;*' *' 500 3' = 2=' *-1' =*:&' 0-&' &*5 05' 3=&' 5* 8 &' =*4& ' >3=' 3=& 0>& ' @63' 5 8 *' & F 3=&' 53* G' 9' 3& 8 -*3&1' @'' 0-&' 106@ &' 5 0>& ' *@06 3' 3=&' 5) &' 05' 3=&' ;0 8 80-' (693& *' 5 0>& ' 05' *' 5 -&' @ 2=3' & 0>' ;0 06 ^ =&' 53& 8' 9' ;0 8 80-' 0-&*5 0>& &1' *-1' 0-;*' &*3&1' f 3' 0;6 9' =0>&:& ' 5 &<6&-3 '' 3=*' *3=& 5 0>& &1' 53& 8 3' ;0 8 &9' 5 0 8' @& *' >3=*' @ *-;;1' 53& 8 0 0 *' >=3& ' 0 53&-' & 2=3' 0 3& -*' 4;3* ;1 *3 :&' 05' 3=& 806-3*-9' 05' 653 *' R* 64=-&' > 3)& *-1' &1 80-3' W;' 3' 5 0>& 9' -' 8 *'' *-1' >*9' ;6 3 :*3&1' -' /E#P' @'' ' & . ,+' 003' @ 2' *-1' 5 ;53:'' -' 50 8' 05' *' @6 @' *-1' :& '' *; 1' 465=-2' 50 3=' 8 *-'' 0-2' 3= ;G' 5 @ &9' &-;&' 54 -29' 3=&' 3& 8 2 *16* '' @&;0 8 -2' 58 *& ' &*:&9' * 3& -*3&' 1 :1-2' -30' 3=& &' 4&3 0 &9' &*;=' 05' >=;=' 1 :1&9' *' 5&;0-1' *-1' &:&-' *' 3= 1' 3 8 &' *-1' 5 - 53 -2' -' 5 *3' 5 80 0&' @ *-;=&9' 053&-' -' -&' *-1' &:&-' 5 53&&-' &*;=' =*:-:-2' *' 5 -2 &' &*5 *3 3=&' '@*5&' *-1' 0-&' =*-150 8 &' 5 0>& ' *3' 3=&' &-1 7 ;*';-&' &*5 &39' @ 6-3.' ;0:& &1' > 3=' 65 &3' 0' :& '' 8 -63&' =*' 9' 4&3*' 9' ;'' :' 1&-0>' a' *<6-' ' 0 3' G&> S' --'3644' ' =6-@& 2' ' 8 '54&; '52' f' 0 3' G&>

10 8' >= 3& ' @6 3' * 8 05 3' * >' *' 9' ;3 - 2& ?' > 3= ' *' 4 &*5' * -3 : - 069' 0 ' 46 4 &' &1 ' 5 0 8' 5 :&' 30' 53 :&- ' 0 ' 8 0 &' -' -6 8 @& ' * 2& ' *-1' 4& 8 *-&-3 ' 6 3' 2& ' 0 :* ' ;0 8 4 05 ;1' 05' 5 0 8' 50 3 '' 30' 0 -&' =6 -1 &1' 5&&19' 5 8 * & ' 3=*-' 0' 3=&' 03=& ' 54 ;; &9.

*3 :&' 05' *4 * -1' R&- 8 * G ' > 3 ,& *-1' R*6"' 4= 6& ' *-1' &1 8 0-3' 0 -' = 2=' 2 *- 3&' 8 06-3 * -9' -&* ' 3=5' 5 -0 > ' 3' 5 0 >& 9' -' !6 - ; ' *-1' >*9' -3 016 ;&1' -' /EE #' @'' R 9'' 3 ;* -' *-1' 0 =& 2

1&-0 >' &8 * G9 ' 3=*3' 3=&' 5 26 &' 05' 3=&' &*:&9' -' 3=&' 0 *' *440 - ;*' *-1' 0 *'1*- ;*' 9 -0 3' :& '' 2001 ' 50' 3=*3' *3' 5 53' 5 2=3' 3' *44&* 9' 30' @&' *' 1 55& &-3' 4 *-3' @6 3' 3=&' 1 &1' 54 ;; *&-9' =*:&' &*:&9' 05' 3=&' 5* 8 &' =*4&' > 3=' 3=05&' -'3=&' 8 0 &' 5063=& 3 ' ;06-3 &9 *5' 6 04& ,#' =&' >=0 &' 4 *-3' 9' :& '' 5 8 003=' *-1' 3=& &50 &' 3' ;*- -03' @& 3=*3' >= ;=' 9' 506-1' -' 3=&' 8 0 &' 5063=& -' 4* 39' 05' 6 04&*' 50 ' 3=*3' 9' = 563&. ' = 9' 1 55& 9' 5 0 8' 3=&' 0< ' -' =*: -2' 3=&' *' ?' = 63&' 3=& 53& 8 " ;*:&9' ;5 &' 3=&' 3& 8' 5 8 & ' *-1' 3=&' 5 0 >& ' * 2& . [*3 :&' 05' *4 * -1' *-1' 0 >*'

,Q' =&' &*:&9' &5& 8 @&' 3=&' 5 0*3 -2' &*:&9' 05'

8 ' *'?' &5 &?' 5 8 003=' &3*' 9' >= 3& ' 3>0'' 0@ ;1' =

3' 9' 0 - ''3>0' 0 '3= &&' -;=&9' = 2= ' =&' -6 8 & 069' 5 @ &9' 05' 3=&' 003' * &' 053&-' 0 -2& ' 3=*-' 3=&' >=0 &' 4 * -3' 3=&*' * &' :& '' *; 1' *-1' -5 -6*3&' 3=& 8 51 :&9' -30' 3=&' ; &539' &?5 0 ; G9' 3=&' &*:&9' * &' 5 8 003=' 05&' 3=& 3=05&' 0 -' 3=& 53& 8 ' * &' *3=&' 8 4 &' @ *13&9&' *3&' ;*'?' *-1' 4&3* 9' * 3' >= 3&' 3=& *33&' @ 6 -3' *-1' ;:&-& 8 * 2 -*3&' 3' 9' 053&-' 506 -1' .5'*' * 2& ' 5) &' V

*3 :&' 05' >3)& *-1' 653 *' * - 0 *' R*64=: -&' &1 8 0-3' W ;

,E' 003' 5 @ 069' 003" &*5' 5 -2 ;' 0 -' *' 5 50 8' 4& 3 0 &' 3=&' &-23=' 05' *' 5 -2& ' 3= &&"4* 3&1' * 8 T ' 30' 3=&' @*5& ' >=& &' 3=&' 0@&9' * &' -* 0 >& ' 30 >* 19' 3=& 304' 3=&'' > 1&-' * &' @ 6 -3' *-1' =*:&' 3=&&" 0 ' 506 ' -03 ;=&9' 3& 8 " &*5 * 50 -2 & ' 0 -' *' 5=0 3& '4& 3 0 & ' 58 * & ' 05' 3=&' 5* 8 &' 5=*4&' > 3=' 3=&' 03=& ' 5@ 8 &; 8 &9 -' 3=&' 8 11 &' 05' 3=&' 53& 8 ' 50 8 & 3 8 &9' -&*' 3=&' 003' -' 3=&' 0 *' 6 ;; ;*' 3' 9' 5* 1' 3=*3' 3=&' &*:&9' * &' -&* " G 16 &' "50 3 ' @ 6 3' 3=' &&"4*33&1' 30' 3=&' :& '' @*&' F 3=&' 3- 11G' 0@&' G59' *-1' 0@5& 6 &' '' 3= ;&" 0@& 1 ' 3=&' 1& 0@&9' 1 : 1&1' -30' &:& *c' 5 8 * & ' 0-&9 [3& 8 9' 5 H 50 8 '*' 54*-' = 2= ' <6 3&' 8 4 &' * -1' 53 * 2=3' 0 >& ' 0 -&' 3& 8 -*3 -2 ' '& 0 >' * '?' '& 0 >' ;0 8 80 -' 3= &&" &*:&1' &:& -' 3=&' 5) &' 05' 3=&' 4&3* 9' 36 -&1' @*;G ' &3* 9' 5 8 * ' J=* 4 *3' @03=' &-19' 3*' 8 &-9' 3 >& :&' 30 5 53& &-' 53 9' 5 7' 30' & 2=3& &-' &&1 9' ;6 8 -*3& ' 36 -&1' @*;G ' *3=&' 304' 50 8 -2' *' 2 0@& [*3 :&' 05' *4 * -1' B

,C' 003' 3=' ;G' *-1' ; &&4 -2' 50 8 &3 8 &9' =* 5' *' 5003' -' &-23=' > 3=' 5 @ &9' 0 -' &:& " 5 1&' F-5 -6*3 -2' 3=& 8 " 5 ; ;9' -30' 3=&' ; &539' 05' 0 ;G9' &*:&9' 06-1&1' :& *' !? % ' 1 : 1&1' -30' 3=& 0@&9' >= ;=' * &' :& '' * 2&' *-1' ; 05& 30' &*;=' 03=& ' =&' 53& 8' @&*' 9' 0 - ''0 -&' 0 ' 3>0' 5 0 >& 9' >= ;=' * &' & 0>' *-1' :* '' -' 5) &' ' 3' 9 <6 3&' : 05&' *-1' * 8 053' *-62 -05 ;' *9 >& ' *9 3=& O '?' *-1' 9 ?' 0 ' & 2=3' -;=&9' -' =& 2=3' 3 1 55& 9 3 ; &5 0 8' 3=& # ' *-1' 4& =*49' 8 *' @&' -0' 8 0 &3=*-' *' :* &3' ' @&' 3' 1&5& :&9' 30' @&' G -0 > - ' *3 :&' 05' 3=&' 063=' 05' *-1' 5 @ &9' @6 3' > 3=063' 3=& &*53' *44&* *-;&' 05' 56;G& 9' 4 0;&&1 -2' 5 0 8' ; 3=& ' 05' 3=& 8 ' 001 >* 1' &8 * G9' 3=*3' -' *' 36 5 ;!0 -H 3* - -2' 5 7' 4 *-39' 3=&' 0039' >& &' * ' 1 53 -53' &?;&43H -2' 0 -&' >= ;=' *44&* &1' 5 08' 39' 5) &' 30' @&' *' 5&&1 -2' > 3=' 3=&' 0 1' @6 @9' *3' 3=&' @0330 8 '* 5003* = 2=' @ *-;=&1' *@0 :&' @6 3' -&:&' 4 016 ; -2' 6 -&' 9' &*:&9' 0 -' 0 -2' =* '' 8 *-' '' 5 0 >&' 1 &' 5003' G9' 1 *3&1' *-1' &8 H @ *; -2' 3=&' 53& 8 * ' 3' @0330 8 ' 3& -*3&' 3 5 1' :* 065 '

' * 9 f ;A;' G&> * -*' .' &3) 69 D -' ' ' * 9' D' --' *44 .' * 9

* 3' 8 0 &' 0 ' &5 9 =* '7 53& 8 " &*:&9' 5& &' 0 ' -&* '' @' 1&&4 '' 1 : 1&1' -30' -6 8 & 06 9' *-1' -* 0>&' -&* ' 5&2 8 &-39' =&' 53& 8 ' *-1' &*;=' @ * F;=' 3& 8 -*3&9' -' * 5 -2 ;' 5 0 >& ' 0 -' *' 2 00 :&1' *-26 * ' =* ''4&16 -; &' * '?" ;* :;9' 0 :*3&' ;0 -;*:&' =* ' ' 3=-' *' 3 =& ' @* &' 36 -&1' @*;G' 30' 3=&' 4&16 -; &' 500 -' *53&' 3=&" &?4*-1' &3* 9' @ 2=3' &' 0 >' *9' 5' :* - 5 &1' 06-1 =' & 8 * '' 2 4 *3&' ;0 -;*:&' &;3* '' ;0 :& &1' > 3=' *' J=0 3' -'' :& 5& '"=&* 3"5=*4&1' 0' ;8 * 2 -*3&' 5;* ;' & 8 9' 58 * ' ;0 8 4 &5 &1' 50 8 -2' *' ;3G' =&*1' 3' 4 04*H 2*3&9' 35& 5' ;04 065 '' @'' 5&&1' @6 3' 9' 05' 5 0>' 2 0>3=' *-1' 0 -2' 16 *3 0 -' =&' 5 0>& 9' 8 * 50 8 &3 8 &9' 106H @ &' @6 3' -03' 50' 5 &<6&-3 '' *9' 2 ' 3' 9 1 53 -'' 26 5 &1' 5 0 8' 3=&' ' > 3=' >= ;=' 3' ''*9' 8 &-' ;0 -H 506-1&1' @'' 50 8 &' *63=0 9' @'' 39' 0039' @'' 39' -&:&' 3= 0> -2' 06 3' 6 - -& 9' *-1' @'' 39' &5 &?&1' ;* '?H 3= 9' *53' ;=* *53&' * 5;9' 5 0 8' 39' 4* 3 ;6 * '53 6 53& &' 3=& 0>&' =* 5' @& -2' 3= -' *-1' * 8 05 3' 3 *-54* &-3' *-1' 3=& &50 &' -03' =*: -2' *' 5655 ; &-3' 1&2 &&' 05' f@ 1 3'' 30' 56440 3' 35& 5' 64 2=3' *'' *119' 3=*3' 3=&' 644& ' &*:&9' * &' ;6 3' -30' 5 -& ' *-1' 0 -2& ' 5&2 8 &-39' 3=*3' 3=& =&*19' 05' 5&&19' * &' 8 0 &' 4 016 ;&1' 3=*3' 3=&' &&19' 3=& 8 '' 5 F:&9' =*:&' -0' 4 - ;' *3 04 ' *-1' ;=*' 3=&' 5 0>& 9' *4H 4&*' *' 33 &' & ' 3' 9' 3=&' 53 ;0 -1' 5 0>& ' >=;=' -&?3' 30' 3=&' R*-1& 0 -' ;0 :& 9' 3=&' 8 &*10>9' > 3=' 1*)H) -2' *& 0 >' G&' 8 05 3' 05' 3 -3' &3 0 >50039' 3' 405 &5 &9' 3=&' 4 04& 3'' 05' -5 * 8 -2' *-1' @ 53& -2' 3=&' 5 &-' 4* H 3 ;6 * ''3=&' 003' >=;=' 9' 5* 1' 30' * 5& 2 8 &-39' 3=*3' 3=& &59' 4* -' *-1' 8 0 &' *5&3'' 3=*-' 4*-=' 5 &9H =&-;&' 3=&5& 00 39' =*:&' @&&-' *44 &1' 50' 3=*3' 46 405&' 4* 3 H ;6 * ''30' 3=&' F0 -39' -' ;*5&9 05' 3=&' 2063' ;;0 1 -2' 30' 055 8 *-' @&22*' 9' 8 *G&' 65& 05' ;@&8' 30' @ 53& '3=& ' G -9' > 3=' *' ;&>' 05' &?;3 -2' ;0 8 4*-0 -' =&' F6 ;&' 05' 3=&' =& @' 9' 5* 1' 30' @&' 8 0 &' *; 1' 3=*-' 3=*3' 05' 2') ' *-1' 5' *44 &1' 30' 3=&' -053 9' 3' 4 0:0G&9' 5-&&) -2' =&' 00 39' 0-' @&-2' G&4 3' 05&' 3=& '53 86'' *3 -2' <6*3'' *-1' *' &' &:&-' &*3'' @' 53& 9' > 3=' &59' 4*-

O F' *666* ' *3 :&' O5' 653 *' #' ;08' 5 & 19' *-1' 05' 03=& ' 4* 39 -' 3=&' 063=' 05' 6 04&' *-1' 3=&' &: *-3 ' 5 0>& -2' &* '' -'54 -2 ' *-1' 500-' 4*5 -2' ^& *>*' ' -3 16 ;;1' -' /EC , ' @'' ' ' (065 @-&3 R

0039' 4& &-- * ' 5 @ 069' -6 8 & 069' 5 8 4 &' >@ = ' 4& -&3 *3 -2' 1&&4 '' -30' 3=&' 8 61' 3& 8 n-6'' 8 & 069' 4 053 * &' 0 ' 5 0*3 -2' 003 -2' @ *-;=&1' 54 &*1 -2' > 1& '5 8 003=' 06-1' 50 1'F0 -3&1 ' 3= ;G = ' &*:&9' G 1-&' ''5=*4&1' 0@5; & '' 3= &&" 0@&1' O ' 5 :&'' O@&1 ' 50 8 &>=*3 5 & =' ' = - -2*-1:& - &59 ^ 0-' 0-2' 5 *33&1' 4&3 0 &9' =*: -2' *' * 2&' 8 & 8 @ *-06 9' =&*3=' *3 3 &' @* &' &16 -; &9' -03' 2 00 :&1 ' 5=0 3& ' 3=*-' 3=&' 4&3 0 &9' *-1' 0440 5 3&' 30' 3=& 8 ' 0-&''5 0>& &1 ' *3' 5 53 64 2=3' @63' *53& ' 3=&' 5 0>& -2' 9' 0 :& ' ; &1' @*; G ^& 30>* 19' 3=&' 2 06-1' 0>& 9' 5 8 *' '?'' &*:&9' 8 & 8 @ *-06 9' *-1' '; 0> 5=' *3 =&' &12&9' &3* 9' >= 3& ' 0@ 0-2' >' *-;&0 *3& ' 50 8 &>=*3' @ 6-3' * 2& ' 3=*-' 3=&' ;* '?' &1 * ' *' -*G&1' 40 &' *3' 3=&' @*5&' 05' &*;= 4&3*' 3* 8 &-9' 5 :&' 30' 3&-' @63' * & '' 8 0 &' 3=*-5&:&-' &&19 -6 2 8 & 0069' 06-1 =' @ 6-3' ; 0 2' 8 & 1' ; 061&1' 302&3=&' -' 06-1 =' =&*19' *@063' 3=&' 5) &' 05' 3=&' ;08 8 0-' * &'.

3' 9' -&* '' * &1' 30' 2 ' 8 ' *-1' >*9' -03' 1 53 -'' 26 5=&1' 5 08' 3' @'' --&69' * & ' *-1' ;040 7' 3 1 55& 9' =0>&:& ' -' =*: -2' 3= &&" 0@&1' 0 ' 5 :;'' 0@&1' &*:&9' > 3=' 3=&' 0@&9' 06-1&1 ' -03' 1&&4 '' ;63' *-1' &-3 &

*3 :&' 05' 8 *-'' 4* 39' 05' 6 04&' *9' R& - 8 * G' (3* -' & 8 *-'' *-;&' 5 * 50' 05' (* @* '' *-1' H @& *F' -' 5 0>' =* 0>' :6 &39' & 4&; * '' >=& 9' 3=&' 50 ' 9' *-1'' -' >*3& '' 4 *;&9' =* 0>' 8 611'' 1 3;=&9' W ; ' 5 0>& -2' 5 08' 8 *'' 30' *6 2 &3

=&' &*:&9' =*:&' 50 8 &3 8 &9' *1* G' 540 3' -'3=&' 8 11 &' 05' &*;=' *-1' -' 50 8 &' 5 36* 0-9' 3=&' 5 0>& 9' 9' * 8 6;=' * 2& ' 3=*-' -' 03=& 9

+#' 003' 4& &-- * ' 5 @ 069' 3= 0> -2' 64' 0-2 06-1' 53& *9' ; 03=&1' > 3=' * 3& -*3&' &*:&9' =*: -2' @ 0*1' 8 & 8 @ *-06 9' 53 46 &9' *3 7=&' @*5&' 05' 3=& '5003'' 53* G*' &*:&9' 4&3 0 &1' 5 8 003=#' 3=&' 644& ' 5 0*3 -2' 0-&9' 56@4& 3*3&' 3= &&" 0@&1' 0 ' 5 :&'' 0@&1' *-1' ;63' 0' 2 0 9 '' -03 ;=&1#' 3=&' 0>& ' 0-&9' >= ;=' 2 0>' 6-1& ' > *3& ' 3= &&"4* 3&1' 8 6 3 5 1 ' 564& 1&;0 8 406-1' 1 '' * : 1&1' -30' 5 -&' -&*' 0 ' ;*4 * '' *;63&' ;2 8 ; -397 50 8 &3 8 &9' * ' 3=&' &*:&9' * &' ;*4 * '' -0-&' 05' 3=& 8' & 8 & 2 -2' 5 08' 3=&' > *3& ' *-1' -'*' 53 0-2' 53 &* 8' 3=& ' 063 -&' 9' 8 6;=' &-23=&-&1' 063' @'' 3=&' *`3 0-' 05' 3=& ;6 &-3' =&' 5003''53* G9' 05' 3=&' 5 0*3 -2' &*:&9 * ;' 053&-' :& '' 0-2 :4 0@*@ '' 53 &3;=&1' @'' 56 4 0 3 -2' 3=& 4 *-3' 0>& 9' 0-' 4&16 -; &9' >= ;=' * 5& 5 08' 3=& 5* 8 & 5=&*3=' > 3=' 3=&' &*:&9' *-1' 04405 3&' 30' 3=& 8' >= 3& ' > 3=' *' '& 0>' 403' *3' 3=&' @*5&' &;53* '' *' =0 3' 04&-' 36@&' 3* 8 &-9' -6 8 & 069' J3= 3''3= &&M' && 19 ;0 62*3&1.

*3 :&' 05' 6504& ' -4 0 -19' 1 3;=&9' *-1' 53 &* 8 9' F 5 0>& -2' 5 08' 8 *'' 30' 6 '

=&' 5 0>& 9' * ;' 50 8 &3 8 &9' :& '' * 2& ' *-1' 8 *G&' *' =*-150 8 &' 5=0>' -' 40-19' *-1' 1 3;=&9' 3=&' ;6 069' :*H &3'' -' 3=&' 5 0*3 -2' *-1' 8 8 &. 5&1' &*:&9' *119' 30' 3=& @&*63'' 05' 3=9' ;0 8 80-' *<6*3 ;' 4 *-3' =&' 03=& ' :* &3 &9' 2 0>' -' 5 0*3 -2' >*3& 9' *-1' =*:&' * ' 3=& &*:&9' ;*4 * '' -' '3=&'' 50 8' *' 06-1 =' 063 -&') ' '3=&' &2 8 &-39' 05' 3=&' &*:&9' *;' :& '' 0-2' 4* * & ' *-1' 3*G&' 3=&' 1 &;3 0-' 05' 3=&' ;6 &-3' =;5&' :* *H 3 0-9' * &' ; &* ''0;;*5 0-&1' @'' 3=&' 1&43=' *-1' :& 0; 3'' 05' 3=&' 53 &* 8' R ' @3=0 4' -' = 9' 0 *' GO-&-5 9' =*9 8 *1& 4&; &9' 05' 3=&5;' :* &3 &9' >= 53' 03=& 9' =*:&' 6- 3&1' 3=&' & ' > 3=' 3=& 8' * ' -30' 0-&' 4&; &9

'' &*-&1' 5 &-1' R ' 6 3&-&'' J --' 3 *-5' :0 '# 4' /P M' =*9' &;0 1&1' *' ;6 069' 5* 3#' > 3=' 1 4 &1' 30' 3=& 2' 8 % ! ' >=;=' ; -3 *1 19' 3=& *5 & 3 0-9' 05' 39' 1& &3& 06 9' <6* 3 &9' *-1' 4 0:&9' 3=*3' 9' -03' 8 & & '' --0? 069' 3' -63' 3:&' 30' ;*33 &' *-1' ;*4*@ &' 05' @& -2' ;0 :-& 3&1' 30' 65&5&' 46 405&9' -*2 ;6 36 *' &;0-0 8 '

-' 3=&-& 2=@06 =001' 05' -2 >001' 0-' 3=&' @0 1& 9' 05' 3=&' :0-' 5& 8 &' 05' 3=&' ;033*2& 9' 56440 3' 3=& ' ;0>9' *-1' &:&-'=0 &9' * 805 3' >=0 ''@'' 3=' 9' 4 *-3' ' 8 *-' ;0 &539' *' <6*-3 3'' &:& '' 80 - -2' *-1' @ -29' 3' -'*

' 6- ' 8 3=' 3=& -2' b' 6 3 9 .' 8 3=' 3=& -2

@0*3' 30' 3=&' &12&' 05' 3=&' > *3& ' 5 0 8' >= ;=' 3=&' ;0>' &*3' 3' > 3=' 2 &*3' *: 1 3' /^ -53' 8 6;=' 3=*3' 3=&'' 53 -;' 3=& 8 ' *-1' * 0>' 0- ''*@063' >&-3''5 ;&' 0 ' 3= 3''406-19' 30' &*;=' ;0>' 1* '' -&' 8 *-' G&4&3' 5 :&' ;0>9' *-1' 0-&' =0 5&' @' 8 6;=' 0-' 3=9' 4 *-3' > 3=' 3=&' 33 &' >= ;=' 3=& =&*3=' *55 0 1&1 ' 3=*3' 3=&'' =*1' -03' ;0-56 8 &1' 8 0 &' 3=*-' =* 5 *' 30-' 05' =*'' 3= 062=063' 3=&' >=0 &' '&* ^ -0-& @& -2' 65&1 ' &?;&4 3' >=&-' 3=&' :& ' 9' 5 0) &-' 0 :& ' 029' * 50 * &' 5&1' > 3=' 3=' 9' 4 *-3 ' *-1' 8 4 0 :&' 50' >& '0-' 3' 3=*3' 3' 9' -03' -&;&5 * ''30' 2 :&' 3=& 8' *-'' 03=& ' 5653& -*-;&' 3 '3=&'' * &' 463' ^4' 30' 5*33& -

= 9' 4 04& 3 '' 05' *3& ' 0>500 3' 9' 3=&' 8 0 &' ^H 8 * G*@ & ' *9' * '3=&' 4&; &9' =*:&' @&&-' 1& 8 &1' *; H 80-069' *-1' 50 8 &' 05' 3=& 8 ' * &' > 3=063' 106@3' = 2= '' 50' 3' 9' 4 0@*@ &' 3=*3' 3=' 9' 5 &-1& &1' -& 3' *9' *' 40 @-' @'' 2 0>-2' -' 3=&' >*3& ^ * 3=062=' 3' 8 653' @&' ;0-5 &5 &1' 3=*3' -' 03=& ' -53*-;&9' 8 0 536 &' =& 2=3&-9' 3=&' 1& &3& 069' 4 04& 3 '' 05' :&2 &3*@ &9' & 4&; * F'' -' 3=&' 6 8 @& 5& 069' 3 @&

= 9' &8 * G' 05' R ' 3; -& ' \9' 9' 3=&' 8 0 &' 8 40 H 3*-3' *9' -' 3=&' >&1 = &?4& 8 &-39' 3=&' 2 ' 8 ? ' 9' &;0 1&1' *9' 3=&' 0-'' 0-&' ; & 53&1' @'' * ' 3=&' 54&; &9' 05' 10 8 &53 ;' ;*33 &' 5' 3=&' ;08 8 0-' 50 39' 3=&' &' 9' -0' 106@3' @63' 3=*3' 2 '" # ' 0 ' ') 7 % *-1' ! 0 ' *&*; 8 0-069' (&50 &' 3=&' -3 01653 0-' 05' *-3=* 1&9' 3=&'' >& &6543 ';*9' :&5 ;*30 &9' *-1' *&' 5* 1' 30' * ' > 3=' &59' 4* -' 3=*-' 5 &9' > 3=063' *-'' &55&1 ' 0-' 3=&' 6 -*' '' 4 55*2;9^ @63' 3=& ' *53 0-' 9' & *3&1' 30' S @&' 6-;& 3* -' *-1' 3=&'' * &' *;;6531' 05' 5 &<6&-3 '' &*:H -2' ";0-1 3 0-&1' 6 ;& 9

=&' *;' 80-'' &:&-' 05' 3=&' 8 053' : 6 &-3' 9' >=0 '' 1 5 4*3&1' -' 1 ' -2' ^ 50' 3=*3' -' 50 8' 05' =*'' 3=&'' *4H 4&*' '@&' =* 8 &9' 3' 9' 50' &?4& &1' -' 1&;01 0-' ^ *;;0 1 -2 '' 3=&' 53 &4=&' 19' 05' 0 *;=*' @0 ' 3=&' 2 ') ' *-1' &*3' 37' *-1' @03=' 2 ' # ' *-1' ! * &' 5* 1' 30' @&' >=0 '' -055&-5 :&' *-1' *;' *-G;1' @'' -2 08 &' *63=0 9' *80-2' 0 &*;;069' 4 *-39

=&' *-6-;6 ' 2 :&' 063' 3=& ' *; 80-'' >=0 '' -' 1 53 * 0-' =&' 1 53 &1' >*3& ' 05' 2 % ! 4 0 5 39' ;-5& '' *; 80-069^ *-1' >=&-' ;0 1' 1&4 0 5 39' ;*53* 9' >= ;=' * &' 5;*;& '' 50=@ &' -' *-' 8 &-53 66 8 ' *-1' * &' 05' *-' -5 * 8 8 *@ &' -*36 &

+Q' =9' *44 0*;=&9' 30' ' 0 % ' *-1' *2 &&9' > 3=' 3' -' 39' 0>&' &*:&9' @63' 3=&' 53& 8 '' ;*:;9' * &' 4&3 0 &1' > 3=' 3=&' 4&3 0 &9' 1 *3&1' ^ 3=&' 5 0 *' &*:&9' * &' *-;&0 *3&^ 3=&' 53& 8 ' 64 2=3^' 3=&' 5 0>& 9' 0-&''3=' 1' 0-' ''05' 3=&' 5) &' *-1' & 0>^ 3=&' 003' 565 50 8 [*3 :&' 05' 3=&' 806-3* -9' 05' R' 64= -;

+E' =9' &5& 8 &9' 2 ' -' 3=&' 5) &' *-1' ;0H 06 ' 05' 3=&' 5 0>& ' @63' 9' :& '' 1 53 -53' -' 3=&' &*:&9' 003'' &*:&9' 8 *-'' 4&3 0 &1' 5 ;* ;& '' =* 5' *-' -;=' -' &-23=' <6 3&' &-3 &' 3 6-;*3&' *7 3=&' &-1' *-1' *: -2' 3=& &' 5 :&' * 2&' @ 6-3' 3&&3=' &&8' 64 2=3' 0-&' 0 ' 3>0''5 0>& &1' 3& 8 '&*:&9' 3>0' 0 ' 3=' &&' * 3& -*3&' & 8 03&' 5;5 ;' >&12&'' 5=*4&1' *7 1 &' @*5&' 1& 8 &4 '' 5 :&'' 0@;1^ 0@&9' *-;&0 *3&' <6 3&' &-3 &' 5 * 4 53 ' *'' ';-&' &*5 &39' & 43 ;' @ 6-3' = 563&' &3*9' 0@;0 '' 1*3&' * 2& ' 3=*-' 3=&';* '? [*3 :&' 05' 3=& 8 06-3* -9' 05' @& *'3

+C' 0039' 5 @ 069' -6 8 & 069' 3& 8' 5 8 003=' 53 '' *3&1' -&*' *' 5003' = 2=' ' 003'' &*:&9' ; &-*3&^ 0>& ' *-1' 8 11 &' 53& 8 '' &*:&9' 4 03 &0 &1' 1&& 4 '' 3= &&" 0@&1^ 0@&9' >& 12&''5=*4&1' 6-&<6*' 3003=&1' ^ 644& ' 0-&9' *;-*3&' >3=' -*' 0>'' *-&;&9' 53 '' *' *3&1' 0-&''5 0>& &1' 3& 8 '&*:&9' 3>0' 0 ' 3=' &&' * 3& -*3&' & 8 03&' 5;5 ;' >&12&''5=*4&1' *7 1 &' @*5&' 1& 8 &4 '' 5 :&'' 0@;1^ 0@&9' *-;&0 *3&' <6 3&' &-3 &' 5 * 4 53 ' *'' ';-&' &*5 &39' & 43 ;' @ 6-3' = 563&' &3*9' 0@;0 '' 1*3&' * 2& ' 3=*-' 3=&';* '? [*3 :&' 05' 3=& 8 06-3* -9' 05' @& *'3

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+C' 0039' 5 @ 069' -6 8 & 069' 3& 8' 5 8 003=' 53 '' *3&1' -&*' *' 5003' = 2=' ' 003'' &*:&9' ; &-*3&^ 0>& ' *-1' 8 11 &' 53& 8 '' &*:&9' 4 03 &0 &1' 1&& 4 '' 3= &&" 0@&1^ 0@&9' >& 12&''5=*4&1' 6-&<6*' 3003=&1' ^ 644& ' 0-&9' *;-*3&' >3=' -*' 0>'' *-&;&9' 53 '' *' *3&1' 0-&''5 0>& &1' 3& 8 '&*:&9' 3>0' 0 ' 3=' &&' * 3& -*3&' & 8 03&' 5;5 ;' >&12&''5=*4&1' *7 1 &' @*5&' 1& 8 &4 '' 5 :&'' 0@;1^ 0@&9' *-;&0 *3&' <6 3&' &-3 &' 5 * 4 53 ' *'' ';-&' &*5 &39' & 43 ;' @ 6-3' = 563&' &3*9' 0@;0 '' 1*3&' * 2& ' 3=*-' 3=&';* '? [*3 :&' 05' 3=& 8 06-3* -9' 05' @& *'3

+C' 0039' 5 @ 069' -6 8 & 069' 3& 8' 5 8 003=' 53 '' *3&1' -&*' *' 5003' = 2=' ' 003'' &*:&9' ; &-*3&^ 0>& ' *-1' 8 11 &' 53& 8 '' &*:&9' 4 03 &0 &1' 1&& 4 '' 3= &&" 0@&1^ 0@&9' >& 12&''5=*4&1' 6-&<6*' 3003=&1' ^ 644& ' 0-&9' *;-*3&' >3=' -*' 0>'' *-&;&9' 53 '' *' *3&1' 0-&''5 0>& &1' 3& 8 '&*:&9' 3>0' 0 ' 3=' &&' * 3& -*3&' & 8 03&' 5;5 ;' >&12&''5=*4&1' *7 1 &' @*5&' 1& 8 &4 '' 5 :&'' 0@;1^ 0@&9' *-;&0 *3&' <6 3&' &-3 &' 5 * 4 53 ' *'' ';-&' &*5 &39' & 43 ;' @ 6-3' = 563&' &3*9' 0@;0 '' 1*3&' * 2& ' 3=*-' 3=&';* '? [*3 :&' 05' 3=& 8 06-3* -9' 05' @& *'3

+C' 0039' 5 @ 069' -6 8 & 069' 3& 8' 5 8 003=' 53 '' *3&1' -&*' *' 5003' = 2=' ' 003'' &*:&9' ; &-*3&^ 0>& ' *-1' 8 11 &' 53& 8 '' &*:&9' 4 03 &0 &1' 1&& 4 '' 3= &&" 0@&1^ 0@&9' >& 12&''5=*4&1' 6-&<6*' 3003=&1' ^ 644& ' 0-&9' *;-*3&' >3=' -*' 0>'' *-&;&9' 53 '' *' *3&1' 0-&''5 0>& &1' 3& 8 '&*:&9' 3>0' 0 ' 3=' &&' * 3& -*3&' & 8 03&' 5;5 ;' >&12&''5=*4&1' *7 1 &' @*5&' 1& 8 &4 '' 5 :&'' 0@;1^ 0@&9' *-;&0 *3&' <6 3&' &-3 &' 5 * 4 53 ' *'' ';-&' &*5 &39' & 43 ;' @ 6-3' = 563&' &3*9' 0@;0 '' 1*3&' * 2& ' 3=*-' 3=&';* '? [*3 :&' 05' 3=& 8 06-3* -9' 05' @& *'3

&-1' &3' 8* 2 -&1'50 8 -2'*'10 &' ' -1 ;*' 54 G&' *-' -;=' *-1'=* 5' -' & 23= " *3 :&'05'8* 53 &9' *@063' 2 & 9'.

' = 9';& ' 8 ;=' &5&8 @ &9' 2 '8C @ ' 53&8 9' 9 5 8 4 &' *-1' =*9 0-' '0-&' 0 '3>0'5 0>& &9'5 @ 4 80 1 *' &*:&9' * &' >&12&"0:*3&' 6-1 : 1&1' 6-&H <6* ''3003=&1' <6 3&' &-3 &' *3 3=&' @*5&/ 3!=&' ; '1-&' &*5 &39 * ;' 0:*3&' *-1 *;63&' -03' *-;&0 *3&F'3=&';0 0 *' 9' & 0>'F 3=&' =&*1'05'5&&19 & 43 ;' -03';' -1 ;* A[' -'6-;6 3:*3&1' 8 0 53' = 9' *@063' 2 & 9'

#/' 003" &*:&9' 06-1&1' 644&3 8 053' ;0:&F':B 3= 3=&';&5 9' *-;&0 *3&' * '3 5 1' 3= 3=& 5&2 8&-9F 3=&9' ;63' *2* -'3003=&1' *;63&' = 563&'0-'\@03=5 1&9' &3 0 &9' 5 0 8' *-' -;=' 30' *' 500 3' -' &-23=' = 63&' 3& =9' 53 " *3&1' = 563&' 5;* ;& '&*5'' 5 ;?605&' @ *-;= -2' *3 304' -30' 4&16-;&9 [*3 :&'05' *4*-

#,' * '?' ;0 06 &1' 58003=' > 3= *' 5&>' =* 9' *3 3=&' 3 4' 0- ' [*3 :&'05' 3=&' 806-3* -9' 05' R* 4= -;' 3* ''*-1' * -0 *'

#L" = 9' 1 55& 9' *@6-1*-3 '' 5 0 8' 3=&' ! ' > 3= >=;=' 3' =*9 @&&-';0-506-1&1 [*3 :&'05' 3=; 8 06-'* -9' 05' > 3)& *-1'R*64=- ' 653 *' G

#+' = 9' *44 0*;=&9' 30' 3=&4 &;&1 -2' @63' 9' 106@ &' 3=&' 5)&' -'* ' 39' 4* 39' *-1' 1 9' -'=*: -2' 3=&' 53& 8 " &*5'3003=&1 [*3 :&'05' 3=&' ' &-&&9' *-1' 6-2* '

FF' = 9' 1 55& 9' :& '' 86;=' 5 0 8' 2' # ' -' 3=&' 53& 8' *-1' &*:&9' F -0'10;9' 3' *3' * ' &5;8@ 5& 2) ') - C ' > 3=' >=;=' 6--&' 6-3&1' 3 [*3 :&'05' &&-*-1' 5 *-1' 0 >*''*-1' @& *

FQ ' a 003' -' @6-1 &9' 003" &*:&9' G&' 3=05&' 05' 2 % & ' = ;&" 0@;1' > 3=' 3=&' *3& *' 0@&9' 3>0"' 0@&1' *-1' 3=&' 5&2 8 &-39' @ 6-3 ' 3= &&"3003=&1' >&12&" =*4&1' G&' 3=&' &*:&9' 3& 8 9' *' 5 -2& 9' &-23=' 3>0& 0 '3=&&' 5 0 8' 0-& 003' 64 2=3' 0 '*5;&-1 -2' 5 4 &' 3& 8 " *:&9' >&12&"50 8' *3 3=&' @*5&' > 3=' 3=& 5&2" 8 &-39' -&*' @ 6-3 5=' <3=&' &-3 &' &16-;&9' -:0' 3= &&' 0 '506 ' 0-2' 0-&"5 0>& &1' <641' -03' 2 00:&1' :& '' 5 -& '' 46@&5&&-3' G&' 3=&' 53& 8 ' 1 '; & '&*5 &39 ;0 06 &1' 58003=' @ 6-3' 54 &*1 -2' &3* 9' & 0> 3=& 5)&' 05' 2 '" # F' &*1' 05' 01#' 06-1 53 'D &&19 0:*3&' ;0 8 4 &5&1' &:&-';0>-&1' > 3=' 3=&' @ 6- 4& " 8 *-&-3' 53 2 8 * [*3 :&'05' @& *

#E' 003' =* 1' 3=&' 3= ;G-&5' 05' *' 2005&"<6 ' g G&' 3=*3 'I % ' 003" &*:&9' 06-1 0=";0 1*3&':& '' 5 0 3 '';= &&" 0@&1 A' 0@&9' *;6= -*3&' > 3=' *' 5 >' * 2&' 3&&3=' # =*: -2' 5;*33& &1' =* 9' 4 &5 &1' 10 &' 0-@03=' 5 1;' 3& 8 " &*55 -2 &' 4&3 0 &55 G;' 3=&' 003" &*:&9' # *-1' -' 3=& 8 11 &' 05' 3=&' 4&16-;&' *' 53-*' 5&5 ;' *-H ;&0 *3&' &*5' <6 3&' &-3 &' 3& 8 '*' 54*-' 0-2' > 3= =* 9' 4 &53&1' ;05&' 5 8 4 &' 05' ;0:&-' *@0:&' 3=&' &*5 ' > 3=' 0-&"5 0>& &1' 4&16-;&9' 0 0 *' & > 0>' 3=& 5);' 05' 2 ' # ' &*1' 05' 5&&19' 06-1 =' &&19' ;0 -4 & &1' =00G&1 [06-1' @'' 06 -&5@ 3' -' *4H 4*10;*

#C' = 9' 5 & -9' 30' @&' *-' *--6*'4 *-3' 003" &*:&9' 4&3 0 &1' 0:*3&' 0@365;'6-&<6* ''5 -6*3&' 3003=&1' =* '' 0-' @03=' 5 1&9' *9 * &' 3=&' 4&3 0 &9' 3&8' 64 2=3' *' 500 3' = 2=' *-1' 8 0 &' @ *-;=&1' =* '' 3&8 "&*:&9' 5&5 &' 1 2 3*3&' > 3=' 3=&' 5&2 8 &-39' 05' 3=&' 0>& '0-&9' 6-&<6* ' 4 --* 5 1' # 05' 3=&' 644&' 0-&9' -&* ' *-1' <6 3&' &-3 &' * '?' &5 &?' 0 0 *' '& 0>' 3=&' 5)&' 05' 2 ' 0 ' &*19' 05' 5&&19' & 43 ;' &&19' 5 *33&1' *' 33 &' *;63&' 56@6 *3&"*>-&1' > 3=' 3=&' *>-9' & &13 [' *3 :&'05' @& *' @'' 3=&' :& ' ; &;G

#P' 3& 8' 0-2' *' 54*-' -' =& 2=3' 64 2=3' @ *-;=&1' *' 304' &*:&9' 6-1& '>*3&' :& '' -68 & 069';0:& -2' 3=&' >=0 &' 53& 8 ' 0@ 0-2' =* 5' *-' -;=' -' &-23=' @-' *' ;*4 * '' 4&3 0 &' *-' -;=' 0-2' 5 0*3 -2' &*:&9' 5 =* ' =* 5' *-' -;=' 0-2' <6 3&' &-3 &' 0-' *' 3=;G& ' 4&3 0 &' (*-;=&9' *-' -;=' -' &-23=' *-1' 64 2=3' 4 -2' 063' 05' 3=&' >*3& ' *-1' @&*' &*:&9' 0-' =0 3' 4&3 0 &9' 506 '0' 5 ?' -&9' 0-2' & 43 ;' *33&-6*3&1' @03=' >*'9' @ 6-3' 0>H & 9' :& '' 58 * ''& 0> [= 9' 9 *-' *--6*'4 *-3' -*3 :& 05' 6-2* '.]

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+' Q' E' //"' /E' ' /P ,+' LL' L+' LP' +, ' *' & =* 1 4& &-- * 9' *-1' *;&*5 '' 4 04*2*3&1' 5*' 4* 3 -2' 3=& ' 003" -' *6368 -

S' R&95O-*-&9' S 1&-O: ' \' 6-9@ &

=&' 4 -&' 54&; &9' * &' - ' 50' 3*5'' 31';6 3:*3&"^ 3 2* 1; ' =&' 888 % 'J-' Q M' 2 &>'*-1' 53O>&3&1' > 3=' ' 6 3 9' -'*' 8 *' 403' 05' 0*8' *-1' @02' &*3=' 50; 3& &1' 16 -2' 3=&' > -3&' -' *5 *8 &' =&'' &<6 &* *' 46 &' * '-1' 56;;;&1' @&53' -' *' 5 3 *5 3 ' 801&8 33 '' 8 0 53' *-1' 5 *1'' U

/, ' ,L"' * ;' 4 & 2 3; ' @'' 0559&39"5 0 8' 3=&' 50039D -' 3=&' * 8&' 8 *--&' ' 3 & * 1&-' *-6-;6 69' J-' , , M' *-1' 5=06 1' @&' 4 *-3&1' -' *>* 8' @0 1& ' 03=& > 5&' 3=& 5 053' >-' 1&53 @'' 3=&' 0039' ' '

. . ' ' 'o ' '% '

=& * 1&-' *-6-;6 69' >*9' 0 2 -* '' @ 062=3' 5 0 8' ;55 * ' @63' 5 -;&' 3' =*9' @&&-' -' 6 0 4 & @ &-' 25&*5 ' 5-4 O:&1' (' ' ;6 36 &' * 1' 8 *-'' -&>' 5 0"Y5& 9' 0@3*-&1' 5 0 8 ' 5&;19' * 8 0-253' > =;=' * &' 8 *=' ': 3=' 5& 1;56@ &' 5 0>& 9' >=;=' 4 0 16;&' 5&1&19 "*=1' 5 @ 8' 3=&53' 3=& &' * &' 6;=*4 0 1 2 06 9':* &3 &9' 05' -&>' 5 0>& 9' *--6* ''0@3* -&1' >=;=' *;' 50' * 2&' F=1' 0 5' 56;= *H &3''0-F;*6 3 56' ;0 06 &1' 58003=' > 3=' *' 5&2 3=& 1*53 03=& ' 5 0>& 9' 0 5' 3=* 5&*50-' *-1' & &3' :&' > 3=' 3=&' 8 05' @&*6 3 56' * 3 0-9F' 3=&5&*' ;=' 8 *-'' 0 53=& 8 ' 5-&' 5&1-50 1' *-1' 3=&' 0039' > =&-' 53 4-2' 2&-& * ''4 016;&' 3>&-3'' 0 '3= 3''' 5 0>& 9' 640-' &*:=' # >=;=' 56;;&&1 -2' &*:=' 3=& ';0-3 -6&' -' @&*63'' *' 56 ' =0-3 '1 3' 0-2& ' ;H ;0 1 -2' >' 3=&' =&*3"05' 3=&*5&*5@ ' 0 ' 3=&' ;* &' 3*G&-' 30' 1&5&-1' 3=&8 ' 5 0 8 ' 3=&' -F6 &9' 05' 3=& >&*3=& * ' >=;=' &?;& &-3'<6* 3 &9'=*:&' &-1& &1' 3=&8' 50' * 6H *@&' 3=*3' 3=&' 0 1' 50 39' &' * 8 053' 1 5 &2* 1&1' &?;&43' -' 50-&' 0 1' 2* 1&-9&' 5 "

'3=&:& '' 106@ &' 5 0>& 9' -&' &' 4 016;&F5&&19' 50' 3=*3' 3=&"* ;' 0-' 8 6 3 4 &1' @'' 0559&39' 5 03=& 0039' >=;=' 3=&' 2&-& * ''4 016;&' -'2 &*3 4 &-3' ' 5' 4 *-3&1' 0-' *' 2001' 50 ' *-1 165'' *3&-1&1' -' >-3&

-&' 5&*50-' 50' 4 *=5 =2' 3=&' 0039' 9"*-'' 3 8 &' -' 05=0@& ' 50' 5' 3=&*' ' &' 4 *-3&1' 50-&' 3=&*' * &' *4 3 30' ;0 8 &' 3 4' -' *' 5=0 3' 3 8 ;' *-1' 2 0>' 4 &33 '' *-G @&H 50 &'' > -3& ' ">=&&@'' 3=&'' > ' @&" -' 2 &*3 1*-2&5' 05' 5655& -2' @'' 5 053' # * 1 5 3=&'' * ;' 4 *-3&1' 8 6;=' *3& ' 3=&'' '@&' -' 1*-2& '05' 4& = -2' 6-1& '2 06-1' # 50' ;=*3'' 06' 5=06 1' -03' G&&4' 3=&8' 063' 05' 3=&' 2 06-1' *-' 0-2& '3=*-' 3=&' @&2 - - -2' 0 ' 8 11 &' 05' 0530@&

=& @ &19' -' > =;=' 3=&' & 5 *-' *5 36-;6 69' 0039' *&' 4 *-3&1' 5=06 1' @&' 8 *1&' ' -3=' 5 &5=' 3 =3' *-1'' &*3=' *3' ;*53' 3=& &&' 5&&3' 1&&4&' 7 3 &' @&53' 5@ ' 0 '3=& =' 8 *'' @&' ;0 8 405&1' -' 3=9' 8 *-& ' :) ' *G&' *' <6*-3 3'' 05' 5 &5=' &* ;=*5 0 8' *' ;= 4 *-1' 4*536 &F' *@@63' 5 ?' -;=&9' 1&&4 '30 2&3=& ' > 3=' 3=&' 2 &&-' 5 > * 1 &' 3=9' 5=06 1' @&' * 1' -' *' =&*4' 30' 03' 50' 3> &:&' 8 0-3=9' @&50 &' 3' 9' 8 ?&1 &' 0@5& : -2' 30' 36 -3' :& '' 053&-' 30' 5 >&&3&-3' *-1' @ &*G' 3=&' ; 019' # 30' 3=9' 06' 5=06 1' *11' *' 506 3=' 4 *3' 0 5' :& '' 033&-' -&*39' 16-2' *-1' *' 4 04 0 3 0-*@ &' <6 *-3 3'' 05' 5&*' 0 '1 53"5*-1' *:;0 1 -2' *9' 3=&' &*3=' 9' 2=3& ' '53 55& 'F 5' 3' @&' 2=3' *-1' -;-&1' 30' *' 5*-1' 3=& &' 5=06 1' @&' -0' 50-1' *11&1' # @ 3' 5' 3' @&' *' =*)&' 0* =' 0-&' 0*1' 0 5' 5*-1' > '@&' 5655;;-;' 50' & 2=3' 0*19' 05*&* 3=' *@63' 5' 3=&' &* 3=' 9' 53 0-2' *#1 ! ' 3=&' 50-1' 5=06 1' @&' *11&1' -'*' 2 &*3&'4 040 3 0-'&3=9' 5=03 1' @&' 8 ?&1' &2=3' 8 0-3=9' 0 ' *' '&* ' @&50 &' 3' 9' 65&1 &' *-1' 5=06 1' @& 053&-' 36 -&1' 0:&' -' 0 1&' 30' 6-3&' 3=& '4 *' 39' >&0 2&3=& '@&50 &' 3' 9' 46 3' -30' 3=&' @&19

=& 1&4 3=' > =;=' 3=9' 5=06 1' @&' * 1' -' 3=&' @&19' *653' @&' *@063' 3=& &1' 5&&3' *-1' 5=06 1' @&' @& 0>' 3=&' 56 5*;&' -' 4 040 3 0-' 30' 3=&' 1 '-&59' 0 ' 8 0 536 ;' 0 5' 3=&' 4 *;&' >=& &' 3=&' @&19' * ;' 5 36*3&1*^ 50 ' -'1 ''2 06-1' 3' 5=06 1' @&' 3>0' 5&4 3' & 2=3' -;=&9' @& 0>' 3=&' 56 5*;&' * -1' 3=&' @&19' * &1' 506 ' -;=&9' *@0:&' # @63' -' *' 8 0 53' 4 *;&' 3=&'' 5=06 1' @&' 3>0' 5&4 3' @& 0>' * -1' 0-&' 500 3' *@0:&' 3=&' 2 06-1' F *-1' -' 3=' 9' ;*5&' 3' > '@&' :& '' 4 04&' 30' * '' 50 8 &' 6@@ 5=' * -1' 530-;9' -' 3=&' @0330 8' 05' &*;=' @&1' '1 * -')''' 3=&' 8 0 536 &&' * -1' 5' 640-' 3=9' * 3' 3=&' @0330 8' 05' 3=&' @&19' 50 8 &' :& '' 0 3& ' -&9' 16-2' 9' * 1' 3>0' 0 '3=' &&' -;=&9' 3=' ;G ' 3=&' 0039' > ' &*;=' 3=9' -' 3=&' 54 -2' * -1' 3=&' 5 0>& 9' > ' @&' 3=&' 5* & ' = 9' &* 3=' ' >06 1' @'' -0' 8 &*-9' *1: 5&' 30' @&' 5& &&-&1' :& '' 5 -&' 0- '' -' 36 -2' 3' 0:&' &*;=' 3 8 &' '06' =06 1' @&' ;* &56' 30' @ &*G' 3=&' ; 019' * -1' 3=0>' 063' * ' * 2&' 530-&9' > =;=' > '@&' 5655;&-3&' 50 ' 5' 3' 9' 8 *1&' :& '' 5 -&' > =&-' 3=&' 2 &*3' * -9' -' > -3& ' ;0 8 &' 0 ' 3' > ' ;*65&' 3=&' &* 3=' 30' @ -1' -30' 0-&' 50 1' 6 8 4 ' > =& &@'' 3=&' 8 0 536 &' > '@&' 1&3*-&1 ' *-1' 3=&' 0039' -0 3' @& -2' *@ &' 30' &?3&-1' 3=&' 3&-1&' 5 @ &9' > ' 03

5'1Y 9 '=* &'=*1' 8 *-F ;?*8 4 &*' @63' O-&' 4 *- ;6"' * ''30' 8 '';0537 >=&-' '=*1' 4 0;6 &1'*' 5 -&' 4 ;; '05' 3=&5;' 003 Af5 03-' *@ 0*1 ' *-1'@2 -2'1;5 269'45' : -2' 3=&8 ' 3= :&' :& '' > & ' '300G'2 &*3' 4* -9' 4 5; ;;-' 3=&'&* 33'05'8 ''@&19' :& '' 5 -&' >= ;=' '=*1' * 1'*@0:&' 3> 0'5&&3'1&&4 ' *-1' 4 *-3&1' *' 2001'4* 3'05' 8 '" 0039' 3=& &-'F @63'3=&' &*5@-' *1:*-; -2'*-1'=*: -2'* 2 &*3' 1& * 05'03=& '@65 -&59'640-' 8 ''=*-19' '1Y1'-03'5; &&-' 3=&' &* 3='05'*F ' 8 '' @&19 ' @63' 4 *-3&1'50 8 ;' 05"3=& 8' > 3=063' 10 -2' *-'' 3= -2' 8 0 &' 3=*-' *G -2'=&8'# *-1' 3=&"' 53 ;;&59' >*9' ;=*3' 3=&' 0039' -' 3=05;' @&19' >=;=' >& &'5; &;-;1' 1 1 ' 2 &*3"4* 3'05'3=& 8 &-3 &'' 03'F *-1 3=&' &8 * - -2'4* '>& &' 50' >&*G ' *9' "-03'30' 4 016;&'*-' "2001'5 0 & 9'' >=& &*9'3=05;' >=;=' >& &' *-3&1' -' 3=&' @&19' >=;=' >& &' -03' 5; &&-&1' 1 1' 3= :&' *-1' 5 0 >& ' :& '' >& ' *-1' 5;* ;&' *-'' 05'3=&' 0039'5* &1' "3=062=' 3=&' &* 3=' 05' *' 3=&' @&19' >*9' 3=&' 5* 8 &' *-1' >& &' -' 3=&'5* 8 &'5 36*3 0-'@03=' > 3=' &2* 1' 30' > -1' *-1' 6-'L 50' 3=*3' 1 &'1* 8 *2&' >=;=' 3=05&' 0039' 5653* -&1' >*9' 0 > -2' &-3 &''30' 3=&' 5-&-&59' 05' 3=&' &* 3='L *-1' 3=9' '=*:&'5&:& *'3 8&9' 5 -;&' 0@5&:&1' -' 03=&'2* 1&-9' ' S

'*8' *>*&'3=*3'3=9'1&&43='05'3=&&'5&&3'>=;=' '=*:&' =& &'1 &53&1'30' 8 *G&'3=&'@&3 9' 05' 3=&5;' 5 0>& 9' > ' @&'0@f&53&1'30' @'' 8 *-'' 4& 0-9'0-'*;;06-3'05'3=&' &?"' 4;-;;' *-1' 3 06@&' 05' 4 &4* -2'3=&8 * 9' * 50' 5&4"' 405-2' 3' -&;& * '' 30' 8 *G&' 3=&' @&19' 50' 1&&4 ' 50' 5 0>& 9' >=05&' 0039' * &' 58 * 'f' @63' 5' 3=&'' > '2 :&' 3=&8 5&-;9'3=&' 3 06@&' 05' 8 *G -2'3=&' &?4& 8 &-3'@'' 4 &4* -2'0-&'@&1' -' 3= 9' 8 *--& ' *-1'*-03=& -'3=&' ;0 8 0-' >**' *-1' 4 *-3' 3=&8 '@03=' > 3=' 3=&' 5* 8 &' 0039' 3=&'' > 50 0-'@&' ;0-:-;&1'05'3=&' & 0 '@'' 3=&'56;;&59'05'3=&'5 0>& 9' 0 "' -'3=&'@&19'>=;=':&' &&-' 4 &4* &1' 05' 3=9' 1&43=' ' =*:&' 5&&-' 0-&' 003 4 016;&'64* ;9'05'5 53'' 5 0>& 9 ' &*:=' 05' >=;=' 2 &>' -&*' *' 5003'=2=' *-1' >& &' &?3 &8 &'' * 2&'*-1'5* 9' >=& &*9' -' 3=&';0 8 0-' 8 &3=01'05';6 36 &' 3=&'=&'' &' 3=062=3'30'10':& '' >& ' >=&-'3=&'' 4 016;&' &2=3'0' 3&-'5 0>& 9'0-'&*;=' 003' *-1' 3 ;5&' 2 1>' 5 ?' -;=&9' =2='L @63' 5' *'4& 50-' >' 3 *;&'3=&' ;-2 '05'3=&'58 * ' 5 @ &9'05'3=&5&' 0039'=&' > '5 -1'3=&8'&?3&-1'3=&&'0' 506'5&&3'10>-> * 19' -1'*9' 3'9'@''3=&5;'1 53*-&'5@&9' 3=*3'3=&'-06 =8&-3'9' 3*G&-' -' 50'3=&1-&;*5&'*-1' 5 &-23=' 05'3=&'5 0>& 9'&' ' 5'3=&5;'8 &&3'>3=**' 400' * &-' 50 '@& 0>'3=&'' -G ' *-1'3=&'5 0>& 9 * ;' 53* ;&1'50 '>*-3'05'4 04&'-06 =8&-3'-' 3=4' 54 F-2' >=&-' '9'8 053' &<6 &1'

=&'@&19'@&-2'3=69'4 &4* &1 ' =06 1' &'*'50 3-2=3' 30'5&33 &'@&50 &'3=&' 0039' *;' 4 *-3&1 ' 3=*3' 3=&' 8 *'' @&'-0'1*-2& '05'3=&'&* 3='5&33 -2'6-&<6* ''*53&'3=&'' * &' 4 *-3&1'=' >=;=' >06 1' 4 &F61 ;&'3=&' 0039'@'' =*:H -2'=0 0>'4 *;&9' -'5& 8 &' 4* 39'05'3=&'@&1 30' >=;=' 3=&'>*3& '>06 1' 6-' *-1' 012&' *-1'50' 03' 3=&' 0039' 3=& &' =&-' =*: -2' &:& &1' 3=&' &* 3=' *' -2' 3=&' 56 5*;&*' 33 &' 06-1 -2' 3=&' @&19' =06 1' @&' 8 * G&1' 063' -' 0>9'@''*' -&'*3'*@063'5?' -;=&9'1 53*-;&'&*;=H >*'' 50'3=*3' 3=&' 0039' 8 *''@&' 4 *-3&1'&:& '' >*'' -' 53 * 2=' -&9'L 0&*' 3=&' &* 3=' >3='06 * 5-2& 9 *3' &*;=' ;059'>=&'3=&' 0039'*;'30'@&'4 *-3&1 *3'*@063' 3>0' -;=&9' 1&&4 ' 4 *;-2'3=&' 0039'&?*1 '' -3=&' 8 11 &'>3='3=&' ;0>-9'64 2=3*3=&-'>3=' 3=&'=&*1' 05'*' *G&'1 *>'3=&'&* 3=' 640-'3=&'56 5*;&'05'3=&'@&1' /J':;' >=&&@''3=&' 304'05'3=&' 0039' >'@&' ;0:&&1&' >3=&*3=' -&*' 3>0' -;=&9'>=;=' >' 8 ' =9'>0 G'5 06 1'@&'10-&'-'TF ''>&*3=&'@&;*6&'3=&' &*3=' >' 3=&-' >0 G' @&33& A'3=*-' 5' 3'>& &'>&3'L @63' 3=&' @0-&'*53& '4 *-3-2'3=&&'=*44&-9'30'@&' *-'3=&' @&33& ' 3' > '@&' 50 '3=&T 0039'L 50 ' 5' 3' =06 1'4 0:&' 1 '' >&*3=&' 0-2'*53& ' *-1'3=&'&* 3='05'5 3=&'@&19'@&' :& ''1 ' ' 3=&' 0039' > '@&' 56@F&5 ' 30' 8 06 1'*-1'1&H ;*'' L' 3=&&50 &' 3' > '@&'4 04&'30'2 :&'*' 3;&' >3&' 30'3=&'@&19' 5'3=&&'5=06 1' -0'' 6-'=*44&-' -*' 50 3H - 2=3i9'3 8&' >=;=' -1&&1'9 :&'' *&'*3'3=*3'5;*50-'05' 3=&'&*A'30'3=*3'3=&'' > '5& 10& '@&' -1'*-2& '05'565'' 5& -2'3=*3'>*'

=&-'3=&' 0039'*;'3=69 4 *-3&1'3=&&'>' -'0'8 0 &' @&' &<6 &1' 6-3' 30>*1' 3=&'&-1 05'-2:&8@& '@'' >=;=' 3 8&'3=&'' > '@&2 -'30' =&*:&'3=&'2 06-1' *-1' 3=&'@619'05'3=&' '&*:&9'*44&*'L' >=&-''06' =06 1' *'' *' 33 &' 05'3=&' 5 &=' &* 3=' 05'>=;=' &'@&19' >&' 3=&' 0039'L' *-1' -' 3=&' *33&' &-1'05'*4 '0' ;08 405;1' *@063'=*5'*-' ;=' ;G' 0:&' 3 &' @&19' >=;' > ' 2 &*3''& &' 3=&' ;03:-'05'3=&' 003 5 08'5 053'F *-1'>=&-''06'4& ;&:&'3=&' @619'30'@ &'G' 3=062=' 3=9' 5&;0-1' ;0:&-2' 5' 3' =06 1' 4 0:&' :& '' =* 1'5 05' 3' > '@&' :& ''4 04& 30' *;=' 1 &' @&1 '0:&'>3=' =0049'7*-1';0:&'3=&8'>3=' 8 *39' @63' &54&;* '' -' 3=&' 54 =2' >=&-'3=&' >"@619' > '@&2 8'30' *44&*'#50' 5'3=&''* &'&?405&1'30'300' 8 6;=' 5 053' 0' @ 2=3-2'>-19'*3' 3=*3'5;*50-' 3=& '50>& 9' 5& 108' 04&-'55* '' *-1' 8 *-'' 38 &9' 3=& ' 0039'*&' 1&53 0'&1 '

-' 3=&' @&2 --2' 05' 8 *;=' 3=&' 50>& "53&8 9' > ' @&2 -'30' 5&'*3'>=;=' 3 8&''06' =06 1';*&56 '';&*' 3=&'@&19'5 0 8'>&&19'*-1' 5 '3=&'&*3=' >3=' 06 '5-2& 9' @&3>&&-' 1Y&' 0039'@&-2':&'';*&56' -03'30' -F6 &' 3=&8'L 3=9' > '-03'0-'' 8 *G&'3=&'@&19'*44&*'=*-1*' 50 8 ;'@63'*50'2 &*3'53&-23=&-'3=& '5 0>& 9' -'@ 0>H -2&'*-1' 5'3=&'-2=39'4 0:&'5 053'' 3=&'@&19'5 06 1'@&' ;0:&&1'>3=' 8 *39'&:& ''&-&--2'*-1'5=*1&1'5 0 8'3=&' 56-'-'3=&'=&*3'0 5'3=&'1*'' =&-'3=&'5 0>& 9'* &'4 *1' *-1'3=&' &*:&9' *;' >3=&&1'3*G&'64'3=&' 0039'*-1' ;*&56 '';&*'3=&8' 5 08' 3=&' ;* 'L 3=&-' 54 &*1' 3=&8' 640-'*' 8 *;'30'1 ' -' *' @*1'' 4 *;&'F *53&' >=;=' 3=&'' 8 *'' @&' 463'64' -'@*29'0'@0?&9' -'*' 1 '' 008' 6-3 '3=&'0530@&' 50 0>-2'>=;=' 9' 3=&'5;*50-' 50' 4 *-3-2'3=&8 *2* -

=&5;' &5 *-'50 39'*&'-03'0-'' 4 04*2*3&1'@''05 "' 5&39' 5 0 8'3=&'0 1' 1039'@63'*&'*50' 8 6 3 4 &1'@'' 5&&19'>=;=' 3=&'5;8 "106@&'G-19'4 016;&'-'4 &-3'&' 3=& &50 &' >=0&:&'9'1&5 069'30'=*:&'3=&'-'4& 5&;H 3 0-' =06 1'*--6*''50>'3=& 5&&19'5 0 8'>=;=' -&>' :*&3 &9'>'@&'&:&'''&*'4 016;&1'@63'-'0 1&' 3=& &30''06' =06 1'@&';*&56'-'5* -2''06'5;&1'0' -'4 0;6 -2'3'5 0 8'56;=' 4& 50-9'*9'6-1& 53*-1'=0>'30' 5*:;' 3'# 3=*3'9'>=0'>' @&';*&56'-03'30'&*:&*-'' 5 0>& 9'50'5&&19'@63'56;=' *9'=*:&'5:&'0'5 7' 0>9'0 5' 4&3*9'*3' &*53 *-1'*&'>&' ;0 06 &19'50'5 -;&'3=&5;' 5 0>& 9' -;;*5;'4 &-3 56 ' ' 3' 9' -03'>0 3='3=&'3 06@&' 30' 50>'*-'' -1 55& &-3'5&&19' @&;*65;'3=& &' ;*-'@&' 63' 33&'=04&9'05'0@3*-2'*-'' 2001'5 0>& 9' 5 0 8' 3=& -'

(&-2'4 &4*&1' >3='5&&19' *@063'3=&' 8 11 &'05' *126 '>=;=' 9'3=&' 4 04&'5;*50-'50' 50>-2'3=& 8' '06'5=06 1' 2&3'50 8 &' * 2&' 40 9'5*3'5&&1*4*-9 '0' @0?&9' =&5&'5=06 1'@&'5 &1'>3=' 2=3' ;=' &* 3=' &:&-2'3=&'56 5*;&':&''&:&-'#3=&-'0>'3=&'5;&19' 3=& &0-'4 &33'' 3=;G'*-1';0:&' 3'*@063'*'<6*3&'0 5' *-'-;=' 3=;G'>3='3=&'8 &'2=3&'3=''L *53&'>=;=' '06'5=06 1' 8 0:&'3=&5;' 4039'4*-9'0'@0?&9' -30'* 5=*1'5 36*3 0-'>=&&'3=&'' 8 *''=*:&'3=&'8 0 -2'56-' 6-3 3&-'05'3=&';0;G&'*-1' 5'3=&'5;*50-'4 0:&'1 ' '06'8 653' 053&-' &5 ;='3=&8'2&-3'' >3='>*3& '@&-2' :&'';*&56'-1 0 -2'05'3=9'-03'30'>*5=' 3=&'5;&19' 063'05'3=&'2 06-1' -' 3=9'536*3 0-'3=&'4039' =06 1' &8 *-'6-3'3=&'@&2 -- 2'05'03 0@&' @'' >=;=' 3 8 &' 3=&'4 *-39'>' 50 8 &3 8 &9'@&2 -'30';0 8 &'64' J3=062=' 053&-'3=&'5&&19>' &8 *-' -'3=&'&*3=' 6-3'3=&'&-1' 05'-0:&8@&' @&50 &'3=&' 4 *-39' *44&*'LH' @63' 3 ;-' 06'5=06 1' &8 0:&'3=&' 4039' -30' *' 8 0'&04&-'&?4'*'' 56 ;' >=&&'3=&*'8 *''=*:&'3=&' 56 '56-'>=;=' *3'3=*3' 3 8 &' 9'-&;&5 *''30'&?=*&'3=&'8 0 5 6 ;'05'3=&'&* 3='L @63';0>*1'3=&' 8 11 &'05'-0:&8@&' ''06' *' *44 &=&-5 ;' 05'5 053' 3=&' 4039'5=06 1' @&' &8 0:&1' -1&'*';08 8 0-'=03"@&1'5 *8 &' >=&&'3=&*' 8 *'' @&' 5 53'053&-'033-2'3=&'3&-1&' 4 *-39'*-1'3 &'5 053' > 053&-'36 -'3=&8'06'05'3=&'2 06-1'3=&&50 &'3=&''5=06 1' @&';*&56 ''26* 1&1'*2* -53'@03=' 3=&5&

-"3=&'54 -2F*9'3=&5;*50-'2 0>9'* 8 '3=&5&'4039' 5 06 1'@&'&?405&1'30'3=&'04&-'* '4 *;-2'3=&8'*3' 5 53'-&*'3=&'= 3&'05'*'=&12&'30'4 03&53'3=&8'5 0 8' 3=&';0 1'>-19'L @63 &>* 1'3=&'@&2 -- -2'0'8 11 &' 05'*4 '3=&'' 5=06 1'@&' &8 0:&1'*2*-'-30'*' 8 0 &' 5=*1'' 5 36*3 0-'*;;0 1 -2'30'3=&'>* 83=' 05'3=&5;*50-'*-1' 5' 3' 5=06 1' 4 0:&' 1 '' 3=&'' 8 653' @&' 50 8 &3 8 &9' &5 &5 ;1' >3='>*3& A'@63'06' 5 06 1'@&';*&56'-03'30 2:&' 3'3=&8' -2'*''*3'<6*-3 3 &9'>=;=' 9':&''*43'30' 0;'3=&5&'3&-1&'0039'L *-1'-3=&'*33&'&-1'05'*4 '0' @&2 --2'05'8*'' 3=&'' =06 1'@&'4*;&1'>=&&'3=&'' 8*'' =*:&'0-''3=&'80-2'56-A' -'>=;=' 4 *;&'3=&' 8*'

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=&'54 -2'5Ø 0> -2'3=&5;' 0039'> '5 Ø>& ' *'3 >= ;=' 3 8 &' '06' 5=Ø6 1' ;* &56 '' 8 * G' 56;=' 05' 3=&8 *9 * &' >Ø 3=''30'@&' 4 & & :&1 ' *-1'3=&' -2 &' Ø ' @*1' ;Ø 06 &1' 5 Ø>& 9' 8 *'' @&' 46 &1' *-1'3= Ø>-' *>*'' >= ;=' ģ 3=&' 56 & 7 8 &3=Ø1' 05' &8 Ø: -2'3=&8' 5 Ø 8' 3=&' 2001' 5Ø 39' # 5Ø ' 5'3=&'' * &' 4& 8 33&1'30' &8 * -' 302&3=&' 6-3 '3=& ' &*:&9 1&;*' ' 3=& &' 8 *'' @&' 5& 8 &' 0559&39 05' 3=&' @*1' @ 39' 8 ?&1' > 3=' 3=&' 2001' 5Ø>& 9' e06' 5=Ø6 1' -Ø3 5655& ' 3=Ø5& 5 Ø>& 9 ' >= ;=' '06' -3&-1' 3Ø @ Ø>' 5 -&' 3=&' 53 ; ; ;&1 -2' '&* ' 3Ø @&* ' 5&&19' 5' 3=&'' * &' -; -*@ &' 5@' 3Ø 1Ø' @6З ;6З' 055' 3=&' 5 Ø>& ģ >=&-' 3=&'' @&2 -' 3Ø 1&;*''Ä 5Ø ' 3=Ø5&' 0039' >= ;=' "=*:&' 4 Ø16;&1' 5&&19' 5& 1Ø 8' 5 Ø>& ' >& ' *53& >* 1ģ# -Ø ' > ' 3=&' 4 -;4*' Ø 1' ØØ3' >= ;=' =*ģ 5 Ø>& &1' 53 Ø-2' Ø-&' '&* ' &:&' @ Ø>' 5Ø 5* ' *ģ > ' 3=&' Ø559&39' >= ;=' ģ >=*3 5=Ø6 1' @&' 4 -; 4* ''Ø@5& :&1' >=&-' *' 4& 5Ø-' 43 ;=*5&ģ *-' Ø5' 3=&5&' ØØ39Ä 5Ø ' *' 2 &*3 4* 3 Ø5' 3=&' ;Ø8 4 * -39' 8 *1& @'' 3=Ø5& >=Ø' =*:&' @Ø62=3=&5& ØØ39' *3 *' 1&* ' *3& ' 9' 4 -; 4* ''Ø> -2' 3Ø 3=ģ' Ø ' 3=&' 4& 5Ø-ģ >=Ø' 5Ø 1' 3=& 8 ' @& -2' *44 5&1' Ø5' 3= 9 8 *33& ' =*:&' 4* 3&1' > 3=' 3=& ' Ø 1' ØØ39' 3Ø 3=& ' 46 ;=*5& ģ *-1' &5& '&1' 3=& Ø559&39 5Ø ' 3=& ' Ø>-' 65&Ä >= ;=' Ø 1' ØØ39 =*:&' @ 8 6 ;=' 1&2&-& *3&1' 5 Ø8' >=*3 3 &'' >& &' 3=&' 4 &;&1 -2' '&* ' *ģ 3Ø ;*65;' *' 5654 ; Ø-' >=&3=& ' 3=&' 4& 5Ø-ģ 3=&'' >& & 46 ;=*501' 5 Ø8' =*1' -Ø3 ;=*-2&1' 3=&' ØØ39 7 *-1' 3=ģ 1&2&-& *;'' * >*'ģ *33&-1ģ 3=&5& 5Ø>& ģ ' *53& ' =*:H &'' 2' 5Ø>& &1' &?3 & 8 &'' * 2& *-1' 5* ' Ø ' 3=*3 3=&'' =*:&' @&&-' 4& 8 33&1'3Ø' 5&&1' Ä 5Ø' 3=*3 3' ģ *Ø5Ø 63& '' -;;&55* ''3Ø' 5Ø>' 5&&19 &:& '' '&* ' -' Ø 1& '3Ø' 4 & & :&' *' 56;;& 5 Ø-' Ø5' ØØ1' 5 Ø>& 9

=&' 8 *--& ' Ø5' 4 &4* -2' 3=&' @&19 ' *-1' 3=&' 1 53*-;&' *-1' 8 &3=Ø1' Ø5' 4 *-3 -2' 3=&' ØØ39 ' =*: -2' @&&-' * &*1'' 1 ;5 ;1 ' 5=* ' -Ø3' &4&*3 3' =& & ' @6З Ø- '' Ø@5; :&' 3=*3'3=&5&' 5 Ø>& ģ @& -2' 3&-1& ' 8 65З @&' 4 Ø3&53&1' 5 Ø8' =* 1' 5 Ø539' *-1' ;633 -2' 5=* 4' > -19' &5 4&; * '' *53& = 538 *9 ' >=&-' 3=& ' 5 Ø>& "@619' * ;' 5Ø 8 -2Ä 5Ø ' 5' 3=&'' * &' -;2 ;353&1' *3' 3=*3' 5&*5Ø-' 3=& ' 5 Ø>& ģ ' * & '' 4 Ø:&' 5* Ä -Ø ' 5=Ø6 1' 'Ø6' 5655& ' 3=&8' 3Ø' &H ;& :&' 3ØØ' 8 6;=' >& ' -' > -3& ' Ø ' 54 -2' >= ;=' ģ &<6* '' *ģ -Ƒ6 Ø69' 3Ø' 3=& 8 ' *ģ 5 Ø53

-4 * -3 -2' 3=&5& ØØ39' Ø6' 5=Ø6 1' Ø@5; :&' 3Ø' 4 *;&' 3=&' 5; 8 "106@ ;'G -19' 5 Ø8' >= ;=' 'Ø6' -3&-1' 3Ø' 5*:&' 5&&19' -' 5&4* *3&' @&19 @'' 3=& *5; :&9' *-1' -Ø3' -3& 8 7' 3=& 8' > 3=' 3=&' 106@ &' 5 Ø>& 9' @;;*65;' 3=&'' > ' &H <6 &' 3Ø' @&' 3 &*3&1' -' * 1 55& &-3 8 *--& 'F 50' >=&-' 3=&' 5 Ø>& ģ 9 Ø5' 3=&' 5& 8 "106@ &' G -19 @&2 -' 3Ø' 5*1& ' Ø6' 5=Ø6 1' ;* &56 ''26* 1' 3=&8' 5 Ø8' 3ØØ' 8 6;=' >&3Ä 5Ø ' 5' 3=&'' * &' 4& 8 33&1' Ø' &;& :&' =* 1' * -9' Ø ' * &' >*3& &1' *3' 3=*3 5&*5Ø-' 3=&' 5&&19 * &'' ;Ø 8 &' 3Ø' 8 *36 3'' Ø ' 8-6-3' 3=&' 3 &' Ø5' 5Ø>' &* Ģ ' 2 Ø>

=&-' 3=&' 5&&1' @&2 -9' 3Ø' 4&-' J>= ;=' 8 *'' @&' &*5 '' G-Ø>-' @'' 5&4* *3 -2' 5 Ø8' 3=&' *?9' *-1' 5* -2Ø' Ø6' 5=Ø6 1' ØØG' 3' Ø:&' &:& ''1*'' 2*3=& -2' 3' *9' 3' 4&-9Ä 5Ø '3=&' &' > '@&' *;Ø-5 1& *@' &' 1 53*-;&' -'3=&' 5&&19' Ø5' 3=&' 5 Ø8' 3=&' *?9' *-1' 5* -2Ø' Ø6' 5=Ø6 1' @&' 1*' Ø' &:&' 3=&' 5&&19' 5' 3=&'' * &' 8 *'' @&' 5& 8 &' 0559&39' Ø5' 3=&' @*1' @ 39' 8 ?&1' > 3=' 3=&' 2001' 5Ø>& 9' e06' 5=Ø6 1' -Ø3' 5655& ' 3=Ø5& 5 Ø>& 9' >= ;=' 'Ø6' -3&-1' 3Ø' @ Ø>' 5 -&' 3=&' 53 ; ; ;&1 -2' '&* ' 3Ø' @&* ' 5&&19' 5' 3=&'' * &' -; -*@ &' 5@' 3Ø 1Ø' @6З ;6З' 055' 3=&' 5 Ø>& ģ 9 >=&-' 3=&'' @&2 -' 3Ø 1&;*''Ä 5Ø ' 3=Ø5& ' >& ' *53& >* 1ģ# -Ø ' > ' 3=&' 4 -;4*' Ø 1' ØØ3' >= ;=' =*ģ 5 Ø>& &1' 53 Ø-2' Ø-&' '&* ' &:&' @ Ø>' 5Ø 5* ' *ģ > ' 3=&' Ø559&39' >= ;=' ģ >=*3 5=Ø6 1' @&' 4 -; 4* ''Ø> -2' 3Ø 3=ģ' Ø ' 3=&' 4& 5Ø-ģ >=Ø' 5Ø 1' 3=& 8 ' @& -2' *44 5&1' Ø5' 3= 9 8 *33& ' =*:&' 4* 3&1' > 3=' 3=& ' Ø 1' ØØ39' 3Ø 3=& ' 46 ;=*5& ģ *-1' &5& '&1' 3=& Ø559&39' 5Ø ' 3=& ' Ø>-' 65&Ä >= ;=' Ø 1' ØØ39' =*:&' @ 8 6 ;=' 1&2&-& *3&1' 5 Ø8' >=*3 3 &'' >& &' 3=&' 4 &;&1 -2' '&* ' *ģ 3Ø ;*65;' *' 5654 ; Ø-' >=&3=& ' 3=&' 4& 5Ø-ģ 3=&'' >& & 46 ;=*501' 5 Ø8' =*1' -Ø3 ;=*-2&1' 3=&' ØØ39 7 *-1' 3=ģ 1&2&-& *;'' * >*'ģ *33&-1ģ 3=&5& 5Ø>& ģ ' *53& ' =*:H &'' 2' 5Ø>& &1' &?3 & 8 &'' * 2& *-1' 5* ' Ø ' 3=*3 3=&'' =*:&' @&&-' 4& 8 33&1'3Ø' 5&&1' Ä 5Ø' 3=*3 3' ģ *Ø5Ø 63& '' -;;&55* ''3Ø' 5Ø>' 5&&19 &:& '' '&* ' -' Ø 1& '3Ø' 4 & & :&' *' 56;;& 5 Ø-' Ø5' ØØ1' 5 Ø>& ģ

=&' 8 *--& ' Ø5' 4 &4* -2' 3=&' @&19 ' *-1' 3=&' 1 53*-;&' *-1' 8 &3=Ø1' Ø5' 4 *-3 -2' 3=&' ØØ39 ' =*: -2' @&&-' * &*1'' 1 ;5 ;1 ' 5=* ' -Ø3' &4&*3 3' =& & ' @6З Ø- '' Ø@5; :&' 3=*3'3=&5&' 5 Ø>& ģ @& -2' 3&-1& ' 8 65З @&' 4 Ø3&53&1' 5 Ø8' =* 1' 5 Ø539' *-1' ;633 -2' 5=* 4' > -19' &5 4&; * '' *53& = 538 *9 ' >=&-' 3=& ' 5 Ø>& "@619' * ;' 5Ø 8 -2Ä 5Ø ' 5' 3=&'' * &' -;2 ;353&1' *3' 3=*3' 5&*5Ø-' 3=& ' 5 Ø>& ģ ' * & '' 4 Ø:&' 5* Ä -Ø ' 5=Ø6 1' 'Ø6' 5655& ' 3=&8' 3Ø' &H ;& :&' 3ØØ' 8 6;=' >&3 -' > -3& ' Ø ' 54 -2' >= ;=' ģ &<6* '' *ģ -Ƒ6 Ø69' 3Ø' 3=& 8 ' *ģ 5 Ø53

-4 * -3 -2' 3=&5& ØØ39' Ø6' 5=Ø6 1' Ø@5; :&' 3Ø' 4 *;&' 3=&' 5; 8 "106@ ;'G -19' 5 Ø8' >= ;=' 'Ø6' -3&-1' 3Ø' 5*:&' 5&&19' -' 5&4* *3&' @&19 @'' 3=& *5; :&9' *-1' -Ø3' -3& 8 7' 3=& 8' > 3=' 3=&' 106@ &' 5 Ø>& 9' @;;*65;' 3=&'' > ' &H <6 &' 3Ø' @&' 3 &*3&1' -' * 1 55& &-3 8 *--& 'F 50' >=&-' 3=&' 5 Ø>& ģ 9 Ø5' 3=&' 5& 8 "106@ &' G -19 @&2 -' 3Ø' 5*1& ' Ø6' 5=Ø6 1' ;* &56 ''26* 1' 3=&8' 5 Ø8' 3ØØ' 8 6;=' >&3Ä 5Ø ' 5' 3=&'' * &' 4& 8 33&1'3

@;3>&-'3=&'5=0 3'53*8&-'*-1'4 53 g *-1'0-&'0-'&*;=' 5 1& @&3>&&-'3=&' 0-2& ' *8;-g *-1'3=&';* '? ' " # ' 5 ?' *> "% *4&1' ; &1 7 05'3=&5&' 3>0' 3=*3* &' 04405 3;' *;' 05'3=&5*8& &-23=' > 3=' 3=&';* ' ?A *-1'3=&' &8* - -2' 506 ' *&' 3=&' &-23=' 05'3=&' ;*>g' 0 ' 3=&';0 0 *' '5 84 & 9 ' J #' 0@0-2' :&-3 ;05;' *33&-6*3&1' 3=&' &-23=' 05'3=&'53*8&-9' '5;* ;&'' *-'' # ' ;*4 3*3& ' &-3 & ' ?8 ' 0@Q-2' > 3=' *' 40 -3' :&-3 ;05;' > 3=' 33 &' 5>& -29' 5 @* 3;6 *3&';' -1 ;* !! ' 06-1 =' 58 003= " ' ' *4=*-69' %'$ % ' % ' % ' + &' ' '?' & ' ' ' # &. ' ' # # ' ' ' & ' & ' + ' *4=*-53 68' ' '% ' '0 &' &' #' ' ' '0 'V ' ') '# ' @% #' &' & ' ' ' ' ') ' & ' +? $ ' ' 10 &1' 8 ' 30 05&' 5 @* 3;6 *3&';' -1 ;* ' &' 506 'F 3>0' @&3>&&-' &*;=' =0 3;' 53* 8&-' *-1' 3=&' 4 53 g' *-1' 3>0' @&3>&&-'3=&' 0-2& '53* 8&-g *-1' 3=&';* '? ' *4=*-69' *3:69' ' # # ' & '2 &0 ') ' P## ' 2 ' F ', C+' ' %%' L+K' %' /CC' # ' # &' /Q+' $ '0 ' ,QL' '% & ' ,'LKK' (7+' ' C/ ' ' *3:69' &'2 & % 1 '& '@' ' /CL' ',' # ',LE'3', 2 ' 0 ' CK+' 1 ' 0 % 'L' ' /L'% 'L ' 8 -0 '0@0-269' (- ' 1 % - ' :6 2* 9' 7' ' / M. Ø' ' 036-169' # ' + ' # &' 0 ' 2 &0 1 '& ' ' 6D F' '0@;6 * 9' &0 '+ ' 0 ' 2 &% 1 '& % ' L' /C+' L' # ',LC' L' 2 ') % ',' L ' 8 * 0 "0@;6 * 9':& ' 036-169' ('PQ ' ' -2& ' (7' 0 '2 &0 1 '& ' '+' (' ' PQ' 2 ') 'CK+ ' 5 D' [036-1 0&' *1 ;&' 7 / M'F:' '4' 50 8 9' & ' /C+'+' 835;',LC'+' 1 ' % 8 ' & ' % '+ & .6' *4=*-69';*61*;69) %'QKL' 2 ' L' ,C+' # ' P#' & ' L' D' 30 8 '& # ' ' '+ ' :H L' *4=*-69' *4=*-53 68' 4 &' 2 &0 '0 ') &' && &' ' 7 '% ' PL#' % 0 'QKL' 2 'L',C+'-_ ' %% L+K' % % ' >'Q/,' # ' &' Q'+#/' @ &% ' ,CP' 4 ' ' &' L' #PQ' # ' E,L' ' ' &'+' '+Q' % % 'LQ,' 2 ' ' +C,' ' > ' ' #EL' ' &%' /+E' " ' 0 ' 'E ' " '& ' 'QEC' @ ' !' '+QC' # % ',C#' ' 5' 0 LE' 7' ',CQ' ' ' ' Q++' B 7 % %' //K+' * '& 'L'LKP' *4=*-53 68' *8 45*-*' % 2' 6' LKK '5 0 ;' *@0'53 *30'5 ' *3 ;'53 *3*' 8 -0 ;' 1 ' 0 ',',QQ 'L' ' /L D '+ *4 53 68' *:&-5& ' & #' ' P+,' ' /EP', *4 53 68'5 0 &' *@0'5 <6*' *3 ;6G3*' (' ' *4 53 68'5 0 &' *@0'53 *30' (' 0 '6' C#/' ' *4 53 68'5 0 &' *@0' -&9 -2 9 1&4 5@0' (' P# *4 53 68' 5 0 &' *@0' ;6;3&' 50 0' ' ' /PP' *4 53 68' *@68' *3;6 *368' 7' 'CQL'# ' 2 ' 0 'CK#', [3&8' *3& 68' *:0 68' 7' ' CKL'+ *f-53 68' 46 46 &68' % # '+KE *4=*-69'5':&53 9' '/C#' ' # ',+K'. *4=*-53 68' 5 <6*' * ;6*3*' 2 *@*' -*f0 ;' W 8 -03&' 1)'L' '/L D' ',' 2 :00 '5%:' " ! ' ',+Q'D' /K Ø' *845*-*' '/PP [50 &' 8;-0' $ ' ' *4 53 68'5 0 &' 63;0' (' 'P# ` % ' 2 @:*' * ;6*3*' 2 0 '6-M' 0 - ' '*4=*-69' 8* 8 69 5 0 &' 63&0' 5 <6 9' *3;6*3 9' 5&;6-16 8' 0-2 361-&8';8 -&-3&:' 53 * 9' 2 ')0 ' ,PQ *4=*-53 68'5 '* 3;'53 *3*' 8*?8*' < ' 0 ' ,QQ D' L' ' /L D'#' 2 ' 0 'CKQ'+ & 0 &' ! ' &0 W &'# % #' M ^+' *4 *-69'5@ ;69' '2 &0 '% 'PL#' % 0 'QKL' 2 ' F ',CP' 1 ' ' !' ##' ' /EE#' ' +C' ' ' '# ' F) 'L',QQ' ',C & ' & ' 0'! 0' ! ' ' %& #' *4=*-69' 6;0 1&9))) 'QKL' % ',PP & ' ! ' ' + ' ' 7' ' ' %' & M' *4=*-69'3&-; 69' # '2 &0 ' 'L'E+/' ' D'L' '7 +' ,'+K# & ' +) &'0 &' + &) # ' ! '%# ' &' ' + 0 F # %& f / ' 003'*--6*' * 2&' 5 & =' ' 565 50 8' 0 ' 56@2 0'' @6 * ' >= 3&' > 3= -' &1' 0 ' >= 3&' 0 ' @ *;G ' 0-' 3=&' 0 ;'' 5 1& ' 3& 8* 64 2=3' 3= ;G ' :& '' 86;=' @ *-;=&1' *-1' 1 5 6 &1' 062=' > 3=' 4& 6;1' @ 53;9' &*:&9 062=' ' *3&' *'?' 2 &&-' 062=''=* &1' &3* 9' 4 %;' : OH &3' > 3=' * 2&';&-9 6--Z 0:&'3=&8.' 01' 0-2' > 3=' *' =* 4' @&*G' 56-2069' >= 3&' > 3=' 1 53*-3 53 &*G9' 8 *-'";& &1# ;& 9 8 &8 @ *-*;&0069';05;1' -*' 106@&' 0-2 361-*' 0>' *0-Z 3=&' 8 11 &' &4368' && 19' 0-&' -'&*;=';& '@63 -'&*;=' 0>'5 0 8'3= &&' 30' 3>&:&' A 56@2 0@6 * ' * 2&'5& 62-069';0:& &1' > 3=':& '' 8 H -63&' * 5&1' 10;9 *3:&' 05' = -*' 0;=-;=-*' *-1' 4*-'g -' * ' >= ;=';06-3 &9 3' 9 86;=' ;6 3:*3&1 [3' *44&* 9 5 0 8' & * 1&9 9=& @* '3=*3 3' >*9';6 3:*3&1'=& &' -' /#PE'.7 *-1' 3' >*9 4 0@=*@'' -' 06'G 3;=&-'2* 1&-9 0-2' @&50 &' = 9 3 8 &] 0 8' 3=&' :* &3 &9 05' 3=&' ;0 8 80-' *1 5=' ' & ' * 8 9*3 8*G-2' 506' 50 39' @'' = 9 656*' * 26H 8 &-3'3=*3 5 0 8' 50 3'' '&* 9 &?4& &-;&' =&' -&:&' 506-1' *-'' 05' 3=&8' 30' :* '! * -1' 3=*3' @'' 5*: -2' 3=&' 5&&19 05' &*:=';* &56 '' > 3=06 3' ?36 &' 3=&' 4 016;&' > '* >*' 9 4 0:&' 3=&' 5*8&' *9 3=&' 4 *-3' >= ;=' 3=&' 5&&19 >& &' 5*:&1' 5 0 8 ' =&' 5 53':* &3' ' 0 ' 0-2" 003&1' *1 D=' 9 3=*3' >= ;=' 9 ;0 8 80-' ';6 3:*3&1' -' G 3;=&-' 2* 1&-9 50' 39 0039' 5' 3=9 3=& &' *;5;:;*' 56@0 1 -*3;' :* *H 3 0-9 7*9 3=&' 5 8* "3044;1' 3=&' 1&&4' &1' 3=&' 4*&' &1' 0' 5* 80-' *-1' 3=& 0-2" 3044&1' 53 F\&1' *1 =' ' >= ;' 1 55& &-;&9 ' &' * 0>9 30' =*:&' * 5&-' 5 08' ;6 H 36 &' =&' 5 8* ";044&1' 9 805 ;0 8 80-' *4 &5& &1' @''3=&' 2* 1&-&9 -&*' 0-10-' @&3*65&' 3=&'' ;<6 ' 86;=' &59 00 8' 3=*-' 3=0 &' >3=' * 2&' 3049' F 50 ' *9 50 H >* 1' *1 5=&9 * &' >=*3 4 016;&' 3=&' 2 &*3&5' 4 05 3' 30' 3=&' 2* 1&-&' * -1' 3=&5&' *;' ;0 8 80-' ' 50 >-' 640-' @0 1&9 -&*' =&12&9' >* 9 0 '4* &9' 3=&' 2&"3044&1' *1 5=' >06 1' @&' *43 30' 2 0>' 805 3 ''*3 304' *-1' -03' 5>& '50' 86;=' -' 3=&' 003' *9 3=&' 03=&' ;54&;' * '' 5'3=&' 4 *-39' 5=06 1' @&' &53' 4 &33'';05& J?' =&'58* ' 06-1" 003&1' *1 5=' 9' -03' :& '' ;0 8 H 80-' -' -2 *-1' @63' -' 8*-'' 4* 39' 05' 3* '' 3' 9 3=&' 0- '' 0-&' ;6 3:*3&1 g' 3=&' 0039' 05' 3=9 *&' :& '' >= 3&' 06-1' 5-* ' *-1' :& '' 5>;&3" ^ 3' 9 -0>' 5 "" <6&-3 '' @ 062=3 30' 3=&' 0-10-' 8* G& 9' -' 3=&' 54 -A' 2&-& * '' -' @6-;=&9' *-1' 9 50 8 &3 8 &9' 8 53*G&-' 3 ' 50 ' '06-2' 36 -&49' 5' &*3&-' '06-2' 3' 9';54' 8 1' *-1' 4 &*5*-3 ' ' =&' * 2&' 36 -&4" 003&1' 0 '>= 3&' 4*-=' *1 5 7' =*9 *' 801& *3&*' * 2&' 54=& 0 1*' >= 3&' 003' *-1' &53&8 &1' ;= &5 '' 50 ' &*-2' -' *636 8 -' *-1' 3=&' & 6]:' 4* 3' 05' >-3&' (03=' 3=& ;' * &' ;0 8 80-' ';*&1' -1 5' ; 8 -*&1'' 6 -;4' *1 5=&9 ' (*;G' 36 -&4" 003&1' 4* 53F *1 5=' =*9 *' O;' 3 G&' 3=&' 4 &;&1 -2' >= 3&' > 3= -' @63' > 3=' *' @ * A' 5 1 -' *-1' 9 2 &*3 '' &53&8 &1' @'' 8 *-'' 50 ' *636 8 -

0 5' *4 ' * >*'9 0@5& : -2' 30' 50>' 3=&' *33& ' ; 04 9' 640-' *' 80 53 50 ' *-1' -' *-' 04&-' 5 *3 0-F 0 =& > 5&' 3=&*' > ' 6-' 64'*-1' 2 0>' 53 ;G '' @&50 &' 3=&'' * &' 5 3' 50 ' 6 ;

-'' 0 5' 3=&' 2 1&-& 9 -&* ' 0 -10-' 50>' * 03'' 5;&1' > 3=' 3=& '&* '' *1 5=' 50' 3=*3 >=&-' 3=& ' *H 1 ;&9' * &' G &1 ' >=' ;=' 50 8 &3 8 &9' =*44&-9' 3=& * H 039' > ' &8 * -'' 50 '3'=&' 5&&19' 05' * 039' ;0 8 80- '' &' -' 3=&' 2 06-T ' 5 :&' 0 ' 5 7' > &&G9' @&50 &' 3=&'' ;0 8 &' 64 ' *-1' 3=& *1 5=&9' 5; 10 8' &' *@0:&' *' 50 3- 2=3' 6-1& ' 2 06-1' *3 3=*3' 5&*50-A 50' 3=*3' 3=&5&' * &' 053&-' 64 ' *-1' G &1 ' >=&-' 3=&' * 03''5&&1' &8 * -9' 5*5&' -' 3=&' 2 06-1' ' @63' >=&-' @03=' ; 049' 56 ; ; &1 ' 3=&' *H 1 ;&9' 8 653' @&' 1 *>-' 055' :& '' '06-2' 0 =& > 5&' 3=&' * 039' > '@&' 1 *>-' 64' 50' > &*G ' *9' -03' 30' @&' *@ &' 30' 56440 3' 3=& 8 5& :&9' >=&-' 3=&' *1 5=&9' * &' 20-&

3' 9 * 50' *' ;0-53*-3' 4 *53 ;&' > 3=' 3=&' G 3' 5=&'' 2* H 1&-& 9' 30' 8 ?' 4 -*;='5&&1' > 3=' 3=& ' *33&' ; 049' 05' " *1 5=&9' =&-' 3=&5&' * &

ESSENTIAL CHARACTER.

Contorted. *Berry* ſucculent, two-ſeeded.

SPECIES.

1. Rauwolfia nitida. *Shining Rauwolfia.*
Lin. ſpec. 303. *ſyſt.* 250. *Reich.* 1. 588. *Willd.* 1217. *hort. cliff.* 75. *t.* 9. *Gærtn. fruct.* 1. 242. *Jacqu. amer.* 47. *n.* 1. *pict.* 28. *Plum. gen.* 19. *ic.* 236. *f.* 1.
Leaves in fours lanceolate acuminate very ſmooth ſhining, flowers terminating.

[2. Rauwolfia glabra. *Smooth Rauwolfia.*
Lin. ſpec. ed. Willd. 1218. *Cavan. ic.* 3. 50. *t.* 297.
Leaves alternate lanceolate ſmooth, cymes peduncled few-flowered oppoſite to the leaves.]

3. Rauwolfia caneſcens. *Hoary Rauwolfia.*
Lin. ſyſt. 250. *Reich.* 1. 589. *Willd.* 1218. *Gærtn. fruct.* 1. 243. *Brown. jam.* 180. *Plum. gen.* 9. *ic.* 236. *f.* 2. *Sloan. jam.* 2. 107. *t.* 211. *f.* 1. *Raii dendr.* 75. (Solani fructu, &c.) *Pluk. phyt.* *t.* 266. *f.* 2. (Arbor ſycophora.)
R. ſubpubeſcens. *Lin. ſpec.* 303.
R. hirſuta. *Jacqu. amer.* 47. *n.* 2. *pict.* 1. 259. *f.* 17.
Leaves in fours oblong obovate acuminate pubeſcent, flowers terminating and axillary.

[4. Rauwolfia tomentoſa. *Downy Rauwolfia.*
Lin. ſpec. 303. *ſyſt.* 250. *Reich.* 1. 589. *Willd.* 1218. *Jacqu. amer.* 48. *pict.* 29. *t.* 46. *obſ.* 2. *t.* 35.
Leaves in fours oblong attenuated to both ends tomentoſe, flowers terminating and axillary.]

DESCRIPTIONS, &c.

1. 3. Both theſe ſorts grow naturally in the warmeſt parts of America; Mr. Robert Millar ſent the ſeeds of them from Carthagena in New Spain, where he obſerved the ſhrubs growing in great plenty. Theſe riſe with ſeveral ligneous ſtalks, which grow ſeven or eight feet high, ſending out a few ſmall ſide branches, covered with a ſmooth green bark when young, but as they are older, their bark changes to a gray. The leaves are placed by fours at each joint round the branches; thoſe of the third ſort are two inches and a half long, and an inch and a half broad in the middle, a little hairy, of a light green, and have a few ſlight indentures on their edges; the leaves of the other ſort are full as long, but are a third part narrower, of a thinner ſubſtance, and much ſmoother. Theſe differences continue in the plants which are raiſed from ſeeds, for I have ſeveral times propagated them both from ſeeds, and have conſtantly found the ſeeds produce the ſame as the plants from which they were taken. The flowers are produced on ſlender foot-ſtalks, which ariſe from the wings of the leaves; they are tubulous and globular at their baſe, and are ſucceeded by roundiſh berries about the ſize of thoſe of the Privet, which turn black when they are ripe. Theſe plants flower moſt part of the ſummer, and the fruit ripens in autumn and winter; the leaves and ſtalks have a milky juice, which flows out if they are broken.

[1. This is a ſmall tree, ſhining all over very much, upright, full of a white glutinous milk, twelve feet high. Leaves at the joints of the twigs in fours, lanceolate, quite entire, ſharp, petioled; the two neareſt five inches in length, twice as long as the two others. Common peduncles racemed, terminating, half an inch long, two or three together. Flowers ſmall, without ſcent, having white petals. The fruits are at firſt yellowiſh, but at length become very dark purple, are milky, and three times as large as a Pea[t]. They are globular, fleſhy, twin, two-ſeeded. Nuts or ſtones like thoſe of Grapes, of a bony ſubſtance, whitiſh, wrinkled, ſwelling at the baſe, gibbous, drawn to a point at top, compreſſed; keeled at the back, a little convex or flat on the belly; within bay-coloured; poliſhed very ſmooth, half-two-celled, with the partition incomplete, faſtened to the belly. Seed in each ſtone one, compreſſed, attenuated to both ends, doubled, with the lower extremity bent back[r].

[t] Jacquin. [r] Gærtner.

Native of South America, of Domingo and other iſlands of the Weſt Indies. Cultivated by Mr. Miller in 1739. It flowers here from june to ſeptember[s].

2. Native of New Spain. Stem ſhrubby, branched; all the leaves ſolitary[t].

3. This is an upright ſhrub, the whole of it milky, from a foot to eight feet in height, with all the parts of a correſponding ſize, according to the ſoil and ſituation. The younger branches ſubtomentoſe. Leaves in fours, obovate, attenuated to the baſe, acute, wrinkled, tomentoſe underneath, quite entire, the two neareſt longer than the other two. Petioles hirſute, round. Common peduncles branched, terminating in fours[u]. (Cymes peduncled, ſeveral, and two at the forkings of the ſtem[x].) Flowers reddiſh, ſmall, without ſcent. Calyx five-leaved; leaflets lanceolate. Segments of the corolla ſquared, emarginate, ſcarcely oblique: hairs in the throat without order. Drupe obſoletely bifid, firſt red, then dark-coloured. Nuts wrinkled, flat on one ſide, convex on the other, two-celled. Kernels ſolitary, ſeldom more in a nut, one of the cells becoming abortive[y]. Gærtner deſcribes the fruit as an ovate-globular twin berry, with two ſtones in it, which are like thoſe of Grapes, wrinkled and two-celled.

Native of the Caribbee iſlands and the neighbouring continent. Browne informs us, that this little ſhrub is very common in the Savannas about the town of Kingſton in Jamaica, ſeldom riſing there above three or four feet from the ground; that the berries are ſmall, black and ſucculent, and the leaves very beautifully covered with a light down, which is ſcarcely perceptible to the naked eye; that the whole ſhrub is full of milk, and more or leſs of a deleterious nature.

4. This is a milky upright ſhrub, three feet high. Leaves in fours, lanceolate, acute, thickiſh, quite entire, tomentoſe on both ſides, but very much underneath; the two neareſt longer than the others. Common peduncles racemed, terminating and axillary. Flowers ſmall, ſcentleſs; leaflets of the calyx five, ovate: petals white, with ovate ſegments. Fruit the ſize of a pea, at firſt red, then black[z].

The tube of the corolla in *R. nitida* is globular-ventricoſe below the border; the border of the corolla in *R. pubeſcens* is blunt, in *R. tomentoſa* acute[a]. This is a native of Carthagena, in New Spain, on rocks, and on the walls and gates of the town[b].]

PROPAGATION AND CULTURE.

Theſe plants are propagated by ſeeds, which ſhould be ſown in autumn ſoon after they are ripe; for if they are kept out of the ground till ſpring, the plants rarely come up the ſame year; and this is frequently the caſe with thoſe ſeeds which are brought to England.

The ſeeds ſhould be ſown in pots filled with freſh earth, and plunged into a hot-bed of tanners bark; for as they are very hard, they frequently remain a long time in the ground; therefore when they are in pots, they may be ſhifted from one bed to another as their heat decays. When the plants come up, they muſt be frequently refreſhed with water, but it muſt not be given them in large quantities; for as the plants are ſucculent and full of a milky juice, they are in danger of rotting with too much moiſture. They ſhould alſo have a large ſhare of freſh air admitted to them in warm weather, and when they are about two inches high, they ſhould be tranſplanted each into a ſeparate ſmall pot filled with freſh light earth, and plunged into a hot-bed again, obſerving to ſhade them from the ſun until they have taken new root; after which time they ſhould have free air admitted to them every day, in proportion to the warmth of the ſeaſon. In this hot-bed the plants may remain till toward Michaelmas, when they ſhould be removed into the ſtove, and plunged into the tanners bark, where they muſt be kept warm, and not have too much moiſture in cold weather.

[s] Hort. kew. [t] Cavanilles. [u] Jacquin.
[x] Willdenow. [y] Jacquin. [z] Idem.
[a] Willdenow. [b] Jacquin.

As theſe plants are natives of very hot countries, they will not live in the open air in England, therefore they ſhould conſtantly remain in the ſtove; and if they are continued in the bark-bed, they will thrive much faſter than when they are placed on ſtands in a dry ſtove. But in the ſummer ſeaſon they ſhould have a large ſhare of freſh air admitted to them, and the leaves of the plants muſt be now and then waſhed with a ſponge, to clear them from the filth they are apt to contract; which, if ſuffered to remain, will retard the growth of the plants. Where due care is taken of them, they will thrive very faſt, and the ſecond year will produce flowers, and continue ſo to do for many years, and will perfect their ſeeds in England. They may alſo be propagated by cuttings, which ſhould be laid to dry for two or three days before they are planted; and then ſhould be plunged into a moderate hot-bed of tanners bark, obſerving to ſhade them until they have taken root, after which time they may be treated as the ſeedling plants.

[RAVANIA. See *Rejonia*.

REAUMURIA. (*So named by Haſſelquiſt in honour of René Antoine Ferchault de Reaumur, member of the Academy of Sciences at Paris, London, &c. author of ſeveral memoirs; Hiſtoire des Inſectes, &c. He died in 1757.*)

Lin. gen. n. 686. *Reich. n.* 743. *Schreb. n.* 936. *Juſſ.* 316.

Claſſ. 13. 5. Polyandria Pentagynia.

Nat. order of *Succulentæ. Ficoideæ*, Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* five-leaved, ſquarroſe: *leaflets* awl-ſhaped, acuminate, permanent, the ſmaller ones imbricate.

COR. *Petals* five, oblong, equal, ſeſſile, ſcarcely larger than the calyx, curved back at the tip.

Nectaries five, at the joinings of the petals, growing from a ſemilanceolate fold to the lower ſide of the petals, oppoſite to the other ciliate margin.

STAM. *Filaments* numerous, the length of the calyx. *Anthers* roundiſh.

PIST. *Germ* roundiſh. *Styles* five, filiform, ſtraight, approximating, the length of the ſtamens. *Stigmas* ſimple.

PER. *Capſule* ovate, five-celled, five-valved.

SEEDS numerous, oblong, woolly on every ſide: the wool erect.

OBS. *The nectaries are ſingular, nearly as in Hydrophyllum, but at the ſides of the petals.*

ESSENTIAL CHARACTER.

Cal. ſix-leaved. *Pet.* five. *Capſ.* one-celled, five-valved, many-ſeeded.

SPECIES.

1. Reaumuria vermiculata.
Lin. ſpec. 754. *Syſt.* 506. *Reich.* 2. 622. *Forſk. ægypt. cent.* 4. 101.
Sedum ficulum vermiculatum, flore ſaxifragæ albæ, ſemine villoſo. *Becc. ſic. t.* 6. *f.* 7. *Mor. hiſt.* 3. 481. *ſ.* 12. *t.* 9. *f.* 6.
S. minus arboreſcens vermiculatum. *Leb. ic.* 380.
S. minus fruticoſum. *Baub. pin.* 284.
Kali vermiculatum, albo & amplo ſedi roſei flore. *Barr. ic.* 888.
K. arabicum primum genus. *Rauw. itin. t.* 37. *Baub. pin.* 289.

DESCRIPTION, *&c.*

Stature of Salſola or Tamariſk. Leaves ſcattered, linear, fleſhy, convex underneath, acute, ſeſſile, ſpreading, with dewy dots ſcattered over them. Flowers terminating, ſeſſile among the leaves, greater towards the top. Corolla white. Lamina or fold ciliate, faſtened both ways to the ſides of the petals, conſtituting the nectary. Flowers inferior. Capſule one-celled, five-valved [a].

It is an annual plant, native of the coaſts of Egypt, Syria and Sicily.

REED. See *Arundo*.

—— GRASS. See *Arundo*.

——, Indian Flowering. See *Canna*.

—— MACE. See *Typha*.

REGINA PRATI. See *Spiræa Ulmaria*.

REICHELIA. *Schreb. n.* 512. Sagona. *Aubl.* 111. belongs to the genus *Hydrolea*, according to Swartz. *Schreb. gen. p.* 826.

RELHANIA. (*So named by Monſ. L'Heritier, in honour of the Rev. Richard Relhan, F.R.S. M.A. of Cambridge, author of* Flora Cantabrigienſis.)

Lin. gen. Schreb. n. 1304. *L'Herit. ſert.* 22.
Eclopes. *Gærtn. t.* 169.

Claſſ. 19. 2. Syngeneſia Polygamia Superflua.

Nat. order of *Compoſitæ Diſcoideæ*.

GENERIC CHARACTER.

CAL. *common* imbricate, oblong: *ſcales* oblong, ſcarioſe.

COR. *compound* rayed. *Corollets* hermaphrodite numerous tubular in the diſk: *females* ligulate in the ray.
Proper of the hermaphrodites funnel-form, with a five-cleft border—of the *females* ovate-oblong.

STAM. in the hermaphrodites: *filaments* five, very ſhort. *Anther* tubular.

PIST. in the hermaphrodites: *Germ* oblong. *Style* ſimple. *Stigmas* two, reflexed—in the *females*: *Germ* oblong, curved in a little. *Style* ſimple. *Stigmas* two, curved back.

PER. none. *Calyx* unchanged.

SEEDS ſolitary, angular, crowned with a membranaceous *calycle*, which is many-cleft and jagged; both in the hermaphrodites and females.

REC. chaffy.

OBS. *This genus differs from* Athanaſia *in having a ray: from* Leyſera *in not having a feathered pappus: from* Osmites *in the ray being fertile.* L'Herit.

ESSENTIAL CHARACTER.

Cal. imbricate, ſcarioſe. *Corollets* of the ray very many. *Pappus* membranaceous, cylindrical, ſhort. *Recept.* chaffy.

SPECIES.

* *With aggregate flowers.*

1. Relhania ſquarroſa. *Croſs-leaved Relhania.*
L'Herit. ſert. angl. 22. *n.* 1. *t.* 29. *Ait. kew.* 3. 230.
Athanaſia ſquarroſa. *Lin. ſpec.* 1180. *Reich.* 3. 730. *umben.* 4. 329. & 6. *afr.* 52. *Diſſ. noſtr. n.* 1.
Leaves oblong acuminate nerveleſs recurved at the tip.

2. Relhania geniſtifolia. *Heath-leaved Relhania.*
L'Herit. ſert. angl. 22. *n.* 2.
Athanaſia geniſtifolia. *Lin. ſyſt.* 741. *Reich.* 3. 732. *mant.* 464. *Diſſ. noſtr. n.* 8.
Leaves lanceolate acuminate one-nerved ſubimbricate.

3. Relhania microphylla. *Linear-leaved Relhania.*
L'Herit. ſert. angl. 22. *n.* 3.
Leaves linear nerveleſs crouded very much together, flowers pedicelled.

4. Relhania paſſerinoides. *Paſſerina-like Relhania.*
L'Herit. ſert. angl. 23. *n.* 4.
Leaves linear nerveleſs, flowers ſubſeſſile.

5. Relhania viſcoſa. *Clammy-leaved Relhania.*
L'Herit. ſert. angl. 23. *n.* 5.
Leaves linear three-ſided ſomewhat fleſhy viſcid.

** *With ſolitary flowers.*

6. Relhania laxa. *Looſe-flowered Relhania.*
L'Herit. ſert. angl. 23. *n.* 6.
Leaves linear villoſe remote, flowers on very long peduncles, ſtem erect.

7. Relhania pedunculata. *Long peduncled Relhania.*
L'Herit. ſert. angl. 23. *n.* 7.
Zoegea capenſis. *Lin. ſuppl.* 382. *ſyſt.* 784.
Athanaſia pumila. *Lin. ſuppl.* 362. *ſyſt.* 741. *Diſſ. noſtr. n.* 3.
Leaves linear villoſe, flowers peduncled, ſtems diffuſed.

8. Relhania lateriflora. *Side-flowering Relhania.*
L'Herit. ſert. angl. 23. *n.* 8.
Athanaſia ſeſſiliflora. *Lin. ſuppl.* 362. *ſyſt.* 741. *Diſſ. noſtr. n.* 2.
Leaves linear villoſe, peduncles lateral ſhorter than the leaf.

9. Relhania cuneata. *Wedge-leaved Relhania.*
L'Herit. ſert. angl. 23. *n.* 9.
Athanaſia uniflora. *Lin. ſuppl.* 362. *ſyſt.* 741. *Diſſ. noſtr. n.* 5.
Leaves obovate ſmooth, flowers ſeſſile.

10. Relhania virgata. *Twiggy Relhania.*
L'Herit. ſert. angl. 23. *n.* 10.

Leaves

[a] Lin. ſpec. & ſyſt. [a] Forſkaal.

Leaves linear ſmooth with a recurved point ſhorter than the leaf, flowers ſeſſile.

11. Relhania palæacea. *Chaffy Relhania.*
L'Herit. ſert. angl. 24. n. 11.
Leyſera palæacea. *Lin. ſyſt. 771. Reich. 3. 842. Dill. noſtr. n. 3.*
L. ericoides. *Berg. cap. 294.*
Leaves linear three-ſided underneath becoming hoary, as do alſo the tender ſhoots, calyxes ſeſſile turbinate.

12. Relhania ſantolinoides. *Santolina-like Relhania.*
L'Herit. ſert. angl. 24. n. 12.
Leaves linear three-ſided hoary underneath, as are alſo the tender ſhoots; calyxes globular ſubpetioled.

13. Relhania pungens. *Prickly Relhania.*
L'Herit. ſert. angl. 24. n. 13.
Leaves linear ſomewhat prickly ſtriated underneath, flowers ſeſſile.

14. Relhania decuſſata. *Croſs-leaved Relhania.*
L'Herit. ſert. angl. 24. n. 14.
Leaves three-ſided linear acute decuſſated, flowers ſeſſile.

15. Relhania calycina. *Large-cupped Relhania.*
L'Herit. ſert. angl. 24. n. 15.
Oſmites calycina. *Lin. ſuppl. 380. ſyſt. 783. Dill. noſtr. n. 3.*
Leaves linear-lanceolate three-nerved acute, flowers ſeſſile.

16. Relhania Bellidiaſtrum. *Flax-leaved Relhania.*
L'Herit. ſert. angl. 24. n. 16.
Oſmites Bellidiaſtrum. *Lin. ſpec. 1285. Reich. 3. 892. Dill. noſtr. n. 1.*
Bellidiaſtrum ſubhirſutum liniſolium. *Vaill. act. par. 1724. p. 316.*
Anthemis ſuffruticoſa, fol. linearibus triquetris tomentoſis indiviſis, flor. ſeſſilibus. *Lin. amœn. 4. 330.*
Leaves linear tomentoſe, flowers ſeſſile.

DESCRIPTIONS, *&c.*

This genus was made up by Monſieur L'Heritier, out of the ruins of *Athanaſia*, with the addition of two or three ſpecies from *Oſmites* and *Leyſera*. All the ſpecies are natives of the Cape of Good Hope, whence they were introduced by Maſſon.

1. 2. See the deſcriptions under *Athanaſia*.

4. The leaves and flowers in this ſpecies are double the ſize that they are in the preceding ſpecies, *R. microphylla*; the ſtems are upright, not diffuſed.

5. This and the preceding ſpecies are very nearly allied in their inflorescence and habit; but in this the leaves are as it were three-cornered, and ſomewhat fleſhy, with pedicelled glands ſcattered over them: theſe are wanting in *R. paſſerinoides*.

6. This ſpecies is annual: the preceding ſpecies are all perennial, and woody at bottom [a].

7. Root annual. Stem branched both above and below. Leaves alternate, ſubpubeſcent. Flowers terminating. Calyx ovate, ſmooth and even, yellow. Corolla yellow: diſk ſmall; ray lanceolate, the length of the calyx. Seeds oblong, with a very ſhort crown of little briſtles [b].

8. 9. See Athanaſia.

10. Very nearly allied to the preceding, and perhaps only a variety of it [c].

11. See *Leyſera palæacea*.

12. It may be doubted whether this is ſufficiently diſtinct from the preceding. The pappus is tubular and toothed at the tip in both.

13. 14. 15. Theſe three ſpecies have the calyx wider than in the reſt, with the inner ſcales larger. It is ſcarcely the ſame in *R. palæacea* [d]. For *R. calycina* ſee *Oſmites calycina*.

16. This has no pappus. It is ſufficiently foreign to this genus [e].

PROPAGATION AND CULTURE.

See ATHANASIA.

RELHANIA. See *Athanaſia, Leyſera, Oſmites.*

RENEALMIA. (*So named by the younger Linnæus from Paul Reneaume, a phyſician at Blois, author of* Specimen hiſtoriæ Plantarum, Par. 1611. qu.)
Lin. gen. Schreb. n. 2. Lin. ſuppl. 7.

[a] L'Heritier. [b] Lin. ſuppl. ſub Zoegea. [c] L'Heritier. [d] Idem. [e] Idem.

Claſſ. 1. 1. Monandria Monogynia.
Nat. order of *Scitamineæ*. *Cannæ*, Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* ſuperior, one-leafed, tubular, breaking out at the top into two or three irregular teeth.

COR. one-petalled: *tube* ſtraight, cylindrical: *border* trifid; the two upper ſegments oblong, rounded, equal; the lower ſcarcely longer than the upper ones, channelled, oblong.
Nectary faſtened along the tube of the corolla, aſcending beneath the upper ſegments, ſtraight, the length of the corolla, oblong, one-toothed on each ſide at the baſe, then with an excavated ſinus, widening and bluntly three-lobed at the tip.

STAM. *Filament* none. *Anther* one, inſerted into the throat of the tube, in the ſinus of the lower ſegment of the corolla, oppoſite to the nectary, ſtraight, linear, emarginate, grooved on the inſide, of the ſame length and breadth with the ſegment of the corolla.

PIST. *Germ* inferior, oblong, obſcurely three-ſided, ſmooth. *Style* filiform, very ſmooth, erect, the length of the corolla. *Stigma* peltate; with a flat head; the ſide verging to the nectary, truncate, perforated with a hole running down into the ſtyle.

PER. *Berry* oblong, three-grooved, cylindrical, ſmooth, ending in a navel, fleſhy, three-celled in the middle. *Cells* ſoft, membranaceous.

SEEDS very many, oblong, truncate, four-cornered, very ſmooth.

ESSENTIAL CHARACTER.

Cal. trifid. *Nect.* oblong. *Cor.* one-leafed, burſting into two or three irregular teeth. *Anther* ſeſſile, oppoſite to the nectary. *Berry* fleſhy.

SPECIES.

1. Renealmia exaltata.
Lin. ſuppl. 79. (excl. ſyn. Rumphii) ſyſt. 50. Willd. 6.

DESCRIPTION, *&c.*

1. This is a tree twenty feet in height, with a ſtraight trunk. Leaves five or ſix feet long, lanceolate, waved about the edge. The raceme or bunch of flowers ſprings from the trunk above the root.—Native of Surinam, where the inhabitants are fond of the preſerved fruit [a].

RENEALMIA. See *Tillandſia.*]

RESEDA, (*of Pliny: à reſedando dolores; from its ſuppoſed quality of aſſuaging pain.*)
Lin. gen. n. 608. Reich. n. 664. Schreb. n. 831. Tournef. t. 238. Juſſ. 245. Gærtn. t. 76. Luteola. *Tournef. t. 238.* Sefamoides. *Tournef. t. 238.*
Claſſ. 11. 3. Dodecandria Trigynia.
Nat. order of *Miſcellaneæ a. Capparides*, Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* one-leafed, parted: *parts* narrow, acute, erect, permanent; two of which gape more, for the uſe of the melliferous petal.

COR. *Petals* ſome (3. 5. 6.) unequal, ſome of them always half-three-cleft; the uppermoſt gibbous at the baſe, melliferous, the length of the calyx.
Nectary a flat upright gland, produced from the receptacle, placed on the upper ſide between the ſtamens and the uppermoſt petal, converging with the baſe of the petals.

STAM. *Filaments* eleven or fifteen, ſhort. *Anthers* erect, obtuſe, the length of the corolla.

PIST. *Germ* gibbous, ending in ſome very ſhort *Styles*. *Stigmas* ſimple.

PER. *Capſule* gibbous, angular, acuminate by means of the ſtyles, gaping between them, one-celled.

SEEDS very many, kidney-form, faſtened to the angles of the capſule.

OBS. *There is ſcarcely any genus, the character of which is ſo difficult to be determined, for the ſeveral ſpecies ſport both in number and figure.*
The eſſential character conſiſts in the trifid petals, one of them melliferous at the baſe; and in the capſule not being cloſed, but always gaping.

[a] Willd. & Lin. ſuppl.

Luteola *has a four-parted perianth; three petals; the uppermoſt melliferous and half-ſix-cleft, the ſides oppoſite and trifid; two very ſmall entire petals are frequently added below the others. Styles three. Stamens very many.*

Alba *has the perianth ſix-parted; petals ſix, almoſt equal, all half-three-cleft; ſtyles four; capſule quadrangular; ſtamens always eleven.*

The other ſpecies *have the perianth five-parted; five diſſimilar trifid petals; three ſtyles; and very many ſtamens.*

ESSENTIAL CHARACTER.

Cal. one-leafed, parted. *Petals* laciniate. *Capſ.* gaping at the mouth, one-celled.

SPECIES.

1. Reſeda Luteola. *Dyer's-weed, Yellow-weed, wild Woad,* or *Weld.*
Lin. ſpec. 643. *ſyſt.* 448. *Reich.* 2. 431. *hort. cliff.* 212. *vir. cliff.* 49. *fl. ſuec. n.* 424. *Hudſ. angl.* 207. *Wither. arr. ed.* 3. 445. *Smith, brit.* 512. *engl. bot. t.* 320. *Lightf. ſcot.* 248. *Relh. cant. n.* 348. *Sibth. oxon. n.* 436. *Fl. ruſt. t.* 40. *Fl. dan. t.* 864. *Hall. helv. n.* 1058. *Neck. gallob.* 210. *Pollich pal. n.* 453. *Villars dauph.* 3. 820. *Krock. ſileſ. n.* 719. *Allion. pedem. n.* 1614. *Willich, obſ.* 22. *n.* 40. *Blackw. t.* 283. *Kniph. cent.* 5. *n.* 74. *Sheldrake,* 93. *Deſfont. atlant.* 373.
Luteola. *Lob. ic.* 353. *Tabern. ic.* 110. *Ger.* 398. 1. *emac.* 494. *Raii hiſt.* 1054. *ſyn.* 366. *Petiv. brit. t.* 38. *f.* 12.
L. vulgaris. *Park. theat.* 603. 1.
L. herba ſalicis folio. *Bauh. pin.* 100. *Tourn. inſt.* 423.
Lutea Plinii quibuſdam. *Bauh. hiſt.* 3. 465. 2.
Lutum herba. *Dod. pempt.* 80.
Pſeudoſtruthium. *Matth.* 1307. *Camer. epit.* 356.
Antirrhinum Tragi (362) *Dalech. hiſt.* 1344.
La Gaude *Reynault bot. ſuppl. ic.*
Leaves lanceolate entire flat, calyx four-cleft.
2. Reſeda caneſcens. *Hoary Reſeda.*
Lin. ſpec. 644. *ſyſt.* 448. *Reich.* 2. 432. *Sauv. monſp.* 48. *Guett. ſtamp.* 1. 225. *Vahl ſymb.* 2. 52.
R. alba minor. *Bauh. pin.* 100. *Raii hiſt.* 1054.
Seſamoides ſalmanticum parvum, 2. *Cluſ. hiſt.* 1. 296. *t.* 295. *Ger.* 396. 2. *emac.* 493. 2.
Muſcipula ſalmantica minor. *Park. theat.* 636. 4.
Leaves lanceolate waved hairy.
[3. Reſeda glauca. *Glaucous Reſeda.*
Lin. ſpec. 644. *Reich.* 2. 432.
R. linariæ foliis. *Bauh. pin.* 100. *prodr.* 41. *Park. theat.* 822. 3. *Raii hiſt.* 1054.
Seſamoides lin. folio, glaucum pyrenaicum, flore ſtamineo. *Mor. hiſt.* 3. 601. *f.* 15. *t.* 1. *f.* 4. *ord.* 2.
R. pyrenaica linariæ folio glauco. *Pluk. phyt. t.* 107. *f.* 2. *Raii ſuppl.* 511.
Leaves linear toothed at the baſe, flowers four-ſtyled.
4. Reſeda dipetala. *Flax-leaved Reſeda.*
Ait. kew. 2. 132. *Vahl ſymb.* 2. 32.
Leaves linear quite entire, flowers four-ſtyled two-petalled, petals undivided.
5. Reſeda purpuraſcens. *Purpliſh-flowered Reſeda.*
Lin. ſpec. 644. *Reich.* 2. 432.
R. alba minor 1. *Bauh. pin.* 100. *Raii hiſt.* 1054.
Seſamoides ſalmanticum parvum, 1. *Cluſ. hiſt.* 1. 296.
S. foliis craſſis, floribus ex herbaceo purpuraſcentibus. *Tournef. inſt.* 424.
Leaves linear obtuſe, flowers five-ſtyled.
6. Reſeda ſeſamoides. *Spear-leaved Reſeda.*
Lin. ſpec. 644. *Reich.* 2. 432. *Allion. pedem. n.* 1618. *t.* 88. *f.* 3.
Seſamoides fructu ſtellato. *Tournef. inſt.* 424.
Leaves lanceolate entire, fruits ſtellate.
7. Reſeda fruticuloſa. *Shrubby Reſeda.*
Lin. ſpec. 645. *Reich.* 2. 433.
Leaves pinnate recurved at the tip, flowers four-ſtyled, calyxes ſpreading five-parted, ſtem ſhrubby at the baſe.]
8. Reſeda alba. *Upright White Reſeda.*
Lin. ſpec. 645. *Reich.* 2. 433. *hort. upſ.* 149. *cliff.* 212. *Willich, obſ. n.* 41. *Allion. pedem. n.* 1616. *Deſfont. atlant.* 374.
R. maxima. *Bauh. pin.* 100. *Lob. hiſt.* 110. *Ger.* 216. 2. *emac.* 277. 1.
R. major. *Park. theat.* 822. 1.
R. alba. *Bauh. hiſt. Raii hiſt.* 1053.
Leaves pinnate, flowers four-ſtyled, calyxes ſix-parted.
9. Reſeda undata. *Waved-leaved Reſeda.*
Lin. ſpec. 644. *Reich.* 2. 433. *Vahl ſymb.* 2. 52. *Kniph. cent.* 9. *n.* 84. *Barr. rar.* 78. *t.* 588.
Leaves pinnate waved, flowers three or four-ſtyled.
10. Reſeda lutea. *Yellow Reſeda, Baſe Rocket, Baſe Dyer's-weed* or *wild Mignionette.*
Lin. ſpec. 645. *ſyſt.* 448. *Reich.* 2. 433. *hort. cliff.* 212. *upſ.* 149. *Hudſ. angl.* 207. *Wither. arr. ed.* 3. 446. *Smith, brit.* 513. *engl. bot. t.* 321. *Dickſ. hort. ſicc.* 8. 12. *Lightf. ſcot.* 249. *Relh. cant. n.* 349. *Sibth. oxon. n.* 437. *Hall. helv. n.* 1056. *Scop. carn. n.* 569. *Pollich pal. n.* 454. *Jacqu. auſtr.* 4. *t.* 353. *Villars dauph.* 3. 820. *Krock. ſileſ. n.* 720. *Allion. pedem. n.* 1615. *Bauh. hiſt.* 3. 467. *Deſfont. atlant.* 374. *Bulliard, herb. t.* 281.
R. vulgaris. *Bauh. pin.* 100. *Raii hiſt.* 1053. *ſyn.* 366. *Petiv. brit. t.* 37. *f.* 11. *Tourn. inſt.* 423. *Mill. dict. n.* 1.
R. minor ſ. vulg. *Park. theat.* 823. 2.
R. Plinii. *Lob. ic.* 222. *Ger.* 216. 1. *emac.* 277. 1.
β. R. criſpa. *Mill. dict. n.* 2.—gallica. *Bocc. ſic.* 76. *f.* 3. *Raii ſyn.* 366.
All the leaves trifid, lower pinnate, calyx ſix-cleft.
11. Reſeda Phyteuma. *Trifid Reſeda.*
Lin. ſpec. 645. *ſyſt.* 448. *Reich.* 2. 434. *hort. cliff.* 212. *upſ.* 150. *Gærtn. fruct.* 1. 369. *Hall. helv. n.* 1057. *Scop. carn. n.* 570. *Neck. gallob.* 210. *Jacqu. auſtr.* 2. 20. *t.* 132. *Villars dauph.* 3. 821. *Allion. pedem. n.* 1617. *Willich, in nov. act. nat. cur.* 4. *p.* 107.
R. minor vulgaris. *Tournef. inſt.* 423.
Reſedæ affinis Phyteuma. *Bauh. pin.* 100. *prodr.* 42. *ic. Park. theat.* 823. 5.
Phyteuma. *Bauh. hiſt.* 3. 386. *Raii hiſt.* 1054.
Erucago apula trifida quinquefolia. *Col. ecphr.* 267. *t.* 269.
Valeriana 7. *Ger. emac.* 1076.
β. R. minor vulg. folio minus inciſo. *Tournef. inſt.* 423.
γ. R. min. vulg. fol. integris. *Tournef. inſt.* 423.
Leaves entire and three-lobed, calyxes ſix-parted very large.
[12. Reſeda mediterranea.
Lin. ſyſt. 448. *Reich.* 2. 434. *mant.* 564. *Vahl, ſymb.* 2. 53.
Leaves entire and three-lobed, calyxes ſhorter than the flower.]
13. Reſeda odorata. *Sweet Reſeda* or *Mignionette.*
Lin. ſpec. 646. *Reich.* 2. 435. *Weig. obſ. bot.* 30. *obſ.* 15. *Kniph. cent.* 10. *n.* 73. *Hall. goett.* 95. *Zin. goett.* 123. *Mill. fig.* 145. *t.* 217. *Curt. magaz. t.* 29. *Berg. phyt.* 2. 237. *Plenck, ic. t.* 371. *Deſfont. atlant.* 376.
Leaves entire and three-lobed, calyxes equalling the flowers.

DESCRIPTIONS, *&c.*

1. [Root annual or biennial, fuſiform, ſmall. Stem from a foot to three feet in height, upright, grooved, hollow, leafy, branched. Root-leaves ſpreading on the ground in a ring, blunt, entire, ſmooth, bright yelloviſh green, ſhining, ſeſſile, from three to five inches in length, and near half an inch in breadth, waving about the edge; they have commonly a minute reddiſh toothlet on each ſide of the baſe: ſtem-leaves alternate, linear-lanceolate; the upper ones linear. Spikes terminating, upright but bending at the top, very long, ſometimes having three hundred and fifty flowers or more; each flower ſtands ſingle on a ſhort pedicel, and has one awl-ſhaped yelloviſh bracte at the baſe; they are of a pale yelloviſh colour, about one-ſixth of an inch in diameter, and have little ſmell. Calyx four-cleft; the ſegments lanceolate, and the two upper wide aſunder. Petals three; the upper one four-cleft, the two lateral ones trifid, or

ſome entire and linear. Nectary at the baſe of the upper petal, notched. Stamens from twenty to thirty or more, hanging down. Germ wrinkled, pyramidal, three-ſided with blunt corners. Styles none, but three ſtigmas. Capſule three-valved, rolled inwards ſo as to fold about the ſeeds, which are ſmall, roundiſh, and black, in ſix rows along the angles of the capſule.

This plant is not uncommon in a wild ſtate in paſtures, fallow fields, waſte places, and on dry banks and walls. Mr. Swayne obſerves that it is one of the firſt plants which grow on the rubbiſh thrown out of coal-pits. It flowers in june and july.

The root and bottom leaves are formed from the fallen ſeeds before winter; and thus it happens in this, as in many other caſes, that the wild plant is biennial, whilſt the cultivated plant, growing from ſeeds ſown in the ſpring, is annual.

It is an obſervation of Linneus's, that the nodding ſpike of flowers follows the courſe of the ſun, even when the ſky is covered; pointing towards the eaſt in a morning, to the ſouth at noon, weſtward in the afternoon, and to the north at night.

Cattle do not eat this plant, except that ſheep ſometime crop it. Dyers make conſiderable uſe of it; for it affords a moſt beautiful yellow dye for cotton, woollen, mohair, ſilk and linen. Blue cloths are dipped in a decoction of it, in order to become green. The yellow colour of the paint called Dutch Pink is obtained from this plant. The entire plant, when it is about flowering, is pulled up for the uſe of the dyers, who employ it both freſh and dried.

In various authors it has the names of Dyer's-weed, Yellow-weed, Weld, Would, Woold and wild Woad. The London dyers know it by the name of *Would*, and it muſt be carefully diſtinguiſhed from the true *Woad* or Iſatis tinctoria [l].

2. Root perennial. Stem a foot high, almoſt upright, with white hairs on it. Branches from the upper axils coming out later. Leaves alternate, ſeſſile, hairy along the keel, ſcarcely ciliate, quite entire without any tooth. Raceme terminating, with white flowers. Anthers eleven, yellow. Germs ſix, placed on a common ſtipe [m].]

From the root ariſe a few ſlender woody ſtalks, a foot and half high, thinly ſet with linear obtuſe leaves, of a grayiſh colour; the upper part of the ſtalk has, for a conſiderable length ſmall flowers of a whitiſh purple colour, ranged in a very looſe ſpike, ſitting cloſe. Theſe appear at the end of may, and the ſeeds ripen in auguſt. It grows naturally upon the mountains of Spain.

[Vahl doubts whether the *Reſeda caneſcens* of Linneus's Species Plantarum, be the ſame plant with that of the Syſtema Vegetabilium, edit. 14. His ſpecimen (which is probably from Forſkahl) agrees perfectly with the deſcription given in the Syſtema; but the ſpecific character given in the ſpecies, and Cluſius's figure ſeem to indicate another plant.

3. From a white longiſh root ariſes a round branching ſtalk, with very ſtiff oblong leaves reſembling thoſe of Linaria, and terminated by a long ſpike of ſmall pale yellow flowers, ſucceeded by angular bifid capſules, full of ſmall pale ſeeds [n].

Native of the South of Europe. It is a perennial plant, and flowers here from may to july. It was cultivated in 1748, by Mr. Miller [o]. Ray had a ſpecimen of it at Montpelier, from Charles Sueiker, of Dantzick [p].

4. This has the appearance of *R. Seſamoides*. Stem ſuffruticoſe, upright, branched: branches round, ſcattered, ſmooth. Leaves ſcattered, thickiſh, acute, ſmooth. Raceme terminating: flowers rather remote: calycine leaflets fix, minute, edged with white: petals wedge-ſhaped, quite entire [q].

Native of the Cape of Good Hope. Introduced from thence by Maſſon in 1774. It flowers in auguſt, and is biennial [r].

[l] Fl. ruſt. Withering, Smith, Ray hiſt. Linn. ſuec.
[m] Linn. ſyſt. [n] Bauh. prodr. [o] Hort. kew.
[p] Hiſt. 1054. [q] Vahl. [r] Hort. kew.

5. Root thickiſh, white, hard, perennial. Stems three or four, a long ſpan in height, rod-like, round. Leaves ſcattered, ſmall, thick, like thoſe of Flax. Flowers many, crouded, of an herbaceous purpliſh colour. Seeds ſmall, blackiſh.—Native of the South of Europe [s].

6. Root perennial. Stems ſeveral, proſtrate, a palm and half in height, ſtriated, ſomewhat angular. Root-leaves elliptic-ſpatulate, of a long tongue-ſhape: ſtem-leaves ſeſſile, almoſt linear, but wider towards the end, obtuſe, all ſmooth, neither ſinuate nor toothed. Stems very often ſimple. Flowers in very long racemes, ſubſeſſile. Calyx very deeply five-cleft. From the calyx a receptacle ſupporting the flower. Petals white. Germs five, diſtinct, becoming one-ſeeded capſules. The calyx expands, and turns back, three of the ſegments pointing upwards, and two downwards [t].

Native of the South of France. Introduced in 1787, by Mr. Zier. It flowers in july and auguſt [u]. In the Kew catalogue it is marked as annual.

7. Root and ſtem next the ground perennial, often twice the thickneſs of the thumb and more, very ſhort; from the top of this ſpring ſeveral aſcending ſtalks, ſmooth with raiſed ſtreaks. Leaves pinnate, with five or ſeven lanceolate, decurrent pinnas, which are waved, even, and curved back at the end. Spikes ſeveral, alternate. Stamens eleven. It forms a ſort of intermediate link between *R. undata* and *alba*.—Native of Spain [x].]

8. Lower leaves large, compoſed of many narrow alternate leaflets, of a grayiſh colour. Stems two feet and a half high, with leaves like the others, but diminiſhing in ſize to the top, terminated by ſhort thick ſpikes of white flowers.

[This is a very ſmooth plant. Stems ſtriated, branched, diffuſed, arched upwards. Pinnules lanceolate, waved, quite entire, decurrent; with ſmaller ones interpoſed. Midrib white, convex underneath, ſtriated. Flowers in racemes, crouded, on very ſhort pedicels. Calyx permanent, five-parted, ſmall; the ſegments linear-ſubulate, acute, unequal. Petals four or five, white, unequally laciniate, almoſt equal, longer than the ſtamens; which are about twelve in number. Styles four, very ſhort. Capſule oblong, four-cornered, wrinkled, one-celled, opening at top. Seeds brown, kidney-form [y].

It is an annual plant (Miller ſays biennial) native of the South of France, Spain and Barbary. It flowers from may to october, and was cultivated here in 1633 [z].

9. Root perennial. Stem a foot high, ſtriated and angular, ſtiff and ſtraight. Leaflets lanceolate, decurrent, acute, waved; the alternate ones ſmaller and more upright. The uppermoſt leaves have none of theſe ſmaller leaflets. Racemes terminating. Calyx five-parted. Petals five, trifid, white. Anthers ten, yellow. Three piſtils in ſome flowers, in others five. Capſules the largeſt of any in this genus.—Native of Spain [a] and Italy.

It is a biennial plant; the lower leaves unequally pinnate, with ſome of the intermediate leaflets much leſs than the others, and of a different ſhape. The ſtalks riſe two feet and a half high, with ſmaller leaves, indented on their edges. The flowers are produced in ſlender looſe ſpikes at the top of the ſtalks; they are ſmall and white, and appear in june; the ſeeds ripen in ſeptember.

10. [Root annual, ſomewhat woody. Stems ſeveral, branching into a thick woody tuft, round, ſtriated, ſmooth, leafy. Leaves trifid or pinnatifid, the lower ones frequently bipinnatifid; the ſegments linear, channelled, ſmooth, more or leſs waved. Spikes terminating, upright, many-flowered, with a ſmall bracte to each. Flowers ochroleucous or ſulphur-coloured. Calyx ſix-cleft. Petals ſix, variouſly lobed. Nectary fringed. Stamens hanging down [b]: as many as twenty. The ſegments of the calyx are linear, and the uppermoſt is the ſmalleſt [c]. Capſule a triangular priſm,

[s] Cluſius. [t] Allion. [u] Hort. kew. [x] Linn. ſpec.
[y] Desfontaines. [z] Hort. kew. [a] Linn. ſpec.
[b] Smith. [c] Relhan.

three-celled at bottom, one-celled at top, gaping, terminated by three upright horns[a]:—oblong, ſub-trigonal, blunt at the corners, roughened, one-celled, rolled in at the edge. Seeds ſmall, brown, kidney-form, ſhining[b].

Ray and Haller obſerve that it has an oleraceous taſte, reſembling that of Cabbage.

Native of moſt parts of Europe, in corn fields and meadows; with us chiefly on a calcareous ſoil: alſo on walls. It flowers from june to the end of autumn.]

Mr. Miller makes two ſpecies of the common ſort, and the curled variety. The latter, he ſays, is our common ſort in England. The lower leaves are winged, and every lobe is cut into three ſmall parts, and curled, having ſome ſmall indentures on the edges. The ſtalks riſe about the ſame height as thoſe of the other, but are terminated by longer and looſer ſpikes of flowers, which are paler and approach to a white.

The other, which is common in the South of France, Italy and Spain, is a biennial plant, with a long white root, a little woody. Leaves unequally winged, with entire lobes. Stalks channelled, two feet high. Stem-leaves like thoſe below, but ſmaller, and terminated by long looſe ſpikes of pale yellow flowers, compoſed of ſeveral unequal petals, of which the two upper are largeſt, the ſide ones leſs, and the lower ſo ſmall as to be ſcarcely viſible; they are of a ſingular figure, and appear as if one leaf came out of two others.

[The R. criſpa gallica of Boccone, was obſerved by James Sherard, M. D. in barren cloſes about Rochill and Northfleet in Kent.

Dillenius remarks, that the ſtalks were permanent, and that there is little doubt of this being perennial and diſtinct from the other. With due deference to the opinion of this great botaniſt, I ſhould rather impute the firmneſs and permanency of the ſtalks to the dryneſs of the ſoil in which the plants grew.

Dr. Withering thinks that it merits farther attention; and adds, that it is not an uncommon plant in Portugal, and that in all the ſpecimens he ſaw there the leaves were curled, but without any other difference. All foreign authors inſiſt upon the leaves being curled.

Dr. Smith treats the *curled* Rochet as a very trifling variety, having the leaves only a little more curled, and in conſequence of a mild climate or ſeaſon, living through the winter[c] as happens to other ſpecies of this genus.]

11. This is an annual plant, which has generally a ſingle fleſhy tap root running deep in the ground, ſending out ſeveral trailing ſtalks near a foot long, and dividing into ſmaller branches. Leaves ſmall, ſome wedge-ſhaped and entire, others cut into three obtuſe ſegments. The ends of the branches are terminated by looſe ſpikes of flowers, ſtanding upon pretty long peduncles. Calyx large, divided into ſix ſegments almoſt to the bottom; petals white.

[Stems procumbent, angular, branched. Leaves like thoſe of *R. odorata*, ſmooth, ſpatulate-lanceolate, blunt, running down into the petiole. Flowers looſely racemed, pedicelled. Calyx permanent, ſix-parted, longer than the petals, very large after flowering: ſegments unequal, blunt. Petals ſix: the four upper finely fringed, with claws at the baſe and arched; the two lower ſimple, very narrow. Styles three, very ſhort[d]. Capſule membranaceous ovate-oblong, (inflated,) three-cornered, ſubhexagonal, *Deſf.*) having a ſlight groove on each ſide, one-celled, three-toothed, (three-cuſped, *D.*) at the top, pervious. Seeds about twenty-four, kidney-form and curved in, rugged with very minute wrinkles, of a cinereous bay colour or whitiſh; faſtened in a double row to each angle of the capſule, which is there a little thickened[e].

Native of the South of Europe (and Barbary, in dry ſandy ſoils.) It was cultivated in 1739, by Mr. Miller; and flowers from june to ſeptember.

Dalibard having cultivated this plant, found it after ſome generations to become like ſweet Mignionette. He then ſowed the ſeeds of this which was become ſweet by cultivation, in its natural dry ſoil, and it loſt all the ſmell, returning to its original ſtate.

12. Stem a foot high, aſcending or upright, branched at top, rugged. Lower leaves lanceolate, alternate, undivided, rugged underneath; upper ſtem-leaves trifid. Raceme terminating, long, upright. Calyx ſix-leaved, very ſhort, linear, ſpreading. Corolla ſix-petalled, white: the two upper petals three-petalled; the middle one ſmaller; the two lateral ones two-parted; the loweſt ſmaller; the two loweſt linear. Stamens pale. Germ three-cuſped, ſcarcely longer than the calyx. Styles none. Stigmas ſimple.

Native of Paleſtine[h]. Vahl remarks that the leaves are waved.]

13. The root of the Sweet Reſeda, which is commonly known by the French name, *Mignionette*, is compoſed of many ſtrong fibres, which run deep in the ground. Stems ſeveral, about a foot long, dividing into many ſmall branches. Leaves oblong, about two inches in length, and three quarters of an inch broad in the middle, of a deep green colour. The flowers are produced in looſe ſpikes at the ends of the branches, on pretty long ſtalks, and have large calyxes; the corollas are of an herbaceous white colour, and ſmell very like freſh Raſpberries.

[It reſembles *R. Phyteuma* very much, but the leaves are more waved: the calyxes are not longer than the corolla: the branches are declining, with more briſtles ſcattered over them: the flowers are of a dull colour, but have a high ambroſial ſcent; they are moſt commonly four-ſtyled: the lateral ſegments of the petals in this ſpecies, but the middle ones in *R. Phyteuma*, are ſhorter[i].]

Mr. Miller remarks, that theſe two plants are ſo much alike, as by ſome perſons to be taken for the ſame; and that ſuch as have been impoſed upon, by having ſeeds of *R. Phyteuma*, which has no ſcent, given them for thoſe of *R. odorata*, have ſuppoſed that the plant was degenerated. [See the account of Dalibard's experiment above.

Desfontaines deſcribes the ſtems as aſcending, ſtriated, branched; the leaves as lanceolate, blunt, ſimple or ſometimes two-parted or three-parted; the flowers in racemes, pedicelled; the calyx permanent, ſix-parted, the ſegments linear-awl-ſhaped. Petals commonly ſix, but ſometimes more, ſmall, white, the two upper ones clawed at the baſe, arched, covering a rounded buckler, and very finely fringed, the lateral and lower ones very narrow. Anthers ſaffron-coloured. Styles commonly three, ſhort. Capſule oblong, toruloſe, three-cuſped at top.

The luxury of the pleaſure-garden, ſays Mr. Curtis, is greatly heightened by the delightful odour which this plant diffuſes; and as it grows more readily in pots, its fragrance may be conveyed into the houſe: its perfume, though not ſo refreſhing perhaps as that of the Sweet-Briar, is not apt to offend the moſt delicate olfactories. It flowers from june to the commencement of winter.]

It is ſuppoſed to be a native of Egypt; whence the ſeeds were brought to the South of France. [Monſ. Desfontaines found it in Barbary, in the ſands near Maſcar.] The ſeeds were ſent to Mr. Miller from Leyden, by Dr. Adrian van Royen, and ſucceeded in the botanic garden at Cheſea. Soon after, the ywere brought from the South of France by Lord Bateman[k]. [I have been informed that the Sweet Mignionette had been cultivated at Paris from about the year 1725, and that it was brought to England from thence in 1739 or 1740. It appears from the ſixth edition of Mr. Miller's Dictionary, that he cultivated it in 1752; but he probably had it ſome years ſooner from Holland. No mention however is made of the Mignionette, in the ſecond volume of his Dictionary in 1739, in the fourth edition of 1743, or in the fifth edition of 1748.]

PROPAGATION AND CULTURE.

None of theſe plants, except the laſt, are cultivated in gardens unleſs for the ſake of variety, having very little beauty to recommend them, and not being of any known uſe; but whoever has a mind to have them, need only ſow their ſeeds in autumn, and when

[a] Krocker. [b] Desfont. [c] Ibid. [d] Gaertner.

[h] Linn. mant. [i] Linn. ſpec. [k] Mill. dict.

3=&' 4 * -39' ;0 8 &' 3 4' 5'3=&'' * &' 3= - -&1' * -1' G&43' ; &* -' 5 0 8' >&&19' 3' 9 * ' 3=&' ;6 36 &' 3=&'' &<6 &' F *-1' 5' 3=& ' 5&&19' * &' 4& 8 33&1' 30' 5;*33& ' 3=&' 4 * -39' > ' ;0 8 &' 64' -' 4 &-3' ' * -1' 50 8 &3 8 &9' @&;0 8 &' 3 06@ ;'" 50 8 &' >&&19

=&' "5&&19 0 5' 3=&' *53' 50 3' 5 06 1' @&' J0>-' 0-' * 8 0H 1& *33&'=03"@&1' -' 8 * ;'=' * -1' >=&-' 3=&' 4 * -39' * &' 53 0-2' &-062=' 30' 3 * -54 * -3' 3=&'' 5@06 1' @&' 4 ;G&1' 063' 640-' * -03=&' 8 01& *3&'=03"@&1' 30' @ -2' 3=&8' 50 >* 1 @63' 3=&'' =06 1' =* :&' *' * 2&' 5=* &' 05' * ' -' >* 8' >&*3=& ' 03=& > 5&' 3=&'' > ' 1 *>' 64' >&*G

@06' 3=&' &-1' 05' 8 *'' 3=&' 4 * -39' 8 *'' @&' 4 * -3&1' 063' 50 8 &' -30' 4039' 30' 4 *;&' -' 0 ' -&* ' 3=&*4* 38 &-39' * -1' 0 4 9 -30' > * 8' @0 1& 9' >=& &' 3=&'' 8 *' & 8 * -' 30' 5 0>& ' * -1' 5&&1' 0 ' 3=&' 4 * -39' >= ;=' 2 0>' -' 3=&' 56 ' 2 06 -1' 053& -' 4 016 ;&' 8 0 &' 5&&19 3=* -' 3=05&' >= ;=' * &' -' 4039' F @63' *3'3=&' 3 8 &' >=&-' 3=&' 5 ; ;1'' ;5 & 9' @&2 -' 30' 5 >& ' 3=&' 4 * -39' * &' 5 &<6&-3 '' -5&53&1' > 3=' 2 &&-' ;*3& 4 * 9' >= ;=' 5' 3=&'' * &' -03' 1&53 0' &1' > ' &*'3 05 5' * ' 3=&' 5&&1'' ; 5&=

5'3=&' 5&&19 05'3= 9 4 * -3' * &' 50>-' 0-' *' @&1' 05' 2=3' &* 3=' -' * 4 ' 3=&' 4 * -39' > ' ;0 8 &' 64' ;& '' >& ' * -1' >=&-' 3=&'' * &' -03' 3 * - 4 * -3&1' > '2 0>' * 2& ' 3=* -' 3=05&' >= ;=' * &' * 5&1' -' 3=&' =0;"@&1' @63' 3=&' > ' -03' 5 0>& ' 50' &* ' '' * -1' -' ;0 1' 5&*50-9' > ' 5;* ;& '' 4&-' 3=& 5&&19' ^ -' *' >* 8' 1 '' @0 1& ' =0>&:& ' 3 &' 5&&19' > ' ;0 8 &' 64' 540-3* -;065 '' * -1' 2 0>' :& '' 6?6 * -3 '7 @63' 30' =* :&' 3=&' 5 0>& 9 &* '' -' 54 -2' 3=&' 5&&19 =06 1' @&' 50>-' -' 4039' -' *636 8 -' G&4 3' -' 5 * 8 &9' 3= 062=' 3=&' > -3& 9' 0 ' 0-' *' 2&-3 &' =03"@&1' -' 54 -2]' =&' 4 * -39' 8 *'' * 5@' @&' 4 &5& :&1' 3= 062=' 3=&' > -3&' -' *' 2 &;-"=065&' >=& &' 3=&'' > ';0-3 -6&' 5 0>& -2' 8 053' 4 * 3' 05' 3=&' &* ' @63' 3=&' 5;;0-1' &* ' 3=&'' > ' -03' @&' @' : 20 069' * 9 3=&' 5 53

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=&' @&5 ' 30'' ;6 3 :*3&' 3=' 9 4 * -3' 9' 30' 50>' 3' > 3=063' *-'' 03=&' ; 04' F 5'3=&' 2 06-1' 9 &*1'' @'' 3=&' @&2 - - -2' 0 ' 8 11 &' 05' *62653' 3=*3' > ' @&' *' 2001' *50-' ' 3=&' * -1' =06 1' @&' > & ' 4 062=&1' * -1' =* 0>&1' 50 &' @63' 6 - &5' 3' 9 :& '' 400' 3' > ' -03' &<6 &' 16 -2' ' >=&-' 3=&' 2 06-1' 9 >&' ' =* 0>&1' * -1' 8 * 1& 5 -&' 3=&' 5&&19 5=06 1' @&' 50 :8' \ 0-&' 2 * 0-' 05' 3=&' 5&&19' 9 5655 1&-3' 30' 50>' * -' *; &' 05' * -1' 50 '3=&'' * &' 5 8 * ' 5' * -' 5 * 9 -' *' 31 ;' 3 8 &' *53& ' 3=&' 5&&19' * ;' 50>-' ' 3 > ' @ -2' 64'' 3=&' 4 * -39' * -1' -' 3>0' 80-3=!9 8 &' 3=&'' > ' @&' 50' 5 * '' 1:* -;&1' * 9' 30' @&' &* 5 '' 1 53 -26 =&1' 5 0 8' 3=&' >&&19' F 3=&-' 3=&'' =06 1' =&' =0&1' ' 3=&' G&' 8 * -&' * 9 6 -&49' * >* ' 9' 0@5& : -2' 30' 10' 9 >&&19' * 3' >&*3=&' ' 50' 3=&-' 3=&' >&&19' > ' 00-' 1 &' *53& ' 3=&'' * &' ;6 3' 64 &' * 3' 3=' 9 3 8 &' 3=&' 4 * -39' 8 *'' @&' &53' * @063' 5 7' -;=:&9' 1 53* -;&' & 5' 3=' 9' 9 10-&' -1 '' >&*3=& ' * -1' 3=' 3' > 0 G' >& '4& 50 8 &1' 3=&' 4 * -39' > ' @&' ; &* -' 5 0 8' >&&19' '3=&' 54 -2' F @63' * 9 '06-2' >&&19' > ' ;0 8 &' "64' -' 8 * ;=' 50' 5' -' 1 '' >&*3@&5 =&' 2 06-1' 9 =0&1' * 2* -' ' 3' 8 *'' @&' 4& 50 8 &1' * 3' * ' 5 8 * ' &?4& -5& >= &' 3=&' >&&19' * &' '06-2' * -1' 3=&-' 3=&'' > ' 500-' 1&;* ' * -1' 5' *53& ' 3=' 9 3=&' 5=06 1' @&' 8 * -' 80 &' >&&19' 4H 4&* ' 3' > ' @&' 4 04& 30' =0&' 3' * 3=' 1' 8 &' * @063' 3=&8 @&2 - - -2' 05' 8 * '' >=;=' > ' 4 &5& :&' 3 &' 2 06-1' ; &* -' 3 ' 3=&' & 1' 9' 5 ' '46 ' =&' &53' 3 8 &' 30' 46 ' 3=&' & 1' 50 ' 65&' * 9 * 9 500-' * 9 3' @&2 -9' 30' 5 0>& ' 3=062=' 8 053' 4&04 &' 53* '' 3 ' 3=&' 5&&19' * ;' 4&' @& -2' 6 -> -2' 30' 05&' 3=&' 5&&19H @63' 3' 9 86;=' @&33&' 30' @:D * 58 * ' 4 &;&' 05' * -1' > 3=' 3=' 9 5&&1' 30' &8 * -' 50' * 4 016;&' 05' -&>' 5&&19' 3=* -' 30' &3' 3=&' >=0 &' 53* -1' 50' 5&&1' @&;* 6 &' 3=&' 4 * -39' >= ;=' * &' 4& 8 33&1' 30' 53* -1' 50' 0-2' > ' @&' 86;=' &59' >0 3=' 50' 65&' 3=* -' 3 &' :* 6 &' 05' 3=&' 5&&19 F @&5 1&9' @'' 1 * > -2' 05' 5 ;' ; 04' &* ' ' 3=&' 2 06-1' 8 * '' @&' 50>-' > 3=' =&* 3' 3=&' 5* 8 &' 5;*50-' F 50' 3=&' 4 * -39' 8 * '' @&' 1 * >-' 64' 3=&' * 33&' &-1' 05' 6-&' > &-' 3=&'' > ' @&' -' 3=&' 2 &* 3&5' : 206' 50' > ' * 550 1' * ' 2 &* 3&' <6 * -3 3'' 05' 3=&' 1' &

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-' 0-&' &-1' 05' 3=&' 4 &;&' >=& &' 3=&' 6 -&49' >& &' @ * 1' ; 04' 3=&' & 1' >* 9 &' * 2001 H' @63' 640-' 3=&' >=0 &' 0-'' -1 55& &-3

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0 8' 3=' 9' * -1' 03=&' &?4& 8 &-39' ' * 5=* ' 9 05' 04 - 0-' 3=* 3' & 1' 8 * '' @&' * 5&1' > 3=' ;0-531& * @&' 4 05 3' -' 0 50 G' H &54&;* ' '' -' >* '3 &' >=&-' ;' 9 1&* ' (63' =&' 9 * 50' ;&* '' 05' 04 - 0-' 3=* 3 3 9 -03' 3=&' -3& &53' 05' * -1 0 19' 30' &-;06 * 2&' 3=&' ;6 36 &' 05' 3' > ; 063' 50 8 &' 2 1' &53 1 0-9' -' 3=& ' &* 5&9' ;0 4 &:&-3' 3&-* -39' 5 0 8' ;* ' -2' 055' 53&:=' * <6* -3 3'' 05' :&2&3* @ &' 8 * 33& ' > 3=063' * ' -2' 0-' * 4 04& ' <6* -3 3'' 05' 8 * -6 &' * 9' -' 3=&' 656 * ' ;0:&-* -3' 4 * 3 :&' 30' =* ' * -1' 53 * >' 7 50' 3' 9 -03' 3=&' ;0 -' 0-' ' @63' 3=&' 53 * >' G& > 5&' 3=* 3' 9 ;* &1' 055' -' 3=&' =* 4&' 05' & 1 H 4& =* 49' 30' 3=&' * 806-3' 05' * 30-' 0' 64 > * 19' 0-' * -' * ; &' a

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R. minor. *Mill. dict. n.* 2.
R. Lycium. *Scop. carn. n.* 260. *amn.* 2. 44.
R. catharticus minor. *Baub. pin.* 478. *Arduin. mem.* 1. 78. *t.* 14. *Dubam. arb.* 2. 214. *n.* 2. *Raii hist.* 1626. *Tournef. inst.* 593.—pannonicus. *Park. theat.* 243. 2.—solutivus minor. *Ger. emac.* 1337. 2.
Lycium gallicum. *Baub. pin.* 478. *Baub. hist.* 1. 58. *Raii hist.* 1626.
L. *Dalech. hist.* 151.
Spina infectoria pumila. 1. *Cluf. hist.* 111.
Spines terminating, flowers quadrifid dioecous, leaves ovate-lanceolate repand-ferrulate, ſtems procumbent.

[3. Rhamnus lycioides.
Lin. ſpec. 279. *Reich.* 1. 540. *Willd.* 1093. *Cavan. ic.* 2. 56. *t.* 182. *Deſont. atlant.* 198.
R. tertius flore herbaceo, baccis nigris. *Baub. pin.* 477. *Tournef. inſt.* 593.
R. tertius. *Dod. pempt.* 755. *Baub. hiſt.* 1. 35. *Tabern. ic.* 1081.—forte niger. *Cluſ. hiſt.* 1. 110.
R. primæ ſpeciei 3. *Lob. ic.* 2. 129. *Ger. emac.* 1334. *ult.*
Spines terminating, leaves linear quite entire blunt.

4. Rhamnus Erythroxylon. *Siberian Redwood.*
Lin. ſpec. ed. Willd. 1093. *Pallas roſſ.* 2. 26. *t.* 62. *itin.* 3. *app. n.* 78. *t.* I. *f.* 1.
β. R. lycioides. *Pall. roſſ.* 2. 26. *t.* 63.
Leaves narrower very finely ferrulate.
Spines terminating, leaves linear-lanceolate ſerrate ſharpiſh.
5. Rhamnus oleoides. *Olive-leaved Buckthorn.*
Lin. ſpec. 279. *Reich.* 1. 540. *Willd.* 1094. *Deſont. atlant.* 197.
R. hiſpanicus oleæ folio. *Tournef. inſt.* 539.
Spines terminating, leaves oblong quite entire.
6. Rhamnus crenulatus. *Teneriffe Buckthorn.*
Ait. kew. 1. 263. *Willd. ſpec.* 1094.
Branchlets ſpineſcent, flowers quadrifid or trifid dioecous, leaves oblong bluntly ſerrate evergreen.]
7. Rhamnus ſaxatilis. *Rock Buckthorn.*
Lin. ſpec. 1671. *ſyſt.* 233. *Reich.* 1. 540. *Willd.* 1094. *Jacqu. vind.* 212. *auſtr.* 1. 33. *t.* 53. *Holl. helv. n.* 822. *Villars dauph.* 2. 537. *Krock. ſilef. n.* 348.
Lycium facie pruni ſylveſtris ſ. italicum. *Baub. pin.* 478. *Ic. Arduin. t.* 14. *Raii hiſt.* 1627. 2.
Spina infectoria pumila 2. *Cluſ. hiſt.* 1. 111.
R. cathart. minor fol. longiori. *Tourn. inſt.* 592.
R. longifolius. *Mill. dict. n.* 3.
Spines terminating, flowers quadrifid hermaphrodite.
[8. Rhamnus theezans. *Tea Buckthorn.*
Lin. mant. 207. *ſyſt.* 233. *Reich.* 1. 540. *Willd.* 1094.
R. Thea. *Oſb. it.* 232. 161. *engl. edit.* 1. 375.
Spines terminating, leaves ovate ſerrulate, branches divaricating.

* *Unarmed.*

9. Rhamnus Sarcomphalus. *Baſtard Ligmum-Vitæ.*
Lin. ſpec. 280. *Reich.* 1. 541. *Willd.* 1095. *amoen.* 5. 395. *Brown. jam.* 179. (Sarcomphalus.)
Leaves oval coriaceous quite entire emarginate.
10. Rhamnus ferreus.
Vahl ſymb. 3. 41. *t.* 58. *Willd. ſpec.* 1095.
Flowers hermaphrodite umbelled axillary, leaves oblong-ovate emarginate quite entire ſmooth membranaceous.
11. Rhamnus lævigatus.
Vahl ſymb. 3. 41. *Willd. ſpec.* 1095.
Flowers hermaphrodite axillary ſubgeminate, leaves oblong quite entire coriaceous ſmooth.
12. Rhamnus tetragonus. *Square-branched Buckthorn.*
Lin. ſuppl. 153. *ſyſt.* 233. *Thunb. prodr.* 44.
Leaves ovate entire ſmooth ſeſſile, branches four-cornered.
13. Rhamnus polifolius.
Vahl ſymb. 3. 41. *Willd. ſpec.* 1095.
Flowers hermaphrodite axillary ſubſeſſile, leaves lanceolate quite entire white-tomentoſe underneath.
14. Rhamnus valentinus. *Valentia Buckthorn.*
Lin. ſpec. ed. Willd. 1096.
R. pumilus. *Cavan. ic.* 2. 65. *t.* 181.
Flowers hermaphrodite quadrifid three-ſtyled, capſules three-celled, leaves roundiſh-ovate ſubcrenate.
15. Rhamnus cubenſis. *Cuba Buckthorn.*
Lin. ſpec. 281. *ſyſt.* 233. *Reich.* 1. 542. *Willd.* 1096. *Jacqu. hort.* 3. *t.* 49. *amer.* 75. *n.* 3. *pict. t.* 75.
Flowers hermaphrodite, capſules three-celled, leaves wrinkled quite entire tomentoſe.]
16. Rhamnus colubrinus. *Pubeſcent Rhamnus* or *Buckthorn. Redwood.*
Lin. ſpec. 280. *ſyſt.* 233. *Reich.* 1. 542. *Willd.* 1096. *Jacqu. hort.* 3. 28. *t.* 50. *amer.* 74. *n.* 2. *pict.* 40. *t.* 74. *Brown. jam.* 172. 2. *Comm. hort.* 1. 175. *t.* 90. (Arbor baccifera.)
Ceanothus arboreſcens. *Mill. dict. n.* 3.
Flowers hermaphrodite one-ſtyled erect, capſules tricoccous, petioles ferruginous-tomentoſe.
[17. Rhamnus volubilis. *Twining Buckthorn.*
Lin. ſuppl. 152. *ſyſt.* 233. *Jacqu. ic.* 2. *t.* 336. *collect.* 2. *Walt. carol.* 101.
Zizyphus volubilis. *Willd. ſpec.* 1102. *arb.* 415.
Flowers hermaphrodite one-ſtyled, leaves oblong-ovate nerved ſomewhat waved, ſtem twining.
18. Rhamnus dauricus. *Daurian Buckthorn.*
Pallas itin. 3. *app.* 721. *n.* 77. *roſſ.* 2. 25. *t.* 61. *Willd. ſpec.* 1097.
Cornus foliis citri anguſtioribus. *Amm. ruth.* 200. *t.* 33. *Gmel. ſib.* 3. 106. *n.* 83.
Flowers dioecous quadrifid, leaves oblong-ovate ſerrate veined.
19. Rhamnus alpinus. *Alpine Buckthorn.*
Lin. ſpec. 280. *ſyſt.* 234. *Reich.* 1. 542. *Willd.* 1097. *arb.* 283. *Jacqu. collect.* 3. 15. *Hoffm. germ.* 79. *Roth. germ.* 1. 103. 2. 267. *Hall. act. gott.* 2. *t.* 16. *helv. n.* 823. *t.* 40. *Villars dauph.* 2. 537. *Krock. ſilef. n.* 349. *Allion. pedem. n.* 1767.
Alnus nigra baccifera rugoſiore folio ſ. major. *Baub. hiſt.* 1. 562. *Raii hiſt.* 1605.
A. nigra polycarpos. *Baub. pin.* 448.
Frangula altera polycarpos. *Baub. prodr.* 160.
F. rugoſ. & ampliore folio. *Tournef. inſt.* 612. *Garid.* 191.
Flowers dioecous, leaves oval-lanceolate glandular-crenulate.
20. Rhamnus pumilus. *Dwarf Buckthorn.*
Lin. mant. 49. *ſyſt.* 234. *Reich.* 1. 543. *Willd.* 1097. *Jacqu. collect.* 2. 141. *t.* 11. *Turra diar. ital.* 120. *Hoffm. germ.* 79. *Villars dauph.* 2. 538. *D'Alſo aragon. n.* 203.
R. rupeſtris. *Scop. carn. n.* 262. *t.* 5.
Alaternus ſaxatilis. *Quer, ſt. eſpan.* 2. 202. *t.* 27.
Frangula montana pumila ſaxatilis, folio ſubrotundo. *Tournef. inſt.* 612. *Segu. veron.* 2. 296.
F. minima rupeſtris pruno ſylveſtri affinis americanæ foliis. *Raii dendr.* 65.
Creeping, flowers hermaphrodite, leaves petioled ovate crenate.]
21. Rhamnus Frangula. *Alder Buckthorn,* or *berry-bearing Alder.*
Lin. ſpec. 280. *ſyſt.* 234. *Reich.* 1. 543. *Willd.* 1098. *hort. cliff.* 70. *fl. ſuec. n.* 203. *lapp. n.* 60. *mat. med.* 98. *Gaertn. fruct.* 2. 111. *Dubam. arb.* 1. *t.* 100. *Du Roi barbeut.* 2. 285. *Huſſ. angl.* 98. *Wither. arr. ed.* 3. 259. *Smith, brit.* 262. *engl. bot. t.* 250. *Relh. cant. n.* 184. *Fl. dan. t.* 278. *Gunn. norv. n.* 18. *Holl. helv. n.* 821. *Pollich pal. n.* 331. *Hoffm. germ.* 80. *Roth. germ.* 1. 103. 2. 263. *Neck. gallob.* 132. *Scop. carn. n.* 263. *Villars dauph.* 2. 538. *D'Alſo aragon. n.* 201. *Krock. ſilef. n.* 350. *Gmel. ſib.* 3. 307. *Pallas, it.* 1. 62. *Blackw. t.* 152. *Knipb. cent.* 5. *n.* 75. *Ludw. elt. t.* 82. *Pluck. ic.* 141.
Frangula. *Dod. pempt.* 784. 1. *Camer. epit.* 978. *Matth.* 1271. *Tournef. inſt.* 612.
F. Alnus. *Mill. dict. n.* 1.
F. ſ. Alnus nigra baccifera. *Park. theat.* 240. *Raii ſyn.* 465.
Alnus nigra baccifera. *Baub. hiſt.* 1. 560. 2. *Baub. pin.* 428. *Raii hiſt.* 1604.
A nigra ſ. Frangula. *Ger.* 1286. *emac.* 1470.
β. Frangula latifolia. *Mill. dict. n.* 2.
A. nigra baccif. rugoſiore folio. ſ. major. *Baub. hiſt. Raii hiſt.* 1605.
γ. F. rotundifolia. *Mill. dict. n.* 3.

I ')Q &' ' CKE' $ %' 0 ' Q,E' 7 +' % #' 'M0 ' (% 7 !' #QP' 7' '/+, I ' ⅈ 6 6@*' ⅈF0 ' 7' ',#/' % ' 2 ' 0 ' /#LL I)'4=*' ' # ' M0' 1 ' (0 ' +K 6F @9' 8*F0 &9 0@ 0-29 ' (' '++Q $ ' * *@ 8 ' ' ,' /EC [5' I)'4=69 R010-*7 ' ' /L/C.' # ' /#K/ 7 ' ' ' ! &F ! ' ! ' 0 ' &)# ') + ' + 0 & ,' @* 8-69 4 -*' = 53 ' ' %F ') ' ,C, ' 2 ' ' #+Q' ' %%'N<6' I)'4=69 4 -*' = 53 ' * &) ' //K#' I % ' ',K/ I ' *5 ;*-*' 2 '& ' '+ &-04 *'54 -05*' (' '+EE' ' %') ' ,'L/L ' # ' ' .M - ' /QK#' 2 ' 0 ' /#L+'+' &'5' *4&;*' (& 0- '5O 3&' ' %') ' ,E *@;*' * 6 69 3=;-&&' ; &1 3*' ' '/Q'D'/P ' ,' ',K 6F6@&' N' I)'4=69 *5 ;*-*' 86; 0-*3 9 50 9' 4 -*' 2&8& *' 7' ' ' /PE D ' L' 7 ' ') ' ! ' ! ' ' & C ' %' ' & & F -'

/' =&' 46 2 -2' 0 ' ;0 8 80-' (6;G3=0 -' 5&9' > 3=' *3=&' *33& g

53 0-2' >001'5 &8' 30' 3 &' =& 2=3 05' 3>& ;&' 0 ' 506 3&&-' 5&&3' 5&-1 -2' 063' 8*-'' &26 *' @ *-;=&9 7 3=&' 06-2' 5-0039' =*:&' *' 58003=' 2 *' =''@ 0>-' @* G F @63 3=& 0 1&' @ *-;=&9' =*:&' *' 1* G& ' *-1' 062=&' (@* G' *-1' * & * 8&1' > 3 ' *' 5&>' =0 3 =0 -9' &*:&9' 3>0' -;=&9 *-1' *' =* 5' 0-2' @' 0-&' *-1' *' <6* 3& ' @ 0*1' 1* G' 2 &&-' *@0:&' @63' 4* &' 0 ' 2=3' 2 &&-' @&-&*3=' =*: -2' *' 4 &33'' 53 0-2' 8 1 @' *-1' 5&:&*' -& :&9' 4 0;&&1 -2' 5 0 8' 3' >=;=' 1 :& 2&' 3O>* 19' 3=&' 5 1&9' @63' 8 &&3' *2* -' -&*' 3=& 4O -3"' 3=&'' 53*-1' 640-' 4 &33'' 0-2' 5 &-1& '5OO3*53* G9' =&' 5 0>&9 ;0 8 &' 063' -';653& 9 5 0 8' 3=&' 5 1& 05' 3=&@ *-;=&9 ' 3=0 &' 05' 3=&' 8 *&' =*:&' *9 8*-''53* 8 &-9' *9 =&' * & 1 :5 0-9' -' 3=&' 4 &3* A =05;' 05' 3=&* 5& 8 *&' JO '=& 8 *4= 01 3&' =*:&' *' 06-1 =' 2& 8' >=;=' *53& >* 19' @&;0 8 &9' *' 46 4 ''@& ''05' *' 06-1 =' 5O 8' -;05 -2' 506 '=* 1' 5& 19'F ^(*-1 &9' 2 1' *3& -*3&' 06-1' 5 8 OO3=' > 3=' *' 3=0 -' *7 3=&' & -1' &*:&9' -' @6-1 &9' 5 8 OO3=' 3=&' 5& '' *36 &9 2 *-16 *' 7 3=&' '06-2& '0-&9' 46@&5&&-3' 3 H 46 &9 *> "5=*4&1' -' 4* 9' 3=&' & -23=' 05' 3=&' 4&3 0 & ' 0>& 9' 5 0 8' 3=&' 5 *8 &' @61' > 3=' 3=&' &*:&9' *22 &2*3&' 0-'*? '' 0-&"5 0>& &1' 4&16-;&9' >=;=' * &' 05' 3=&' 5* 8 &-23=' > 3=' 3=&' 4 &3 0 &9 7 3=&'' * &' 05' *' 4* &' 0 '& 0>=' 2 &&-' ;0 06 ' 506 "; &53' *-1' 1 0&;06 9 0 '2* 8 06 9 ;0 8 80-' '@63' -0 ' >*'9' 3 2 8 *' 506 '" ;&53' (& &9 @*;G' 3=& 5)&' 05' *' 5 8* ' 4&*' 506 '" ;& &1' 506 "5&&1&1' [*3 :&' 05' 6 04&' -'=&12&9' *-1' >001 97 5 0>& -2' 5 08' 3=&' &-1' 05' 30F6 - & ' *-1' 4&- -2' 39' @& &9 *@06 3=&' &-1' 05' 5&43; 8 ;;0 1 -2' 30' * *9' 3=&' (6;G3=0 -' 9' ;0 8 80-' -' 3=&' ;=* 8 4* 2-' *-1' 3& 8 4& *3&' 4* 39' 05' 6 *' *-1' 06 3=& -' @& *' @63' 5;* ;& ''@&'0-1' 3=&' 3 9' =&' 3 6-G' 9' 053& -' 3= ;G& '3=*-'*' 8* 39' * 8\' *-1' 3=&' >001' *' & '' =* 1' 05' *' &11 =' ;0 06 ' =&' 5 0>& 9 ' * &' 50 ' 3=&' 805 3' 4* 3 =& 8 *4= 01 3&' *-1' ; 633& &1 -' 3=&' 2* 1&-9' 5&>& ' *-1' -&* '' 50 3* ' =& F6 ;&' 05' 3=&' 6- 4& @& &9' =*9 3=&' ;0 06 ' 05' 5*55 0-' *-1' 9 6 &1' 50 '53* - -2' 8 *49' 0 '4*&* 7 3=&5& ' & 50 1' 6-1& ' 3=&' -*8 &' 05' &-;=' @& &9' =&' F6 ;&' 05' 3=&' 4& @& &9' 8 ?&1' > 3=' * 6 8 ' 9' 3=&' *4''2 &&-' 05' 3=&'' 4* -3& 9' 63' 5' 3=&' @& &9' @&' 2*H 3=& &1' *3&' -' 3=&' *636 8 -' 3=& F6 ;&' 9' 46 4 1' =&' @* G' *55O 19' *' @&*63 56' '& 0>' 1' &.' =&' --&' @* G ' &' 3=*3' 05' 1& ' 9' 5* 1' 30' @&' *' 53 0-2' ;*H 3=* 3 ;' *-1' 30' &?' 3&' :0 8 3 -2' =&' @& &9 04& *3&' @ 5G '' @'' 3300 ' @63' 0 ;;*5 0-' 3= 53' *-1' 1 ' -&59' 05' 3=&' 8 003=' *-1' 3= 0*3' *;:0 84*-&1' 5 &<6&-3 '' > 3= 5&:& &' 2 4 -2' 05' 3=&' @0>& 9' 6- ;59' 50 8 &' 1 63 -2' <60 ' @&' 4 &-3 56 '' 3*G&-' > 3=' 3=&8 ' =&' F6 ;&' 8*1& -30'' *5' 64' 9 3=&' 055 ; -*' 4 &4* *3 0-' @06 3' *-'06-;&' 9 *' 801& *3&' 105&' F *-1' 3 >*9 50 8 & '' 86 ;=' &8 4 0 '&1' *9 *' =' 1 *2026&' 5 0 8' 3=' 9 <6*-3 3'' 30' 3>0 06-;&9 7 @63' 3' 9' -0>' 5* -2' -30' 1 565&' *-1' 9 * & *' 4 &5& @&1'&?;&43' -';0-F6-;3 0-' > 3=' 03=&' 8 &1 ; -&9' 05' 3=' 9 ; *59' 3' 9' 5* 1';=*3 =&' 53&53' 05' @ 19' >=;=' 5&&1' 640-' 3=&5&' @& &9' 9' 46 2*3 :& ,' = 9' 9' *' 4 0 &' *=0 &' &*:&9' * & : 05&' 6-1& -&*3=' =&' ;* '?' 20@ &3" 5=*4&1' *-1' 3003=;59' 3 2 8 *9' 3>0' &5 &?&1' 3' 1 55& 9' 5 0 8' 3=&' 4 &;&1 -2' *;:0 1 -2' 30' & * 1' -' =*: -2' 3=&' 5&2 8 &-39' 05' 3=&' ;0 0 *' 3=&' &-23=' 05' 3=&' 36@&' -&:&' 0 -2& ;040 ' *119' 3=*3' 3' 1 55& 9' -' 3=&' >=0 &' =*@ 3' 39' 4 *;&' 05' 2 0>3=' 3=&' -*G&1' 54 -&9' 3=&' &*:&9' : 05& 6-1& -&*3=' 3=&;' *' '?' 3OO3=&59' *-1' 20@ &3" 53 *4&1' *-1' `=&@& &9' =*: -2' ;0 8 80-' ' 0-&;& ' &8 43' . =&' 03' 5 ?&9' 35;5' @' 5 8 '' -' 3=&' 5 &9' 05' 3=& 0;G9' 3=*3' 3' ;*--03' @&' 46 &1' 64' =&' 53& 8' 1 : 1& 9' 8 8 &1 *3& '' -30' @ *-;=&9' 3=*3' *' &' :& '' 8 6;=' 56@1 '' : 1&1' *-1' 50 8' *' :& '' ; 05&' =&*1' 4 -&9' @03=' 3& H 8 -*3 -2' *-1' *3& *' -*G&1' &*:&9' & 43 ;' 5& 6 *3& ' 0>& 9' *@6-1*-3' *? * '' *-1' @&0>' 3=&' &*:&9' *H '?2&9' & 0> =' &3*' 9' 8 -63& 3' &' 6-1 : 1&1' *-1' 3 6-;*3&' (& ''3= &&";& &1' > 3=' 0-&' ;& ';0 8 80-' '' & 8 43'' ;;0 1 -2' 30' * 9' 3=' 9 54&;&9' 50 8 9' 3=&' -G' @&3>&&-' ';*3=* 3 ;69' *-1' 5*?*1 9' @& -2' 0>&' *-1' 80 &' @ *-;=&1' 3=*-' 3=&' 50 8 &' *-1' &59' 3653&1' 3=*-' 3=&' *33& g ' & ' 1&5; @&9' 3' *9 *-' =6 8 @ &' = 6@' & 10 8' 5 -2' 80 &' 3=*-' 3=&' 5&&3' = 2=' &-1 -2' 063' 8*-'' &26 *' @ *-;=&9' ;0:& &1' > 3=' *' 1* G'' @ 0>-' @* G' &*:&9' &-1 -2' -' *;63&' 40 -39' 1: && <6* 3& 9' 05' *-' -;=' 0-2' *-1' -&*' 3=&' @*' &' =* 5' *-' -;=' @ 0*1' 05' *' & 0>=' 2 &&-' *-1' 3=-' ;0-5 53;-;&' =&' 0>& 9' ;0 8 &' 063' 640-' 58*' 546 9' 0-' 3=&' 5 1&' 05' 3=&' @ *-;=&9' &*;=' *-1 -2' 640-' *' 5&4*' 3&' =0 3' 5OO353* G A 3=&'' &' 05' *' & 0>=' =&@*;&06 9';0 06 ' =*: -2' *' =0 3' 5>& '' -23 6@;' *-1' @& -2' ;63' -30' 5 :&' *;63& 54 &*1 -2' 5 &2 H 8 &-39' =&' ' *4 &*' -' F6-&' @63' *&' 1&1 &1' @'' @& &9' =& & 0-5' R6=*8 &9' 5*'9' 3=*3' 3=' 9 5 6 3' 2*3=& &1' 2 &&-' 9' 3=&' '&; ! ' 65 &1' -' 1' & -2' ' 1 0>' @63' =*:&' @&&-' *5 6 &1' @'' *' 2&-3 &8 *-' 05' JG '>=0' &5 1&1' 0-2' -' 3=&' 063=' 05' *-;&' 3=*3=&' : 2-0-' @& &9' >& &' 3=&' 5 6 3' 05' 3=&' -* 0>" &*:&1' *3& -69' ' 3=& &50 &' 2*3=& ' *' <6*-3 3'' 05' 3=&' @& &9' 05' 3 9' *3& -69' @&50 &' 3=&'' >& &' 56 ' 4& ' *-1' ;* &1' 3=&-' 30' 3>0' & 8 -&-3 1&* & 9' -' 3=' 9 ;0 8 80 1 3'' >=0' @03=' *5 6 &1' 8 &' *53& ' 8 *G -2' 3 *' 05' 3=&8 ' 3 *3' 3=&'' >& &' : 2-0-' @& &9' *-1' 3=*3' 5' *=*1' *' * ;' <6* -3 3'' 3=&'' >06 1' 46 ;=*5& 3=& 8' * ' -;&' 3=&-' 3=' 9 *H 3& -69' 9' 0-&' 05' 3=& 8 05 3' ;0 8 80-' 53 6@9' -' 3=&' 063=' 05' *-;&' >=&-;&' 3=&' : 2-0-"@; ;9' * &' @ 062=3' >&' 8 *'' 56 440 ;' ;=*3' 0-' R6=*8 &' =*9' @&&-' '' -50 8 &1' &&-' E U ^ *3 :&' 05' 3=&' 063=' 05' 6 04 &' 6 3 :*3 &1' -' /QCL' @'' ' *8 &9 63=& *-1. L' ' = 6@' 05' *@06 3' 3=& &&3 2=' :& '' 86;=' @ *-;=&1' 3=&' @ *-;=&9' 54 &*1 -2' *-1' 3& 8 -*3 &1' @'' *' 54 -&7 3=&' @* G' 05' *' @ 0>-' * =";0 06 ' *-1' 58 003=' =&' &*:&9' * & 56 @ -;*' 0@ 3656&' -* 0>& *3 3=&' @*5 &' :& '' 58 003=' 5&55 &' 5*5;;6 *3 &1 3=& 5*5;;&9' * 3& H -*3& '' 5;*33& &1 7 &:& *' 3 *-4* ;-3 40 &9' * &' 1 & 8 '' -*3 &1' 3= 062=063 3=&' >=0 &' 56 5&;&' =&' 5 0>& 9' * 5' 50 3* '' 5 0 8' 3=&' 5*5;;&9' 05' &*:&9' *-1' * & 3>0' 0 ' 3= &&' 56 440 3 &1' 0-' ;*4 * '' 5OO353* G9' 5=0 3 &' 3=*-' 3=&' &*:&9' =&' ;* '?' 9' & 0>' 6 ;;0 *3;1' 5& 8 '' <6*1 5 1' 50 8 &3 8 &9' 3 5 1' *-1' :&' * &'' <6-<6&5 1' > 3=' @ 0 ' =* 4' 5& 2 8 &-39' 5 0 8' 3=&' 1 :5 0-9' 05' >=;=' 4 0;&&1' 58 *' *;-9 0 ' 5;* &9' >=;=' * &' 503*;&0 69' 05' *' &1' ;0 06 ' *-1' 26* 1' 3=& 53* 8 &-9' =& &' 9' -0' ;0 0 *' 6-&59' 06' ;* ' 3=&' ;* '?' 56;=' =&' 5 *8 &-39' 05' 3=&' 53* 8 &-9' *' &<6*' -' -6 8 @& '30' 3=&' 5;* &9' *-1' * &' ;*4 * '' 64 2=3'' ;;6 :*3&' *-1' 5 36*3&1' > 3=-' 3=&' ;* '?' -&* '3=&' 2& 8' 7 *3=& 9' 2 0 @05;' & 8' 2 0 @ 0 53' &11 =! 53' ;9' 3>0' 50 8 &3 8 &9' 3=& &' *' 33 &' &;6 :&1' 53 2 **9' 3=;G&-&1' *-1' &1' *456 &' 3O4*5=*4&1' @*;G' @ 56 ;*3;' 50 8 &3 8 &9' 3=& &<&<6*-' -6 8 @& '30' 3=&' 5;* &9' *-1' * &' ;*4 * '' 64 2=3'' ;;6 :*3&' *-1' 5 36*3&1' > 3=-' 3=&' ;* '?' -&* '3=&' 2& 8' 7 *3=& 9' 2 0 @05;' & 8' 2 0 @ 0 53' &11 =! 53' ;9' 3>0' 50 8 &3 8 &9' 3=& &' *' 33 &' &;6 :&1' 53 2 **9' 3=;G&-&1' *-1' &1' *456 &' 3O4*5=*4&1' @*;G' @ 56 ;*3;' 50 8 &3 8 &9' 3=& &&";50 1' 1' 1 :5 0-' && 19' 3>0' 0 ' 3=& &' 56 @3 <6&3 069' 4* &

3' g *' -*3 :&' 0 5';* ;* &069' 3-06-31-9' -' @ 8 &' 4* 39' 05' 4* - ' >=& &' 3 2 0 >9 4 &-3 5 6 '

:- &9' O@5& :&9' 3=*3' -' * *9\9 5 2 &' 0 5' 3= 9 54&; &9' 3=&' &*:&9' * ;' ;4 &F'*-3&1' 5& *3& ' *-1' ' 5 6 3 7 2 0@6 * ' >=;=;=&' *33 @63&9' 30' 3=&' 5*6 3' 0 5' 3=& &-2 *:& ' 5 -;&' 3' 9 -0 3' 3=&' ;*5&' -' 56;=;' 4 *-39' *9 =& =*9 &?*8 -&1.

+' = 9' 9 *' =- @' 3=&' =& 2=3' 05' *' 8*-' 64 2=3' @63' 3> 53&1' 53 5 ' > 3=' 5&>' *@ 643' &26 * ' 4 &*1 =2' @ *-;=&9\ 50 8 &3 8 &9' 6-* 8&1 ' > 3=' 5=0 3' @ *-;=&9' 5@ 8 &3 8 &9' 8 0 &' @ *-;=&1' > 3=' 3=0 -9' *3' 3=&' &-1' 05' @03=' @ *-;=&9' *-1' @ *-;= ;39' 6-G' *8 0@& 9 ' > 3=' 53*** 0;G9' 053&-' 3> 53&1 ';0:& &1' > 3=' *' 3= -' @ 0>-' 53 20 ;' @*G' U 001' :& '' =* 1' 2 1' 05' *-' 0 *-2&' &1' ;0H 06 '@63' 5 &<6&-3 ''05' *' 1&&4& ' &1 ' (*-;=&9' 53 * 2=3' 2 1' * 3& -*3&' > 3=' *-' *5=';0 06 ;1' @ 0>=' @* G' 50 8 &3 8 &9' 1 ;=030 8 069' > 3=' 3=0 -9' &:&-' 5 0 8' 3=& 1 : 5 0-9' (*-;=&39' &*5' ' 6-* 8&1 ':& '' 0 3' 62H 2&1' > 3=' 3=&' 5&* 9' 05' &*:&9' &*5' ' *3 7 3=&' &-1' &*:&9' :& '' 0-2' *33&-6*3&1' -30' *' 50 3' 05' 4&3 0 &' 5 8 003= 53 ' >3=:&' ' 5 -&' 1 53*-3' 5& *36 &9 f' -'3=&' 80 &9' @ *-;=H -2' 5= 6@' >=;=;=*9 3=&' &*:&9' -* 0>&' ;* ;&*' ;*' 5 @ &' &16-;&9' 5 &<6&-3 -'@6-1 &9' *8 0-2' 3=&' &*:&9' * &' 5 0>& 9 @ 03=' 0-' *' 1 53 -1 3' 53 6@' *-1' >3=' 3=& 5&8 *&9' 58 *' 506 "; &53' > 3=' 3=&' 5&2 8&-39' 53 * 4 *-1' '& 0> =' &8 *&' 5 0>& 9' -&:& ' 0-' 3=&' 8 *&' =-@' 5 8 * ' 2 &&- D=:&' > 3=' *' 564 &0' 2& 8 ' 3= &&' D5' 1 &9 0-2& ' 3=*-' 3=&' ;* '?' 5 50 8 ' *-1' *' 60 &9' *4 3*3;' 53 2 8 *' (& *' 3=&' 5)&' 05' *' 4&*' 2 0@6 * "3 ;0-:&?' =* 4 '6 8@ <*3&' &&1 9' 3= &&F * 2&' 0:*3& 0@ 0-2' 3= &;"5 1&1';0-:&?

& =*4 9' 3' 8 *'' @&' *' :* &3'' 05' 3=*3' -&?? 3' 0' @&' 1&* 5& @&1' 0>-2' 30' ; 8 *3&' *-1' 4 *;&' @63' 3' 1 55& 9 8 6;=' -' =*@ 3

*3 :&' 05' @& *' @'' 3=&' & &-2*' *-1' ;0 *3& *' :& 9' 05' 0-20 *' *-1' -' 3=&' 04&-' 4 -&' >0019' -' >* 8' 566*;0-9' =&' 0-20 9' 65;' 3=&' >001' 30' 8 *G&' 3=& ' 8 *2&9 ' 0-' *;;06-3' 05' 39' =* 1-&9 *-1' ;0 06 ' =&' @& &9' ' & 1' *' 1&&4' & 0>' 1' &

' = 9' 9 *' 58 *' @6 = '' 3 &&' :& '' 8 6;=' @ *-;=&1' 5;* ;& '' &:& ' *33* - -2' *' 5*3=0 8' -' =& 2=39' 3=&' @* G' '@ 0>-' *-1' &:&-' 0-' 3=&' @ *-;=&9' 05' *' '& 0> 5=" 385" 3*;&06 9';0 06 ' *-1' 5= - -2' 1' 3=&' @ *-;=&9' 53 55& ' 8 0 &' 0-2' *-1' J &-1& ' *-1' 8 0 &' *@6-1*-3 ';=*-' -' 3=&' 4 &H ;&1 -2' @&;0 8 -2' 3=0 -'' *3' 3=&' 3 4' =*: -2' 5 &<6&-3' @6-1 &9' 05' &*:&9' 0-' 3=& 8 ' &*:&9' 0-' 3=&' *--6*' 5> 29' -' @6-1 &9H @63' 0-' 3=&' @ *-;=&9' * 3& -*3&' 585" 5' *-;&0 *3&" -&* ' *33&-6*3&1' &54&; * '' *3' @033 0 8' 5;* ;&' *44* &-3 '' 5; 6 *3&' @ 6-3 53 ' 062=5=' > 3=' :& '' 5 -&=* 9' *0-2' 3=&' &12&' *-1' 6-1&-&*3=' 0>& 9' *8 0-2' 3=& @6-1 &9 05' &*:&9' 8 *-'' 4&16-;;1' *' 7' 506 '';&53' \8 *c' '& 0>' > 3=' 3=&' 5&2 8&-39' 5=* 4' *-1' @&-3' @*;G' ;13*;9 0' 4;3* 0 1' 5;* &&;9' 64 2=3' *-1' 53M 58 * ' *9 =* 1 '' 30' @&' 53@ &' 30' 3=&' -*G&1' &' &' 3*8 &-9 5 0 3&' @'' =* 5' 3=*-' 3=&' ;* '; -&' 5&2 8&-39' *-1' 64 2=3' 3 2 8 *' ;0 8 8 0-' @ 5 1' 8 0 &' * & '' 3 5 1' 0-2& '3=*-' 3=&' 53* 8&-9' 0>& 9' * >*' 9 =& H 8 *4= 01 3&' 50 8 &* 8 &9' 5 :&";&53' *-1' 5 :&'' 53' &1' =& ' 58;' 05' 3=&' 5 0>& 9' *9' -' 3=05&' 05' ' & ' 0 ' (1' =& '' (& '' 0@ 0-2' 58 * ' @ *;G' 3>0'' 5&&1&1

*3 :&' 05' @& *' *@06' 3=&' :& ' & ;;' W;' =&' >001' 9' >=3&' 0-' 3=&' 0635 1&' @63' 3 > 3=-' 05' *' 6 &;' ;0 06 ' > 3=' 3&53*;;06 9' @*-19' 3=&' =* 1-&59' 05' *' @0-&

#' = 9' 9 *-' 64 2=3' J= 6@' > 3=' @ *-;=&9' @&;0 8 H -2' 3=0 -'' *3' 3=&' &-1' &*:&9' 53 55 5=' 4& &-- * ' *-'' ;&0=&&' 0' 0:*3&' @ 6-3' &:&-' 4&3 0 &1' 4* & ' *-1' -&33&1' 6-1& -&*3=':*: -2' 5 &<6&-3 '' *' :& ' 5 0 3' 40 -3' 3=&' &-1' 0>& 9' *? * '' &*;=' 0-' *' 4&1 ;& ' 53 0 ;;' 3=*-' 3=&' &*5' (& '' F6 ;& ;59' > 3=' *' 2 00:&' 0-' &*;=' 5 1&' 56@@ 0@&1' 3>0'':*:&1' 3>0'';& &1' > 3=' 0-& &&1' -' &*;=' ;& ' &&1' 0@ 0-2' ;0-:&?' 56@3 <6&3 069' =& &' *;' 5 :0' :* &3 &9H 0-&' > 3=' 58 * &' &*:&9' 0:*3&' 0 ' 0:*3;"0@ 0-2' G&' 3 05&' 05' (0?' 3=&' 03=&' > 3=' -;* " *-;&0 *;' &*:&9' =

;;0 1 -2' 30' -- ;6' 9' 3' 9 &59' 3=*-' 2 ' -' >=;=' 3' 0;& > 5&' &5& 8 @ &9' &*:&9' *3 3=&' @619' 3>0' 0 ' ; &&' G&' 1 0 &' 05' 1 &' :&' @63' 58 * & '&:&-

'05' *' 5 8' 56@53*-;&' <6 3&' &-3 &' &12&1' *9 G' >&; 35 > 3=' :& -9' 0-' J=0 ;' 4&3 0 &9' @ - 1' -&33&1' '39' 50 3* '' &5& 8 @ -2' 3=05&' ;5' 3=&' 5 53 54&;&9

3 :&' ;n 4 -' *-1' (* @* ' [-3 016;&1' -' /EEQ' @'' *5 8 ' 0 8 &)' 3&2*' R

Q' *3 :&' 05' 3=&' *-1' 05' &-& 55&' >=&' &' 3' >*9 506-1' @'' ' *-;9' *5 05' *-1' -3 016;&1' -' /ECC.

E' = 9' 54&; &9' @&* 9' 50 8 6;=' &50 8 @ *-;&' 30' 3=& 5 53' 3=*3' 3' 8 2=3' @& * 80 53' ;0-5 1;;1' *9' *' :* &3'' >& &' -03' *' 3=&' J 0>& 9' =& 8 *4= 01 3&' *-1' 50 8 &' 3 5 1' 03=& 9' <6*1 5 1' -' &<6*' -6 8@& 9' > 3=' 53*** -&-9' ;0 &540-1-2' 30' 3=05&' 1:5 0-9' =&' &*:&9' * &' -* 0>& ' *-1' 86;=5 8' * ' *33&-6*3&1' 30' @03=' &-19' * -1' 05' *-' 0:*' 50 8' =&' 4 -;4*' @ *-;=&9' * &' 4 0;6 8@&-3' =&' 54 -&9' * ;' 80 &' 5 &<6&-3' =&' @& '' 9' 06-1=' @*;G' -*' 1'' >=;5=' 8 &8@ *-&' J&4*** *3 -2' -30' 3>0' 4* 39' >3=' &*53';50 ;&

;;0 1 -2' 30' * 9' 3' 9 *' :& '' 0>' J=6@' 86;=' @ *-;=&1' 50 8 -2' *-' 84 &2-*@ &' @6 @' @'' 4 &5&-3'' -2' 39 3=0 -9' &:&' '' >*' g

' & ' 5*' 9' 3=*3' =9' 2' % ?' 2 0>9' 30' *' * 2&' 5)&' 3=*-' =9' 5;;0-1' >=;=' 9' 3=&' 2' % -' @63' -03' 50' =2=' *9' 3=&' 5 53' 0' 2' ' =&' @ *-;=&9' * &' 53 0-2&' *-1' * 8 &1' >3=' *' 5&>' 0-2' 54 -&9H 3=&' &*:&9' * &' G&'3=0 &' 05' 3=&' >1' 6 8' @63' *' 33 &' 0-2&' *-1' -* 0>& /: 3=&' 5 0>& 9' * 58 * ' 05' *' '& 0>5' ;0 06 ' *-1' 4 016;&1' 5 0 8' 3=&' 5 1&' 05' 3=&' @ *-;=&9' 3=&'' *44&*' -' 6-&' @63' * ;' -03' 56;;&&1&1' @'' @& &9' -' 3=9 ;06-3 '

^ * & ' 5 0 8' R6=*8;' ;0-5 1& 9' 3=&5& @& &9' *9 3=& '&! ' >=;=' * &' 4 5&5& &1' 30' 3=05&' 05' 3=&' ;0 8 8 0-50 ;' -' 1'&-2.' =&' * 0<6 -' 0' OH 0;;0' &*3=&' 9 1'&1' &0>' > 3=' 3=&8

*3 :&' 05' >3)& *-1' 653 *' 3=&' 063=' 05' *-;&' *-1' 3* '' -3 016;&1' -' /EE#' @'' 3=&' RO13 0 9' 3H ;* -' *-1' 03=& 2 7' @'' >=;=' 56440 5&' 3=*3' 3=&' *63=0 ' 05' 3=&' &>' ;*3* 026&' 1 1' -03' * 0>' 3=&' 7 ' % '05' =9' 8 *53&' 30' @&' 3=&' 2 % > . '05' --4 &H C' = 9' 9 *' = 6@' 0' 58 * ' 3 &&' ; &&4 -Z' @'' 6-H -& 9' (*-;=&9' 06-1' 53 *3&1' * 3& -*3&' 8 03&' 1 H :* ;*3 -2' *3' *-' *;63&' *-2 &' &*:&9' * 3& -*3&' 4 &H 3 0 &1' @ 6-3 =F:& '' 5 -&'' *-1' *;63&' '5& *3&' &:;-' * 3& -*3&'' :& -&1' *3' 3=&' @* &' 05' 3=&' @ *-;=&3' 053&-' 044 05 3;' 4 G&9' 3& 8 -*3 -Z' 5 8 4 &' 0 ' * 3& -*3&' -' *' -*G&1' 4*-;&' 0>& 9' -3& 643&1 '' 2 08 &*3&' 5&55 &' 1653& &1' 8 -63&' 0 0 *' 5 :&";&53' 3*H 8 &-9' 5 :&' > 3=-' 3=&' 4&3* 0 1' 50* &' 3' &' =0 3' 3 2 8 *' 3 4 &.\

;;0 1 -2' 30' @;;G' 3=9' 5=6@' 2 0>9' *' 5*3=0 8' -' =& 2=3' > 3=' &*:&9' G&' 3=05&' 05' 3=&' ;0 8 8 0-' &*' 3=&' 5 0>& 9' * &' :& *58 * ' *-1' &53' 0-' 3=&' 30 4' 05' 3=&' @062=9' >=;=' &*2*-' 56@1:1&1' -30' 58 * &' @ *-;=&9' =&' 400 ' -' =-*' >=&' &' 3' 9' *' -*3 :&' 8 *G&' 65;' 05' 3=&' &*:&9' -53&*1' 05' 3=&' 3 6&' 3&*' =&*'' ;* ' 3' $

P' = 9' 3 &&' 5&9' 2&-&*'' 30' *' :& '' ;0-5 1& *@ &' =;2=3' 3=&' 3 6-G' 9 053&-' *@0:&' 3>0' 5&&3' *-1' *' =* 5' -' 1 *8 &3&' *-1' ;0:&' &1' >3=' 3=;G' 5;*'' @* G' =&' >001' 9' =* 1' 05' *' 1* G' ;0 06 ' *-1' ;05&' 2 * -7' 3' 9 00G&1' 640-' *9' 0-&' 05' 3=&' @&53' 3 8 @&' *>001 9' -' 3=&' *-1' 05' *8 *;' *' >=&' &' 3' 2 0>9' -*36 * '' -' 8 *-'' 4* 39 =

/K' (*-;=&9' 06-1' 50 *3 & &1' 5 8 003=' > 3=' *-' 5 5" ;0 06 &1' @* G' &*:&9' 4&3 0 &1' * 3& -*3&' *-' -;=' *-1' 8 0 &' -' &-23=' :& '' 5 -&'' -& :&1' *-1' :& -&1' <6 3& 5 8 003=' 0-' @03=' 1&9' @ 6-3' 8 @& 9' *?* '' 0-' :& '' 5=0 3' 4& 16-;&9' 3' 1&;& 9'' 5 8 003=' *' 6;' 0-2& ' 3=*-' 3=&' ;0 8 8 0-' 4& 16-;&

*3 :&' 05' 3=&' 5 *-1' 05' *-3*' 6)' >=&-;&' 3' >*9 5&-;' @'' :' 0=' *-1' &53

' (*-;=&9' 06-1' 5;*3& &1' 5 8 003=' > 3=' *-' *5 '' ;0 06 &1' @* G' &*:&9' 4&3 0 &1' * 3& -*3&' *-' -;=' *-1' =* 5' 0-2' <6 3& 5 8 003=' 4* & ' *-1' & 0> 5=' *3' 3=&' &12&;' 4&;* '' 3=&' '06-2& ' 0-&9' @ 6-3' *@0:&' 5;* ;& '' :& -&1' @&-&*3=' 4* & ' :& -&5 9' *-1' -& :;;59' &16-;&9' 3>0' 0 ' 3=&' 302&3=& ' :& '' J=&' 5 8 003=' 0-&*' 5 0>& &1' 0>& 9' 5 8 003=' & 8 '0@ 0-2' 5 8 003=

3 ' &' 0-&' > 3=' *' @ 5 1' 53 2 8 * [&53' 5&-3' 3' 5 0 8' 3=&' * 8 &' *-1'.'

/ , ' = 9' > *9 506-1' *3' 3=&' *4&' 05' 001' @'' =6-@& 2

/L' (* -;=&9' 5 &-1& F 3 0 8 &-305&' *@ 0 :&' =0* '' &*:&9' 4&3 0 &1' * 3& -*3&' 5;* ;& '' *-' -;=' -' &-23=' 2 *16* '' &5 9' *-1' &5 9 64 > * 19' 0-' 3=&' 644& *56 5*;;' 5 8 00 3=' *-1' 5 0 8 ;> =*3 > -G &1' 8 6; 0-*3&' &3 0 &9 :& '' =0 3' 3034; -305&' 0 > &9 56@ 50 3* ' ' 5;* ;& '' 4&16-;&1' *5="; 0 0 &1' 56@3 2'-069 [6440 &1' 30 @&' *' -*3 :&' 05' &>' !&* *-1 V

/+' = 9' 9 3=&' % '05' *:*- &9' @ 6 3' 9 ;& '' 1 55& &-3' 5 0 8' 3=&' P # ' J-' , K M' 05' *;<6 -' *-1' --&69 M' 8 *-3 5 *' @ 03=' -' 5 0 > &' *-1' 5 6 3 4' 3=&' &*:&9' * 50' * &' 5 -* & ' 56@& &-*3&' *-1' 0-' :& '' =0 3' 4&H 3 0 &9

*3 :&' 05' 3=& G -2100 8' 05' * &-3 *

= 9' 9' *58 * ' 4&; &9' 2 0 > -2' -' ;* ;* &0 6 9' 0 ;G '' 4 *;&9' *-1' 9 -&:& ' 64 2=3' @ 6 3' * > * ' 9 &4&-3' *9' 3' >&' &' 0 '54 &*1' 640-' 3=&' @* &' 0 ;G' A 3' 9' :& ' '@ * -;=' ' *-1' 3=&' @ * -;=&9' * &' 30 36 069' =&' 3 > 29' * &' 8 @& ' *-1' 3=&' >001'=* 1' *-1' >= 3 =A 3=&' @* G' 05' *' &1'' 1 5=' @ 0 > -' 5 8 00 3=' @ 6 3' 30 @& ; *3&1' =& &' *-1' 3=& &' > 3=' G-03 9' *-1' 5 6 &9' =&' &*:&9' 0-' 3=&' '06-2' @ * -;=&9' * &' 5;*33& &1' *-1' *44 0? 8 *3&1' 53*-1 -2' : & '' 5 0 3' 500 3 * G9' *-1' * &' 0:*3&' 5;* ;& '' & *3&1' > 3=' 1 53*-3' 5& *36 &9' *-1' 50 8 &3 8 &9' > 3=06 3' * -' 7 3=&'' * &' 05' *' 2 05 '' 0 ' @ 2=3' 2 &&-' *@ 0 :&' *-1' 4* & ' @ &-&*3=7 3=&' 53 46 ;9' * &' 5 0 3' *-1' 1&; 16069' =&' 5 0 > &9' * &' *? * '' -68 & 069' 5 *3&1' 0-' ;*4 * '' 500353* G9' > =;=' *3' &-23=' @ &-1' * -1' * &' 56 -5 ;1' > 3=' *' 58 * ' &11 5 '1&; 16069' @ *53&' =&' 5 *' 2&' 4&' 5 &<6&-3 '' 3 > -' * -1' ;0 8 0 -' '3 > 0 * &&1&1' A 3=&' 61 8 &-3' 05' 3=&' 3=' 1' 5&&1' @ &-2' *@ 0 3 :& [' 8 & -' =' 8 8 * -' =*9' & 0-&0 6 5 ** 1&5& @&1' 3=&' 5 6 3' *9' &1' * -1' 3=&' 5 0 > &9' * 9 > =3&' -' 3=&' '' =& =*9' 5&3' 3' 10 > -' *9' *' :* &3'' 05' 2 ' 7 ' * 3=062=' 3' 1 55& 9 5 0 8' 3' *9' 86;=' -&* ' *9' 2 ') > ' > =;=' -1&&1' 3' & 8 8 @ &9' 80 & -' 3=&' -& :*36 &' * -1' ; 6 8 5& 43 0-' 05' 3=&' &*:&9

*3 :&' 05' R*6 *' @'' 3=&' :& ' 26-' > =& &' 3' 9 4 &-3 56 A @6 3' -& 3=&' 3=' 9' -0 ' 3=&' ;0 8 0 0-' (6; G3=0 -' 0 ;6 ' -' 03=&' 4* 39' 05' @& *'

/P' = 9' 50 8 9' *' 5= 6@' 05' &:& *' 5&&3' -' =& 2=3' =&' 06-1&1' &*:&9' 8 *-5;53 '' ; &-*3&' * '*@ 063' 1 5'' 3 -26 @' 3' &*5 '' 5 0 8' 2 '' 'p' J-' M' =& & &*:&9' * &' -O3' 106@ '' ; &-*3&7 -' 3=&' '06-2& ' 0-&9' 3=&' 8 * 2 -' @& -2' 4 * 3&1' @'' 4 0 8 -&-3' :& -9' =*9' 3=&' *44&* *-;&' 05' 3 06@ &1' -03;=&9.

=&' ;* '?' *-1' 53 2 8 *' * ;' 566 '';53' *9 -' 2 ' '

3 :&' 05' 3=&" 806-3 -9' 05' & 8 *-'' > 3)& *-1' 3=&' 063=' 05' *-;&' *-1' &180-3

,K' = 9' 1 55& 9' 5 0 8' =&' -&?3' 54&; &9' @'' 39' 53& 8 9' *1=& -2' 30' 3=&' 0;G9' *-1' @'' 39' 5& *3&' &*:&9 A 5 0 8' 3=&' 4 &;&1 -2' @'' 39' =& 8 *4=01 3&' 5 0 > & 9 ' =&' &*:&9' * &' 5;* ;& '' : 05&' 6-1& -&*3=' =&' @& &9' * &' 3=&&" &1;1' 3' 003 9' 35;5' -'3=&' 5 5 ;9' 05' 3=&' 0;G9' *-1' ;0 :& 9' 3=& 8 8' G&' : ' . ' &-;&' ;040 9' 3 : *' -* 8 &' 05' 0 ' &' 5*' 9' 3=*3' 3=&' &*:&9' * &' 5;* ;& '' *-' -;=' -' &-23=' > 3=' 3=& &12& 9' >=3 = ' 50 8 &>=*3' ;* 3 *2 -069' *-1' 0 9 5& 6 &' '-03;=&1' A =*: -2' *' 5& 6H 2 -069' -*4' 0-' 3=&' -& :&9' 6-1& -&*3=' =&' 5 0 > & 9' * ;' 506 ' 0 '5 :&*;& 53 ' > 3=' 3=&' ;* ' ; -&' 5& 2 8 &-39' @ 8 &*' >=*3' 3003=;33& 1' = 3*9' *-1' 53*8 &-9' >=3&

*3 :&' 05' & 8 *-'' * -0 *' R*64=-;' 0-3&' (* 10' 4* -]

,/' =&' @ *;G' @& '"@&* -2' 1& ' 5&9' > 3=' *' >001'' 53& 8' 30' 3=&' =& 2=3' 05' 3&-' 0 ' 3>& :&' 5&&3' 5&-1H -2' 06 3' 8 *-' @ *-;=&9' ;0 :& &1' > 3=' *' 1* G' @* G ' &*:&9' 0:*3&" *-;&0 *3&' *@ 06 3' > 0' -;=&9' 0-2' *-1' *-' -;=' @ 0*1' =*: -2' 5&:& *' 3 *-5:& 5&' -&:&9' 5 0 8' 3=&' 8 1 @' 30' 3=&' 5 1 &9' =&' 5 0 > & 9' * &' 4 OH 16;&1' -' ; 653& 9' *3 3=&' &-1' 05' 3=&' 50 8 &' '&* M' D@0039' *-1' * 50 640-' 3=&' 5 53' *-1' 5&;0-1' FO -39' 05' 3=&' 5* 8 &' '&* M' 5=003' &*;=' 640-' *' 53 0 3' 5&4* *3&' 4 & 5 ;& A 3=&'' * &' 58 * ' 05' *-' =& @*;&069' ;0 06 ' *-1' * ;' 56 ;;;&1 &1' @'' 58 * ' 06-1' @& &9' > ;=' 36 -' &1' @ 63' * &' @ *;G' >=&-' 4&' ;' 5 0 > & 9' *44&*' -' 6-&' *-1' 3=&' @& H &9' 4&-' -' 5 43;&-@&

f -' 39' > 1'53*3&' 3 9'5& 10 8' 8 6&=' 8 0 &' 3=*-' 06 ' 5&&3 = 2=' > 3=' -6 8 & 069' 50 G&1' @ * - ;=&9' &*:&9'0-' 3=&' 06 - 2' @ *-;=&9' 0 - '' 044 05 3&' 4&3 0 &1 ' 0@0 :*3&' 0 ' & 43 ;" * -;&0 *3&' 40 -3&1' <6 3&' &-3 &' 5 8 003=' :& -&1 ' 05 *' @ 2=3' 4 &*5*-?' 2 &&-' &1 6 -; &9' *? H * '' 3>0' 0 '3= && 302&3=& ' 0-&"5 0>& &1' ' ?';64"' =*+&1 ' > 3=5 :&' &5 &?&15&2 8 &-39 @&3>&&-' >=;=' 53*-1' 3=&' 33 &' 4&3* 9 ' * -1' 044 05 3&' 30' 3=&8' 3=&' :& '' 8 -63& 53* 8 &-9' > 3=' 1* G"46 4 &' *-3=& 9' & 8' 564& 0 ' > 3=' *' :& '' =0 3' 53' &' *-1' *' @ 5 1' 53 2 8 *' (& '' 1* G"46 4 &' > 3=' 3>0' =&8 54=; ;*' 5&&19

' & @*-' & 8 * G9' 3=*3' 3' =*9' 1&; 16069' @ *5 &9&' 3=*3' 3=&' ;*' ?' =*9' @ 0 > - ' & 8 03&' @ -*3;' *-1' 50 3*'' : 0 &' =* 9\' 3=*3' 3=&' 53' &' 9' =0 3&' 3=*-' >=;*' ?' > 3=' *-' & 8 * 2 -*;&' 53 2 8 *' F *-1' 3=*3' 3=&' @& ''=*9' 3>0' 0 ' @ 8 &3 8 &9' @ 6 3' * & '' 3=& &&' 5&&19

;0 1 -2' 30' ;040 '3=&' @& '' 9' 3=& &";& &1' *-1' 3=&' 5)&' 05' 3=0 &' 05' 6 - 4& /\ 0-&' ;&1' -' &*;=' ;& ' 0 :*3&' '& 0 > ';0 8 4 & &1' F *=1'0-&' 05'3=&' 3 && 50 -&"' 3 8 &9' &59' 0 '&:&-'&-3 & '' *@0 3 :&

3& 3-&' 1&5& @&9' 3=&' @& '' *9' 2 0 @6 * ' 5 8 003=' 1* G";0 06 &1 ' 56;;6 &-3' 3>0";& &1 ' 0 ' @ 8 &3 8 &9' @ 63' 5& 10 8' 3= && ";; &1 ' > 3=' *' :-&' ;=' -' 4* 3 3 0-' >=;=' * 8 05 3' 1 5*44&* 9' >=&-' 3=&' @& '' 9' 4&' && 1 9' 50 3* '' 0 :*3&" 06-1&1 '4 *-0";0-:&?' 0 ':& ''0@365& '' *-26 * '0-' 3=&-' --&' 5 1&' 4 016;&1' *3' 3=&' @*5& -30' # S;*3 *2 -06 9' *-1' :& '' 36 2 1' 6 8 @ ;69' 5 8 003=' *-1' 65&;&-3' =9' 53 6T536 &XO5' 3=&' 6 8 @ ;69' 0;;6 9' 5;*;;'' *-'' >=& &' &?;&4 3' -'

3 :&' 05' 805 3' 4 39' 05' 6 04&' -' >0 9 19' 3=;(9&39 *-1' =&12&9' F *50' -' @& *7 5 0>& -2' > 3=' 69' &* '' -' 8 *'' *-1' 508 &3 8 &9' -' *4

0 8' *' <6* 3&' 30' =* 5 *-' 06-;&' 05' 3=&' --&' @* G' @0 &1' -' 58 *' @&& ' 9' *' =* 4' 46 2 &' -' 1 045 &9' 0' ;0-53 4*3 0-' 05' 3=&' @0 >&9' -' ;*3 &' 3' 9' *' :& '';& H 3* -' 46 2*3 '&' =&' @& &9' *;' * @ 46 2*3 :&' G& 3=05& 05' ;0 8 80-' (6;G3=0 - ' =&5&' 2*3=& &1' @&H 50 &' 3=&'' * &' 4& ' 1' &' >00' 2 &&-' *-1' '& 0 > ["> =&-' 4& ' @ 6&"2 *'' @ 6&' *-1' 2 &&-' =&' @* G' 1' &9' '& 0 >' *-1' > 3=' 4 &4* *3 0-9' 05' 0-' @ *;G' =&' 5 0>& 9' * &' 4* 3 ;6 * ''2 *3&5 6' 30' @&&9' O*39' 1&:06' 3=&' &*:&9' :0 *;065 'F *-1' =&&4' > ' 3*3' 3=&8' =* ;0*' 4 &4* &1' 5 08' 3=&' >001' 9' 4 &5& &1' @'' 3=& 8 *G& 9' 05' 26-40>1&'

=&' @& &9' 05' 3=9' 54&;&9' *-1' * 5@' 05' 3=&' 0 -& ' * &' 5* 1' 30' @&' @ 062=3' 0' 8 * G&3' 50 ' 3=05& 05' (6;GH 3=0 -' =&'' * &;*5 ''1 53 -26 =&1' ' 3=&' 3 6& (6;GH 3=0 -' =*: -2' 506 '5&&19' 3=9' 3>0' F *-1' 3=&' ' 0-& -63' -;05 -2' 3>0' G& -& 9.]

F ?' =9' =*9 * 2& ' *-1' 062=&' &*:&9' 3' 2 0>9' -*36 * '' 0-' 3=&' 49' *-1' 03=&' 8 06-3*8 9' 05' 6 04&' & =*49' B F

' 9' 05' =6 8 @&' 2 0>3=' 5& 10 8' 5 -2' *@0:&' 3>0' 5&&3 = 2=' 3' 2 0>9' 0-' 3=&' ' &-&&9' ^ & =*49' B'

' 9' =& &' -3&-1&1

,' = 9' & ;8 @&9' 2 '" ' :& '' 8 6;=' @63' 9 * 2& ' =&' ;*' ?&9' * ;' : 05;' >=& &*9' -' 3=*3' 3=&" *;' 5 "-003=' =&' 4;3*0 1' 5;*&;39' *;' 5&5 ;'F -' 3=*3' 3=&'' =*:&' 53 0 ;' ;*>9' G

*3 :&' 05' 3=&')0 &9' >=& &' 3' >*9' 5 06-1' @'' 3' * -;9' *5 @-' *-1' -3 016;&1' @'' = 8' -' /EEC' 3' 5 0>& 9' -' 6 '

,L' *3 :&' 05' *1& *' *-1' 3=&' *-*' '' 5*-19' 06-1' @'' *5 @-' *-1' -3 016;&1' -' /EC#'

,+' = 9' 9' *5= 6@' @&;0& -2' 4' *' 8*-&-' *' 3 &&' (*-;=&9' 06-1' * 3& -*3&' 01" G&' 053&-' &; - -2'0' 54>A*1 -2';0:&&1' > 3=' *' 5 8 003=' @ 0>-' @' G' &*:&9' * 3& -*3&' @ 6-3' -& :&1' *-1' ;& -&1 7 -& :&9' *44 0? H 8 *3 -2/\ 4&3 0 &9' 06-1' 5 50 8' 0-2 '5 8 003=' &H 16-;&9' 5=0 3&' 3=*-'3=&' 4&3 0 &9' 06-1' 5 8 003=' 8 *-'" 5 0>& &1' 7 5 0>& 9' 4;1;& &1' 1 5405&1' -' *' 33 &' 6 8 @& ' >=3 5=" 2 &&-' =& &' * ;' *' 5&>' 8 -63&' 5;*&9' *3=& @* &' 05' 3=&' 6 8 @& 9' * '?' ;'63' 06-1' *3' 3=&' @*53' 7 5 @0 1& ' 5 :&"; &53' 1&; 16069' /\ 5&2 8 &-39' 0:*3&' 54 *1 *-1' 2' 3 2 8 *9 &' 3=' 3' &' 3= &&"4* 3&1' 30' 3=&' @*5&' 3 2 8 *9

@ 6-3' 6 3' 4 *;&1' *3' 3=&'@*5&' 05' 3=&' ;*' 3' 56@3 '" ;0;;069' 3= &&";; ;1 ';0:& &1' > 3=' *' F6 ;;&59' G F *-1' >=&-' 3=*3' @6 539' 1 :5@;' -30' 3=&& 4* 39' G& 3=05& 05' *' ;*456 ;' 04&- -2' > 3=-' *-1' *3' 3=&' 30 4' # > 3=' 8 &8@*-*;&069' 4* 3 3 0-9' && 19 50 3* *' 0@H 0-2' 5 *38&1' *' 33 &' 5 8 003=' @ *;G' =&' 5 6 3' >=&-' 4& *-1' > 3=063' 3=&' G-' @-2' ;63' 3 *-5:& 51'' *@0:&' 3=&' 8 11 &' *44&* 9' 30' @&' 3 ;*456 *' *-1' 5&?" :*:6 *

3' 9' :& '' -&* '' * &1' 30' 2 ' # ' @63' 3=*3' =*9' 3=&' @ *-;=;39' 4&3 0 &9' *-1' 4&16-;&9' 5& 62 -069" 0 8 &-305&' F 3=&' 53' &' 3=&&"5 1&1 ' 3 5 1' 0=" *3' 3=&' 3 04

-' *;;06-3' 05' 3=&' F6 ;&59' 5 6 3' *-1' 3=' ;*6 3&1' 4&3* 9' \ & 3 &' &5& 9' 3=9' 54&;&9' 30' 3=&' 2&-69' ' 0' @63' *3' 3=&' 5* 8 &' 3 8 &' =&' 3=-G9' 3=*3' * ' 3=&' ' 8 2=3' @&33&' @&' &8 0 :&1' -30' 3=9' 2&-69' -'3=&';0-3 * '' >* 3)' > ' -03' @'' *-' 8 &*-9' ;0-'" ;-3' 30' 3=9' 4 *-3' @& -2' ;0-5 1;&1' *9' *' 1 /\ 39' >=0 &' =*@3' @& -2' ;=*3' 05' B # ' *-1' 3=&' 5 6 3' 05' 50:;*' 03=&' 54&;&9' -3' 9' 2&-69' @& -2' 05' 3=&' 5* 8 & 53 63536 &' > 3=' 3=9

(0>-&' ;*9' 3' 5=6@@'' =* 8-69' >3=' @ 0;6 *' @& &9' @63' -' 3=&' 5 26 &' 3=&' 5 6 3' 5&& 8 9' 30' @&' 3 '" ;0;;069

*3 :&' 05' 3=&' 5 *-1' 05' *8 *;*' *-1' 3' (* 3=0H 0 8 &>' 6 3 :*3&1' -' /F#CL' @'' ' & ' 3' 5 0>& 9' -' *626 53

,#' *3 :&' 05' 3=&' *4&' 6 3 :*3&1' @&5 0 &' /EEP ' @'' 0@& 3' 1>*1' 0 1' &3 &.

,Q' 3&8' = 6@@' ' 06-1' 3&-' 5&&3' = 2=' >&*G' 1 8 H -2' @'' 3&-1 9' &*:&9' *3&-*3&' 0-' :& '' 53 0 ;' 4&H 3 0 &9' @ 6-3' > 3=' *' 8 -63& 40 -3' <6 3&' &-3 &' 5 8 003=' *@0:&' 50 8 &>=*3=*' ''6-1& -&*3=' *-' -;=' -' &-23=' &-1 9' 5 0 8' 3=&' 64&;&9' *?*' 9' 50 3*' ' 5 8 4 &' 3 H 46 &9' *3' 3=&' @*5&' 05' 3=&' @ *-;=;39' *>" =*4&1' ;*H 16;069' 3=&' &9' -' &-23=' 0>&9' 9' 6 8 @& ;1' *?*' ' *' ?' 0-&" &*5&1' =& @*;&069' 5 2=3' 46" @1&&-3' 0-' 3=&' 063 1&' 6@&' 36 @ -*3&' 3>0' -&9' 8'' 1 *8 &3&' (0 1&'5 :&"4* &1' F 5&2 8 &-39' 5 0 8' *' @ 0*1' @*5& 0:*3&' *;63&' 54 &*1 -2' :& '' 86;=' *' -&' -' &-23=' &3* 9' 5:&' -5&;&1' -30' 3=&' 8 * 2 -' 05' 3=&' &;&43*;&' @&3>&&-' 3=&' 5 &2 8 &-39' 05' 3=&' ;*' ?' >@ 3 =' @0*3" =*4&1' ;0-:0 63&' *3' 3=&' 5 1;9' -;05 -2' 3=&' 53*H 8 &-9' 1:& 2 -2' 5=0 3&' 3=*-' 3=&' ;*' ?' *8 &-39' 5:&' -5& 3&1' >3=-' 3=&' @*5& 05' 3=&' 4&3* 9' 5 50 8' -3=&' 9' 06-1 5=' 5 8 *' #' 8 8 &' 1' -*' 5-0>" >=3& &;&43*;&' 5 -2' 3=&' 36 @&' 05' 3=&';*' ?' 3' &' 3@ &;"5 1&1 ' 2 &&-' =0 3' 3 2 8 *' 3 5 1

3 :&' 05' 5 ;' >=& &' 3' >*9' 506-1' @'' *8 &9' (6;&' 5<' 3' >*9' -3 016;&1' -' /EE#' *-1' 5 0>& 9' -' -0:&8 @& U

,E' -' *44&* *-;&' 3=9' *44 0*;=&9' 30' 2 ' F @63' 3=&' &*:&9' *' &' 80 &' 00 &'' -& :&1' 80 &' -&33&1' *-1' 0-'' 5 8 003=' @63' -03' 53 -2' -' 3=*3U' 0-5' \ & 3 &' 5&39' 3' 10>-' *9' *' -*3 :&' 05' 0 3=' 8 &H ;*' /\ @63' -' 3=&' &>';*3* 026&' -0' 4 *;&' 05' 2 0>3=' 9' * 2-&1' 30' 3' =& &' G' 9' 5* 1' 30' 3=*:&' @&-' -3 016;&1' -' /EEC' @'' & ' &&' *-1' &--&1' /\ *-1' 30' 5 0>& ' -' 8 *'

,C' 6-G' 3&-' 0' 5 53&&-' 5&&3' = 2=' > 3=' *' 5 8 003=' @*G' (*-;=&9' 56@1 :1&1' 54 &*1 -2' "&*:&9' *3&H -*3&' *;68 -*3&' 6-&<6*' '' 5& *3&' -&:&1' 5 8 003=' 0-' @ 03=' 5 1&9' :& '' 5 -&" :&-&1' &3 0 &9' 06-1 5 ' 5 8 003=' &16-;&9' *?*' ' *' 3=&' &-23=' 05' 3=&' 4&H 3 0 &9' 5=0 3' 64 2=3' 8 *-'" 5 0>& &1/\ 5 0>& 9' 4&1 '" ;& ;1' 5 -*' 2 &&-' 0' ';0>5=' 3 46 &9' 58 *' ;*6 8 -*3&' *3' 3=&' @*5& 05' 3=&' 4&16-;&9' * '?' 0:*3&' *-1' ;63' 06-1' *3' 3=&' @*&' 4&8 *-&-3' 5 :&"1 &537' 5&2 H 8 &-39' *;63&' 54 &*1 -2' 3=;G =' 1&; 16069' ; 9' :& '' 8 -63&' 4 *;&1' @&3>&&-' 3=&' 1 :5 0-9' 05' 3=&' ;*' ?' 0-' ! ' =0 3' 4&1 ;&9' ;0-;*:&' *8 &-39' 5:&' 5=0 3&' 3=*-' 3=&' ;*' ?' -3=&9' 06-1 5=' 3=' &&";0 H -&&1' ;0:&&1' *3' 3=&' @*;G' @'' 3=&' 4&3* 9' 8' 06-1 5=' *3' 3=&' @033 08' 05' 3=&' ;*' ?' 3' &' 5=0 3&' 3=*-' 3=&' 53' 8 &-9' 3 5 1' 3 2 8 *9' @ 3=&' 3 2-6069' (& *' 54=&;*' 50 8 &3 8 &9' 3=&&"2 00:&1' *3' 3=&' 3 04' 3=&' 5);' 05' *' 58 *' 4&4 4&;" ;0-' 4 *;&1' 0-' 3=&;*' ?' 4& 6;1' 4*&' 2 &&-' ;0-3*-2' 5 0 8' 0-&' 30' 3=&&

S' 8 3=' ' 3=& -2' .' -2 ' =03' .' \ & 3 & ' 0-' G& >

.' & &' G& >' .' \ & 6 &

33@ 0-2'1 &&":0 8& &1' 5&&19 [*3 :&' 03' *8 *;*' -' 3=&' 8 0 &' 3&8 4& *3&' 4* 39' -' 8 06-3* -' ;04& ;&9 5 0>& -2' -' *62653' *-1' 4&- -2' 3=&' @& &9' -' ;H 30@&

,P' 0-3' \ & 1& ' -50 89' 69' 3=*3' =&' 0@3* -&1' 3= 9' 46 069' 4 *-3' *@0:&' 3&-' '&* 9' -;&' J*@063' /EECM' 5 0 8' 3=&' 5&&19' 05' 2 ' '? 3=*3' =&' 0@5& :&1' 3=& 8 03=& ' >=*3' >*9' *@50 6;& ''"5&8 *&' *-1' 5&4* *3&1' 5 0 8' *-" 8 * &' &:& '' '&* &1 3=*3' 2 ' >*9 ;& 3* - '' 3=& 5*3=& ﾊ *-1' 3=*3' 5&&19' 0>-' *@6-1*-3 '' -' 50 8 &' 4 0: -;&9' 05' *-;&' ;0-53*-3 '' 4 016;&1' 3= 9 46 069' 4 *-3' > 3=063' &:& ' :* ' -2' 3' =*9 50 '*;'' 3= -2' 5 0 8' @03=' 4* &-39ﾊ *9' 3=& @' 05' 3=&' 8 03=& '&ﾊ 3=& &*:&9' @&3>&&-' @03=' @63' -' 56@53*-;&' *44 0*;:= -2' 8 0 &' 30' ' *-1' * 8 053' 4& &-- *ﾊ *-1' 3=& *-1 02@ -06@ 5 0>& 9' 05' 3=&' 5*3=& ' -0 '1 0&;069' *@ -' 3=&' 8 03=&

LK' 3&8' 5= @@'' 06-1' :& '' &:&-' 5 8 003=' 5= - -2' @ *-;=&1' & 2=3' 5&&3 0-2' 4 0;6 8 @&-3ﾊ > 3=' 8 *-'' 5;*33& &1' 50 3* '' 535* 2=3' 5=0 3' 4 ;G &9' &*:&9' -03;=&1' *' 33 &' 5 *3' 5 8 *' 8 003=' * 3& -*3& ' 53 &*G&1' > 3=' 8 *-' 0@ <6& 4* &' -&9' 0>& 9' >= 3& ' 8 -63& ' 0-' 8 *-''5 0>& &1' 56@3& 8 -*3 -2' 4& H 16-;&9' *'7' 5 :&"3003=&1' :& ''5 8 * ' 0 0 *' -H 5& 0 7 4&3* 9' 3& -' *-;&0 *3& ' &<6* ' 64 2=3ﾊ 3=&' 5 :& ' - -& ' 0-&9' & 8 @ *;-2' 3=&' 53* 8 &-9' *8 &-39' 5 :& ' *> " =*4&1 ' 3=&' &-23=' 05' 3=&' ;0 0 *ﾊ > 3=' -011 -2' *-3=& 9' & 8' 0:*3& ' 622&1' 3' &' 5 0 8' &<6*' 30' 3=&' J * 8 &-9' 3 2 8 *' 3= ;G =' ;0-;*:&' 6 3' J*' R 64&H' 5 8 *' 0@ 0-2"0:*3& ' 622&1' &1ﾊ ;0-3* - -2' *-' 0@ 0-2' 3>0"2 00:&1' 3>0";& &1' -63U [06 & 0' >06 1' 2 :&' 3=&' f \&;5 ;' 1 55& &-;&' 3=69' 4 ;G &9' 50 H 3* '' 53 * 2=3ﾊ &*:&9' 0:*3& ' 0@ <6& '' 8 * G&1' > 3=' -&9ﾊ 4&16-;&9' 8 *-''5 0>& &1

(6 **-' =*9' 2 :&-' *' 5 26 &' 05' 3' 5 0 8' & 8 *-I9 54&; 8 &-ﾊ >= ;=' =*9 *5 &-1& ' 5 &? &' 56@= 563;' @ *-;=&9' 4633 -2' 50 3=' 58 * &' @ *-;= ;39' * 3& -*3& ''ﾊ 3=&5&' *33& ' * &' 5 8 4 &' *-1' =*:&' &*:&9' 0-' &*;=' 5 1& ' >= ;=' * &' * 3& -* &' 5 8 003=' 0:*3& ' =* 5' *-' -;=' 0-2' <6 3& &-3 &' =*: -2' 0440 5 3& :& -9' *-1' 0-' 4&3 0 &9' *' -&' -' &-23=7 *3' 3=& @*5& 05' &*;=' &*5' 9' *' 2 1' 4 ;G '' 5; &' 0>& 9' *? * '' 50 3* '' @*'';OH 06 &1' 506 "4&3* &1' 0-' 4&16-;&9' -0' 0-2& '3=*-'3=& 4&3 0 &9' (& ''@ *;G' 3= &&' -&9' -'1 * 8 &3&

@&;G' 5*'9' 3=*3' 3' 053&-' 2 0>9' 30' 3=&' =& 2=3' 05' *3-*-' *-1' 9' &8 * G*@&' 50' 39' 5 8 *' *-1' @&*63 56' &*:&9' 05' *' '& 0>"2 &&-' ;0 06' @&-&*3=' > 3=' &1' :& -9' =&' *-3 & 9' * &' @ *;G' =&-'=&' 5 53' 5*>' 3' -' =-*' =&' 56440 5&1' 3=*3' 3' =*1' &5;*4 &1' 3=&' 03 ;&' 05' 4 &;&1 -2' @03*-539 [*3 :&' 05' =-*' 0;= -;-*' *-1' &' 0-

L/' =&' *3& -69' 9' *5= 6@' > 3=' * 3& -*3& ' = - -2' &:& 2 &&-' &*:&9' 0:*3& ' 0:*3&" *-;&0 *3& ' 0 ' *-;&0 *3& ' 053&-' 2 *-16 *' *3' 3=&' @*5&' =*: -2' &8 03&' 5& *36 ;9' *@063' 3=&' &1 2&' 0>& 9' 58 * ' -68 & 069' *? * '' -' =0 3' @ 6-3' *;&8 &9' =& &' 9' *:& ''58 * ' @ *5@&' *3' 3=&' @*5&' 05' &*;=' 4&1 ;& ' 0>& 9' 8 * &' *-1' 5& 8 * &' 0 ' 8 4& 5&5' =&8 *4= 01 3&9' 0-' 3=&' 5* 8 &' 0 ' 1 55& &-3' -1 : 16* 9' =&' ;* '?' -' @03=' 50 39' 5 :&"; &53' > 3=' 3=&' &2 8 &-39' 0:*3& ' 4 ;*1 -2' 053&-' @&-3' 0 1 55& &-3' 0>' o' @ 0>- 5 ' 0 0 *' -0-&' -' 3=&' 8 * &' 5 0>& 9' 5 :&' 64 2=3' 53* 8 &-9' * 3& -*3&' > 3=' 3=&' 5& 2 -&-39' 05' 3=&' ;* '?7 -' 3=&' 03=& 9' 3=&' 61 8 &-39' 05' 5 :&' 53*'' 8 &-9' ﾊ 3=&' 53' &' 3= &;"4* 3&1' # 3=&' @& ''58 * ' 06-1' 5 0 8' &1' 36 - -2' @ *;G 5=' >=& ' 4&' =*: -2' 3>0' 0' 3= &&' 5&&19' ;0-:&' 7 0-' 0-&' 5 1&' *-26 * '0-' 3=&' 03=& ;=' 0@5& :&9' 3=*3' 3=&' *3& -69' 9' -1&' 4& *'' 5& 53 '' 1 0&;069ﾊ @63' 3=*3' -' 50 8 &' 5= 6@9' *05' 05' 3=& 5 0>& 9' =*:&' 4& 5&5' 53* 8 &-9' > 3=' *' -2' &' 8 4& 5&;' 53' &' ﾊ =*: -2' =0>&:& ' *' :& '' 5&>' 5 0>& 9' 8 ?&1' > 3=' 3=& 8 ' >=;=*3' 3=&' @03 0 8' 05' 3=&' ;* '?' =*:&' -' 0:*3&'' 3= &&";0 -& &1' 2& 8 ' > 3=' *' 5& 8 3 5 1' 53' & ' 3> ;&' 3=& &-23=' 05' 3=&' 53* 8 &-9' -' 03=& ' =6@9' 8 05' 05' 3=& 5 0>& 9' =*:&' 53* 8 &-9' *-1' *' ; 5 1' 0' :& '' * &'' * 6*1 5 1' 53' & ' > 3=' *' :& '' 5&>' 5 0>& 9' 8 ?&1' > 3=' 3=& 8 ' =*: -2' *' -2' & 8 4& 5&5' 53' & [=6@9' 8 4 &2H -*3 0-' 9 5 &<6&-3 '';* &1' 0-' 4 *-39' 5 440 ;1' 30' @& 1 0&;069' >=&-' 0-&' 05' 3=&' 5&?&9' 9' 4 &56 8 &1' 30' @& *@5&-3ﾊ *-1' 0-' 3=9' 506-1*3 0-' *3&' 50 8 &' 05' 3=&' @& 3' 0@&13 0-9' 30' 3=&' &?6* '5'53& 8' 56440 3&1

*3 :&' 03' 3=&' 063=' 05' 6 04&' *-1' 05' (* @* '' =&' 5 &5=' @ *-;=&9' 0 ' 06-2' 53 0039' > 3=' 3=&' &*:&9' > ' 1' &' >00' *' 5 -&' &' 0>' =&' =0-&'"@ *3=-2' @ 0550 8 9' 5*'9' ' :& ' -' *550 1' *-' &* ''*-1' 8* ' :& 069' & &5' 30' 3=&' @&&9' =&' ;0 8 &' 063' -' *4 G = 9' 2&-3 & 8 *-' -50 89' 69' 3=*3' =&' >*9' 3=&' 5 53' >=0' @ 062=3' 3=&' *-;&' 0 ' 06-2' 53 0039' > 3=' 3=&' &*:&9' 3= 9' G -210 8 ' *-1' 3=*3' =&' =*1 4 04*2*3&1' 3' 5 0 8' 0 -> *' 30' 6 8 @& *-1

= 9' @0*53' 05' ' :& ' -I9 8 653' @&' 6-1& 53001' 05' = 9' @ -2 -2' 3= 9' 5 6@ -30' 2&-& *' 658' 7 50 ' *-1-50-' -' /Q ,P' =*1' 5* 1' 3=*3' >&' =*:&' 2 0> -2' 06' ;06-3 '' 3=&' 3 &&' * &1' ' 3' >*9 =0>&:& ' 3=&-' * &' 50 ' G -50' *' 1' 3=&' @&*63' *-1' &" a' 16 &' 05' 3=&' &*:&9' *@ 1 -2' 50' 5 &5 ﾊ * ' 3=&' '&* ' a' 103=' ;*65;' 3' 30' @&' 05' 3=&' 2 &*3& ' &54&1 ' *-1' 3=& ;'' a' ﾊ ' 5 -1&3=' 4 *;&' -' 3=& ' 2* 1& -9' OF ' ' 3=*3' * ;' U' ;6 069' ;0-5& :& 9' 05' * ' -*36 &!9' @&*63 &9 b' &' ;* 9' 3' ! ' ! ' >=;=' -* 8 &' 9' -0>' 053' -' 3=&' *3 -' 0-&7 [& * 1;' 5* '9' 3' 9 *' 53 *-2& ' -' -2H *-1' ﾊ *-1' 0=-50-' J -' /QLLW' 1068' 03' ;0-3 *1 13'

65 69' &40 39' 3=*3' 3=&' 5 =& 8 &-' -' 0 362* '1' &' 3=& ' -&39' &1' > 3=' *' 1';;015 0-' 05' 3=&' @* G&' *-1' 3=*3' 1' &' 9' 3=& &' 65&' 5 8 * ' 4 &;&9' 05' 3=&' >001' 30' 5 G;' *' @ *;G 5 ' @&' ;0 06]

' & ' 8 *G&9' 506' 54 ;; &9' 05' ' *-1' =*9' 5 26 &1' 3>0' -' = 9' 4 *3&9' =&53' * &' 3=&' 0-' '' :*H &3 &9' >0 3=' ;0-5-1& -2' =&' 5 53' J*W' =*9' *' :* &3'' > 3=' :* &2*3&1' &*:&9' ;0 8 0-'' ;* &1' @ 0*3;=;1' = ' &*' @'' 3=&' -6 53 ''"5* 8 *' -1' 3=&' 3= 1' J?W' =*9 3=&' &*:&9' 53 4&1' > 3=' > ;&' *-1' > 3=' '& 0>' ;* &1' 5 :& ' *-1' 20 1"53 4;1' *3& -69

,P' =*9 3=&' &*:&9' 8 6;=' 0-2& ' *-1' -* 0>& ' *-1' 3=&5 3 *36 &9' 0-' 3=&' &1 2&9' 8 6;=' 1&&4& 7 3=' 9' N 39' @ *-;=&9' 8 0 &' &;`3' 5* 8 9' *-' =*-150 8 &' @6 =' *-1' 9 &<6* ''=* 1'

!=&' = ' &*' 9' 50 8 &3 *&9' ;0-506-1&1' > 3=' 3=&' *3& -69' @'' 56;=' *9 * &' -0 3' @03*-539ﾊ @63' 3=&'' 8 *' &* ''@&' 1 53 -26 5=&1' @'' 3=&' 405 3 0-2' &*:&9' >= ;=' * &' * 3& -*3&' -' 9' @63' 4 *;&1' 04405 3&' @'' 4* 9' -' 3 *3

=&' *3& -69' >*9' 8 6;=' 8 0 &' -' &<6&53' 50 8 &' '' 3=*-' 3' 9' *3' 4 &5&-3ﾊ =*:-2' @&&-' 4 *-3&1' *2* -53' >* 9' -' ;06 3''' * 19' 30' ;0:&' 3=&8 * 9' * 50' 30' 50 8' &:& H 2 &&-' =&12&9' -' 2* 1&-9ﾊ 50 ' >=;=' 46 405;' 3' 9' :& '' 8 4 04& ' 50 ' 3=&' @ *-;=&9' 5 003' :& '' : 20 065 ' ' *-1' @&-2' 4 *-3 * ;' 5 &<6&-3 '' 1 54 *;&1' @'' 3=&' > -1' \ -' > -3& ' >=&-' 8 6;=' 5-0>' 5* 9' -' 53 ' >&*3=&' 3=&' >& 2=3' 05' 3' 053&-' @ &*G9' 3=&' @ *-;=&9ﾊ 3=&53' =&12&9' * 50' 8 653' @&' ; 44&1' 3=& &&' 3 8 &9' -' *' 5;*50-' 30' G&&4' 3=&8' -' 0 1& ' :I=;=' 9' @03=' &?4;-5 :&' *-1' 0;=*5 0-9' *' 2 &*3' 33&' -' *' 2* 1&-

^ = 9' 5= 6@' 9' 53 ' 0 8 &3 8 &9' 653 1' -' 30>-9' 50' ;0-H ;&* -2' > * 9ﾊ @63' ;= &5 '' 30' 8 *G&' *' :* &3'' -' 0 -*H 8 &-3*' 4 *-3*3 0-9

L, ' 3*36 &' 05' 3=&' 8' 0' 0 -@&* 8 ﾊ *-1' 3' 8 *' 4& =*49' @&' 05' 3=&' 5* 8 &' 2&-69' > 3=' 3=&' *33& ' 0039' =0)0-3* ' 1 556531' 6-G' 53 * 2=3' :& '' 86;=' @ *-;=&1' *-1' 50 8 -2' *' G -1' 05' @65=' > 3=' 3=&' @ *-;=&9' &?3&-1 -2' 5 &<6&-3 '' 30' 3>&-3'' 4*;&9' *-1' 30' *' ;0-5 1;' *@ &' =& 2=3ﾊ 3>0' 5*3=08 9' -' ; ;6 8 5& &-;&' =&' >001' >= 3&' *-1' @ 33 &ﾊ 3=&' @*' G' @ 0>-' &-3 &' ;0:& &1' > 3=' *' >= 3 5 "2 *'' 5G -' (*-;=&9' *-1' @ *-;= &;'9' 5 &-1& ' 54 &*1 -2' &*:&9' *3& -*3&' 53 55 =' 0-' :& '' 5 0 ;' 4&3 0 &9' 5 8 *' 5=' 54 &*' -2' 0:*3&' *;63&' 3=&' -3& 53 ;;'9' @&3>&&-' 3=&' -03;=&9' 06-1&1' 1 65G" 2 &&-' *@0=&1' *-' 3=&' -&33&1' 6-1& H -&*3=' -' 3= ;G&39' 622&1' :& '' 5 8 003=' -' = 2=&' 5 36*3 0-9' 6 3' *3' 3=&' &-19' 05' 3=&' @ *-;=&39' *? H * '' 5&551&' 50 3* '' -*G&1' 1 '' 3>0";& ;1' 2 0H @6 * "*;63&' 8 0 &' 2 @@06 9' 0-' 0-&' 5 1&

=&' 2&-69' 05' 3=' 9' 3 &&' 9' &3' 6-;& 3* -' 3=&' 5 0>& 9' -03' =*:-2' @&&-' 0@5& :&1' -0' 3=&' 5 6 3' -' *' 4&' 53 3&' @'' *-' @03*-53' 8 &-9' *-1' *' ; 5 1' 0' :& '' * &'' * [=3' &' 05' @ *-;=&9' 2* - 5 &1' > 3=' 0:*' &*:3*9 4 *;&1' * 3& -*3& ' 53*-1 -2' 640-' 5003"53* G9' -&* ' 0-&' -;=' 0-2 &' 3=&5&' =*:&' 3=' &&' 0-2 361 -*' ;& -9' *-1' * &' 05' *' 4* &' 2 &&-' =&' 5 0>& 9' ;0 8 &' 06 3' *3=&

-2ϑ 05' 3=&' 53* G' -' ; - 53&"! * 8 0 '3c &' ;-23=' 05' 3=&' 0 82 @ *-;=&9J 3=&'' B &0=' *' 2 ';&- =' '& 0>';0 06 ' -1' *44&*' -' 6-&' *-1' * &' 5*;;&&1&1' @'' @ 0*1 ' 0 -11@' @6;G & "5 *4&1' J@&1"*& ; 9' >=;=' =*:&' 0 13 9 G& 3=&' @ 8 9 05' * =* ' 3=& 5003"53* G9 @& -2' *53;-&1' 30' 3=&' 8 11 &'F ; & @' =*:&' 3= && ' ;& 9' &*';=' 30-3 6 -2' 0-&5&1

^ 0 8' 3=ϑ 5 -26 * ' *44&* *-;&' 05' 3=&' 5 6 3' G&' =' =&*1' > 3=' =' @ 0*1' @ 8 8 &1' =*3' 0OF 3=& &-;=';* ' 3' ; 5

;;0 1 -2' 30' * *9' 3' ϑ =' @6 ='' 3 &&' 05' 3=&' 5*8 &' 3*;65;' > 3=' # '% % ' :5; '' 8 6;=' @ *-;=&1' 5 0 8' 7=& @0330 8' (*-;=&9' 06-1' 54 &*1 -2' 3062=' @ 0>-' * 3& -*3 & '' 56@1 : 1&1F .> 3=' 582 &' 0 '106@ & 4 ;G &9' &;6 :&1' *-1' :& '' =*54' *3' &*';=' 1 :5 0-' *-1' @6 1' &*:&9' * 3& -*3& 4&3 0 &1' 06-1&1' 0:*3& I' 6-&<6*' *3' 3=&' @*5&' 3=& &&"-& :&1' :& '' 0@5&6 & *5& "'

*3& 0F" &-3 &' 5 8 003=' *;& 8 &9' @'' 3=&' 5 1&' 05' 3=& 4&3 0 &9' *? * '' =0 3' ;0 ' 8 @&1F 1 :* ;*3 -2';0 8 '" 405&1' 05' 5 0 8' & 2=3' 30' 3= 3'' 5 0>& 9' 0-&' 0 ' 3>0' 0-' 05' >=;=' * &' 5& 3 &' * '?' 0-&" 5&1' 5 *3' 5 :&" ; &53' > 3=' *-;&0 *3&' '& 0>' 5&2 8 & 8 9' =& &' ϑ *' -&;3* 5& 06ϑ ; 0>-' @&3>&&-' 3=&' ;* '?' *-1' 3=&' 2& 8' >=;=' ϑ 56@5 -6*3&' *-1' 5 :&' 4;3* 0 1' @01 &9 @;3 :&&-' 3=&' 53* 8 &-9' *-1' 3=&' 5&2 8 &-39' 05' 3=&' ;* '?' 3* 8 &-9' 5 :&' @&-3' @*;G' > 3=' 0@ 0-2' *-3=& 9' & 8' 1&*' 4 & &1' > 3=' 3=' &&' :& ''5 0 3' 53' &9' 3& 8 -*3&1' @'' J &5 &!&1' 53 28*9' =&' 5 6 3' 54 -2ϑ 5 0 8' 3=&' *62H 8 &-3&1' ; 0>-' 05' 3=&' 2& 8' *-1' ϑ 1 5&0 1' 4& 3*3&' ;0 3 ;05&' >=&-' 4&7 3' ;0-3*-ϑ 0-&' @0-'' 0 @ ;6 * ' 5&&1' 5 *3' *@0:&' *-1' ;0-;*' @&-&*3=

R&950-3* -&9' 1&5& @&9' 3' *9 *' :& '' @ *-;=-2' 5= 6@' F 3=&' @ *-;=&9 3> 53&1' *-1' &; --2' ;G &9' -1* 9' 0-&' 5=0 3& ' 3=*-' 3=&'' 03=&' *-1' &;6 :&1' &*:&9' ;0 1*3&"0:*3&' 3 &&"-& :&1' 5& *3& ' 5 8 00 3=' G&' 9' '& 0>' -6 8& 069' *22 &2*3&' *? * ' g' 0-' '' =0 3 5 H 50 8' 4&1 ;&9' &3* 9' @*22&1' 8 -63&' 4 &*1 -2' *-1' @&-3 10>-' 3* 8 &-9' -; 05&1' -' 3=&' 4&3* 9' 6 3' *' F6 ;& &59' 1 64&' ; 0>-&1' > ' *' 8 &8 @ *-*;&069' > 1&' >*:&1' =0)0-3*' 4& 8 *-&-3 8* 2-g' 3=& &*' ;& &1' > 3=' 0 Y&' 56@0:*3&' ;0 8 4 &55&1' 5&&1' -' &*';=' ;&

;=' &8* G9F 3=*3' 3=&' 5&2 8 &-39' 05' 3=&' ;* '?' 5;* & ;39' 0' 4&3* 9' *-1' 53* 8 &-9' * ;' ;0 8 80&- '' 5 :&' @6 3' 3=*3' -&:& 3=1&59' 5; 3& 5 0>& 9' =*:&' 0- '' 506 ϑ 3=& &' * &' =0>&:& ' * >*' 9' 3= &&' 53' G9

3 :&' 05' 3=&' 063=' 05' 6 04&' 3=&' &:-3' *6"' ;*56ϑ *-1' (* @*']

= 9' 9 @'' 8*-' *4& 50-9' 56 44 05&1' 30' @&' 3=& 4 83' 550 8' >=;=' 3=& ; 0>-' 05' 3=0 -9' >-;=' >*9' 463' 640-' 3=&' =&*1' 05' 06' *: 06 ' >*9' ;0 8 405&1 g' 3=& 3 63=05' >=;=' 9' 56440 3&1' @'' 8*-' 3 *:& & 9' 05' ; &1 3' >=0' *55 8' 3=*3 1 9' 9' 0-&' 05' 3=& 8 05 3' ;0 8 80-' 6@@ -' 3=&' ;06-3 '' 05' 6 1 9*ϑ *-1 U5 0 8' 3=&' 4 *@ & &59' 05' 39' @ *-;=&9' >=;=' 8*'';*D " @&' > 062=3' -30' *-' 5 26 & ' 3' 8 *'' 550 1' *' 4 0@*ϑ 3'

^ *55& <6 53' 9 05' 04 - 0-' 3=*3' 3' >*9' *3=& ' *-03=& ' 54&; &9' J-' + , Mg' ;* &1'3=& &50 &' @' 3- -&6ϑ 2 # ' ' 0 0' @6 3' *' 801& -' 2=3' &:& &-1' 08 H 8 &-3*30' -; -&9' 30' 3=-G' 3=*3' 3=&' ; 0>-' >*9' -03 05' 3=0 -9' @6 3' 05' 3=& 505& ;*-3=69' 0' (; % M =& 5=06 1' =*:&' 5* 1' (; ' 50' 3=&' (&* % "5003' 9 3=& & &@0 &' ' 8 653' 0>-' 3=*3' =' 9 &*50- -2' ; @;9 -03' *44&*' 30' 8&; 0 8 *G& 063' 9' 40 -3

L+' =&' 3 6& 036ϑ 05' 3=&' 0304=*2' Z' =' 3 @ *-;=-2' = 6@' 3=&' @ *-;=&9 * &' &; --2' *-1' 5 1;" 605&' ;G &9' -1 4* 9' *3' 3=& 2 -' 05' 3=&' &*:&9' 0-&' 53 *32=3' 3=&' 03=&' 5 0 3& ' *-1' @&-3' -' &*:&9' * 3& -*3&' 5 8 * ' @ 6-3' 3=&&"-& :&1' 5 8 003=' 3@ 8 &'' >=*3 2 1' 0-' :& '' 500 3' 4&3 0 &9' 0>&-' 50 3*' 0' 2 0 8 & *3&g' *? * ''&*;=' 0-' *' =0 3' 4&1 ;& ' *' 5 :&" 4 &8 ' 3&1g' 5&2 8 &-39' 5 8 * ' 0:*3&' 54 &*1 -2' * 3& H -*3&' > 3=' 3=&' 4&3* 9g' >=;=' * &' 5 :&' -' -6 8 @& ' 8 H -63&' =* 5"56 - -&"50 8 ' 3* 8 &-9' 5 :&' 04 405 3&' 30' 3=&' 4&3* 9' 3' &9' 3>0' =0 3' *44 0?- *1-2' 6 3' *' 54=& ;*' 1 64&' 3=&' 5)&' 05' *' > 1' 4 6 8 ' &&3' *-1' =* 8 19g' -; -2' *' 58 * ' 06-1' @0-'' 3>0";& &1 -6; &69' 5 53' 2 &&-' @6 3' >=&-' 4&' 3 -2&1' > 3=' 5*553 0-' ;0 06 .

* &' 06-1g 3=*3' 0-&' @5 3=&' 4 ;G &9' 9' =0)0-3*' g' 3=&' 03=&' &;6 :&1' *9 -' =' *-1' 3=*3' 3=&' &*:&9 *;' *9 -' I)M4=69' > 3=' &54&53' 30' 50 8' -& :&9' 5 8 003=' -&59' *-1' 5)&' 0- '' 3=&' &12&' 9 O@50 ;& '' *-1' :& '' 3= - '' & 5&-*3&

&<6&-3' 0-' 3=&' @*-G97 05' 3=&'' &55&' ' 3 9' -&*' *55*' 0))&' ; :' W ; ' 5 0>& -2' &*'' -' 3=& 54 -2' *-1' 4&- -2' 3=& 5 6 3' -' *636 8 - ' ' 3M ' =*>' 506-1' G' 0-2' @&50 &' 0-5' R&950-3* -&9' -' 3=' 9 ;06-3 '%' >=;=' @0 1& 9' 0-' 3=*3' 05''3=&' 0304=*2 ' * G' 1 5&0:& &1' 3' 30>* 19' 3=&' 2& ' *-1' &-&2*' :& 9g *-1' ' (0>-&' -' R* '' 00 7' 50' 3=*3' >&' =*:&' 3' *3' 3=&' &*53&-' *9 >& ' *9' 3=& >&53&-' &?3 & 8 3'' 05' 3=&' 5 ;*-' 1&5& 3^ *-1' 3' *44&* 9' 3=*3' 3' 9' 1 55&*' 8 -*3&1 0:&' 3=&' &12&' 05' 3=&' 2 &*3 R&5& 3' 5 0 8' ^3=&' ;0*53' 05' ' &-&' 06-1' @'' 40 ''*-1' 5 ;*' 4 04& ' 30' 3=&' @0-1& 9' 05' 3=&' 3*-3 ;' 3=&' &-&2*' *-1' 3=& 2& ' *F0 ' &-&' 5*>' 3=&' *5* 8& G -1' 05' 5= 6@' *-1' 5 6 3' 0 '>=*3' 9' &?;&&1-2 '' G&'' 3' -' (&-2*' g >=&' 3' 9 ;* &1' (' *-1' 0-' 3=&' :& '' @*-G9 05' 3=& *-2&9' -'1 M' 5 36*3 0-9^ =&' 4&04 &' &*3' 3=&8' 3=&3 ' *9 >5;' 8 *'' 5 0&9 0' > 1' @& &9

-'' 1&5& @&9' 3>0' 50 39' 05' ?M3Y 9g' 50& 0-&' 50 =1' *3' 3=&' 3 9' *-1' *8 0-2' 3=&' *5* =0-;9g W ;&' >=;=' 9' 3= 9g 3=&' 03=&' -' 2'43'*'>=;=' 9' # ' -' =&' 50 8 &' =&' 5*'9' 5 0 8' 0-& 69' g' 3=& 5 6 3' 05' *' 3 &&' -' 5)&' 0 1 -* '' *9' @ 2*9' *' @&*-' 05' *' '& 0>';0 06 ' 5>&&3' *-1' 4 &*5*-3' 30' 3=&' 53&' =&' 5 6 3' >*9' @ 6 &1' 8*1&' -30' *' G -1' 05' 4*53&' *-1' 3=&-' 530 &1' 64' 50 ' 5001 f ' 50 3' 05' > -&' >*9' * 50' 8*1&' 5 0 8' 3' &5&8 @ -2' 8&*1g' @6 3' >06 1' -03' G&&4' 8 *-' 1*'9' -'' *119' 3=*3' * 8 &9' -' 8*;=-2' 3= 062=' 3=*3' 4*3' 05' 5 ;*' =*:&' 5 @5 53&1' 0-' 3=&' 0369' &=*4 9' 3=' 9 8*'' &5& 30' 3=&' * 8 ''05' (*@6 F >\=;=' -'' -50 8 9' &' =*1' 4&-&3 *3&1' 30' *1*8 9' *-1' &) *-

0 '@ 69' >=0' =*1' = 8 5& 5'5&&53''3=&' 0369' @& -2' 8 8 4 0' &1' '5*' ; 4 0' 5 ;* 8 9' 50& ' 06-2& ' -' &?H 4 0 -2' 3=&;0*539' 05' 5 ;*''*5*'9' 3=*3' 3' ' 3=&'% ' 05' *5= 6@' =;=' 9 062=''*-1 U* 8 &1' >3=' 4 ;G &9' *-1' -' 50 *2&' &5& 8 @ &9 3=&' =*5- -69 g' 3=*3' >=&-' 4& 3' =*9 3=&' 5)&' 05' ' '6-1' 0 :&g =*9 *' 46 4 &' 3 -2&' *-1' ;0-3*-9' *' =* 1' 530-&H 3=*3 @& -2''4 6-1&1' 3' 9 D* 1' @'' 50 ' 5&g *-1' 3=*3' 539' 5 * 035 ''44 0:*=&9' 30' 3=*3' 05' 5 2 9 0 '1*;&9' 5 -* '' 3=*3' *' G -1' %' > -&' 9 8 *1& 05' 3' 9' &?4 &55 @-' *-1' 1 63&1' 3= *3&g' 3=*3' 3' *550 1 9' *' 2001' @&:& *2&' @63 '-03' G&&4' 80 &' 3=*-' ;&-"1*'9' 5 .

5' 801& -' 33*:& & 9g' R ' =*> *'935 *3' 3=&' 5 6 3' 9 -56 0-' -' 3=&' 1;5&3 W' *-1' 03=& '4*&9' 05' (*@*' 9 53 -' 2 &*3 &463&' -1' 50 1' -' 3=&' 8 *G&39' *' 0:& ' 3=&' 5 0 6 3=&' 3 -' 1 53 539' 05' 5 0 05&' G -210 8 9' 0-5' R&9H 50-3*-&9' & *3&9' 3=*3' 3' 9 54 &*1' :& ' 3=&' 5 0 6 3=&-' 4* 39 05' 3=&' G -210 8' 5' 6-9' 0-' 3=&' @0 1& 9' 05' 3=&' R&5& 3' *-1' -' 50 &' &-:0-9' 05 3=&' &55&' ' 5 9g' 3=*3' 3=&' 5 6 3' 9' 50 1" -' 3=&' 50 *' G&39' 3=&' ' @*33 &' 5&1' > 3=' 3' *-1' *' <60' 1 *>-' 5 0 8' 3' G9 =& &3050 &

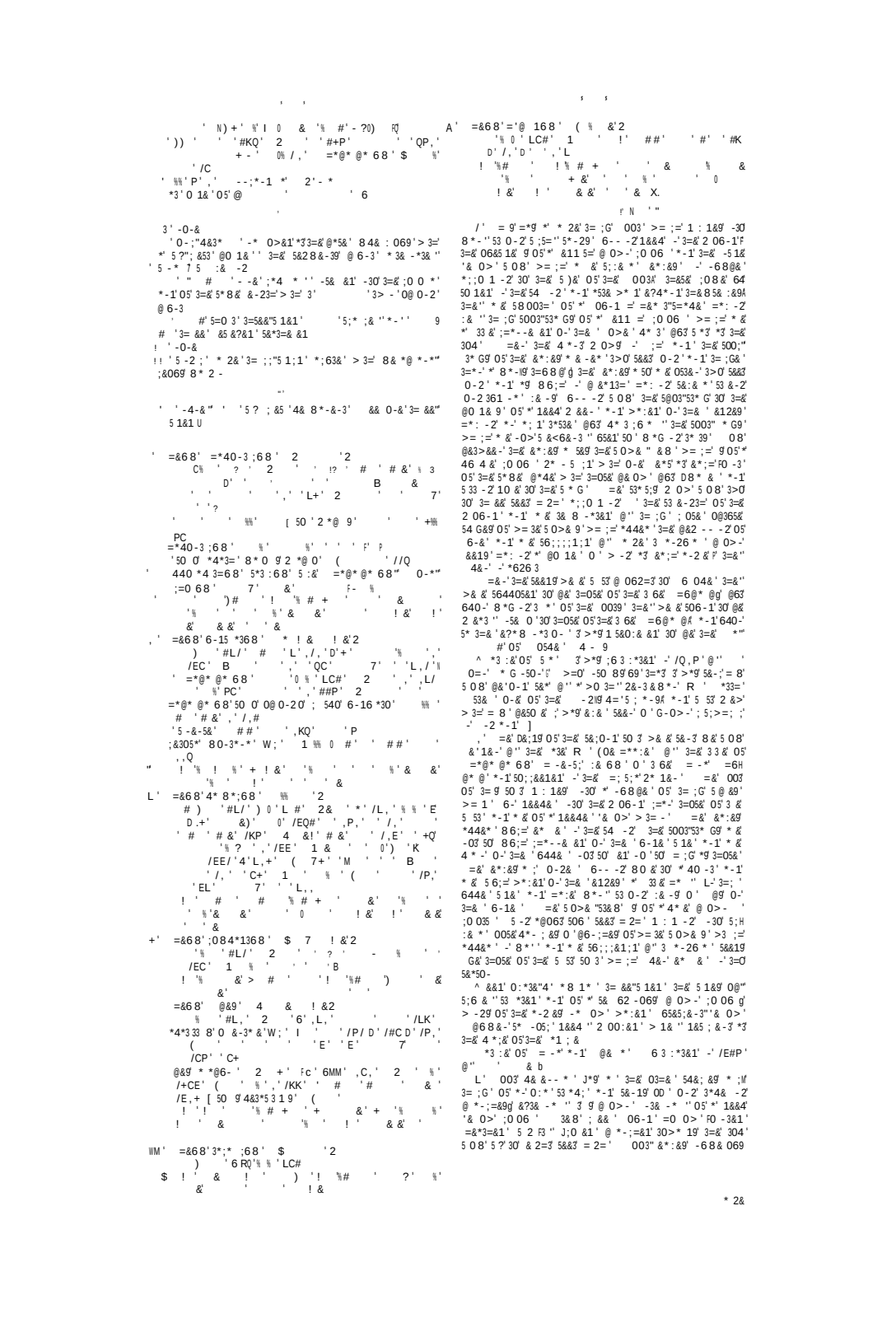
0-5' *62-&' >=0' >*9 5=4 & G&1' 0-' 3=&@*55 3' 05' 5 ;*' -' *-1' >*9' ;* &1' ;*43 :&' * 0-2' 3=& >&53&-' @0 1& 05' 3=&' *=*' 30' 0 0:;0g' 5*' 9' 3=*3 @&3>&&-' 3=&' *4&9' (0*'10 1' 501 6-' 3=&' 4&04 &' >3=' = 8 ' &*3 05' -03=-2' 16 53Z' 3=&' 1*''3 8 &' 3=*3' 9' 0-' 3=&' >*'' @6 3' *' 5 8 * ;=5 55 0-' >=0' >*9 '"@063' 50& 8 11 &' 0 '&-1' 05' 8 *;=5 50 63=' 05' 3=&' &@*55 3' -' G&' 8*--&' ; 5&1*;05 9' 3=&' 4&5& 3' 16 -2' 3=& *33&"4*3' 05' 3=5&"5 8 8 &' *-1' =*3 8 g' 0-' '' &8* G 9' *@6-1*-;&' 05' 4 ;G ''5=6 9g' 4 0@*5& '50& 5*8 &' *53&' 3=&' 5&*50-' 05' 5 6 3' ' * G' 8 &-3 0-9' 5&@ 6*'' *-1' 8 *;=*' *9' 50@' 53*50=' 0-' 3=&' 5063=' 05' 3=& R&5& 3g' 0-5' R&950-3* -&9' 5*' 9' *6263 5*-1' 5343 &8 @&' 30' 3=&' -0 3=' 05' 3=& R&5& 3g' =1' (0>-&' 3=&8' 30' *50 3' 3=*3' 5 6 3' &8* 9' 1 '' 0=' 3=&' 3 &&' 2 &*3' 4 3' 05' 50&' >-3& ' 8 0-3=9 "

' * G' 1&5& @&9' 3=&' 5 6 3' *9' 5 8 * ' 5* -*;&06 9' @& &9' 05' *' '& 0>';0 06 ' *-1' 1& ; 06 9' 3*53&' =&' -*3 :&9' =&' 5*'9" ;0-:& 3' 3=&8' 30' *50 3' 05' @ &*1' @'' & ! 405 =' Z' 3=&8' 5& 8 &' 1*' 9' 30' 3=&' 56-' *-1' *53& H >* 19' 406-1 -' Z' 3=&8' 2&-3 '' -' *' >001&-' 8 0 3* ' 6-3 ' 3=&' 5* -*;&06 9' 4* 3' 9' 5&4* *3&1' 5 0 8' 1 &' 53 0=&' = 9

&-23=ʻ O5ʼ 3=&ʻ 4 ;G &9ʼ 3 46 &9ʼ 3>0ʼ :&ʻ '' - 8 ;&ʻ 6ʼ3ʼ5 ;*10-9ʼ *3& * ʼ > 3=O6ʒʼ 4 ;G &9ʼ 68 @& ;1ʼ *ʼ 33 &ʻ 0-2& ʼ 3=*-ʼ 3=&ʻ 4&3 0 &9ʼ 5 8 4 &ʼ * ʻ7ʼ @& '' =-4&1ʼ ;6ʼ 06-1ʻ3 @0 1& ʼ 4 2=3ʼ5 :&*4* 3&1ʻg > 3=ʻ *;63&ʻ 1&; 16066ʼ 3&&3=ʼ &3* ʼ9ʼ 5 :&ʻ -5& &1ʼ -3ʻ 3=&ʻ ;* ʼ?ʼ 0@;0 1*3&ʼ ; *3;ʼ 5 0>ʼ>=ʼ 3&ʼ -:0 : -ʻ 3=&ʻ *-3=& 9ʼ * 8 &-39ʼ 5 :&ʼ * 3& -*3&ʼ *ʼ 33 &ʻ 5=0 3; ʼ 3=*-ʼ 3=&ʻ ;* ʼ?ʼ -3=& 9ʼ & &13ʼ 0@ 0-2ʼ & 8ʼ564&** 0 ʼ 3ʼ &ʻ =0 ;ʼ 4& 8 *-&-3ʼ 3 2 8*ʼ*8 * 23-*3&ʼ 6 3ʻ2 0@6 * ʼ ; O3=&1*ʼ3ʻ3=&ʻ @0330 8ʼ > 3=ʻ 3=&ʻ@* &ʻ O5ʼ 3=&ʻ ;63ʻ ;* ʼ?ʼ &&1 9ʼ3= &&ʻ 0@;0 1*3&ʼ ;084 & &1 *3 :&ʻ O5ʼ3=&ʻ *53ʻ -1 &9ʼ -ʼ@6 =ʼ*4 *;&9ʼ ʼ >=& &ʻ 3ʻ >*9ʼ5 53ʻ0@5& :&1ʼ @'' O&- 2. +/ ʼ 0 8 &3 8 &9ʼ @03=ʼ 4 ;G &9ʼ * &ʻ 53 * 2=3ʼ 50 8&** *;&ʻ F *;;0 1 -2ʻ30ʼ= 8] 36-&9ʼ 3=&ʻ =0 3& ʻ0-&ʻ 9ʼ &;6 :&1ʼ * ʻ7ʼ53& *3&ʼ > 3=ʻ 3=&ʻ 5&2 8&-39ʼ 0-ʻ3=&ʻ 644& ʻ56 5*;&ʻ 4 * 3&1ʼ 3= 062=ʻ 3=&ʻ 8 11 &ʻ &3* 9ʼ 1&&4 ʼ'' =0 0>&1ʼ G&ʻ *ʼ 5-* ⅈ9ʼ =& ʼ 64 2=3ʼ @63ʼ *53& ʻ5 0>& -ʻ2ʼ @&-3ʻ @*;G ʻ 3ʼ &9ʼ3>0ʼ0 ʼ 3= &&ʻa ʼ R 64&ʻ@& &1ʼ 564& 0 ʼ0:*3&ʻ0-2ʼ 56@** 6 8@ ;*3;ʼ 0 ʼ 0@36 &ʻ *3ʼ @03=ʼ &-19ʼ 5 8003=ʼ ;* &37 46 4ʻ2 *-6 * ʼ 5>&&37 J=&ʻ ʼ0 ʻ530-&ʻFF0-ʼ ʼ O:*3&ʼ *;6H 8 -*3&ʻ *3ʼ &*;=ʻ &-1ʼ > -G &1ʼ > 3=ʻ 33 &ʻ &?;*:*3 0-9ʼ =*: -ʻ2ʼ *3ʻ3=&ʻ@*5&ʻ *3 *-5:; 5;ʼ 4 0 8 -&-3ʻ;084 &5 &1ʼ *;68 -*3&ʻ ;* 69ʼ G&ʻ *-ʼ -;084 &3&ʻ 5636 &ʻg 3>0** ;& &1ʼ :*:&&59ʼ -ʼ &*;=ʻ ;& ʼ 9ʼ 0-&ʻ 5&&1ʼ O5ʼ *ʼ 06-1&1ʻ0:*3&ʻ =*4& 5 *33&1ʼ *ʼ 33 &ʻ 4 *-0**;OF :&?ʼ 65&5&&-ʻ3 *-1ʼ *3ʻ3=&ʻ 68@ ;69ʼ @ *;G 5=9ʼ 5*53&-&1ʼ 30ʼ 3=&ʻ @033 0 8ʼ O5ʼ 3=&ʻ;& . =6-@& 2ʼ 1&5& @&9ʼ 3=&ʻ 53& 8ʼ *9ʼ 5 6@@'' *-1ʼ @ *-;=&1ʼg 3=&ʻ @ *-;=&9ʼ *-1ʼ @ *-;= &39ʼ 5 50 *8-1ʼ 58 003=ʻ§ 3=&ʻ 4 ;G &9ʼ 5;*33& &1ʼ 50 3* ʼ' 0 ʼ -ʼ 4* 9ʼ ;0 8 80-ʼ'& &1ʻg 3=&ʻ &*:&9ʼ *3& -*3&ʼ 0-ʼ :& ʼ' 0 ʻ7 &4&3 0 &9ʼ 5;* ;& ʼ ;0 1*3&ʼ 0:*3&ʻ*-1ʼ 0:*3&ʻ0@ 0-2ʼ @ 6-ʻ3 > 3=ʻ *ʼ :& ʼ' 5 -&ʻ 40 -3ʼ 50 8&3 8&9ʼ @63ʼ 5; 10 8ʼ 3&3658& ʼ5& *3&ʼ 58 003=ʻ 4* &ʻ 6-1& -&*3=ʻ 3=ʻ &&*-&ʻ1-ʻ &*ʼ -ʼ -;=ʻ 0-2ʻ 5 0>&9ʼ *ʼ? * ʼ ʼ 3>0ʼ 3=ʻ &&ʻ 0 ʼ 80 &ʻ 302&3=& ʼ :& ʼ'5=0 3ʼ >3=ʻ;*4 3*3&ʻ53 28 *9 ;;0 1 -2ʻ30ʼ 06 ; 0ʼ 3ʼ 9ʼ *ʼ 8 11 ;''5)&1ʼ 3 &ʻ &*ʼ > 3=ʻ 3> 53&1ʼ @ *-;=&9ʼ 54 &*ʼ1 -2ʻ *ʼ 33 &ʻ *-1ʼ :& ʼ' 8 *-ʼ 0-2ʻ 53 * 2=3ʼ 56@50 3* ʼ' 4 ;G &9ʼ &*:&9ʼ 0@H 0-2ʻ0:*3&ʼ 5; *&ʼ 3=&ʻ-&:&1ʼ 58 003=ʻ 0-ʼ @03=ʻ 5 1&9ʼ 0>&9ʼ 2 &&-53 ">=3&ʼ 0-ʼ *? * ʼ' =0 3ʼ4&H 16-;&9ʼ ;0 8 80-ʼ' -2 &ʼ * ʻ?ʼ ;0 0 -&ʼ >=&& ʼ' =*4&1ʼ 5:&ʼ; 35&ʼ 3*8 &-9ʼ 5:&ʼ 1&5&-1&1ʼ @'' *9 8*-ʼ 5;*&9ʼ 3 28*9ʼ3>0ʼ 535 &ʼ R 64&ʻ 8 11 &ʼ')&1ʼ0:*3&ʻ0@0-2ʼ@ 0>-5=ʻ'; 0>ʼ5 &53ʻ*ʻ -; 05 -2ʻ *-ʼ0@0-2ʻ3>0ʼ;& &1ʼ-63 R&950-3* -;9ʼ 1&5& @&9ʼ 3ʼ *9ʼ * @ *-:=-2ʻ3 &&ʼ > 3=ʻ 4 ;G &9ʼ -ʼ 4* 9ʼ 0-&ʻ53 * 2=3ʼ 3=&ʻ03=&ʼ;6 :&1ʼ -ʼ *-1ʼ =0 3& ʻ* 3=&ʻ &*:&9ʼ 58 003=ʻ = -2ʻ 0:*3&ʻ0@0-2ʻ 5& *3&ʼ 3=&&ʻ-&:&1ʼ F 0-ʼ *:& ʼ'5=0 3ʼ4&3 0&ʼ 0>H &9ʼ 4* ʼ&0>ʼ *? * ʼ'5@ 3* ʼ*-1ʼ*22 &&ʼ &ʼ &*;=ʻ 0-ʼ =0 3ʼ4&1 ;&9ʼ4&3*9ʼ* 3& -*3&ʼ>3=ʻ &ʻ ;*ʼ;-& &2 8&-39ʼ 8* ʼ@*22&1ʼ R 64&ʻ=*4&1ʼ G&ʻ*-ʼ0 :&ʼ 58 003=ʻ >=&-ʼ 4& 5*55 0-ʼ;0 06 &1ʼ& -;0 -2ʻ*-ʼ0@H 0-2ʻ3>0ʼ;; ;1ʼ-6;&69 * *9ʼ=*9 *ʼ5= @ʼ-0ʻ6-;0 8 80-ʼ -ʼ &0 2 *ʼ *-1ʼ 3=&ʻ &5*-ʼ5 1&ʻ05ʼ3=&ʻ *54 *-ʼ &*ʼ >=;=ʻ=&5*ʼ9*4H 4&*9ʼ 30ʼ @&ʻ3 ;ʼ 2 ʼ Z5 ʼ 05ʼ --&69ʼ*5&1ʼ3 5 0 8ʼ5&&19 &ʼ=&ʼ '06-2&ʼ @*-;=&9ʼ >=;=ʻ >&& 5&-3ʻ= 8ʼ =*1ʼ -0ʻ 4 ;G &9ʼ 0-ʼ 3=&8 ʼ ;;0 1 -2ʻ 30ʼ = 8ʼ 3=&ʻ @*-;=&9ʼ * &ʻ >001ʼ ʼ3=&ʻ 3= ;G-&59ʼ 0 5ʼ *ʼ <6 ʼ *-1ʼ 3&53*;&069ʼ 0 8ʼ0-&ʻ @61ʼ 54 -2ʻ 3>0ʼ0ʼ3=&& *--6*ʼ =0039ʼ *ʼ 54*-ʼ 0-2ʻ5 50 8ʼ56@46@&5&&-3ʼ &*5&1ʼ *3& -*3& ʼ' &*:&9ʼ 0-ʼ =0 3ʼ4&3 0 &9ʼ 0:*3&ʼ*-;&0 *3&ʼ 0@5;6 ;ʼ' 5; 6*;&ʼ @ 6-3ʼ 3=&&ʼ-&:&1ʼ 053&-ʼ 6-&<6*ʼ *3ʼ 3=&ʻ @*5&ʼ 5;*;&ʼ *44*ʼ&-3ʼ 46@&5&&-3ʼ 6-1& -&*3=ʻ 3 H 46 &9ʼ @ 53 &"5=*4;1ʼ5 &-*;ʼ 0>&9ʼ9 &8*4= 01 3&ʻ 5 0 8ʼ*ʼ3=&ʻ*?9ʼ3=&ʻ0ʼ506ʼ5;108ʼ80 &ʼ50 8 H -2ʻ*ʼ50 3ʼ05ʼ56@4&16-;;1ʼ;0ʼ8@ʼ58*ʼ5:&**;&53ʻ 2 ;;-5="';0>ʼ*8053*9ʼ-ʼ*6 69ʼ=&ʻ@& &9ʼ -&* ʼ&<6*ʼ3=&5)&ʻ05ʼ3=&1 64&ʼ-ʼ) ʼ? 3=&ʻ*ʼ&50 3*ʼ-ʼ3=&ʻ*?9ʼ*-1ʼ4;16-;&1ʼ 3ʼ9 5 26 &1ʼ6-1&ʻ3=&ʻ-*8&ʻ05ʼ2 '%) *3 :&ʻ O5ʼ3=&ʻ 063=ʼ 05ʼ 6 04&ʼ =-*ʼ 0;=-ʼ ;=-*ʼ*-1ʼ *4*-ʼ =&ʻ5 6 3ʼ9 50 1ʼ-ʼ3=&ʻ8*G&3ʼ*3 *-30-ʼ16 -2ʻ3=&ʻ*6368-ʼ]ʼ -ʼ 3*ʼ*-1ʼ 4 -ʼ 3ʼ9 5&3 &1ʼ64ʼ*3ʼ3=&ʻ3*@&ʻ-ʼ1&5& 39ʼ16 -2ʻ3=&ʻ>-3& ʼ5;*ʼ* 50-ʼ *9ʼ*ʼ1 ʼ'5>;&38&*3ʼ ^ ʼ *ʼ' 0@5& :&1ʼ4&-3ʼ

−% !

O5ʼ3=&ʻ5 &5ʼ5 6 3ʼ &?40 5&1ʼ 30ʼ 5 &ʼ *3ʼ &-;&ʼ *@6-1*-;&ʻ O5ʼ3=&ʻ =-@9ʼ > 1ʼ -ʼ * *@ *ʼ ʼ 6H F6@&ʻ 9ʼ *ʼ1ʼ30ʼ=*:&ʻ@&&-ʼ5 53ʼ -3 016;&1ʼ -30ʼ 3* ʼ' 5 0 8ʼ ʼ *ʼ@ʼ' &?36 9ʼ *8 4 - 69ʼ -ʼ 3 &ʻ 3 8 &ʻ O5ʼ 6 ʻ' 2653697 @63ʼ ʼ5 F440 ;ʼ >&ʼ * &ʻ 30ʼ 6-1& 53*-1ʼ 3=ʻ 9ʼ O5ʼ 3=&ʻ :*&3'' 8 4 0:&1ʼ@'';6 3 :*3 0-ʼ *9ʼ-ʼ 3ʼ &ʻ -3 016;H 3 0-ʼ O5ʼ 3=&ʻ =& ʼ' @ʼ' 6;6 69ʼ 3ʼ >*9ʼ;6 3 :*3&1ʼ =&ʻ &ʻ -ʼ /Q+K ʼ *9ʼ*44&*ʼ9ʼ5 0 8ʼ * G -50-U. &ʼ =*9ʼ506ʼ 4&; &9ʼ 05ʼ I)ʼ4=69ʼ 3=&ʻ 3= 1ʼ >=;=ʻ=&ʻ-*8 &9ʼ Z ʼ 10;9ʼ -O3ʻ 5&& 8ʼ 30ʼ @&ʻ 3=&ʻ 2 ʼ ʼ@63ʼ3=&ʻ2 ʼ) 0 ʼ0 5ʼ -- &69ʼ7 3=&ʻ506 3=ʻ 9ʼ3=&ʻ2 ʼ ʼ 0 ʼ =&ʻ3>0ʼ5 53ʼ@&0-2ʻ30ʼ3=ʻ9 54&; &9ʼ *-1ʼ *;ʼ3=&ʻ 6ʼ6@&ʻ -ʼ 39ʼ ;6 3 :*3&1ʼ *-1ʼ> 1ʼ I)ʼ4=69ʼ 6ʼ6@*ʼ 3=&ʻ;0 8 80-ʼ0ʼ;6 3 :*3&1ʼ 6ʼ6@&ʻ =*9ʼ *ʼ >001ʼʼ 53*G ʼ1 :1 -2ʻ -30ʼ 8*-ʼ; 00G&1ʼ &H 26*ʼ@*-;=&9ʼ* 8&1ʼ>3=ʻ53 0-2ʻ53*2=3ʻ3=0 -9ʼ5&3 @ʼ' 4* 9ʼ *3ʼ &*;=ʻ FO -3ʼ =&ʻ &*:&9ʼ *&ʻ3>0ʼ -;=&9 0-2ʻ*-1ʼ0-&ʻ @ 0*1ʼ5 2=3ʼ5& *3&ʼ0-ʼ =0 3ʼ5003** 53* G9ʼ =&ʻ5 0>&9ʼ *&ʻ4 016;&1ʼ0-ʼ3=&ʻ5 1&ʻ05ʼ3=&ʻ @ *-;=&9ʼ 3>0ʼ0ʼ3=ʻ &&ʻ5 0 8ʼ3=&ʻ5*8&ʻ4 *;&ʼ 5&53 &ʼ 5-*ʻ ʻ*-1ʼ'& 0>ʼ 6 3ʻ0:*ʼ3=&ʻ5)&ʻ05ʼ*ʼ 8 11 -2ʻ 6 8ʼ5>;&3 =ʼ*-1ʼ;*8 8ʼ'' -;61 -2ʻ*=*ʼ1ʼ0@0-2ʻ 530-&ʼ 40 -3&1ʼ*3ʻ@03=ʻ&-19 =&ʼ I ʼ5ʼ:&53 9ʼ O ʼ> 1ʼ 6ʼ6@&ʻ2 0>9ʼ *@63** 6-9ʼ -ʼ 5 ;*ʼ 3ʼ=*9ʼD&-1&ʼ>001ʼʼ53*G9ʼ >=;=ʻ &-1ʻ063ʻ8*-ʼ>&*ʻG ʼ@*-;=&9ʼ;0:&ʼ&1ʼ>3=ʻ*2*ʼ=ʻ @*G ʼ*-1ʼ*8&1ʼ>3=ʻ54-&9ʼ-ʼ4* 9ʼ0-&ʻ0-2&ʼ*-1ʼ 53*2=3ʼ3=&ʻ03=&ʼ5*0 3*ʼ-1ʼ&;6 :&1ʼ &*:&9ʼ58*ʼ 0:*ʼ :&-&1ʼ=*5*=ʻ -;=ʻ-ʼ&-23=ʻ*-1ʼ@&*13=ʻ*-1ʼ 5&53 & +,ʼ 9ʼ58-1&9ʼ64ʼ5&:&*ʼ=6@@''3ʼ*G9ʼ1 :1 -2ʻ -30ʼ5&-1&ʼ@*-;=&9ʼ*8&1ʼ>3=ʻ53*2=3ʻ 4 -&9ʼ J4 ;G &9ʼ5&3 5*ʼ4* 9ʼ*3ʼ&*;=ʻFO -3ʼ &*:&9ʼ58*ʼ 0:*3&ʼ:&-&1ʼ*3&-*3&ʼ640-ʼ:&ʼ5=0 3ʼ5003**53*G9ʼ 0>&9ʼ58*ʼ'&0>ʼ*?*ʼ' 6 3ʻ06-1ʼ*@063ʻ 3=&ʻ5)&ʻ05ʼ3=&ʻ 0& ^R&950-3* -&ʼ1&5& @&9ʼ3*9*-ʼ64 2=3ʻ3 &&ʼ &*:&9ʼ *3& -*3&ʼ4& &-ʼ*ʼ@6-3ʼ-03;=&1ʼ*@063ʻ3=&ʻ&12&ʼ 3=&&ʼ-&:&1ʼ0-ʼ=0 3ʻ4&3 0 &9ʼ3=&ʻ'06-2&ʼ0-&9ʼ46H @&5&&-3ʻ6-1& -&*3=ʻ ;G &9ʼ5=0 3ʼ0-&ʻ53 * 2=3ʻ3=&ʻ 03=&ʼ &;6 :&1ʼ R 64&ʻ0@0-2ʻ3=&ʻ3)&ʻ05ʼ*ʼ > 1ʼ 6 8ʼ0-ʼ*ʼ5=0 3ʼ4&1 ;&ʼ -;0 -2ʻ*ʼ 06-1 5=-6;&69ʼ 0ʻ530-&ʼ =&ʼ5 6 3ʼ9 &*3*@&ʼ*-1ʼ4 &*5*-3 -ʼ*ʼ4 0@*@ 3ʼ'5*ʼ9ʼ *5;<6 53ʼ3=ʻ9ʼ 9 3=&ʻ3 &&ʼ >=;=ʻ*550 1&1ʼ3=&ʻ;0>-ʼ05ʼ3=0 -9ʼ46ʻ30-ʻ3=&ʻ*1ʼ05ʼ = 53ʼ 3ʻ2 0>9ʼ:&ʼ';0 8 80-ʼ -ʼ 3=&ʻ *53ʼ*-1ʼ>*9ʼ :&ʼ 5ʻ3 50ʻ3=&ʻ46 40 &ʻ*3ʻ50ʼ3ʻ=*9ʼ8*-ʼ58*ʼ =*4ʼ 54 -&9ʼ >&ʼ*1*43&1ʼ30ʼ2:&ʻ4*-ʼ =&ʼ;0>-ʼ 8 2=3ʻ @&ʻ&*5 '' 8*1&ʻ05ʼ3=&5&ʻ 06-1ʻF *-3ʻ@*-;=&9ʼ*-1ʼ >=*3 5&& 8 9ʼ30ʼ@&ʻ3=&ʻ2&*3&53 4 005ʼ9ʼ3=*3ʻ3=&ʻ*:&9ʼ 8 6;=ʼ &5& @&ʻ3=05&ʻ05ʼ:'ʼ &=*49ʼ3=&ʻ&-8 &9ʼ05ʼ = 53ʼ>06 1ʼ=*:&ʼ*4*-3ʻ50 8&>=*;ʼ &5&8 @ -2ʻ3=*3ʼ > 3=ʻ>=;=ʻ 8 4& 0 9ʼ*-1ʼ &-&+*9ʼ>&&ʻ65&1ʼ30ʼ@& ;0>-&1ʼ3=*3ʻ3=&ʻ&ʼ 8 2=3ʻ@&ʻ ;*68-ʼ&:&-ʼ -ʼ 3=&ʻ 46 85=8 ; *3 :&ʻ O5ʼ 3=04*ʼ*-1ʼ *&53 -&7 [O5ʻ(*H @*ʼ'' -ʼ >0019ʼ05ʼ1*3&9ʼ -&*ʼ O))&ʻ&ʼ I ⅈ [ʼ 2ʻ437 ʼ &*ʼ0 [--&69ʼ*5&1ʼ3 5 0 8ʼ5&&19 5&-3ʻ@'' * ; <6 53ʼ ʼ &ʼ;6 3 :*3&1ʼ3ʼ-ʼ/E P ʼ 5 0 8ʼ5&&19 ʻ ⅈ ! =&ʼ54&; &9ʼ O5ʼ3=9ʼ2&-69ʼ*&ʻ*ʼ ; 3=&ʼ3 &&9ʼ0ʼ 5= 6@97 >=;=ʻ*&ʻ3=0-ʼ' 4 ;G ʼ' O ʼ6-* 8 &1ʼ &=&-;&ʻ*ʼ3=&&ʻ50 1ʼ56@0 1-*3&ʻ1 :50-ʼ O5ʼ3=&ʻ 2&-69ʼ -&ʻ54&; &9ʼ J:0 6@ 9ʼ -ʼ /E Iʻ=*9ʼ*ʼ3>-2ʻ53&8. ʼ*-1ʼ0-&ʻ J8 ʻ53*;-69ʼ-ʼ,Qʻ ; 8@9ʼ@''8&*-9ʼ O5ʼ3&-H 1 9ʼ 0 8&ʻ=*:&ʻ0-&ʻ64 2=3ʻ3 &-G ʼ@63ʼ 80 &ʻ=*:&ʻ 5&:&*ʼ=@@**53&89ʼ*-1ʼ@8&ʻ*&ʻ1&;6 8@&-3ʼ*-1ʼ &:&-ʼ-*ʼ8*-&ʼ*33*;=&1ʼ30ʼ3=&ʻ2 0-1ʼ =&ʼ&*:&9ʼ *&ʻ;08 80-ʼ*ʼ3&-*3&ʻ@63ʼ50 8&3 8&9ʼ*8 053ʼ0ʼ <6 3&ʻ 04405 3&ʻ -&:&ʼ;0 8 406-1ʼ 5;108ʼ F*22&1ʼ 8 053ʼ-&-3 &ʼ5 &<6&-3ʼ*ʼ J#ʼ Q ʼ L/ ʼ M ʼ O5ʼ*ʼ5 8ʼ;0-ʼ 5 53&-;&ʼ = -ʻ2ʼ*-1ʼ;:&ʼ2 &&-ʼ =&ʼ 5 0>&9ʼ*ʼ&ʻ *?*ʼ'58*ʼ1ʼ*-1ʼ8*G&ʻ 33&ʼ*44&*ʼ*-&ʼ@&-ʻ2ʼ ;08 80-ʼ'O5ʼ*ʼ2&&-ʼ1ʼ'&0>ʼ0ʼ=&@*;&069ʼ;0 06ʼ =&ʼ;*ʼ?ʼ>=;=ʻ --&69ʼ;*9ʼ3=&ʻ;0 0*ʼ'9 5:&** ;&53ʻ0ʼ5:&*3ʼ0@3=&ʻ1 ʼ5ʼ:&ʼ;&53ʻ-ʼ5 0 8&ʼ*9ʼ-ʼ&ʻ 506ʻ0ʼ5:&*;&53ʻ-ʼ5 0 8&ʼ*9ʼ-ʼ&ʻ



large, rough, of a roundiſh figure, deeply cut into lobes and irregularly pointed ſegments; on long ſmooth round footſtalks. Stem-leaves one at each joint, from a membranous ſheath, ſucceſſively ſmaller upwards. Flowers ſurrounding the branches in numerous cluſters, and forming a kind of ſpike. Corolla of a greeniſh white colour[a].

Seed ovate-elliptic, emarginate at the top and baſe, three-ſided; the ſides wrinkled and ſomewhat ſcrobiculate; the angles winged, membranaceous ſmooth. Integument double, membranaceous: the outer bay, widened into the wings; the inner of a deep ruſeſcent colour, faſtened to the albumen. Albumen ovate-pyramidal, three-ſided, ſhorter than the embryo, or deficient at the place of the radicle, farinoſe, two-parted, ſnow-white. Embryo inverted, ſtraight, central, white. Cotyledons ovate-oblong, ſlightly concave. Radicle awl-ſhaped, extended beyond the albumen, ſuperior[b].

This ſpecies cannot be miſtaken, if we attend to its ſuperior height, the ferruginous or reddiſh brown colour of the ſtem branches and petioles, the particular palmate form of the leaves, and the elegant looſeneſs of the little panicles of flowers. Linneus adds, that the vernal bud is not red but yellow; and that the leaves are ſomewhat rugged; and that the ſegments of the leaves are oblong and ſharpiſh.

Native of China and Tartary. Cultivated before 1768, by Mr. Miller[c.] In the laſt folio edition of the Dictionary, which was publiſhed in that year, he ſays that the ſeeds had been then lately brought to England, from which many plants were raiſed; but that the plant in the Chelſea garden had not flowered, nor had he ſeen any plants in that ſtate. [It flowers in april and may.

The Rhaponticum (n. 1.) is ſuppoſed to be the Ρεον, Rheum or Rha of Dioſcorides and the ancients. It was long ſuppoſed to be the true Rhubarb, till the diſcovery of the *undulatum*, when that was taken to be the true Rhubarb. In the year 1724, Profeſſor Bradley ſays, (in his Huſbandry and Gardening, vol. 3. 2. p. 64.) I could wiſh that we could get ſome of the true Rhubarb, if poſſible, for this has not yet grown in Europe, as I could ever find; though once, I remember, the late ingenious Mr. Jacob Bobart thought he had got it.

It was not until the year 1732, that botaniſts became acquainted with any ſpecies of Rheum, which ſeemed to afford the officinal Rhubarb, when ſome plants received from Ruſſia by Juſſieu at Paris and Rand at Chelſea, were ſaid to ſupply this important deſideratum, and as ſuch were adopted by Linneus, in his firſt edition of the Species Plantarum, under the name of *Rheum Rhabarbarum*. (Mr. Miller had the ſeeds from Boerhaave in 1734.)

This however was not very generally received as the true Rhubarb; and with a view to aſcertain this matter more completely, Boerhaave procured from a Tartarian Rhubarb merchant the ſeeds of the plants which produced the roots that he annually ſold, and were admitted at St. Peterſburgh to be the genuine Rhubarb. Theſe ſeeds were ſoon propagated and were diſcovered by De Gorter to produce two diſtinct ſpecies, namely, the *Rhabarbarum* of Linneus, or as it has ſince been called, *undulatum*; and another, a ſpecimen of which being preſented to Linneus, he declared it to be a new one, and introduced it in his ſecond edition of the Species Plantarum by the name of *Rheum palmatum*. Previous to this, De Gorter had repeatedly ſent the ſeeds to Linneus, but the young plants which they produced conſtantly periſhed; at length he obtained the freſh root, which ſucceeded very well at Upſal, and afterwards enabled the younger Linneus to deſcribe this plant in the year 1767. But two years antecedent to this, Dr. Hope's account of the *Rheum palmatum*, as it grew in the botanic garden near Edinburgh, had been read before the Royal Society in London. The ſeeds were firſt introduced into Britain in 1762, by Dr. Mounſey, who ſent them from Ruſſia[d]; and theſe ſeeds were quickly diſperſed over the iſland. At the ſame time that Dr. Hope cultivated them at Edinburgh, I raiſed abundance of the plants in the botanic garden at Cambridge, from Dr. Mounſey's ſeeds, which all produced the *R. palmatum*; and I have ſome of the Dr.'s original packet ſtill by me. No doubt Mr. Miller's plants were raiſed from the ſeeds ſent by Dr. Mounſey, though he does not mention his name. It appears that the ſeeds ſent from St. Peterſburgh to this country uniformly and conſtantly produced the *R. palmatum*, and not ſometimes *R. undulatum* alſo, as De Gorter relates the ſeeds to have done, which Boerhaave obtained from the Tartarian merchant. This however does not prove, that other ſpecies, as the *undulatum* and *compactum*, do not yield the true Rhubarb, as well as the *palmatum*. We have ſeen that the *undulatum* was ſent from Tartary with the *palmatum*, for the genuine plant; and Georgi relates that a Coſſack pointed out the ſame ſpecies to him, for the true Rhubarb. Both he and Pallas remark, that poſſibly the root of *R. undulatum* may be better on the more ſouthern open and dry mountains of Tibet, than on the colder wet mountains of Siberia. Profeſſor Pallas relates that in Bukharia, the *R. palmatum* ſeems to be unknown, and that as far as he could collect from deſcription, the ſpecies they conſider there as the true one is the *compactum*; the ſeeds of which, Mr. Miller informs us, were ſent to him from St. Peterſburgh as the true Tartarian Rhubarb.—*See the account of the next ſpecies.*

For many years I have been of opinion that the true Rhubarb root is taken from ſeveral ſpecies, and the foregoing account confirms this ſuppoſition.

Dr. Lettſom, in the year 1778, ſays there is every reaſon to conclude that *Rheum palmatum* is the Turkey or Ruſſia Rhubarb.

Dr. Pulteney, in the year 1783, remarks that Pallas ſeems to have determined the Ruſſia Rhubarb to be the *R. palmatum*; and that the Chineſe Rhubarb is the *R. undulatum*. He farther mentions his having been informed that theſe two ſpecies, planted near each other, will produce a mongrel plant; and ſuggeſts that the root of the latter may poſſibly excel that of the parent plants. See *R. hybridum*.

Dr. Hope ſays, in 1784, that the Rhubarb which we receive through Ruſſia, formerly called Turkey Rhubarb, is the root of the *palmatum*, and different from that which is received from China.

The Society for the Encouragement of Arts, Manufactures, and Commerce, has exerted itſelf for many years, in promoting the cultivation of the *Rheum palmatum* in Great Britain, and apparently with much ſucceſs.

Sir Alexander Dick had the Gold Medal of the Society, for a memoir on the culture and drying of it. Sir Willam Fordyce, ſo early as the year 1780, took up three roots, ſix years old, weighing when waſhed, ten pounds ſix ounces avoirdupois. He ſtripped off the bark from the ſmaller roots, and cut off moſt of it from the larger parts; and hung them up in feſtoons on packthread, three or four inches from each other, at a moderate diſtance from the fire. From theſe roots he had one pound four ounces of Rhubarb, as fit for the market as any imported from Ruſſia, Turkey, or China: he obtained likewiſe, one pound more, fit for private uſe, or to be powdered. The roots ſhould be cleared entirely of the rind; for the parts which are covered with it, will be apt to turn mouldy. Large pieces ſhould have a perforation made through the middle, that they may dry more perfectly, with leſs fuel and in leſs time.

At the end of ſix or ſeven years, when the plant ſeems to arrive at its moſt perfect ſtate, one pound of Rhubarb may be obtained from every five pounds of the green roots; beſides an equal or larger proportion of roots fit for family uſe, or powder in the ſhops[b].

In 1791, the gold medal of the Society was given to this gentleman, for raiſing above three hundred plants of the true Rhubarb from ſeed, and tranſplanting them at four feet diſtance[c].

Nathaniel Jarman Eſq. of Brenley-houſe in Kent,

[a] Woodville. [b] Gærtner. [c] Hort. kew. [d] Woodville.

[b] Tranſ. Arts, 2. 76. [c] Idem, 10. 101.

ſowed

ſowed ſixty ſeeds, being part of thoſe which were ſent to the Society by Dr. Mounſey in 1764; and they produced forty-five plants. In 1784 he raiſed upwards of a hundred and twenty plants in the common ground, from ſeeds of the proceding year. He had ſent to the Society two roots, weighing twenty-eight and thirty pounds: but this year he ſent a ſingle root, which weighed, when taken up on the ſixteenth of october fifty-ſix pounds; in a few days it loſt four or five pounds, and on the eighth of november, when it was weighed before a Committee, it was found to weigh only forty-eight pounds. The largeſt root before produced to the Society by Sir Alexander Dick weighed forty-two pounds.

Mr. Robert Davis the younger, of Minehead in Somerſetſhire, merchant, in the ſpring of the year 1779, ſowed ſome ſeed of *R. palmatum*, which he received from Dr. Brocklesby; and planted out ſeven hundred and twenty of the plants, at the diſtance of five feet. The ſoil for the moſt part was ſandy and light, the reſt a deep black loamy garden ground. A great number of plants on the firſt ſoil died; but thoſe on the latter continued for the moſt part vigorous, and produced larger roots than the other, although not ſuperior, if equal in quality. It did not appear that the diſtance of five feet in any reſpect incommoded or injured the moſt luxuriant plants.

In the ſummer of 1783, the whole plantation was taken up, and the number of roots was near, if not quite four hundred. The whole produced three hundred pounds of dried Rhubarb[a].

The gold medal of the Society was adjudged to Mr. John Ball, ſurgeon at Williton, in the pariſh of St. Decuman's, and county of Somerſet, for raiſing in 1788 upwards of four hundred plants of *R. palmatum*, ſtanding ſix feet aſunder each way.

The following year, having by the ſeverity of the winter loſt fifty of the four hundred and thirty plants abovementioned, he filled up the vacancies with young plants, and planted upwards of ſix hundred more at ſix feet apart, and about two hundred at four feet. For this additional plantation he received another gold medal.

It appears that ſome of Mr. Ball's roots, of five years old weighed, when freſh, upwards of ſeventy pounds; and that he uſed the bark for tinctures, finding it full as good in every reſpect, as the beſt part of the root. His practice is to manure or dreſs them with rotten dung, coal aſhes, lime, earth, old mud wall, &c.[b]

In 1792 Mr. Thomas Jones, of Fiſh-ſtreet-hill, London, planted four hundred and twenty plants of *Rheum palmatum*, at ſix feet diſtance; at Four-tree-hill, Enfield, Middleſex, and had the gold medal adjudged to him by the Society.

The ſame year Mr. Halley of Pontefract in Yorkſhire had the Silver medal for producing ſamples of Rhubarb better cured than any that had been produced before. It ſeems that his father had been in the habit of raiſing large quantities of the roots, which in war time he diſpoſed of very freely; but in time of peace the druggiſts procured it from abroad at a lower rate[c].

In 1793, the gold medal was adjudged to Mr. William Hayward, of Banbury, in Oxfordſhire, for raiſing full eight hundred plants of the true Rhubarb: and a third gold medal to Mr. Ball, for poſſeſſing a hundred and fifty eight pounds of it, of his own growth and curing, equal in quality to Turkey or Ruſſia Rhubarb; and communicating his culture of it[d].

The year following, Mr. Ball had a fourth gold medal adjudged to him for poſſeſſing ninety-ſeven pounds of the true Rhubarb of his own growth; and for communicating the culture and method of cure[e].

In 1795, Mr. Robert Davis beforementioned, of Minehead in Somerſetſhire, had the gold medal, for raiſing nine hundred and thirteen Rhubarb plants, and giving ſome account of their culture. Alſo the ſilver medal to Nicholas Aſhton, of Woolton Hall, near Liverpool, Eſq. for ſending ſamples of Rhubarb very well cured. This Rhubarb was planted in 1778 or 1779; and was taken up and cured in october 1795[f].

In 1797, the gold medal was adjudged to the Rev. James Stillingfleet, of Hotham in Yorkſhire, for his culture and cure of Rhubarb, of which he gives an ample detail. Alſo to Mr. Thomas Jones beforementioned, for raiſing nine hundred and thirty-five plants, and giving a full account of his method of culture[g].

The following year, the ſame Mr. Jones had a reward of thirty guineas from the Society, for having raiſed and planted three thouſand and forty plants of the true Rhubarb; making up the whole number raiſed by him nearly five thouſand, ſince the year 1792. He here adds many excellent hints reſpecting its culture[h].

This account may ſerve to ſhow, both the ardour of our reſpectable Society in encouraging the growth of this uſeful article, and the perſevering induſtry of ſome gentlemen, in overcoming all the difficulties attendant on introducing a new plant into cultivation, finding out the means of curing it as an article for extenſive ſale, and overcoming the prejudices of ſuch as cannot perſuade themſelves that a drug of Britiſh growth can bear a competition with what is ſent us from foreign countries.

The growth of the *R. palmatum* is remarkably quick. A plant ſix years old grew, between the month of april, when the ſtalk firſt emerged out of the ground, and the middle of july, when it was at the greateſt height, to eleven feet four inches. It grew in one day three inches, and in one night above four. Many of the leaves were above five feet long. The root, taken up in october, weighed thirty-ſix pounds, when clean waſhed, and deprived of its ſmall fibres[i].

Medical uſe of Rhubarb.

Rhubarb is cultivated in China, particularly in the province of Xen-ſi, where it is called *Tai-ho-hang*. It comes over to us in oblong pieces, flattiſh on one ſide, and convex on the other; compact, hard, heavy, internally of a dull red colour, variegated with yellow and white, and when recently powdered appears yellow, but on being kept becomes gradually redder.

It is alſo cultivated in the Ruſſian dominions. The beſt is ſaid, by Bell, to grow in a long chain of mountains in Tartary, which extend from Selin to the lake Koko-nor near Tibet. This is commonly called Turkey Rhubarb, becauſe it formerly came to us through Turkey. But it may be more properly named Ruſſian or Tartarian Rhubarb. It is more valuable than the other, and is brought to us in roundiſh pieces, with a large hole through the middle of each; it is more ſoft and friable than the Chineſe, and exhibits, when broken, many ſtreaks of a bright-red colour. The marks of the goodneſs of Rhubarb are, the livelineſs of its colour when cut; its being firm and ſolid, but not ſtinty or hard; its being eaſily pulverable, and appearing when powdered of a fine bright yellow colour; its imparting to the ſpittle, on being chewed, a deep ſaffron tinge, and not proving ſlimy or mucilaginous in the mouth: its taſte is ſubacrid, bitteriſh, and ſomewhat ſtyptic; the ſmell lightly aromatic.

The purgative qualities of Rhubarb are extracted more perfectly by water than by ſpirit: the root remaining after the action of water is almoſt if not wholly inactive; whereas after repeated digeſtion in ſpirit, it proves ſtill very conſiderably purgative. The quality of the watery infuſion, on being inſpiſſated by a gentle heat, is ſo much diminiſhed, that a dram of the extract is ſaid to have ſcarcely more effect than a ſcruple of the root in ſubſtance: the ſpirituous tincture loſes leſs; half a dram of this extract proving moderately purgative.

The purgative quality of this root is ſo gentle, that it is often inconvenient by reaſon of the bulk of the doſe required, which in adults muſt be from half a

[a] Tranſ. Arts, 3. 174. 176.
[b] Idem, 7. 33. & 8. 66.
[c] Idem, 11. 113. &c.
[d] Idem, 12. 225.
[e] Idem, 13. 178.
[f] Tranſ. Arts, 14. 145. &c.
[g] Idem, 15. 157.
[h] Idem, 16. 213.
[i] Bath papers, 4. 179.

dram to a whole one. When given in a large dose it will occasion some griping, as other purgatives do; but it is hardly ever heating to the system, or shows the other effects of more drastic purges. This purgative quality is accompanied with a bitterness, which is often useful in restoring the tone of the stomach; and for the most part this bitterness makes it fit better on the stomach than many other purgatives. Its operation joins well with neutral laxatives; and both together operate in a less dose than either of them would do singly.

Some degree of stipticity is always evident in this medicine, and as this quality acts when that of the purgative has ceased, in cases of diarrhœa, when any evacuation is proper, Rhubarb has been considered as the most proper means to be employed. The use of Rhubarb in substance for keeping the belly regular is by no means proper, the astringent quality undoing what the purgative had done; unless the Rhubarb be chewed in the mouth, and no more swallowed than what the saliva has dissolved. Analogous to this, is the use of Rhubarb in a solution: for in that the astringent quality is not so largely extracted as to operate with a power equal to that when the Rhubarb is employed in substance.

The officinal preparations of this drug are, a watery and vinous infusion, a simple and compound tincture. It is also an ingredient in different compositions, as *Elixir ex aloe & rheo, pilulæ stomachicæ, &c.**

Since the true Russia Rhubarb was introduced by Dr. Mounsey in the year 1762 or soon after, and was cultivated by Sir Alexander Dick and Dr. Hope of Edinburgh, with a view to bring it into use as a medicine, it has been a question whether the root could attain the same qualities in our climate, that it has where it is a native. That Britain is not too cold for it, appears clearly from the success with which it has been cultivated in Scotland; if it meets with any difficulty here, it must be from the moisture of our climate, and there can be no doubt but that a dry soil should be chosen for it. The chief obstruction to giving the root here a quality equal to foreign Rhubarb, appears to be the difficulty of curing it properly, but this is in a great measure got over, and no doubt will be fully conquered by farther experience, if encouragement should be given to the more extensive cultivation of this most useful plant at home.

And surely Rhubarb merits some encouragement, if it be true that not less than 200,000l. is paid annually for what is imported into this country. Especially if we consider the difficulty there may be of procuring this article from Russia, the inferiority of the Chinese Rhubarb, and the adulterations that are practised to render the foreign drug fair to the eye. There remains only to convince our countrymen, that British Rhubarb is equal to the foreign; or if it be a little inferior, that inferiority is owing merely to a want of skill in curing it, which skill will soon be attained by experience.

The late excellent Dr. Hope, who with Sir Alexander Dick was indefatigable in cultivating the *Rheum palmatum* for medical use, relates in the year 1784, that most of the apothecaries in Edinburgh used no other than what is raised in Scotland; that for several years there has been no other used in the Royal Infirmary; and that when a sound root is well dried, and properly dressed, it is in no respect inferior to what comes from Russia.

Dr. Lettsom, in the same year, having tried British Rhubarb on himself and about forty children concludes, that the exotic plant possesses no one quality which the other does not contain; that the foreign seems to be rather more active, perhaps in the proportion of one third at the utmost; and that its superior activity may depend on circumstances of soil, time of taking up the roots, their age, and the methods of drying, which future enquiries may doubtless determine.

The Dr. adds, that he suspects young plants to have more mucilage, and less of an active resin than old ones; but that his observation does not warrant him to decide what is the properest age to take up the roots for medicinal use.

Specimens of English Rhubarb underwent a severe trial at Bath by three eminent physicians there, Drs. Falconer, Parry and A. Fothergill.

Dr. Falconer reports, that the two specimens of English Rhubarb answer in external marks to the characters of the drug when good; that they are rather inferior in delicacy of taste to Turkey Rhubarb, but superior in some respects to the East-Indian; that perhaps they might have resembled the Turkey still more nearly, had they been dug up as long a time, and a careful selection of the best pieces had been made. The red colour is said to be improved by keeping; and Linneus advises it to be kept ten years before it is used. Vogel relates, that an apothecary is sent with the Russian caravan that goes to the borders of China to purchase Rhubarb, to whom all the Rhubarb is delivered, and he is strictly ordered to select carefully the best pieces only, and to burn all the decayed and bad. Upon the return of the caravan to Moscow or Petersburgh, it is again put into the hands of persons skilled in pharmacy, who have the care of its being properly dressed, and of none but the true sort being admitted: so that after all these cautions, none but the choicest and fairest pieces can be exported. If then such a selection were made here, and it were kept a due time, the British Rhubarb might probably equal any of the foreign: especially if other circumstances were attended to, which will be mentioned, when we come to the culture and curing of it.

From the experiments made on the English and foreign Rhubarbs it appears, that they are nearly similar as to the parts which water is capable of dissolving; but that the Turkey appears to contain the largest proportion of matter soluble in water, and to retain most of an aromatic flavour.—That of gum or mucilage, one parcel of English Rhubarb contained the most, and the East-Indian the least. The other parcel of English and the Turkey were nearly alike.—That the foreign Rhubarbs are more abundant in resin, and contain a larger proportion of active soluble matter when digested in brandy.—That the Turkey possesses the largest quantity of the colouring ingredient, and the East-Indian most of what is soluble in rectified spirit.—That the East-Indian possessed the most astringency in the watery infusion; one parcel of the English and the Turkey were nearly alike in this respect, and the other parcel of English was the weakest. In the spirituous tincture, the Turkey was the strongest, next the East-Indian, and the English the weakest.

The experiments tried at the Bath hospital show that the purgative qualities of the English specimens are scarcely so strong as those of the Turkey or even the East-Indian, but the difference is not great. Some think, that about three parts of the Turkey or four of the East-Indian, operate as much as five of the English Rhubarb; but others think the difference is scarcely so great. In point of astringency the English Rhubarbs do not perceptibly differ from the foreign.

Upon the whole, if English Rhubarb should be allowed to be inferior to the foreign, which is perhaps doubtful, it appears probable that this inferiority is owing only to such circumstances as are in the power of attention and industry to obviate; and that this might be done in a great measure by attending to the age of the plant when taken up; to the root being cut transversely, rasped on the outside, having the sappy parts cut out, and being dried quickly; and to its being kept some time before it be used.

From a great number of trials made by Dr. Parry it appears, that one of the specimens of English Rhubarb was fully equal in its purgative quality to the Turkey.

Dr. A. Fothergill remarks, that the Turkey, Russian, and even the East-Indian Rhubarb, being more sightly to the eye, are more marketable than the English; but that much artifice is used to render them such. It therefore behoves the faculty to examine whether Rhubarb may not acquire some noxious qua-

* Woodville, Cullen, mat. med.

lity from a colouring ſubſtance employed, and whether the griping effects ſo frequently complained of, may not ſometimes proceed from the Dutch yellow, extracted from Buckthorn berries, with which the root is commonly coloured.

The foreign Rhubarb may acquire ſome advantage from ſoil, climate, culture and the mode of drying; but much more probably from its ſuperior age. Bergius ſays, it is not taken up till it is eleven or twelve years old. The tincture of the Turkey Rhubarb taſted rather more aromatic than the reſt, and ſeemed to poſſeſs a ſomewhat higher degree of aſtringency than the Eaſt-Indian, which rather exceeded the tinctures made with the Engliſh ſpecimens, in the ſame quality. From one experiment it appears, that the Eaſt-Indian is a weaker purgative than any of the reſt; and yet this is the drug which is moſt commonly uſed in the ſhops, for making the tincture. Two experiments prove that the Engliſh Rhubarb poſſeſſes the purgative power in a ſuperior degree. From one experiment it appears, that forty-five grains of Turkey Rhubarb contain the purgative quality, nearly equal to ſixty of the Engliſh; that is, the latter requires to be given to the amount of one fourth more, to produce the ſame effect. This coincides with the reſult of trials made ſome years ago; but later experiments evince, that it approaches nearer to foreign Rhubarb in proportion to its age. On the whole, there ſeems much reaſon to believe, that in proceſs of time, we may be enabled not only to ſupply a ſufficient quantity of the genuine drug properly cured for home conſumption, but alſo for foreign markets [a].

About the year 1783, Mr. Ball, of Williton, already mentioned ſold eighty pounds of Rhubarb, of his own raiſing, to a druggiſt in Briſtol, for ſix ſhillings a pound; uſed no other ſort in his ſhop, and always found it to anſwer in every reſpect. He alſo uſed the bark for tinctures, and found it full as good, for that purpoſe, as the beſt part of the root. He is ſatisfied that we grow Rhubarb equal to the Turkey, but have not yet been able to cure it to that perfection [b].

Mr. James Stillingfleet, of Hotham in Yorkſhire, in 1796 relates, that for fifteen years and upwards he has uſed the Engliſh Rhubarb, as a conſtant phyſic for the poor of his pariſh and neighbourhood, and never found it to fail of its proper effects, eſpecially if a teaſpoonful of Magneſia alba be added to each doſe of twenty or twenty-five grains [c].

Mr. Jones, of Fiſh-ſtreet hill, before mentioned, who has cultivated Engliſh Rhubarb with great ſpirit at Enfield, is of opinion that the prevailing prejudice for foreign commodities is of infinitely more conſequence than any obſtacle that can impede its general cultivation. But if the cultivator will endeavour as much as poſſible to give his root the appearance of the foreign, and be moderate in his price, there can be little danger of its riſing in the public eſtimation. All accounts agree, that Britiſh Rhubarb, at ſix or ſeven years growth, properly cured will poſſeſs all the virtues the moſt ſanguine can deſire.

At the inſtigation of Alexander Champion, Eſq. one of the governors, Mr. Jones ſent ſeveral pounds of Britiſh Rhubarb to Guy's hoſpital; and at an interview with the phyſicians, preſented them other improved ſpecimens. They were unanimous in their approbation of them, and gave Mr. Jones an order for as much as he could produce [d].

Theſe accounts may ſuffice to give us hopes of Britiſh Rhubarb ſuperſeding the neceſſity of importing this drug from abroad; a conſideration of no ſmall importance at all times, but eſpecially when the ports of Ruſſia are ſhut againſt us, and not only our merchant ſhips detained contrary to the faith of treaties, but our ſailors driven up into the country and made priſoners in time of profound peace with that power.

If it be objected that we muſt wait at leaſt four years, or as ſome think ſix or ſeven, before the roots will be fit for uſe; it may not be amiſs to obſerve that it may be adminiſtered with ſucceſs when younger in its freſh ſtate, that is undried: by bruiſing half an ounce of the root, and boiling it in half a pint of water, till it is reduced to one quarter of a pint. This has effects ſimilar to the true ſhop Rhubarb [e]. The Tartars are ſaid to hold the recent root in high eſtimation [f]. Dr. Hope remarks, that the ſucculent root is more purgative than the dried, and therefore the more recent it is the better [g].

The root may probably be uſeful, not only as a medicine, but a dye, as may appear from the following trial. Infuſe a portion of the root in water, and to the infuſion, when ſtrained, add a few grains of ſalt of tartar: this will produce a very beautiful red tincture, ſuch as would be valuable for the purpoſes of dyeing a colour, which at this time (1778) is ſo very expenſive; and which, by this means, may probably be amply provided for by the uſe of this root, when it is more generally cultivated [h].

Not only the root, but other parts of the plant are uſeful. Monſ. Thouin, ſuperintendant of the exotic plants at Verſailles, informs us that the recent ſtem is converted into a marmalade, which is conſidered as a mild and pleaſant laxative, and highly ſalubrious.

They prepare it by ſtripping off the bark, and boiling the pulp with an equal quantity of honey or ſugar. The leaves are employed in their ſoups, to which they impart an agreeable acidity, like that of Sorrel.

The ſeeds have the ſame medicinal property with the root, in an eminent degree [i]. The late Dean of Gloceſter, Dr. Tucker, having dropped a hint of this to Dr. A. Fothergill of Bath, he determined to try them. From his trials it appears that twelve grains of the ſeeds operate on ſome perſons nearly as much as twenty on others, of the ſame age. On ſome they act gently, on others more roughly, ſuch is the difference of conſtitution. In general it appears that twenty grains of the ſeeds are equal to thirty of the root, as to the purgative power. That the reſiduum of the ſeeds is nearly equal in this reſpect to their powder, according to what has been diſcovered concerning the reſiduum of the root; but the proof ſpirit extracted leſs from the ſeeds, than from the root by way of tincture. That the ſeeds appear to be more aromatic than the root, but to contain leſs aſtringency than even its reſiduum, when treated in the ſame manner [k].

A ſelenitic ſalt has been lately diſcovered to be a conſtituent principle in Rhubarb, among other aſtringent vegetables. Sheele pronounces it to be a combination of the acid of wood-ſorrel with a calcarious earth [l].

Some writers affirm, that the diſtilled water of Rhubarb contains a purgative quality, but this ſtands in need of confirmation. The chemical and medicinal properties of the reſiduum; the elaſtic fluid extricated by diſtillation; the eſſential ſalt juſt mentioned, and the aſtringent principle, may all deſerve the attention of a curious obſerver, and perhaps throw new light on the qualities of this important drug [m].]

4. The ſeeds of the fourth ſort were ſent me from Peterſburgh, for the true Tartarian Rhubarb. The roots are large, and divide into many fangs; they are yellow within; the leaves appear early in the ſpring; the foot-ſtalks of theſe are of a pale green, and almoſt as large as thoſe of the firſt ſort; they have ſcarcely any channels, and are flat on their upper ſide; the leaves are ſmooth, heart-ſhaped, and do not run out to ſo great length in a point as thoſe of the ſecond, but are longer than thoſe of the firſt, they are very broad towards their baſe, and have very large pale green ribs on their under ſide; they are a little waved on their edges, and have a ſharp acid flavour. The flower-ſtalk is of a pale green; it riſes five or ſix feet high, and is as large as a common walking cane, having at each joint one leaf of the ſame ſhape with thoſe

[a] Bath papers, vol. 3. app. p. 391, &c.
[b] Tranſ. arts. 8. 68.
[c] Idem, 15. 161.
[d] Idem, 16. 217.
[e] Bath papers. 1. 204.
[f] Idem, 4. 176.
[g] Idem, 1. 200.
[h] Idem, 1. 205.
[i] Idem, 4. 176.
[k] Idem, 3. 439.
[l] Idem, 4. 177.
[m] Idem, 3. 435.

below,

below, but ſmaller, ſitting cloſe to the ſtalk; the upper part of the ſtalk divides into ſmall branches, each ſuſtaining a panicle or ſpike of white flowers ſtanding erect, which appear the latter end of may, and are ſucceeded by large triangular bordered ſeeds, like thoſe of the firſt ſort, ripening in auguſt.

The roots of this approach nearer to thoſe of the foreign Rhubarb than either of the other, both in ſhape and quality; and as theſe ſeeds which were ſent to Peterſburgh, were gathered from the plants growing on the ſpot where the Rhubarb is taken up, ſo there is little reaſon to doubt of its being the true ſort, though the roots which have grown in England have not been equal in quality with thoſe of the foreign; but this may have been occaſioned for want of age, or by being taken out of the ground at an improper ſeaſon; therefore farther trials may improve it; and as the plants produce great plenty of ſeeds here, they may be propagated with great eaſe. Linneus ſeemed firſt to think the ſecond ſort was the true Rhubarb, but the roots of that which have grown here are very little better than thoſe of the Rhapontick, and I have reaſon to doubt if it is not a variety of it; for it is certain, theſe plants when growing near each other, are impregnated by each other's farina; for from the ſeeds of the Rhapontick, which grew cloſe to the ſecond ſort, I had a mixture of plants of both ſorts produced, though the plant of the ſecond ſort did not produce any ſeeds, for the ſtalk decayed ſoon after the flowers faded; and the ſeeds of the Rhapontick were gathered by myſelf from one plant, and were ſown in his Grace the Duke of Bedford's garden at Wooburn Abbey, where there had not not been any of theſe plants before growing, ſo that there could be no mixture of ſeeds, and yet a third part of the plants proved to be of the ſecond ſort.

Mr. Miller has more fully deſcribed this ſpecies in his Figures of Plants.—The root is very thick and fleſhy, and divides into ſeveral thick taper fangs, as large as a man's finger, covered with a reddiſh-brown bark: it is of a yelloviſh red colour within. The root ſtrikes pretty deep into the ground, and early in the ſpring ſends up many leaves, which at their firſt appearance are cloſely folded up, but afterward expand, to the length of near two feet, and the breadth of a foot and half at the baſe, where they are rounded to the footſtalk; their borders are ſinuated and a little waved, and they are ſomewhat downy on their under ſide. The footſtalks are ſeven or eight inches long, riſing immediately from the root; they are as large as a man's finger, flatted and channelled on their upper ſide, but convex on their lower, of a purpliſh red colour. The flower-ſtalks ariſe from the root, among the leaves, and are three feet and a half high, having a ſmaller leaf at each joint, the ears of which almoſt embrace the ſtalk.

[Linneus ſays, that the leaves are more coriaceous or compact than in the other ſpecies, whence his trivial name; that the lobes are rounded, more obſcure, crenate with the margin cartilaginous and the toothlets acute; that they are very ſmooth on both ſides, and have ſtouter veins. The branches of the panicle are nodding.

The ſeed is rounded cordate and three-ſided; the ſides beſprinkled with raiſed dots, of a browniſh-green colour, and ſhining; the angles membranaceous, ſtriated, ferruginous [c].

Native of Tartary. Introduced in 1779, by Chevalier Thunberg [d]. Mr. Miller's plant deſcribed above, not being the true *compactum* of Linneus, but more probably his *undulatum*.]

5. The fifth ſort grows naturally on mount Libanus, and other mountainous parts of Syria. This has a thick fleſhy root, which runs pretty deep in the ground, from which ariſe ſeveral leaves in the ſpring, which come up folded together, and afterwards expand; they have very ſhort foot-ſtalks, ſo ſpread near the ground; but during the ſpring, their borders are erect, and form a ſort of hood having ſeveral folds, and are curled and waved on their edges; they are of a purpliſh green, and have purple veins and borders; their ſurface appears ſtudded with rough protuberances, and when the leaves are fully expanded in ſummer, they are a foot long, and above two feet broad; their under ſide is paler than the upper, and their borders appear fringed. I have not ſeen this plant in flower, but the ſeeds of it were brought from mount Libanus, by the Right Rev. Dr. Pocock, the late Biſhop of Oſſory; theſe were larger than thoſe of the other ſpecies, and covered with a ſucculent pulp, of a deep red colour, and very aſtringent taſte; this ſucculent covering may have occaſioned its being taken for a berry, by many of the old writers; the ſhape of the ſeed is like that of the other ſpecies.

[Dillenius ſays, that William Sherard procured it from mount Libanus, eight years before he writ; and if that be underſtood of the publication of the Hortus Elthamenſis in 1732, it agrees with what is ſaid in the Kew catalogue from Knowlton's manuſcripts, that it was cultivated in 1724, by James Sherard, M.D.—Dillenius adds, that it had not then appeared in any of the European gardens, except in that of Leyden, after the time of Voſſius, and in that of Eltham in his own time. Bellonius, Rauwolfius and Guilandinus had obſerved it growing naturally; and ſince their time Pocock and other travellers; not only on mount Libanus and Antilibanus, but on mount Sinai and Carmel, and in Perſia. Dr. Ruſſel informs us, that it was raiſed at Aleppo from ſeeds that came from the neighbourhood of Balbeck; and alſo by Mr. Gordon, of Mile-end, before the year 1781.

The ſtalks, as Rauwolff informs us, from thoſe which he ſaw brought to Aleppo, in order to make the Rob Ribes of Serapio, are near a cubit in height, an inch thick, hirſute, green, tinged with purple towards the bottom. It has never flowered in Europe, owing probably to its being ſo much out of place in our gardens, for it grows naturally in moiſt places on the mountains, and is covered with ſnow during a great part of the year.

6. Leaves large, thoſe next the root lying on the ground, on red petioles; the nerves very much widened. Inflorescence ſcarcely higher than the leaves. Native of Leſſer Tartary [e].

7. This is extremely allied in its appearance to the Rheum palmatum; being of ſimilar height, and having the ſame kind of leaves, ſtipules, &c. the leaves however are not ſo deeply laciniated nor ſo much pinnatifid as thoſe of the former ſpecies.

The firſt or radical leaves are generally cordate, and pointed, but not palmated, and the plant as it advances in age ſeems to become more palmated from year to year.

It was conſidered by Profeſſor Murray as a hybrid plant, produced by the mixture of Rheum palmatum with ſome other ſpecies, which had been impregnated by its pollen [f].

Not known where it is a native, but cultivated in 1778, by John Fothergill, M. D. [g]

There ſeems to be a diſpoſition in the Rheums to produce hybrid or mule plants. Mr. Miller has hinted it. A gentleman near Norwich, ſays that a near relation of his who is a phyſician, had ſome plants of R. palmatum and compactum, ſtanding ſo near together, four or five years ago, that the ſeeds ſaved from them produced only mule plants; and that they were then growing in his garden within a mile of Norwich [h]. This account being dated, ſept. 16, 1778, carries the cultivation of a hybrid Rheum to 1773 or 1774.

The phyſician gives this particular detail of theſe mule plants. In the ſummer of 1771, I had a plant of R. palmatum growing about four yards from a plant of R. compactum, both in full flower. The firſt being generally allowed to be the true Turkey Rhubarb, I gathered the ſeeds of it, and ſowed them early in ſpring 1772. In about five weeks the plants appeared in great plenty, and were in the beginning of the winter following tranſplanted. The leaves were neither

[c] Gaertner. [d] Hort. kew. [e] Linn. ſuppl. [f] Murray. [g] Hort. kew.
[h] Bath papers, t. 191.

thoſe of palmatum or compactum, very large and broad like the latter, but terminating in long ſharp points, and in ſome degree indented and reſembling the former. In 1775 theſe plants were all in flower: when their ſeeds were ripened, they were gathered, as they have been every year ſince, and ſowed every ſpring, but without having ever produced a ſingle plant. Many botanical gentlemen have viewed theſe plants, and have pronounced them to be mules. The root does not appear to have been at all affected in quality or appearance, on being compared with that of R. palmatum [i].

Dr. Pulteney writes, in 1783, that he had been informed, that palmatum and undulatum planted near each other will produce a mongrel plant, the ſeeds of which are not fertile [k].

Probably there may be other mongrel ſorts produced. There are ſeveral ſpecies now cultivated in the botanic garden at Cambridge, different from any of thoſe deſcribed above, but not yet ſufficiently aſcertained to be regiſtered here. Some of theſe may be mule plants; but as they all ſtand very near each other, ſuch no doubt would be produced if the ſeeds of the ſeveral ſpecies were collected and ſown.]

PROPAGATION AND CULTURE.

Theſe plants are all propagated by ſeeds, which ſhould be ſown in autumn ſoon after they are ripe, and then the plants will come up the following ſpring; but if they are kept out of the ground till ſpring, the plants ſeldom come up till the next ſpring, ſo that a whole year will be loſt. The ſeeds ſhould be ſown where the plants are deſigned to remain; for as their roots are large and fleſhy, when they are tranſplanted, they do not recover their removal ſoon; nor will the roots of thoſe plants which are tranſplanted, ever grow ſo large and fair, as thoſe which remain where they were ſown. When the plants appear in the ſpring, the ground ſhould be hoed over, to cut up the weeds; and where the plants are too cloſe, ſome ſhould be cut up, leaving them at the firſt hoeing ſix or eight inches aſunder; but at the ſecond, they may be ſeparated to a foot and half diſtance or more. As ſoon as any weeds appear, ſcuffle the ground over with a Dutch hoe in dry weather. When the plants cover the ground with their broad leaves, they will keep down the weeds of themſelves.

In autumn, when the leaves decay, clean the ground, and in the ſpring, before the plants begin to put up their new leaves, dig the ground between the plants, or at leaſt hoe and clean them. The ſecond year, many of the ſtrongeſt plants will produce flowers and ſeeds, but the third year moſt of them will do ſo. Gather the ſeeds carefully when ripe, and do not permit them to ſcatter, leſt they ſhould grow to injure the old plants. The roots will remain many years without decaying; and it is ſaid that the old roots of the true Rhubarb are much preferable to the young ones. They delight in a rich ſoil, not too dry, nor over moiſt; and where there is a depth in ſuch land for their roots to run down, the leaves and roots will attain a great ſize.

The firſt ſort is now frequently cultivated in gardens for the footſtalks of the leaves, which are peeled and made into tarts in the ſpring.

The true Rhubarb is now ſown in many gardens, and may probably ſucceed ſo well in time, that a ſufficient quantity of that valuable drug may be raiſed to ſupply our conſumption.

[Dr. Mounſey's directions for the culture of the Turkey Rhubarb, are to ſow the ſeeds in april or may, three or four in a pot, which ſhould be plunged in a hot-bed until the ſeeds vegetate. When the plants are about two months old, tranſplant them where they are to remain, in a fine light ſoil. Keep ſome of the plants in the pots until october, and ſome to the ſpring following, and then plant them out. When by theſe precautions you have ſecured a ſufficient number of plants, you may venture to ſow the ſeeds in the open air. If they vegetate late in the ſeaſon, cover them with mulch or moſs, to preſerve them in winter. When tranſplanted, ſet the plants at leaſt four feet aſunder, hoe them, keep them clean, and turn up the ground yearly between the rows, taking care not to touch the roots. In the ſecond or third year the plants will begin to bear ſeeds. The earlieſt period at which the roots are uſeful, is at four year's growth, but even then they will be ſoft and ſpungy: they had better therefore remain eight years undiſturbed; and even more years will add greatly to their perfection [l].

Mr. Davis, of Minehead, recommends the ſeeds to be ſown on a very gentle hot-bed in march, and when the roots are about the ſize of a crow's quill, they ſhould be drawn up carefully to preſerve the tap-root, and planted in fine rich earth in a deep ſoil: if the weather ſhould prove dry, they muſt be watered. When the plants are once in a growing ſtate, all farther care and trouble, but that of keeping them free from weeds, is at an end.

The diſtance of the plants ſhould be eight feet; and as they diſappear above ſeven months in the year, the ground may be uſefully employed in many articles of gardening, from the middle of auguſt to the beginning of april [m].

The ſeeds however do not require a hot-bed to make them vegetate; but if ſown in the natural ground during the ſpring, when the weather is open, ſoon come up and thrive very faſt. This plant delights moſt in a rich light deep ſoil, and warm expoſure, but will thrive in almoſt any ſoil or ſituation. If the roots be covered with litter, or the earth be drawn over them in winter, they will riſe the ſtronger in the following ſpring. The ſeeds ſhould be ſown where the plants are to remain, and when they appear, the ground ſhould be kept clean from weeds. When thinned out, the diſtance of the plants ſhould be eight feet [n].

Sir William Fordyce, who ſowed the ſeeds at firſt upon a hot-bed; on the whole, found that they ſucceeded beſt when ſown in the open ground, in an eaſt or ſouth-eaſt expoſure, during the laſt half of march, or in april, or even ſo far as the end of may; if the ſpring proved cold and dry. It may be tranſplanted during the whole courſe of the ſummer [o].

If the ground be ſtirred about a feeding plant, the ſeeds falling will produce plenty of young plants, both in the autumn and the following ſpring: theſe may be tranſplanted about midſummer [p].

Mr. William Hayward, of Banbury, ſows the ſeed about the beginning of february, on a bed of good ſoil, if rather ſandy the better, expoſed to an eaſt or weſt aſpect, in preference to the ſouth; a full ſun being prejudicial to the vegetation of the ſeeds, and to the plants whilſt young. Sow broadcaſt moderately thick, treading the ſeeds regularly in, and raking the ground ſmooth. In a wet ſeaſon, it is beſt to make a bed two feet thick, with new dung from the ſtable, covering it near one foot thick with good ſoil. The intent of this bed is not ſo much for the ſake of warmth, as to prevent the riſing of earth-worms, which in a moiſt ſeaſon will frequently deſtroy the young crop.

If the ſeed be good, the plants often riſe too thick; if ſo, when they have ſix leaves, take them carefully up, where too cloſe, leaving the ſtanding crop eight or ten inches apart: plant thoſe that are taken up at the ſame diſtance, in a freſh ſpot of ground, in order to furniſh other plantations. When the plants in general are grown to the ſize that Cabbage plants are uſually ſet out for a ſtanding crop, plant them where they are to remain, in beds four feet wide, one row along the middle of the bed, leaving two yards diſtance between the plants, allowing an alley between the beds about a foot wide, for conveniency of weeding the plants.

In the autumn, when the decayed leaves are removed, if the ſhoveling of the alleys be thrown over the crowns of the plants, it will be found of ſervice [q].

[i] Bath papers, 1. 202. 205. [k] Idem. 2. 248. [l] Idem, 1. 188. [m] Idem, 1. 185. [n] Idem, 1. 193.
[o] Pamphlet on Rhubarb, 1796. 8vo. p. 16.
[p] Tranſ. art. 2. 79. [q] Idem, 8. 79.

Mr. John Ball, ſurgeon of Williton, ſows the ſeeds the ſecond week in february, in drills ſix inches apart, and one inch deep, upon beds three or four feet wide. If the weather ſhould prove mild, the plants will appear in a fortnight or three weeks; and in a dry ſeaſon they muſt be moderately watered. If too thick, thin them from two to three inches; and when about four inches high, tranſplant them where they are to ſtand, from four to ſix feet from each other, in a deep ſoil, well manured with good rotten dung, ſifted coal aſhes, and lime ſlaked and mixed with mud or waſte from a mill-pond, or with earth from the gutters of meadows. Keep them clean from weeds, and if occaſion, water them moderately, and look over the plantation every evening, to pick off the ſlugs, which are exceedingly fond of the young plants, and will ſoon deſtroy them.

The ſeeds may be ſown alſo in ſeptember, or the firſt week in october, and they will be fit to tranſplant in february or the beginning of march[1].

The Rev. James Stillingfleet, of Hotham in Yorkſhire, ſows the ſeed early in the month of april, on a ſartly loam, in a ſouth-eaſt aſpect; ſheltering the young plants from the ſun till they have obtained ſtrength.

When about the ſize of young cabbages or ſmaller, he tranſplants them into beds four or five feet wide, at the diſtance of five or ſix feet aſunder: but the plants which remain in the ſeed-bed, when well thinned, are larger and better than the others. It will conduce to their ſtrength and growth to raiſe the bed ſomewhat above the alleys, that the plants may be kept dry; for Rhubarb will not bear much wet; though a very dry ſand will not ſuit it. Much dung tends to canker the plants: a good free ſoil, in a moderate ſtate of cultivation, ſeems to ſuit them beſt; or if mulch be uſed, it ſhould be thoroughly rotten, and almoſt reduced to mould. The young plants in the end of autumn ſhould have the ſcrapings of the alleys thrown over them, and alſo in ſpring, when the plants are about an inch above ground[2].

Mr. Thomas Jones, of Fiſh-ſtreet hill, London, ſows the ſeeds in march and april, or during the autumn in auguſt and ſeptember; the former to be tranſplanted in autumn, the latter in ſpring. Inſtead of placing the ſeedling plants where they are to remain, as is uſually recommended, beds ſhould be prepared reſembling thoſe which are made for Aſparagus, of fine mould, from twelve to eighteen inches deep. When the young plants are four or five inches high, and have thrown out as many leaves, tranſplant them upon thoſe beds at eight inches aſunder; ſelecting firſt the largeſt, carefully drawing them out, ſo as to deſtroy or even diſturb the fibres as little as poſſible. Watering the bed previous to the removal, will greatly facilitate the operation. In the culture of Rhubarb, the whole difficulty conſiſts in bringing the plants through their firſt ſeaſon: if the weather be hot and ſultry, they muſt be ſhaded, and at all events they muſt be continually watered. For tranſplanting, a wet or cloudy day ſhould be preferred; and if the weather ſhould continue ſo for two or three days ſucceſſively, not more than four or five in a hundred will probably be loſt. *In a month the roots* will have made freſh ſhoots, and new leaves will have ſucceeded the former, which commonly, notwithſtanding all our care, will wither away. The plants may now remain in theſe nurſery-beds till the enſuing ſpring, or if the ſummer be favourable, and the land intended for the plantation be well trenched three feet deep, it may be completed without delay. It is a good way to ſow the ground with Carrots, the ſurface by this means being preſerved from weeds, and rendered finer by repeated hoeings, and the bottom kept light and open. At different periods during the ſummer, when the plants are of a proper ſize, and the weather is cloudy or ſhowery, with a tranſplanter or circular ſpade, remove them with a ball of earth adhering, at the preſcribed diſtances, into the midſt of the Carrots, deſtroying ſuch as might obſtruct the growth of the Rhubarb; and if the weather ſhould prove unuſually hot, the foliage of the Carrots will preſerve the young plants from the ſun, till they have acquired a ſufficient growth. After this, it remains only to keep the plantation clean, and the trenches open[3].

In the choice of a ſituation, the aſpect is not very material, provided it be not ſhaded too much on the ſouth or weſt. The indiſpenſable points are the depth and good quality of the ſoil, which ſhould be light, loamy and rich, but not too much ſo, leſt the roots ſhould be too fibrous: it can ſcarcely be too dry, for more evil is to be expected from a ſuperabundancy of moiſture, than from any actual want of it. If with theſe advantages, the plantation can be placed on a gentle declivity; ſuch a ſituation may be ſaid to be very eligible.

The injuries which the young plants are moſt liable to, are from ſlugs and other ſmall vermin, from inattention to the ſeaſon and manner of planting, and from too great an expoſure to froſt. Little damage is to be feared from heat; and in general they are hardy and eaſy of cultivation, when arrived beyond a certain term.

If the ground deſtined for the plantation be a greenſward, no time will be loſt by a little delay. Suffer a ſeaſon or two to elapſe, by growing Oats, Potatoes, &c. before the plantation be attempted, that the turf may be entirely rotted, and the wire worms, which always infeſt old graſs land, be completely deſtroyed.

Sow liberally, not thick on a ſmall piece of ground, but in ſufficient quantity; it being impoſſible to foretell what may happen, from an unuſually wet or ſevere winter, &c. Never let a ſeaſon be omitted, leſt a ſupply ſhould fail, and a ſucceſſion be loſt.

Provided the weather be open, the beſt time for ſowing is the end of february or the beginning of march; and if the ſeed ſhould not vegetate in three weeks, let the ſowings be repeated till they do. In cold ſoils a moderate hot-bed may be ſometimes required, but very ſeldom; and ought never to be uſed but when abſolutely neceſſary, thoſe plants being ſtrongeſt that are raiſed in the open ground. It is better to ſow broad-caſt than in drills.

The nurſery-bed muſt be diligently attended to. The pains beſtowed by conſtant waterings, and protecting the young plants from the ravages of inſects, will amply repay the planter. Roots that thrive well here, will in three years arrive at an equal ſize with others, that have not ſucceeded ſo well, at the end of five. When a plantation is to be formed, or a vacancy filled up, ſelect the fineſt and moſt thrifty plants. No plant will come to any thing, when it has loſt its principal bud.

When a plantation does not poſſeſs the natural advantage of being on a declivity, narrower beds, and deepened trenches, are among the artificial means that ſhould be adopted; but moſt ſituations will require ſome care to prevent the ill effects of water remaining on the crowns of the plants: therefore when the ſeed-ſtalks are cut off, which ought always to be done immediately upon the withering of the radical leaves, they ſhould be covered with mould in form of a hillock. This proceſs will anſwer two good purpoſes, that of throwing off the rain, and keeping open the trenches by taking the earth from them.

Till the plants have blown, the medical qualities of the roots ſcarcely come into exiſtence; and at the ſame period the danger of decay commences likewiſe. When the buds from the roots have grown up and flowered, a cavity is formed in the centre of the plant, in which rain will make a lodgement, to the inevitable deſtruction of thoſe parts that, on this account, year after year, become unprotected.

Theſe portions of the crown whence the ſeed-ſtalks ariſe, prove ever the moſt valuable; and every ſucceeding year producing other ſeed-ſtalks, would add to the ſtock of uſeful root, if experience did not tell us, that hitherto the latter have increaſed no faſter than the former have been diminiſhed.

Every ſpring and autumn the plants ſhould undergo a general examination. The young ones will preſently

[1] Tranſ. Arts. 15. 179. [2] Idem, 15. 157. [3] Idem, 15. 167.

diſcover their real ſituation, for either their leaves will wither as faſt as they are produced, or their growth will become ſtunted: but with regard to the older ones, or thoſe that have blown, as in moſt caſes there will be found enough ſound root to produce a luxuriant foliage, their ſtate can only be diſcovered by preſſing a finger into the centre of the crown: the leaſt unſoundneſs will ſoon be perceptible by this means.

In both caſes the plants ſhould be removed, and the vacancies filled with others; for in the former much time will be ſaved, and the bad ſituation of the latter, by remaining, will only be aggravated, whilſt it furniſhes the cultivator with an opportunity of examining into the occaſion of the ſeveral defects, and may lead to future prevention [s].

Reſpecting ſoil, the general voice is, that ſuch an one as is fit for Carrots, will ſuit Rhubarb. Dr. Lettſom ſays it delights in a ſandy ſoil, on a ſomewhat elevated ſituation:—Dr. Hope, that the roots raiſed in a dry ſoil are preferable to thoſe raiſed in a moiſt one: Another phyſician, that the ſoil in which his plants were raiſed is very light for about twelve inches deep, and under that a ſtratum of red ſand of great depth [t].

Mr. Hayward's plants grew on a ſtrong red loam, on a gentle declivity towards the weſt:—Mr. Davis's on a light black ſoil, in a ſituation quite open, and without any declivity:—Mr. Stillingfleet's on a ſandy loam, which he finds to be the beſt ſoil; he prefers a ſouth-eaſt aſpect, but thinks an eaſt aſpect might poſſibly be ſtill better [u].

Mr. Bell, in his travels among the Tartars, relates that where there are ten or twenty plants of Rhubarb growing, you are ſure to find ſeveral burrows of the Marmot under the ſhade of their broad ſpreading leaves. For when the ſeed happens to blow among the thick graſs, it can very ſeldom reach the ground; whereas what falls among the looſe earth thrown up by the Marmots immediately takes root, and produces a new plant. Mr. Bell farther ſays, that he dug up as much of the root as he wanted, with a ſtick [w].

It is plain from this account, that the ſoil there is light and dry; two properties which appear to me indiſperſable to have the Rhubarb root of a good quality: a poor ſand is bad, but a ſtiff clay is worſe; good ſandy loams, fit for Carrots, as was before obſerved, are the beſt.

It may be doubted whether manure ſhould be uſed or not. Mr. Ball, in his ſandy ſoil, uſed one part good rotten dung, and two parts rich earth from the gutters in watered meadows, thrown together two years and often turned, two parts of old cobb or mud wall, and two parts of ſifted coal aſhes. The ſecond year he gave the plants a freſh dreſſing of good rotten dung. He uſed alſo one part rotten dung, one part ſifted coal-aſhes, and two parts lime previouſly ſlaked, and mixed with mud or waſte from a mill pond and often turned.

Mr. Hayward, on his ſtrong red loam, manured at a conſiderable expenſe with well rotted horſe-dung; his land being in a very impoveriſhed ſtate from a bad tenant.

Mr. Stillingfleet does not adviſe much dung, as it tends to canker the plants; and thinks that a good free ſoil in a moderate ſtate of cultivation, ſeems to ſuit them beſt; or if mulch be uſed, it ſhould be quite rotten, and almoſt reduced to mould [x].

Sir William Fordyce remarks, that ground unmanured, or not too rich, is leaſt apt to breed the fly, to which this plant is more ſubject than even the Turnep [y].

I have no doubt but that dung injures the quality of the root, and that it will be beſt on good freſh ſound land, well worked.

The diſtance moſt generally recommended at which the plants ſhould finally ſtand for a crop, whether hoed out or tranſplanted is four feet; and the Society of Arts recommended that the plants ſhould ſtand that diſtance at leaſt. Mr. Jones remarks, that although the foliage will frequently meet at a much greater diſtance, the roots never occupy ſo large a ſpace [z]. This gentleman had when he began to cultivate Rhubarb, ſet the plants at the diſtance of ſix feet. Mr. Ball's plants alſo ſtood ſix feet aſunder every way [a].

Rhubarb may be propagated not only from ſeeds, but from offſets. Mr. Thomas Hayes, ſurgeon at Hampſtead, having found himſelf diſappointed in raiſing plants from ſeed, ſeparated ſome of the eyes or buds, which ſhoot out on the upper parts of the root, together with a ſmall part of the root itſelf, having ſome of the fibres to it. Theſe offſets may be taken from roots of three or four years old, without any injury to the plant. By this method a year is ſaved, the plants are not in ſuch danger of being devoured by vermin as thoſe from ſeed, nor ſo uncertain in growing; they are not ſo tender, neither do they need tranſplanting, or any other care than keeping the ground clear of weeds. There is no difference in the ſize of the roots thus raiſed, from thoſe which grow from ſeeds [b].

Mr. Hayward alſo ſlipped ſeveral offſets from the heads of large plants in the ſpring, and ſet them with a dibble about a foot apart. In autumn they had made great progreſs, and furniſhed his beds with forty plants in the moſt thriving ſtate [c]. Four years after he took up theſe roots, and found them to be very large, and of excellent quality. On farther experience, when he took up his roots, either in ſpring or autumn, he divided the head into many parts; theſe he planted directly, at two feet diſtance, if intended for future removal; but if to remain for a crop, he allowed four feet and a half [d].

There is a difference of opinion reſpecting the age at which the roots ought to be taken up for uſe. According to Dr. Mounſey, the earlieſt period at which the roots are uſeful, is at four years growth, but even then they will be ſoft and ſpungy. They ſhould remain therefore eight years undiſturbed; though ſtill more years will add greatly to their perfection [e].

Sir William Fordyce is alſo of opinion, that though Rhubarb may be taken up at the end of four years, it will not, how properly ſoever managed, poſſeſs that ſolidity which is neceſſary for its excellence. It will be found in its moſt perfect ſtate at the end of ſeven years, but it will continue good after that age, if it has been carefully cultivated, and is ſkilfully cured [f].

A phyſician in the Bath memoirs, aſſigns eight years as the meridian of perfection for the roots [g].

Mr. Stillingfleet ſays the beſt time for taking up the roots, is when they are five or ſix years old, according to the ſize of the plants: if younger, they are defective in ſtrength and efficacy; if older, they are ſtrong in taſte, and more rough in their operation [h].

All accounts agree, ſays Mr. Jones, that Rhubarb ſo cultivated as to arrive at ſix or ſeven years growth, and properly cured, will poſſeſs all the virtues the moſt ſanguine can deſire [i].

And yet Dr. Hope and ſome others are for taking up the roots at four years old [k].

The ſame gentleman deſcribes the ſeaſon for taking them up to be from the end of july to the firſt of january; after the weather has been ſome time dry.

Dr. Lettſom ſays, it may probably be of little conſequence, as to the vigour of the roots, whether they are taken up in ſummer or autumn; but as warm weather is beſt for drying them, the former ſeems moſt eligible [l].

Bergius adviſes the roots to be taken up in autumn, and to be eleven or twelve years old. Dr. Pulteney is inclined to be in favour of the ſpring, before the plant begins to puſh its leaves; though he is ſenſible that this will not hold in thoſe bulbous or tuberous

[s] Tranſ. Arts. 16. 220. [x] Bath papers, 1. 198. 200. 205.
[t] Tranſ. Arts. 12. 226. 14. 145. & 15. 157. [y] Fordyce, p. 4. &c.
[u] Tranſ. Arts. 7. 34. 36. 8. 72. 12. 227. 15. 158. [z] Pamphlet, p. 16.
[a] Tranſ. Arts. 12. 226. 14. 147. 15. 166.
[b] Idem, 8. 72. 11. 124. & 15. 165. [c] Bath papers, 4. 178.
[d] Tranſ. Arts. 8. 81. [e] Idem, 12. 227.
[f] Bath papers, 1. 189. [g] Pamphlet, p. 17. [h] Vol. 1. p. 204.
[i] Tranſ. Arts. 15. 159. [k] Idem, 16. 218.
[l] Bath papers, 1. 199. [m] Idem, 1. 198. 200.

kinds,

kinds, which form a new root annually, as ſoon as the plant is perfected.

The Chineſe get up their Rhubarb in winter [p]. Pallas ſays that the Tartars take up theirs in april and may; but in Bell's account, this is ſaid to be done in the autumn. Forſter, in his hiſtory of voyages to the north, affirms that the roots are dug up there in winter, before they put forth leaves, becauſe they then contain the entire juice and virtue of the plant; thoſe that are taken up in ſummer being of a light ſpungy texture, and unfit for uſe.

Mr. Jones, prefers taking up the roots as near to the winter ſolſtice as he can; for though the powers of nature might be more active in february, yet the roots dry better and ſhrink leſs than in the ſpring. He generally finds them to loſe about four fifths in drying [q].

The roots, in the judgment of Mr. Hayward, may be taken up either early in the ſpring, or in autumn when the leaves are decayed; in dry weather, if poſſible [r].

Mr. Ball takes up the roots, when the ſtalks are dying away [s].

The greateſt difficulty in this buſineſs ſeems to be drying and curing the root.

In Tartary, the root, being thoroughly cleaned, and the ſmaller branches cut off, is cut tranſverſely into pieces of a moderate ſize; theſe are placed on long tables or boards, and turned three or four times a day, that the yellow viſcid juice may incorporate with the ſubſtance of the root. If this juice be ſuffered to run out, the roots become light and unſerviceable; and if they be not cut within five or ſix days after they are dug up, they become ſoft, and decay very ſpeedily. Four or five days after they are cut, holes are made through them, and they are hung up to dry expoſed to the air and wind, but ſheltered from the ſun. Thus in about two months the roots are completely dried, and arrive at their full perfection. The loſs of weight in drying is very conſiderable; ſeven loads of green roots yielding only one ſmall horſe-load of perfectly dry Rhubarb [t].

The Chineſe, after having cleaned the roots, by ſcraping off the outer bark, as well as the thin yellow membrane underneath, cut them in ſlices, an inch or two in thickneſs, and dry them on ſtone ſlabs, under which large fires are kindled. They keep continually turning theſe ſlices on the warm ſlabs; but as this operation is not ſufficient to dry them thoroughly, they make a hole through them, and ſuſpend them on lines, in a place expoſed to the greateſt heat of the ſun, till they are in a condition to be preſerved without danger of ſpoiling [u]. Rochon on the contrary aſſerts, that they are hung in the open air and in the ſhade [v].

Sir William Fordyce directs, that as ſoon as a root is dug up, it ſhould be waſhed till it is thoroughly clean. Let the fibres be taken away, and not the ſmalleſt particle of bark left on the larger roots. Cut theſe into ſquare pieces, as nearly as they will admit, of four inches in breadth, and an inch and half in depth. Make a hole in the middle of each, about half an inch ſquare. Then ſtring them on a packthread, with a knot on each, and at ſuch a diſtance as to keep them from rubbing or entangling. Thus ſecured, hang them up in form of feſtoons, in the warm air of a kitchen, laundry or ſtove, till the ſuperfluous moiſture is exhaled, to prevent their becoming mouldy or muſty. They may be afterwards dried more at leiſure, and when quite dry may be wrapped ſeparately in cotton, and kept in wide mouthed bottles. The tap-roots and parings will make excellent tinctures [w].

Mr. Davis recommends, that after dividing the root into proper parts, the outer rind ſhould be ſliced off, and then it ſhould be hung up on a ſtring expoſed to ſun and air, but defended from wet: each piece hanging ſeparately, and care taken that it does not grow mouldy. When hardened on the outſide, remove it to the kitchen chimney-corner, where a moderate fire is conſtantly kept, till it is perfectly dry. It may then be raſped, and all the diſcoloured outſide taken off [x].

Dr. Hope is of opinion that the entire root ſhould be hung up in the open air for two, three, or more weeks, and then cut into marketable pieces, before it be put into the drying. The cuticle ſhould be rubbed off as ſoon as poſſible [y].

Mr. Hayward's method is, to clear the roots from dirt, without waſhing, to cut them into pieces, with a ſharp knife to free them from the outer coat, and then expoſe them to the ſun and air for a few days, to render the outſide a little dry.

In order to accelerate the curing of the largeſt pieces, a hole may be ſcooped out with a penknife: theſe and the ſmaller parts are then to be ſtrung on packthread, and hung up in a warm room (as over a baker's oven) where they are to remain till perfectly dry. Each piece may be rendered more ſightly by a common file, fixing it in a ſmall vice during that operation: afterwards rub over it a very fine powder, which the ſmall roots furniſh in perfection, for this and every other purpoſe where Rhubarb is required [z].

Mr. Thomas Halley, of Pontefract, who produced ſamples to the Society of Arts, ſuperior to any Rhubarb hitherto cured in England; having thoroughly diveſted the roots of the adhering earth, placed them for ſome weeks on the floor of a cool warehouſe: the fibres were then taken off, they were cut up, and dried on the flue of a green-houſe. The prime roots were ſevered in ſmall pieces, peeled clean, and cleared of every particle of unſoundneſs. Part was ſeparately laid in ſieves, and the remainder perforated, ſtrung, and ſuſpended in feſtoons from the cieling of a warm kitchen. The manner of dreſſing conſiſts in paring off the external coat with a ſharp knife, as thin and clean as poſſible, and then finiſhing it off by a piece of fiſh-ſkin, with its own powder; which powder may be procured from the chips and ſmall pieces, either by grinding or pounding it in a large mortar [a].

Mr. Ball, ſo often mentioned, cleans the earth from the roots with a dry bruſh, cuts them in ſmall pieces of four or five inches in breadth, and about two in depth, taking away all the bark, making a hole in the middle, and ſtringing them ſo as to keep every piece apart. If the weather be clear and fine, he places them in the open part of his garden, on ſtages erected by fixing ſmall poſts about ſix feet high in the ground, and ſix feet aſunder, into which he puts horizontal pegs about a foot apart, beginning at the top; and the Rhubarb being ſtringed croſſwiſe on ſmall poles, he places them on theſe pegs; ſo that if it ſhould rain, he can eaſily remove each poſe with the ſuſpended pieces into a covered place. He never ſuffers them to be out at night, as the damps would be apt to mould them, and if at any time he perceives the leaſt mould, he rubs it off with a dry cloth. In ſome of the pieces he made holes in the middle about half an inch diameter, and found that they dried better than the others. He likewiſe hung ſeveral ſtrings in the kitchen, without ever expoſing them to the open air, and found them to dry much better. Some years ſince he dried a quantity on a malt-kiln, keeping up the thermometer to eighty degrees, which anſwered well, but he thinks dried rather too quick [b]. Finally, he preferred hanging his ſtringed roots to the cieling of a kitchen, where there is a conſtant fire [c].

Mr. Stillingfleet, after diveſting the roots of the earth, waſhes them in water, working them round with a birch broom, ſcrubbing them afterwards with a hard bruſh; nor does he find any inconvenience in this, if done immediately, and the roots not ſuffered to remain in the water. He then wipes them with a coarſe cloth, and lays them in the ſun or wind to dry, cutting them into pieces, as may beſt ſuit the farther proceſs. The rind is then pared off rather thin, the

[p] Bath papers, 2. 249. [q] Tranſ. Arts. 15. 159.
[r] Idem, 8. 81. [s] Idem, 12. 232.
[t] Fothergill in Bath papers, 4. 175. Foſter and Bell's travels.
[u] Grosier. [v] Memoire. [w] Pamphlet, p. 18.
[x] Bath papers, 1. 186. [y] Id. ib. 199.
[z] Tranſ. Arts, 8. 82. [a] Idem, 11. 130.
[b] Idem, 12. 232. [c] Idem, 13. 180.

pieces

pieces are ſtrung together, and hung up in the kitchen. He thinks that warmth fully ſufficient, and that the more gradually the roots are dried, the better they are for uſe. His were fully dried in half a year or leſs. He does not ſcoop out the middle, regarding that as the moſt uſeful part, though not the ſtrongeſt. He quarters the large pieces, that they may dry more thoroughly [f].

Dr. Falconer, of Bath, is of opinion, that if the following circumſtances were attended to, Britiſh Rhubarb might equal any of the foreign.

Firſt, a ſelection of the beſt pieces is indiſpenſably neceſſary.

Secondly, the central part of every piece ſhould be cut out; for it is found by experience that this, perhaps from its proximity to the ſap, is moiſteſt and moſt ſubject to decay; and when any part comes into this ſtate, the infection ſoon ſpreads and damages the whole piece. Doubtleſs it is to avoid this, that the pieces of Ruſſian Rhubarb have all holes, and thoſe pretty large, cut through their centre, which have been generally thought only to ſerve the purpoſe of hanging them up, but appear to anſwer this material purpoſe beſides. The holes made in Engliſh Rhubarb, when there are any, are not ſufficiently large to clear away the ſpungy and decaying parts.

Thirdly, the outſide ſhould be ſcraped or rather raſped, as the foreign Rhubarbs are. The want of this not only gives it a ſhrivelled and mean appearance and colour, but is really of great diſſervice, by obſtructing the quickneſs of drying, from the pores not being laid open for the herbaceous moiſture to exhale. Though the bark be ſtripped off, the larger pores running moſtly longitudinally, do not open laterally, and of courſe the watery fluid is confined, and exſudes very ſlowly.

Fourthly, it is probable, that great improvement might be made in the preparation of Engliſh Rhubarb, by accelerating its drying. It was formerly thought that plants were beſt dried in a ſlow and gradual manner, which is now found to be a miſtake, and that as quick drying as is conſiſtent with the ſafety of the vegetable ſubſtance, beſt preſerves the efficacious qualities of the plant.

Too much light indeed is thought to do injury, as it impairs the colour, and perhaps, though that is dubious, diſſipates ſome of the finer parts; but culinary heat is free from that objection, and at the ſame time poſſeſſes all the advantages of quick drying [g].

Dr. Hope ſays, on the ſubject of Rhubarb, I have thought much, made many experiments, and received much uſeful information: after all, it is a very difficult and uncertain attempt to dry Rhubarb ſucceſfully [h].

Certainly much of the true Rhubarb produced in England has not been cured ſo well as the foreign. But it may be hoped that attention to the directions here given, followed up by practice, may at length give complete ſucceſs.

The Duke of Athol has raiſed Rhubarb in Scotland, which was thought by eminent druggiſts, and gentlemen of the medical profeſſion in London, to be nearly, if not quite equal to the Ruſſian, in ſmell, taſte, and effect. By paying a little more attention to the curing, they conceived that its beauty might be increaſed. Upon which, the year after, his Grace ſent up ſpecimens of ſtill ſuperior quality [i].

Its having braved the climate of St. Peterſburgh, and ſucceeded well in Scotland, is a ſufficient proof of its hardineſs. Dr. Robertſon informs us that it grows luxuriantly in Perthſhire (Lat. 56°): that gardeners and others raiſe it there in great perfection; and that there is a conſtant demand for it as a medicine: but that there is ſuch a rage for every thing foreign, that Rhubarb of Scottiſh growth is generally rejected in the ſhops, knowing it to be ſuch; which may have prevented its cultivation [k].

I have been very diffuſive upon this article, becauſe it appears to be of national importance. And I have given the opinions of different cultivators, rather than deciſive rules, becauſe the propagation, culture and curing of Rhubarb in Britain, have not been practiſed long enough, and to a ſufficient extent, to admit of certainty and preciſion. It were much to be wiſhed that it might be tried on a large ſcale, on ſome of our beſt Carrot ſoils, ſuch as thoſe about Woodbridge in Suffolk and Sandwich in Kent. Where, with due attention to the age of taking up and the curing, there is no doubt but the crop would amply repay the cultivators, and be a conſiderable ſaving to the nation.]

[f] Tranſ. Arts. 15. 159. [g] Bath papers, 3. 402.
[h] Id. ib. 440. [i] Id. ib, 445. [k] Survey, 188.

RHEXIA (*of Pliny; from* ῥῆξις, *ruptura; from* ῥήγνυμι, *rumpo, to break or burſt.*)

Lin. gen. n. 468. *Reich. n.* 504. *Schreb. n.* 636. *Juſſ.* 330. *Gronov.*

Claſſ. 8. 1. Octandria Monogynia.

Nat. order of *Calycanthemæ. Melaſtomæ*, Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* one-leafed, tubular, ventricoſe at bottom, oblong, with a four-cleft border, permanent.

COR. *Petals* four, roundiſh, inſerted into the calyx, ſpreading.

STAM. *Filaments* eight, filiform, longer than the calyx and inſerted into it. *Anthers* declining, grooved, linear, blunt, verſatile.

PIST. *Germ* roundiſh. *Style* ſimple, the length of the ſtamens, declining. *Stigma* thickiſh, oblong.

PER. *Capſule* roundiſh, four-celled, four-valved, within the belly of the calyx.

SEEDS numerous, roundiſh.

ESSENTIAL CHARACTER.

Cal. four-cleft. *Pet.* four, inſerted into the calyx. *Anthers* declining. *Capſ.* four-celled, within the belly of the calyx.

SPECIES.

1. Rhexia virginica.
   Lin. ſpec. 491. *Reich.* 2. 146. *Gron. virg.* 41. *Pluk. amalth.* 8. (Aliſanus.) *phyt. t.* 202. *f.* 8. *Raii hiſt.* 3. 426. *n.* 5. (Lyſimachia.)
   Leaves ſeſſile ſerrate, calyxes ſmooth.
2. Rhexia mariana.
   Lin. ſpec. 491. *Reich.* 2. 146.
   R. glomerata. *Retzb. in act. litt. Hafn.* 1778. *p.* 276, *t.* 4.
   Lyſimachia non pappoſa, &c. *Pluk. mant. t.* 428. *f.* 1.
   L. lutea marilandica ſiliquoſa, &c. *Raii hiſt.* 3. 426. *n.* 10.
   Leaves ciliate.
[3. Rhexia trichotoma.
   Vahl, ſymb. 2. 48. *Retzb. diſſ. pl. var. 9. t.* 5.
   Flowers ſolitary axillary and terminating, leaves ſeſſile oppoſite lanceolate hirſute.
4. Rhexia Aciſanthera.
   Lin. ſpec. 491. *Reich.* 2. 146. *amoen.* 5. 396. *Brown. jam.* 217. *t.* 22. *f.* 1. (Aciſanthera.)
   Flowers alternate axillary peduncled five-cleft.
5. Rhexia Juſſioides.
   Lin. ſyſt. 357. *ſuppl.* 215.
   Leaves alternate ribbed rugged at the margin.
6. Rhexia glutinoſa.
   Lin. ſyſt. 357. *ſuppl.* 216. *Mutis amer. 1. t.* 6.
   Leaves oppoſite three-nerved even, flowers thyrſoid.
7. Rhexia leucantha.
   Swartz prodr. 61.
   Leaves oppoſite cartilaginous-toothletted coriaceous ſhining, branchlets four-cornered, flowers terminating ten-ſtamened.
8. Rhexia purpurea.
   Swartz prodr. 61.
   Leaves oppoſite toothletted coriaceous, branchlets round, flowers axillary ten-ſtamened.
9. Rhexia uniflora.
   Vahl, ſymb. 2. 48.
   Leaves petioled ovate ſerrate, flowers axillary ſolitary ten-ſtamened, ſtem dichotomous.
10. Rhexia inconſtans.
    Vahl, ecl. 1. 37.
    Melaſtoma ornata. *Swartz prodr.* 69.
    Leaves ovate hiſpid with cloſe-preſſed briſtles hoary three-nerved, peduncles terminating one or two-flowered.

11. Rhexia

11. Rhexia bivalvis.
Vahl, ecl. 1. 38.
Melaſtoma bivalvis. *Aubl. guian.* 404. *t.* 155. *f.* a.
Smooth, ten-ſtamened, leaves oblong ſeſſile obſcurely crenate blunt, peduncles terminating one-flowered.

12. Rhexia trivalvis.
Vahl, ecl. 1. 39.
Melaſtoma trivalvis. *Aubl. guian.* 406. *t.* 155. *f.* b.
Smooth, ten-ſtamened, leaves linear-lanceolate ſeſſile dotted above quite entire, peduncles one-flowered.

13. Rhexia longifolia.
Vahl, ecl. 1. 39.
Hairy, ten-ſtamened, leaves lanceolate quite entire five-nerved, peduncles axillary and terminating dichotomous ſhorter than the leaves.]

DESCRIPTIONS, *&c.*

1. This riſes with an erect ſtalk, near a foot and half high, four-cornered and hairy. Leaves lanceolate, hairy, about two inches long, and half an inch broad, entire and oppoſite. The ſtalk has two peduncles coming out from the ſide oppoſite to each other at the upper joint, and is terminated by two others; theſe each ſuſtain two or three red flowers with heart-ſhaped petals, ſpreading open in form of a croſs, and appear in june.

[The corners of the ſtalk are membranaceous. The leaves are longer than the internodes, three-nerved, ſomewhat hiſpid with ſcattered hairs, ſubferrate with ſetaceous ſerratures. Peduncle terminating, dichotomous. Flowers ſolitary from the diviſions, ſubſeſſile. Anthers ſickle-ſhaped, yellow [1].

Native of North America. Cultivated in 1759 by Mr. Miller [m]; who ſays, that it was diſcovered by Mr. Baniſter in Virginia. [Ray adds that Krieg brought it from Maryland.]

2. This ſends up an erect ſtalk about ten inches high. Leaves lanceolate, about an inch long, and a third part of an inch broad, ſet on by pairs; and from every joint of the ſtalk two ſhort ſhoots come out oppoſite, with ſmall leaves of the ſame ſhape; the whole plant is thick ſet with ſtinging iron-coloured hairs. The ſtalk divides at the top into two peduncles, ſpreading from each other, having one or two reddiſh flowers on each, with a ſingle ſubſeſſile flower between them; they have four heart-ſhaped petals, which ſpread open as in the preceding. It flowers about the ſame time. [Capſule within a ventricoſe calyx terminated by a four-cleft funnel-form border, membranaceous, very thin, ſubglobular, produced at top into a ſhort knob, four-celled, opening four ways at the top: partitions membranaceous, inſerted into the middle of the valves. Receptacles four, ſomewhat creſcent-ſhaped, fungoſe, excavated, inſerted by a thick lateral peduncle into the internal angles of the cells below the middle; the other parts quite free. Seeds ſmall, with raiſed dots in rows, pale, almoſt cylindrical, with a ſingle turn like a ſnail's cell, terminated by a wide concave navel. Skin ſingle, thickiſh, ſubero-cruſtaceous, brittle [n].

[Native of Maryland, Braſil, Surinam, in meadows [o]. Vernon and Krieg brought it from Maryland [p];] whence Mr. Miller alſo received the ſeeds. [He cultivated it in 1759.

Linneus remarks, that the calyx has briſtles ſcattered over it, which are ſtellate at the top.

Ray deſcribes the ſtem as round, ſlender, hirſute: the leaves alternate at moderate diſtances, longer, wider and ſharper than thoſe of Hypericum: from the ſinuſes of theſe ſpring branchlets, having very ſmall narrow ſharp leaves towards their upper part, and ſuſtaining large flowers at top, which in the dried ſpecimens ſeemed to be yellow. It is not certain that Ray's plant is the ſame with Plukenet's and Linneus's.

3. Stem frutecſcent. Branches four-cornered, with the corners rough-haired, trichotomous at bottom, dichotomous at top. Leaves an inch long, quite entire. Peduncles ſhort, at the forks and ends of the branches. Petals ovate, ciliate [q].

4. This ſeldom riſes above fourteen or ſixteen inches in height. The ſtem is pretty firm and ſquare, and emits many ſquare branches towards the top. The leaves are ſmall, three-nerved, ovate, crenate and oppoſite. The flowers ſpring ſingly from the alternate axils or boſoms of the leaves. The calyx is deeply five-cleft at the mouth. Petals five, obovate, inſerted into the throat of the calyx. Filaments ten, ſhorter than the corolla. Anthers oblong, ſagittate and ſubarcuate, verſatile. Germ crowned with the calyx. Style ſhort. Stigma ſharp. Capſule two-celled, filled with two little placentas. Native of Jamaica [r].

5. This is a ſhrub four feet in height, pubeſcent, as are alſo the peduncles and fruit. Leaves ſubſeſſile, ſomewhat cluſtered, lanceolate, ſcarcely a finger's length, rather directed all one way, rugged on the edge with very minute ſerratures, the nerves prominent a little underneath. Flowers axillary, ſolitary, peduncled, ſcarcely the length of the leaves, yellow. Perianth almoſt ſuperior, lanceolate, acute, ſpreading. Petals ſubovate, double the length of the calyx, ſeſſile. Filaments ſhorter: anthers incumbent, the length of the calyx or longer than the filaments. Germ inferior, the length of the calyx, a little prominent: ſtyle cylindrical: ſtigma warted. Capſule obovate, four-cornered, the length of the calyx, with four ſmall laminæ at top.—This plant is ſingular by its naked, warted, undivided, ovate ſtigma, girt as it were by a four-toothed margin; and by its capſule prominent within the calyx, marked as it were by four agglutinated laminæ. It is allied to Epilobium and Oenothera, but without a tubular calyx.—Native of Surinam, where it was found by C. G. Dalberg.

6. This is a ſmall and very leafy tree, reſembling the Melaſtomas, with jointed branchlets, alternately channelled. Leaves petioled, ſomewhat cluſtered, elliptic, quite entire, an inch long. Flowers ſcarcely longer than the leaves, peduncled. Calyx bell-ſhaped, ſpreading a little. Capſule inferior, four-parted or four-celled, ſhorter than the calyx, blunt. The ends of the branchlets and the calyxes are glutinous, whence the trivial name.—Found by Mutis in New Granada [s].

7. 8. Natives of Jamaica [t].

9. Stem herbaceous, four-cornered with four decurrent wings, having hairs glandular at the tip ſcattered over it, and viſcid. Branches filiform. Leaves very ſmall, acute, having a few hairs preſſed to the ſurface ſcattered over them, obſcurely three-nerved, ciliate at the edge with glandular hairs: the uppermoſt narrower and ſublanceolate. Petiole ſhorter than the leaf, ciliate alſo with glandular hairs. Peduncles axillary, and at the forks of the branches, ſolitary, very ſhort. Calyxes hairy. Petals lanceolate. Stamens ten, longer than the petals. Capſules ſubbilobed, the ſize of Coriander ſeed.—Found by von Rohr in Cayenne [u].

10. This is a ſmall low ſhrub, with diffuſed aſcending branches, the lower ones towards their baſe rooting, four-cornered, hiſpid with frequent ferruginous hairs preſſed cloſe: branchlets axillary, oppoſite like the branches, ſhorter than the leaf. Leaves oppoſite, bluntiſh, ciliate; on the upper ſurface marked with three lines and veinleſs, having yellowiſh flatted briſtles ſcattered over them; underneath hoary, marked with three nerves, beſides thoſe that run along the edge, hiſpid with whitiſh briſtles along the nerves and midrib. Petiole ſhort, hiſpid. Peduncles commonly three or four, and ſometimes a fifth central one ſhorter than the others, hiſpid, ferruginous, one-flowered; but often one of the lateral ones two-flowered. Bractes two on each peduncle, a little above the middle, oppoſite, ſeſſile, ovate, ciliate about the edge, in other parts ſmooth, ſmall. Calyx four or five-cleft, obovate having many briſtles ſcattered over them, which are whitiſh with the tips purpliſh and glandular. Segments lanceolate, attenuated, ciliate with briſtles. Petals four or five, obovate-roundiſh, roſe-coloured, ciliate along the outer edge, with remote hairs, appearing to be terminated by a minute gland when examined with a magnifier. Stamens eight or ten,

[1] Linn. ſpec. [m] Hort. kew. [n] Gærtner. [o] Linn. ſpec. [p] Ray. [q] Vahl. [r] Browne. [s] Linn. ſuppl. [t] Swartz. [u] Vahl ſymb.

upright, half the length of the corolla. Anthers oblong, blunt, ſulphur-coloured, a little curved in at the baſe, undivided on the lower tip, ſhorter by half than the filaments. Style a little ſhorter than the ſtamens. Capſule globular, ſmooth, ſhorter than the calyx in which it is enveloped.

It has many things in common with R. villoſa of Aublet, which differs only, ſo far as we can diſcern from the figure, in having the ſegments of the calyx briſtle-ſhaped, and much larger anthers with the lower tip two-horned.

Ryan remarked that this ſpecies varies much in the number of ſtamens, he reckoned from ſeven to twelve, and from this circumſtance he named it *inconſtans*. He found it in Montſerrat, upon lava covered with moſs.

11. This is an annual plant, ſmooth all over, and of an aſh colour. Stem aſcending, ſimple, four-cornered, the corners membranaceous, jointed, the loweſt joints rooting; having one or two branches at top, oppoſite, quite ſimple, axillary, longer by half than the leaf, one or two-jointed, winged. Leaves oppoſite, thickiſh, veinleſs, obſcurely three-nerved, the lower ſhorter, the upper a little longer than the internodes. Peduncles ſometimes three together; on the branches ſolitary, ſhort. Segments of the calyx five, lanceolate. Stamens ten. Capſule the ſize of a Coriander-ſeed, two-valved.—Native of Guiana.

12. This alſo is annual and ſmooth all over. Stem aſcending, from a ſpan to a foot in height, at bottom the ſize of a pigeon's quill, jointed, four-cornered, the corners membranaceous; having a branch or two at top. Leaves oppoſite, the upper ſurface greeniſh aſh-colour, having numerous minute dots ſcattered over it, not viſible without a magnifier, the under ſurface is not dotted; they are obſcurely three-nerved, acute, three times narrower than in the preceding ſpecies, the lower ones a little ſhorter than the internodes, the upper ones equal to them. Peduncles in the upper axils and at the top of the ſtalk, ſolitary, the length of the leaf. Segments of the calyx awl-ſhaped. Stamens ten. Capſule the ſize of a Coriander ſeed.—Native of Guiana.

13. Stems herbaceous, looſe, angular, of a yelloviſh aſh-colour from long denſe hairs preſſed cloſe to the ſurface Leaves oppoſite, remote, three or four inches long, and an inch wide, gradually ſmaller upwards, having long hairs that are cloſe preſſed ſcattered over them on both ſides, paler underneath, ſoft, three-nerved, with the two lateral nerves dividing above the baſe into two parallel branches. Petiole ſcarcely an inch long, hairy, yelloviſh aſh-colour. Peduncles twice-biſid, with a pedicelled flower in each diviſion, aſh-coloured with hairs, the axillary ones oppoſite, the terminating ones in threes, the length of the petioles: the partial ones equalling the general peduncle: the pedicels very ſhort. Calyx oblong, gray with rough hairs: ſegments five, awl-ſhaped, coloured within, ſmooth. Petals five, oblong, half as long again as the calyx, ciliate. Stamens ten, ſcarcely longer than the corolla: filaments ſubflexuoſe, toothleſs: anthers the length of the filaments, ſharpiſh, a little curved in at the baſe. Capſule ſubglobular, ſhorter than the calyx, rough-haired at the tip, five-valved: valves ovate, acute. Receptacles of the ſeeds five, curved in, free at top, excavated, black. Seeds abundant, very minute. It ſeems to approach to R. hiſpida in *act. ſoc. hiſt. nat.* at Paris, (1. p. 108.) but it is not clear from the deſcription whether it be a diſferent ſpecies or not.—Native of South America[*].

Theſe plants are all found wild in America. Linneus conſtructed the character of the genus from the two firſt ſpecies: in moſt of the reſt (4. 7. 8. 9. 11. 12. 13.) the calyx is five-cleft; the petals five; and the ſtamens ten; in n. 10. the ſtamens are inconſtant, from ſeven to twelve, the calyx four-cleft or five-cleft, the petals four or five. In n. 4. the capſule is two-celled; in n. 9. ſubbilobed; in n. 11. two-valved; in n. 13. five-valved. But notwithſtanding theſe anomalies, they are evidently of the ſame natural genus.

[*] Vahl, ecl.

There is a plain alliance of this genus to Oſbeckia and Melaſtoma. It differs from the firſt chiefly in its anthers, which are declined in a ſingular manner, almoſt as in Melaſtoma, from which it differs in having a capſular fruit; in that it is a berry. In the fruit and number of ſtamens Rhexia and Oſbeckia agree: but the latter are frequently ſo in Rhexia as in Melaſtoma.]

PROPAGATION AND CULTURE.

1. 2. Theſe plants are propagated by ſeeds, which muſt be procured from the places where they grow naturally. If the ſeeds arrive before the ſpring, and are ſown ſoon after, in pots filled with good freſh earth, and placed under a frame, to guard them from froſt, the plants will come up the following ſpring; but when the ſeeds are ſown in the ſpring, the plants rarely come up the firſt year. When they are fit to remove, plant part of them in an eaſt border, and others in pots, to be ſheltered under a frame in winter. The ſecond year the plants will flower, and with care may be continued three or four years.

The other ſpecies, coming from hotter parts of America, require more tender treatment, but have not yet been cultivated here.

RHINANTHUS. (*From* ῥὶς, *the noſe* or *ſnout*: *and* ἄνθος, *a flower*, *which is ringent*, or *like a ſnout*.)

Lin. gen. n. 740. *Reich. n.* 798. *Schreb. n.* 997. *Gærtn. t.* 54. *Juſſ.* 101. Pedicularis ſpecies. *Tournef.* 77. B. F. M. N. O. P. Elephas. *Tournef.* 482.

Claſſ. 14. 2. Didynamia Angioſpermia.

Nat. order of *Perſonatæ*. *Pedicularres*, Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* one-leaſed, roundiſh, inflated, compreſſed, four-cleft, permanent.

COR. one-petalled, ringent: *tube* ſubcylindrical, the length of the calyx: *border* gaping, compreſſed at the baſe; *upper lip* galeate, compreſſed, emarginate, narrower: *lower lip* ſpreading a little, flat, half-three-cleft, blunt; the middle ſegment wideſt.

STAM. *Filaments* four, about the length of the upper lip, under which they lie concealed; two of them ſhorter. *Anthers* incumbent, biſid on one ſide, hirſute.

PIST. *Germ* ovate, compreſſed. *Style* filiform, in the ſame ſituation with, but longer than the ſtamens. *Stigma* blunt, bent in.

PER. *Capſule* blunt, erect, compreſſed, two-celled, two-valved, opening at the edges: *partition* contrary.

SEEDS ſeveral, compreſſed.

OBS. Elephas Tourn. *has the margin of the capſule blunt, the ſeeds ſimple, the calyx unequal, two-lipped.*

Criſta galli Riv. *has the margin of the capſule augmented, the ſeeds membranaceous, clothed with wool, the calyx equal, four-cleft.*

ESSENTIAL CHARACTER.

Cal. four-cleft, ventricoſe. *Caps.* two-celled, blunt, compreſſed.

SPECIES.

1. Rhinanthus orientalis.
Lin. ſpec. 840. *Reich.* 3. 106.
Elephas orientalis, flore magno, proboſcide incurva. *Tournef. cor.* 48. *itin.* 2. 299. *ic.*—edit. *lugd.* 8°. 3. 151. *ic.*
The corollas with the upper lip awl-ſhaped and curved in.
2. Rhinanthus Elephas.
Lin. ſpec. 840. *Reich.* 3. 106. *Lerche in nov. act. A. N. C.* 5. *app.* 183.
Elephas italica, flore magno proboſcide ſurrecta. *Tournef. cor.* 48.
E. campoclarenſium. *Col. ecphr.* 1. 186. *t.* 188.
Euphraſia lutea, &c. *Mor. hiſt.* 3. 432. *ſ.* 11. *t.* 24. *f.* 14.
Scordio affinis Elephas ob florem. *Baub. pin.* 243. *Raii hiſt.* 776. *Park. theat.* 112. *n.* 6.
β. Elephas orientalis, flore parvo, proboſcide ſurrecta. *Tournef. cor.* 48. *itin.* 3. 54. *edit. lugd.* 3. 59.
The corollas with the upper lip awl-ſhaped ſtraight.
3. Rhinanthus

3. Rhinanthus Criſta galli. *Yellow Rattle* or *Cock's comb.* *Lin. ſpec.* 840. *Reich.* 3. 106. *fl. lapp. n.* 248. *ſuec. n.* 542. *hort. cliff.* 325. *Gærtn. fruct.* 1. 255. *Huſſ. angl.* 268. *Wither. arr. ed.* 3. 542. *Swith. brit.* 649. *engl. bot. t.* 657. *Lightf. ſcot.* 322. *Curt. lond.* 5. *t.* 43. 320. *Relh. cant. n.* 453. *Sibth. oxon. n.* 544. *Fl. dan. t.* 981. *Neck. gallob.* 263. *Pollich pal. n.* 579. *Villars dauph.* 2. 413. *Knack. ſiles. n.* 968. *Knipb. cent.* 12. *Fl. ruſt. t.* 148.

Alectorolophus glaber. *Allion. pedem. n.* 206. *Hall. helv. n.* 313.

Mimulus Criſta galli. *Scop. carn. n.* 751.

Criſta galli. *Dod. cer.* 219. 220. *pempt.* 556. 1. *Lob. obſ.* 285. 2. *ic.* 1. 529. 2. *Ger.* 912. *emac.* 1071. 1. *Riv. mon. t.* 92. *f.* 2.

C. galli ſemina. *Baub. biſt.* 3. 436. 3. *Dill. giſſ. app.* 44.

Pedicularis ſ. Criſta galli lutea. *Park. theat.* 713. 2. *Raii biſt.* 769. *ſyn.* *284. *Petiv. brit. t.* 36. *f.* 2. (Yellow Rattle.)

P. pratenſis lutea ſ. Criſta galli. *Baub. pin.* 163. *Mor. biſt. ſ.* 11. *t.* 23. *f.* 1.

β. Criſta galli anguſtifolia montana. *Baub. pin.* 163. *prodr.* 86.

Pedicularis major anguſtifolia ramoſiſſima, flore minore luteo, labello purpureo. *Dill. in Raii ſyn.* *284.

γ. R. Alectorolophus. *Pollich pal. n.* 580.

Alectorolophus hirſutus. *Allion. pedem. n.* 205. *Hall. helv. n.* 314.

Mimulus Alectorolophus. *Scop. carn. n.* 752.

Criſta galli mas. *Baub. biſt.* 3. 436. *Raii biſt.* 769. *Dill. giſſ.* 80.

Upper lip of the corolla arched, calyx ſmooth, leaves lanceolate ſerrate.

[4. Rhinanthus Trixago.

Lin. ſpec. 840. *Reich.* 3. 107. Bartſia, *edit.* 1. 602.

Trixago apula unicaulis. *Col. ecphr.* 1. 199. *t.* 197. *Raii biſt.* 770. *Mor. biſt.* 3. 427. *ſ.* 11. *t.* 24. *f.* 8.

Criſta galli ſpicata, flore luteo magno, meſſanenſis. *Raii biſt.* 769.

Chamædrys unicaulis ſpicata. *Baub. pin.* 248.

Antirrhinum folio diſſecto. *Baub. pin.* 211.

Calyxes hirſute-tomentoſe, leaves oppoſite bluntly ſerrate, ſtem quite ſimple.

5. Rhinanthus capenſis.

Lin. ſyſt. 549. *Reich.* 3. 107.

Buchnera africana. *Lin. ſpec.* 879. *amoen.* 6. *afr.* 18. *Pluk. phyt. t.* 310. *f.* 3. (Pedicularis.)

Calyxes tomentoſe, bractes ovate, leaves lanceolate toothed.

6. Rhinanthus trifida.

Vahl ſymb. 1. 44.

Pedicularis orientalis ſupina, folio trifido, flore magno flaveſcente. *Tournef. cor.* 9.

P. annua Chamæpityos facie. *Buxb. cent.* 1. 5. *t.* 8.

Corollas ſpreading at the throat, leaves trifid.

7. Rhinanthus indica.

Lin. ſpec. 841. *ſyſt.* 549. *Reich.* 3. 108. *fl. zeyl. n.* 238. *Burm. ind.* 131. *t.* 39. *f.* 1.

Hyſſopus zeylanicus tenellus pratenſis. *Burm. zeyl.* 122.

β. Veronicæ affinis indica tenuifolia, &c. *Pluk. phyt. t.* 114. *f.* 2.

Leaves ſublanceolate hairy quite entire.

8. Rhinanthus virginica.

Lin. ſpec. 841. *ſyſt.* 549. *Reich.* 3. 108. *Gron. virg.* 192.

Corollas ſpreading at the throat, leaves ſinuate-toothed.]

DESCRIPTIONS, *&c.*

* 1. Stems a foot and half high, hollow, four-cornered, hairy. Leaves oppoſite, on ſhort foot-ſtalks, about two inches long, and half an inch broad, crenate, hairy, veined. On the upper part of the ſtem the flowers grow oppoſite, from the axils: their tube is curved: the under lip is an inch long, broad, and cut into three obtuſe parts; the upper lip longer than the lower: the corolla is yellow, with a ſpot of feuille-mort colour on the lower lip, and the upper lip has two red ſpots on the top. The flowers have an agreeable ſcent.

[The firſt ſegment of the calyx, under the beak of the corolla, is ovate, the lateral ſegments are bent back on each ſide, the fourth is ſtraight and blunt [x].

Found by Tournefort on the confines of Perſia; flowering in july. He ſpeaks of it as one of the moſt beautiful plants that the Levant produces.

2. This has the habit of the preceding, but the calyx is trifid, with two of the ſegments bent back, and the third larger, erect, plaited, acute. It is an annual plant, a native of Italy, in ſhady places, and of Siberia.

Columna called this plant *Elephas*, from the reſemblance of the flower to the proboſcis of that animal; and Tournefort adopted the name.

β. The plant which Tournefort found, in a fat ſoil and ſhady places, on the coaſt of the Black Sea, flowering in may, is ſuppoſed to be a variety of this.

Theſe were both cultivated by Mr. Miller in 1759, but ſeem ſince to have been loſt in England.

3. Root annual, ſmall, with few fibres. The whole plant is ſmooth. Stem a foot or more in height, four-cornered, even, upright, rigid, ſometimes ſingle, but commonly branched, moſtly ſtained with dark purple. Leaves in pairs, ſeſſile, lanceolate, cordate at the baſe, having parallel nerves terminating in the ſerratures, which are deep and acute; the upper ſurface is dark green and rugged, the lower gray with a curious network of green veins. Spike terminating, leafy. Bractes like the leaves, only broader at the baſe and more deeply cut in. Flowers not always ſtrictly oppoſite, on ſhort pedincles. Calyx remarkably large, inflated, of a pale greeniſh yellow colour, with ſtrong ribs and a net-work of veins, ſmooth; the orifice contracted and four-toothed. Corolla twice as long as the calyx, yellow except the tube, which is white, and the anterior edge of the upper lip, which is dirty blue on each ſide; this lip is arched, flattened and notched at the end; the lower lip is trifid, the three ſegments equal. Anthers awnleſs, but very hairy. Germs ſmooth, ſurrounded at the baſe by a membranaceous nectary, and having in front a ſhort thick crooked horn-ſhaped gland: ſtyle in an early ſtate ſhorter than the corolla, afterwards often longer; white, but juſt below the ſtigma dark blue: ſtigma yellow-green, ſlightly notched [y]. Capſule rounded, wider tranſverſely, emarginate at top, membranaceous-compreſſed at the ſides, lenticular in the middle, two-celled, two-valved: partition very narrow, contrary to the valves. Seeds from eight to twelve in each cell, compreſſed, kidney-ſhaped, in the middle of a cinereous bay colour and ſomewhat rugged, girt round the edge with a whitiſh membranaceous rim. Cover double, both thin and membranaceous [z].

Yellow Rattle is common in paſtures, and flowers early in june. It has this name from the rattling of the ſeeds, when ripe, in the capſule: for the ſame reaſon in Ireland it is called Rattle-boxes. It is known in ſome counties by the name of Penny-graſs, and in Yorkſhire by that of Henpenny; from the ſhape and ſize of the ſeed-veſſel, like a ſilver penny. Its other appellation of Cock's-comb is derived from the appearance of the upper leaves or bractes which accompany the flowers. Horſes, ſheep and goats are ſaid to eat it, and kine to refuſe it. Others affirm that domeſtic quadrupeds in general, when at liberty, refuſe it, but that they will eat it in the ſtall or ſtable; others again, that they will eat it when freſh, but reject it when dry among hay. As it comes early, except perhaps near London, it is uſually far advanced when graſs is mowed, and the leaves dropping off, nothing remains but the ſtalk and the membranaceous ſeed-veſſels. The rattling of the ſeeds in theſe, indicates to the Swediſh peaſant, as Linneus informs us, the time of cutting his graſs for hay. In England we have better indications, ſuch as the flowering-heads of wild red Clover beginning to fade, and the predominant graſſes of the crop opening their glumes and diſplaying their anthers. The growth of this plant is remarkably quick, and is ſuppoſed in ſome

[x] Linn. ſpec. [y] Smith, Curtis, Withering, Fl. ruſt. [z] Gærtner.

foreign

foreign countries to be very injurious to the crop of Rie. With us it abounds only in poor paſtures, and ſome woods [a].]

Mr. Miller ſays, that the Dutch carry on a trade with the ſeeds and ſeed-veſſels of one ſpecies of this genus to Germany. They call it Semen Savadillos, and it appears very like the ſeed-veſſel of this ſort. The uſe they make of it is to kill vermin, eſpecially bugs. They boil a quantity of the ſeeds and capſules in common water, with which they waſh their wainſcot, bedſteads, &c. and it is ſaid effectually to deſtroy the inſects.

[β. Dillenius, on the authority of Dr. Richardſon, gives a variety, with ſmaller flowers, and the lower lip purple. The plant is ſaid to be larger, and very much branched, with the leaves narrower. It was found in corn fields between Wetherby and Catall in Yorkſhire, and Weſt Newton in Northumberland; but does not appear to have been obſerved ſince.

7. Haller and other foreign writers make two ſpecies of this, the ſmooth, which is ours, and is deſcribed above, and the hairy. The illuſtrious Swiſs ſays, that the ſtem of the latter is more branched and higher, being a foot and half in height; the leaves wider, more ovate, leſs ſerrate; the leaves and bractes ſmooth, but the calyxes hirſute; the corolla paler, with a ſpotted beard or lower lip; the appendixes of the galea or upper lip, ſometimes blue, ſometimes pale; and that the difference is not owing to dryneſs only, becauſe about Gottingen and Bienne the ſmooth ſort grows in dry paſtures. He adopts the name of *Alectorolophus* from Pliny, who calls it ſo from the reſemblance of its leaves to the comb of a cock.

Scopoli adopts another name from Pliny, that of *Mimulus*; and diſtinguiſhes this from the ſmooth ſort by the calyxes being villoſe; the auricles or appendixes of the upper lip truncate, whereas in the other they are bifid; and the nectary rounded, which is acuminate in the ſmooth ſort. Theſe differences, according to him, are conſtant, and ſufficient to conſtitute a diſtinct ſpecies.

Pollich retains Linneus's name of Rhinanthus, and gives that of *Alectorolophus* to this as a trivial. According to him, the calyx is conſtantly hirſute, the flower pale yellow, the ſtem higher, the leaves wider and larger.

4. Root annual, though throwing out runners. Stem a cubit high or more, ſtraight, firm, ſquare, ſomewhat lanuginoſe. Leaves commonly oppoſite, long, narrow, pale green, with few but very large teeth, as it were jagged. Spikes of flowers heaped at the end, large, ſquare, lanuginoſe, and even ſomewhat viſcid. Flowers yellow, large [b].

Ray ſays that Columna's Trixago, which reſembles this very much, and probably is not a different ſpecies, is ſhorter, the ſtems and ſometimes the edges of the leaves are red, the flowers ſmaller and of a different colour, the cowl or upper lip being red, the lower lip white in the middle, but pale red towards the middle. He found them both on the ſides of the mountains impending over Meſſana in Sicily, in full vigour during the month of may. This ſpecies is alſo a native of Italy, the South of France and Paleſtine.

5. This plant has the appearance of the preceding, and beomes wholly black in drying. The leaves have three or four teeth on each ſide. Spike oblong, with tomentoſe bractes a little acuminate. Calyxes four-cleft, blunt, as in the third ſpecies, but tomentoſe.—Native of the Cape of Good Hope [c].

6. Root annual. Stem herbaceous, aſcending, quite ſimple, ſubtomentoſe, round, a ſpan high. Leaves oppoſite, ſeſſile, approximating, pubeſcent, nerved, deeply triſid: ſegments linear, divaricating, quite entire, acute, an inch long. Flowers from all the axils, from the bottom to the top, ſolitary, oppoſite, ſeſſile. Bracte linear, villoſe on both ſides, at the baſe of each flower, of the ſame length and form with the ſegments of the leaves. Calyx ovate, pubeſcent, inflated, membranaceous, marked with four raiſed lines, four-cleft; the ſegments linear-lanceolate, the length of the leaves. Corolla a little ſhorter than the calyx, ſomewhat villoſe on the outſide: upper lip entire, acute, ſtretched out; lower longer, with three lanceolate lobes. Filaments ſmooth. Anthers cloven at the baſe, mucronate, two-celled, open below. Germ ovate-acuminate. Style the length of the corolla, linear, ſubvilloſe. Stigma truncate. Capſule ovate, acuminate; very like that of Bartſia, but it has the calyx of Rhinanthus.—Native of Armenia [d].

7. A ſpan high. Stem upright, quite ſimple, four-cornered, hiſpid. Leaves oppoſite, ſmall. Flowers from the upper axils, ſeſſile, ſolitary, oppoſite, turned to one ſide. Calyx half-four-cleft, acute. The reſt as in the generic character [e].—Native of Ceylon.

8. Anthers rough-haired. Native of Virginia. It ſeems allied to Gerardia flava [f], and is doubtleſs a Gerardia.]

PROPAGATION AND CULTURE.

Theſe plants diſliking culture, are with difficulty kept in gardens. Being annual, they can only be propagated by ſeeds, which ſhould be ſown ſoon after they are ripe, where they are to remain, for they will not bear removing. They require a moiſt rich ſoil and a ſhady ſituation. When the plants come up, thin them and keep them clear from weeds. If the ſeeds be permitted to ſcatter, the plants will come up better than when ſown by hand; but they thrive beſt among graſs.

The common Rattle (n. 3.) is a very troubleſome weed among Graſs, inſomuch that in many water meadows, there is more of this plant than of herbage. The ſeeds ripening by the time theſe meadows are commonly mowed, the ſeeds ſcatter, and fill the ground with young plants the following ſpring. In order to deſtroy this annual weed, the graſs ſhould be cut as ſoon as the flowers appear.

When perſons buy Graſs-ſeeds, they ſhould be very careful, that none of this ſeed is mixed with it.

[RHIZOBOLUS. (*From ῥιζα, a root: and βαλλω, to throw. A plant throwing out many roots.*)
Lin. gen. Schreb. n. 932. *Gærtn. t.* 98.
Pekea. *Aublet. t.* 238.
Claſſ. 13. 4. Polyandria Tetragynia.

GENERIC CHARACTER.

CAL. *Perianth* one-leafed, fleſhy, tomentoſe, half-five-cleft: *ſegments* roundiſh, concave.
COR. *Petals* five, ovate, rounded, concave, fleſhy, inſerted below the diviſions of the calyx, and much larger than it.
STAM. *Filaments* very numerous, filiform, longer than the corolla, inſerted into the receptacle. *Anthers* roundiſh.
PIST. *Germ* four-cornered, at the bottom of the calyx. *Styles* four, filiform, longer than the corolla. *Stigmas* blunt.
PER. *Drupes* four, kidney-ſhaped, compreſſed, inſerted by the internal wedge-form margin into a conical receptacle, one-celled with a fleſhy rind, and a buttery ſoft pulp.
SEEDS. *Nuts* ſolitary, kidney-ſhaped, with a brittle ſhell covered with prickles. *Kernels* ſolitary, kidney-ſhaped.

ESSENTIAL CHARACTER.

Cal. half-five-cleft. *Pet.* five. *Germ* four-lobed, ſuperior. *Nuts* four, one-celled, one-ſeeded.

SPECIES.

1. Rhizobolus butyroſus.
R. foliis digitatis utrinque glabris. *Lin. Syſt. Nat. Gmel. p.* 840.
Pekea butyroſa. *Aubl. pl. gui.* 594. *t.* 238.
With fingered leaves, ſmooth on both ſides.
2. Rhizobolus tuberculoſus.
R. foliis digitatis, ſubtus tomentoſis. *Lin. Syſt. Nat. Gmel. p.* 840.
Pekea tuberculoſa. *Aubl. pl. gui. p.* 597. *t.* 239.
With fingered leaves, downy beneath.

DESCRIPTION, &c.

1. This is a tall tree, the trunk of which is three feet in diameter: the bark is gray, and the wood reddiſh and compact. This tree is much branched at

[a] Fl. ruſ. [b] Ray hiſt. [c] Linn. ſyſt. [d] Vahl. [e] Linn. zeyl. [f] Linn.

the top, the branches growing in an oppoſite direction, and the leaves growing exactly oppoſite alſo: they are about ſeven inches long, of a bright green, the leaflets being entire, oval and pointed. The flowers grow in large bunches at the extremities of the branches, and are of a white colour, large, with numerous ſtamens, and yellow anthers.

It is a native of Guiana, and is cultivated at Cayenne, where it flowers in the month of july.

2. This differs from the preceding in having the leaves downy beneath: they are alſo thicker; and the fruit is larger, and tuberculated; juiceleſs, and without the butyraceous quality of the former.

It grows in Guiana and produces its fruit in july.

RHIZOPHORA. (*From ῥίζα and φέρω, root-bearing.*)
Lin. gen. n. 592. *Reich. n.* 646. *Schreb. n.* 806. *Gærtn. t.* 43. *Juſſ.* 213. Mangles. *Plum.* 15.
Claſſ. 11. 1. Dodecandria Monogynia.
Nat. order of *Holoraceæ*. *Caprifolia*, Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* one-leafed, four-parted or many-parted, patulous: *ſegments* oblong, acuminate, permanent.
COR. *Petals* four or more, oblong, rather ſhorter than the calyx.
STAM. *Filaments* ſcarcely any, alternately ſhorter. *Anthers* four to twelve, ſmall, acuminate.
PIST. *Germ* ſuperior, roundiſh. *Style* awl-ſhaped, ſemibifid, grooved on each ſide. *Stigmas* acute.
PER. fleſhy, ſubovate, incloſing only the baſe of the ſeed.
SEED ſingle, club-ohlong, acuminate, fleſhy at the baſe.
OBS. *The ſtamens differ in number, as do the calyx and corolla.*

ESSENTIAL CHARACTER.

Cal. four-parted. *Cor.* four-parted. *Seed* one, very long, fleſhy at the baſe.

SPECIES.

1. Rhizophora conjugata.
Lin. ſpec. 634. *Reich.* 2. 413. *ſt. zeyl. n.* 181.
Leaves ovate-oblong blunniſh quite entire, calyxes ſeſſile, fruits cylindric-ſubulate.
2. Rhizophora gymnorhiza.
Lin. ſpec. 634. *Reich.* 2. 413. *Wachend. ult.* 89. *Gærtn. fruct.* 1. 213. *Lour. cochinch.* 297. *ed. Willd.* 364.
Mangium ceſſum. *Rumph. amb.* 3. 102. *t.* 68.
Candel. *Rheed. mal.* 6. 57. *t.* 31, 32. *Raii hiſt.* 1769. *Burm ind.* 108.
Leaves ovate-lanceolate quite entire, root placed upon the ground.
3. Rhizophora Candel.
Lin. ſpec. 634. *Reich.* 2. 413.
Tſierou-Kandel. *Rheed. mal.* 6. 63. *t.* 35. *Raii hiſt.* 1770. *Burm. ind.* 108.
Leaves obtuſe, peduncles bigeminate longer than the leaf, fruits awl-ſhaped.
4. Rhizophora Mangle. *The Mangrove Tree.*
Lin. ſpec. 634. *ſyſt.* 442. *Reich.* 2. 414. *Gærtn. fruct.* 1. 212. *Jacqu. amer.* 141. *t.* 89. *pict.* 70. *t.* 132. *Brown. jam.* 211. *Wachend. ult.* 90. *Pluk. phyt. t.* 204. *f.* 3. *Plum. gen.* 13. *Bauh. hiſt.* 1. 415. *Sloan. jam.* 2. 63. *Raii hiſt.* 1772. (Mangle.) *Pluck, ic. t.* 359.
Candela americana foliis laurinis. *Cateſb. car.* 2. *t.* 63.
Mangium calendarium. *Rumph. amb.* 3. 108. *t.* 71, 72.
Peekandel. *Rheed. mal.* 6. 61. *t.* 34. *Raii hiſt.* 1770.
Mangue Guaparaibi. *Piſo, braſ. l.* 4. *c.* 87.
Leaves acute, fruits ſubulate-clavate.
5. Rhizophora cylindrica.
Lin. ſpec. 635. *Reich.* 2. 414.
Karil-Kandel. *Rheed. mal.* 6. 59. *t.* 33. *Raii hiſt.* 1770.
Mangium minus. *Rumph. amb.* 3. 106. *t.* 69. *Burm. ind.* 108.
Fruits cylindrical blunt.
6. Rhizophora ſexangula.
Lour. cochinch. 297. *ed. Willd.* 363.
Leaves ovate-lanceolate oppoſite, fruits hexangular, petals ten, ſtamens twenty.

DESCRIPTIONS, *&c.*

Theſe are maritime trees, extending far and wide by their many-times rooting branches, which are frequently oppoſite. The leaves alſo in moſt of the ſpecies are oppoſite, entire and coriaceous; the younger ones revolute, and bracted after the manner of the Fig, with caducous bractes. Peduncles axillary or terminating, often dichotomous and two-flowered; in the forks jointed and two-bracted. Fruits hanging down. In R. gymnorhiza the calyx is cloven into ten or twelve parts; the petals or ſcalelets are alſo ten or twelve, folded together and as it were two-valved, each having two ſtamens within. R. Mangle has a four-cleft calyx, and four petals villoſe within and flat, each having two anthers. The fruit (which is the ſame with the diſk of the calyx) in moſt of the ſpecies, is prominent within the calycine ſegments and half ſuperior, in a few it is entirely inferior. The mode of germination in all is particular[a]. Loureiro remarks, that in all the ſpecies which he has ſeen there are twenty ſtamens or more, always placed on the calyx; whence he would have this genus removed into the claſs Icoſandria.

They are all natives of the Eaſt Indies. R. Mangle is found in the Weſt Indies alſo.

1. Leaves petioled, ſmooth. Calyxes in pairs, ſubſeſſile. Fruits very long, nodding[b]. Native of the Eaſt Indies.

2. This tree is above the middle ſize, with a lofty ſtraight trunk: the bark is thick, cloven, of a brown-red colour: with many large bowed roots ſpreading upon the cone that is covered with ſea-water. Leaves ſmooth, ſcattered, frequently heaped together at the top and petioled. Flowers ſolitary, ſcattered: calyx from ten to thirteen-parted; ſegments awl-ſhaped, erect: petals from ten to thirteen, red, nearly equal to the calyx, linear, ſoon falling off. Stamens from twenty to twenty-ſix, or double the number of the petals, and correſponding with the ſegments of the calyx. Drupe long, ſubcylindrical-ſubulate: nucleus round, ſoftiſh becoming horny[c].

Gærtner thus deſcribes the fruit.—The calyx when ripe is coriaceous, thick, divided into twelve or fourteen parts, which are linear-acuminate, and curved in: ſhell of the ſeed fleſhy-coriaceous, inverſely parabolical, regularly truncate at top, detached on all ſides, wholly immerſed in the belly of the calyx. Embryo inverted, of a greeniſh bay colour: cotyledons four, convex on one ſide, angular on the other, leafy, twiſted together, converging into a globe, graſs green: radicle detached every way from the integuments, clavate-cylindrical, obſcurely angular, very ſmooth, ſhining, from three inches to a foot and more in length, blunniſh or acuminate.

The bark of this tree is very uſeful in dying ruſous or cheſtnut colour; which is eaſily changed into a very fine permanent black[b].

Native of the Eaſt Indies; the coaſt of Malabar, the ſtraits of Malacca, Amboyna, &c. On the ſhores to the ſouth of Cochinchina and Cambodia there are vaſt tracts of it. The fruit becomes no leſs hard than the Areca nut, and is not eatable in Cochinchina[d].

Our circumnavigators found it on the iſland of Namoka in the South Seas[e].

3. This does not exceed the height of ſeven feet. Leaves oppoſite, on ſhort petioles, of the ſame texture as in R. Mangle, but longer, and with round edges. Petals whitiſh, thick, ſtiffiſh. The flowers have a weak, but not unpleaſant ſmell. The fruit much reſembles that of R. Mangle.

Native of the Eaſt Indies, in ſalt ſhallow water[b].

4. The Mangrove tree commonly attains the height of fifty feet; the wood is white, but becomes red when macerated in water; the bark is thick and ruſt-coloured. Leaves ovate, ſlightly attenuated at the end, blunt, quite entire, ſhining, coriaceous, deep green on the upper ſurface, on the lower yelloweſh green with blackiſh dots, petioled, oppoſite, from three to ſix inches long; on the younger branches,

[a] Juſſieu. [b] Linn. zeyl. [c] Loureiro. [d] Idem. [e] Idem. [f] Foſter. [g] Ray.

which have no flowers, they are about two inches aſunder, and in young trees the internodes are even ſix inches long; but on the old and flowering branches they are nearer, and very old ones are almoſt covered with leaves. Each pair of leaves, before it is unfolded, is rolled up in two oblong convoluted erect ſtipules, which ſoon fall off, leaving two ſcars on the branch, alternate with the leaves. Common peduncles axillary, ſolitary, an inch long, compreſſed, marked with a longitudinal groove, two-flowered, bifid, ſometimes three-flowered and obſcurely three-cornered: pedicels round and half an inch long; but in the fruit they are lengthened out two inches or more. The flowers are commonly without ſcent, but ſometimes they are a little ſweet. Calyx deeply four-cleft, yelloviſh. Petals four white. Anthers conſtantly eight, ſeparating elaſtically into two parts at the baſe, and hence very caducous[*]. Browne ſays, that the number of filaments varies from four to twelve, but that eight is the moſt common number.

Jacquin has given a deſcription of the fruit, and the extraordinary mode in which the ſeed germinates, but it is much too long to inſert in a general work. According to Gærtner, there is no pericarp, unleſs the belly of the calyx be admitted as ſuch, the ſeed being cloſely faſtened to it: and this is what Jacquin conſiders as the pericarp. Receptacle none, except the inner ſurface of the calyx. Seed one, ovate, gibbous at the baſe, ſomewhat rugged, brown, terminated by the ſtyle, finally burſt open at the top by the radicle growing out: cover ſingle, thick, fleſhy-coriaceous, never ſeparating from the calyx. Albumen at the bottom of the ſeed, veil-ſhaped, glandular-fleſhy, orange-coloured. Yolk (vitellus) ſubcylindrical, fibrous-fleſhy; at bottom rounded with a little head, plunged in the cavity of the albumen; at top fiſtular and united with the radicle of the embryo: theſe are the *calyptra* and *crus* of Jacquin. Embryo inverted, green, germinating within the ſeed, and burſting its integument by its radicle: cotyledons four or ſix, leafy, plaited and convoluted, converging into a ſlender ſubulate cone: radicle when mature very long, ſubulate-clavate, bay-coloured, having calloſe dots here and there ſcattered over it, ſuperior.

The fruit of this tree, ſays Browne, germinates within the cup, and grows from the top downwards, until it acquires a due degree of weight and perfection: then it falls off; and as the root is always thickeſt, and hangs loweſt, it drops in that direction, and is thus received in its natural poſition in the mud below: the leaves immediately unfold, and in a few minutes a perfect plant is ſeen, ſometimes of ten or twelve inches in length, which ſoon begins to ſhoot its roots, and puſh its growth like the parent ſtem, for the germ is frequently a foot in length before it falls, and has always two leaves at the top; but theſe are folded up, and incloſed within the cup whilſt it continues on the tree.

The Mangrove is generally found on the borders of the ſea, in whoſe waters alone it ſeems to thrive; and there only in ſuch places as have a ſoft and yielding bottom. Its larger branches frequently emit ſoft and weakly appendicles, that have the appearance of ſo many ſlender leafleſs branches, and bend always downwards: but as theſe are ſofter, and furniſhed each with a large column of a lax ſpongy pith in the centre, they grow more luxuriantly than the other parts of the tree, and reach the mud in a ſhort time, where they throw out a numberleſs ſeries of ſlender fibres, which in time become roots, to ſupply the ſtem more copiouſly with nouriſhment, whilſt they become ſo many props or limbs to the parent tree. Thus it continues to enlarge its bulk, as its weight increaſes, or its branches ſpread; theſe conſtantly throwing out new appendicles as they multiply their ſhoots, and ſo forms thoſe interwoven groves we ſo frequently meet with on the ſea ſhore in the tropical climates, which ſerve to ſtop the mould that is conſtantly waſhed down by thoſe rapid floods that come from the inland parts, and thereby in time turn what might have otherwiſe continued uſeleſs ponds or open creeks, into rich and fertile fields[p].

The quantity of moſkitoes that frequent theſe maritime foreſts make it impoſſible for an European to live or even paſs a night near them: they are inhabited by innumerable ſea birds and crabs, and the matted roots enable the ſavage to walk about the ooze and ſhallow waters to hunt for them[q].

The trunk of the Mangrove ſeldom grows to any conſiderable thickneſs, but the wood is very tough and hard, bears the water well, and is much uſed for knees and ribs in long-boats, and other ſmall-craft; for which the arches and angles of its limbs moſt naturally adapt it. Jacquin ſays, it is fit for nothing but to burn. The lower branches frequently become the ſupporters of the American oyſter, which has given riſe to the fabulous account of the growth of this ſhell-fiſh on trees, as a fruit. Piſo ſays, that a piece of the root toaſted, and applied warm to the painful wounds inflicted by the ſting of the fiſh *Nigui*, ſoon quiets the pain[r].

The bark is moſt excellent for tanning leather; it performs this operation more perfectly in ſix weeks than oak-bark will do in ten; and the leather tanned with it is the moſt firm and durable of any for ſoles. The decoction of it is a moſt powerful aſtringent[s].

According to Dampier, there are three ſorts of Mangrove trees, black, red, and white. The black is the largeſt, the body as big as an Oak, and about twenty feet high. It is hard and ſerviceable timber, but extraordinary heavy. The red grows commonly by the ſea ſide, or by rivers or creeks. The body is not ſo big as that of the black, but always grows out of many roots about the bigneſs of a man's leg, which at about ſix, eight or ten feet above the ground, join into one trunk, which ſeems to be ſupported by ſo many artificial ſtakes. The timber is hard, and good for many uſes. The inſide of the bark is red, and is uſed for tanning of leather very much all over the Weſt Indies. The white never grows ſo big as the other two, neither is it of any great uſe. Of the young trees they make handles for their oars, for it is commonly ſtraight, but not very ſtrong. Neither the black nor white grow towering up from ſtilts, as the red does, but the body grows immediately out of the ground, like other trees.

The Mangrove is a native both of the Eaſt and Weſt Indies, of the Society and Friendly iſlands, the new Hebrides and new Caledonia in the South Seas. The Spaniards call it Mangle; the French, Mangle and Paletuvier.

5. This tree agrees with the *gymnorhiza*, except that it is above three times the height of a man, and is not divided into ſo many trunks. The leaves are of the ſame form, but much ſmaller, being only four or five inches long at moſt, and on ſhorter petioles. Flowers white, axillary, three together, or ſometimes but more ſeldom two. Petals eight, acuminate. Filaments whitiſh, with red anthers. Fruit as in *R. gymnorhiza*, except that it is the breadth and thickneſs of the little finger, with a green rind when young, but when older reddiſh-blue.

Native of Malabar, in ſalt marſhes. The fruit is eaten when young and tender[t].

Gærtner conſiders this, which is the *Mangium minus* of Rumphius, and alſo the *M. digitatum* of the ſame author, (*p.* 107. *t.* 70.) as varieties of *R. gymnorhiza*, *n.* 2.

6. This is a middle-ſized tree, with twiſted ſpreading branches. Leaves quite entire, flat, ſmooth. Flowers ſubterminating, ſolitary: calyx bell-ſhaped, continuing in the ſame form, large, ten-parted, with ſharp ſpreading ſegments: petals red, oblong, emarginate, ciliate, nearly equal to the calyx. Filaments longer than the calyx, on which they are placed, with oblong ſtanding anthers. Germ oblong, ſuperior: ſtyle equal to the ſtamens. Drupe oblong, priſmatical, regularly hexagonal, ſtraight, blunt, with a co-

[*] Jacquin.

[p] Browne. [q] Jacquin. [r] Browne. [s] Long, 811. [t] Ray, ex hort. malab.

riaceous

riaceous ſmooth rind, and a woody, round, ſimple nucleus [a]. Loureiro, regarding the outer coat of the ſeed as the rind of the nut, calls it a drupe [a].

RHIZOPHORA. See *Dioſcorea*.

——— caſeolaris. See *Sonneratia acida*.

——— corniculata. See *Ægiceras*.

RHODIA RADIX. See *Rhodiola*.]

RHODIOLA. (*Diminu. from* Rhodia; *ſo named from the ſmell of the root like Roſes*.)

Lin. gen. n. 1124. *Reich. n.* 1229. *Schreb. n.* 1532. *Juſſ.* 307.

Claſſ. 22. 7. Dioecia Octandria.

Nat. order of *Succulentæ*. *Sempervivæ*, Juſſ.

GENERIC CHARACTER.

* *Male.*

CAL. *Perianth* four-parted, concave, erect, obtuſe, permanent.

COR. *Petals* four, oblong, obtuſe, from erect-ſpreading, double the length of the calyx, deciduous.

Nectaries four, erect, emarginate, ſhorter than the calyx.

STAM. *Filaments* eight, awl-ſhaped, longer than the corolla. *Anthers* ſimple.

PIST. *Germs* four, oblong, acuminate. *Styles* and *Stigmas* obſolete.

PER. abortive.

* *Female.*

CAL. *Perianth* as in the male.

COR. *Petals* four, rude, erect, obtuſe, equal with the calyx, permanent.

Nectaries as in the male.

PIST. *Germs* four, oblong, acuminate, ending in ſimple ſtraight *Styles*. *Stigmas* obtuſe.

PER. *Capſules* four, horned, opening inwards.

SEEDS very many, roundiſh.

OBS. *Dahl obſerved hermaphrodite flowers with ten ſtamens and five ſtyles. This genus therefore may with the greater confidence be aſſociated with the Sedums.*

ESSENTIAL CHARACTER.

MALE. *Cal.* four-parted. *Cor.* four-petalled. *Nect.* four.

FEM. *Cal.* four-parted. *Cor.* four-petalled. *Nect.* four. *Piſt.* four. *Capſ.* four, many-ſeeded.

SPECIES.

1. Rhodiola roſea. *Common* or *Yellow Roſewort.*

Lin. ſpec. 1465. *Reich.* 4. 264. *fl. lapp. n.* 378. *ſuec. n.* 912. *mat. med.* 215. *hort. cliff.* 470. *Hudſ. angl.* 434. *Wither. arr. ed.* 3. 389. *Lightf. ſcot.* 619. *Fl. dan. t.* 183. *Gunn. norv. n.* 103. *Allion. pedem. n.* 1757. *Gmel. ſib.* 4. 174. *Black. t.* 586. *Kniph. cent.* 2. *n.* 69.

Sedum roſeum. *Scop. carn. n.* 560. *Villars dauph.* 3. 677. *Hall. helv. n.* 953.

Rhodia Radix. *Bauh. pin.* 286. *hiſt.* 3. 683. *Cluſ. hiſt.* 2. 65. *Dalech. hiſt.* 982. *Dod. pempt.* 347. 2. *Matth.* 1024. *Ger.* 426. *emac.* 532. *Park. theat.* 727. *Raii hiſt.* 690.

Anacampſeros radice roſam ſpirante major. *Tourn. inſt.* 264. *Raii ſyn.* 269. *Petiv. brit. t.* 42. *f.* 2.

Telephium roſeum. *Mor. hiſt.* 3. 468. *ſ.* 12. *t.* 10. *f.* 8.

β. Rhodiola minor. *Mill. dict. n.* 2.

Anacampſeros radice roſam ſpirante minor. *Tournef. inſt.* 264.

Leaves ovate ſerrate towards the top, ſtem upright.

[2. Rhodiola biternata.

Lour. cochinch. 627. *ed. Willd.* 770.

Leaves biternate goſhed, ſtem twining.]

DESCRIPTIONS, &c.

1. This has a very thick fleſhy root, which when bruiſed or cut, ſends out an odour like Roſes; it has many heads, whence in the ſpring come out thick ſucculent ſtalks like thoſe of Orpine (Sedum Telephium) about nine inches long, cloſely garniſhed with thick ſucculent leaves of a gray colour, an inch long, and half an inch broad, indented on their edges towards the top, and placed alternately on every ſide the ſtalk; which is terminated by a cluſter of yelloviſh herbaceous flowers, appearing early in may. They have a very agreeable ſcent, but are not of long continuance.

[Root white. Stems numerous, ſimple, upright, leafy, cylindrical, ſmooth, hollow, from four to twelve feet high. Leaves numerous, growing without order, ovate, ovate-lanceolate, and in the younger plants lanceolate, upwards diſtantly ſerrate, towards the baſe entire, fleſhy, ſea-green, ſometimes tinged with purple. Flowers terminating, yellow. Stamens much longer than the corolla; according to Fabricius, ſix, eight or twelve, and five nectaries. Styles very ſhort, pointing outwards, permanent. It has the habit of Sedum Telephium [y]; and is ranked by many among the Sedums: but the number four is prevalent in this, whereas five prevails in the Sedums. The flowers are male and female on diſtinct plants; but ſometimes they are ſaid to be hermaphrodite, with ten ſtamens and five ſtyles: if this be frequent, the Roſewort may very properly be aſſociated with the Sedums. Linneus cultivated a female plant by itſelf during many years, and it had only ſmall unproductive ſeeds. There were none but male plants in the botanic garden at Cambridge for a long time; nor did I ever ſee any hermaphrodite flowers.

The root is ſweeteſt when dried; in this ſtate a fragrant water may be diſtilled from it. Cultivated in a garden, it loſes moſt of this ſweetneſs. Goats and ſheep are ſaid to eat the plant; but cattle and ſwine to refuſe it. The inhabitants of the Farro iſlands uſe it as a remedy for the ſcurvy. In Greenland they eat it as garden-ſtuff. A cataplaſm of the freſh roots applied to the forehead, is ſaid to relieve the head-ach, and to heal malignant ulcers [z].

Native of Lapland, Denmark and Norway, Great Britain, Auſtria, Sileſia, Switzerland, Dauphiné, Piedmont, Siberia, on mountains. With us it is found only in the northern counties of Weſtmoreland, Cumberland and Yorkſhire; in Scotland and in Wales.]

β. The roots of this are ſmaller; the ſtalks are ſmall, and not above five inches long; the leaves are ſmall, and end with a purple point; the petals are purpliſh, and the ſtamens are little longer than the petals. It flowers later. Mr. Miller ſays that he cultivated both in the ſame ſoil above thirty years, and never found either of them vary: but the differences, except the colour of the flowers, are ſuch, as may fairly be attributed to an alpine ſituation.

[2. Stem herbaceous, round, ſlender, grooved, branched. Leaflets lanceolate, tomentoſe. Flowers axillary. Male ſubumbelled, on a long common peduncle, with two oppoſite horn-ſhaped ſtipules: calyx deeply four-parted, two oppoſite ſegments of theſe twice the ſize of the others, all acute: petals four, white, turbinate, equal, ſpreading: nectaries four, upright, two of them ſhorter: filaments eight, hairy, unequal, upright, longer than the corolla. Anthers ovate, incumbent. The female has not been ſeen.

Native of Cochinchina, in ill-cultivated gardens, but not frequent [a].]

PROPAGATION AND CULTURE.

1. Plant cuttings the beginning of april, ſoon after they come out from the head, in a ſhady border; covering them cloſe down with a glaſs, and keeping them dry: they will put out roots in about ſix weeks; but the cuttings ſhould be laid in a dry room at leaſt a week before they are planted, otherwiſe they are ſubject to rot.

Or part the roots in the beginning of ſeptember, when their ſtalks begin to decay; and if the fleſhy parts are cut or broken, lay them to dry, a few days before they are planted. They require a ſhady ſituation, and a dry undunged ſoil, in which they will continue many years.

RHODODENDRUM. (*Ῥοδόδενδρον of Dioſcorides. From ῥόδον, a Roſe, and δένδρον, a tree.*)

Lin. gen. n. 548. *Reich. n.* 592. *Schreb. n.* 746. *Gærtn. t.* 63. *Juſſ.* 158. Chamærhododendros. *Tournef. t.* 373.

[a] Loureiro. [z] Willdenow. [y] Withering. [a] With. and Lightfoot. [a] Loureiro.

Claſſ. 10. 1. Decandria Monogynia.
Nat. order of *Bicornes*. *Rhododendra*, Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* five-parted, permanent.
COR. one-petalled, wheel-funnel-form: *border* ſpreading, with rounded ſegments.
STAM. *Filaments* ten, filiform, almoſt the length of the corolla, declined. *Anthers* oval.
PIST. *Germ* five-cornered, retuſe. *Style* filiform, the length of the corolla. *Stigma* obtuſe.
PER. *Capſule* ovate, ſubangular, five-celled, diviſible into five parts.
SEEDS numerous, very ſmall.

ESSENTIAL CHARACTER.

Cal. five-parted. *Cor.* ſomewhat funnel-form. *Stam.* declined. *Capſ.* five-celled.

SPECIES.

1. Rhododendrum ferrugineum. *Ruſty-leaved Rhododendron.*
Lin. ſpec. 562. *ſyſt.* 405. *Reich.* 2. 289. *Jacqu. obſ.* 1. 26. *t.* 16. *auſtr.* 3. 31. *t.* 255. *Scop. carn. n.* 479. *Hall. helv. n.* 1015. *Villars dauph.* 3. 591. *Allion. pedem. n.* 445.
Chamærhodendros alpina glabra. *Tournef. inſt.* 604. *Hall. ad Scheuchz. app.* 4. 72.
Ch. alpigena. *Ger.* 1221. *emac.* 1407.
Roſa alpina. *Geſn. hort.* 277.
Ledum alpinum, foliis ferrea rubigine nigricantibus. *Bauh. pin.* 468. *Raii hiſt.* 1005.
Euonymus Theophraſti. *Dalech. hiſt.* 27.
Montana Allobrogum lentiſcifolia. *Leb. ic.* 366.
Leaves ſmooth leprous underneath, corollas funnel-ſhaped.
[2. Rhododendrum dauricum. *Dotted-leaved Rhododendron.*
Lin. ſpec. 562. *ſyſt.* 405. *Reich.* 2. 290. *Gmel. ſib.* 4. 124. *n.* 10. *Pallas roſſ.* 1. 47. *t.* 32.
Chamærhodendros folio glabro majuſculo, amplo flore roſeo. *Amm. ruth.* 181. *t.* 21.
Leaves ſmooth dotted naked, corollas wheel-ſhaped.
3. Rhododendrum chryſanthum.
Lin. ſyſt. 405. *ſuppl.* 237. *Pallas, it.* 3. 369. *app.* 729. *n.* 87. *t.* N. *f.* 1, 2. *roſſ.* 1. 44. *t.* 30. *Woodv. med. bot.* 403. *t.* 149. *Plenck, ic.* 339.
Leaves oblong undotted, above rugged and very much veined, corolla wheel-ſhaped irregular, flowering-bud ferruginous-tomentoſe.]
4. Rhododendrum hirſutum. *Hairy Rhododendron.*
Lin. ſpec. 562. *ſyſt.* 405. *Reich.* 2. 290. *Jacqu. auſtr.* 1. 61. *t.* 98. *Scop. carn. n.* 480. *Hall. helv. n.* 1016. *Villars dauph.* 3. 592. *Krock. ſilef. n.* 624.
Ledum alpinum. *Cluſ. hiſt.* 1. 82.—hirſutum. *Bauh. pin.* 468. *Raii hiſt.* 1005.—f. Roſa alpina. *Park. theat.* 1372.
Nirium alpinum quibuſdam, aliis Ledum hirſutum. *Bauh. hiſt.* 3. 21, 22.
Ciſtus Ledum alpinum Cluſii. *Ger.* 1107. 14. *emac.* 1290. 14.
Balſamum alpinum. *Lob. ic.* 468.
Chamærhododendros alpina villoſa. *Tournef. inſt.* 604.
Leaves ciliate naked, corollas funnel-ſhaped.
5. Rhododendrum Chamæciſtus.
Lin. ſpec. 562. *ſyſt.* 405. *Reich.* 2. 290. *Jacqu. auſtr.* 3. *t.* 217. *Scop. carn. n.* 481.
Ledum foliis ſerpylli ad margines cilii inſtar pilofis, flore purpureo. *Mich. gen.* 225. *t.* 106.
Chamæciſtus hirſuta. *Bauh. pin.* 466. *Park. theat.* 656. *n.* 6.
Ch. 8. *Cluſ. hiſt.* 1. 76.
Ciſtus pumilus montis Baldi. *Bauh. hiſt.* 2. 19. *Raii hiſt.* 1005. *Pluk. phyt. t.* 23. *f.* 4.
C. humilis auſtriaca Cluſii. *Ger.* 1096. 12. *emac.* 1278. 12.
Leaves ciliate, corollas wheel-ſhaped.
6. Rhododendrum ponticum. *Purple Rhododendron.*
Lin. ſpec. 562. *Reich.* 2. 201. *Pallas roſſ.* 1. 43. *t.* 29.
Chamærhododendros pontica maxima, folio Laurocerafi, flore cæruleo purpuraſcente. *Tournef. cor.* 42. *itin.* 2. 99.
Leaves lanceolate ſhining ſmooth on both ſides, racemes terminating.

7. Rhododendrum caucaſicum.
Pallas roſſ. 1. 46. *t.* 30.
Leaves ovate rugged bent in at the edge, umbels terminating, bractes elongated.
8. Rhododendrum Camtſchaticum.
Pallas roſſ. 1. 48. *t.* 33.
Chamærhodendron Berberis folio, flore amplo roſeo, Stelleri. *Gmel. ſib.* 4. 126. *n.* 13.
Leaves ciliate nerved, corollas wheel-ſhaped, calyxes leafy.]
9. Rhododendrum maximum. *Broad-leaved Rhododendron.*
Lin. ſpec. 563. *ſyſt.* 405. *Reich.* 2. 291. *Gærtn. fruct.* 1. 304. *Thunb. jap.* 181.
Chamærhododendros lauri folio ſempervirens floribus biſſatis corymboſis. *Cateſb. car.* 3. *t.* 17. *f.* 2.
Ledum laurocerafi folio. *Lin. amoen.* 2. 200.
Kalmia fol. lanceolato-ovatis nitidis ſubtus ferrugineis, corymbis terminalibus. *Mill. fig. t.* 229. *Dict. ed.* 7. *n.* 1.
Leaves oval ſhining blunt veined with an acute reflex margin, peduncles one-flowered.

DESCRIPTION, *&c.*

1. This riſes with a ſhrubby ſtalk near three feet high, ſending out many irregular branches, covered with a purpliſh bark. Leaves lanceolate, an inch and half long, and half an inch broad in the middle, entire, with reflexed borders, lucid green on their upper ſurface, and ruſty-coloured underneath, placed all round the branches without order. The flowers are produced in round bunches at the ends of the branches: the corolla is funnel-ſhaped with a ſhort tube, and is cut into five obtuſe ſegments at the brim, ſpreading a little open, and of a pale roſe-colour.

[It is an irregular, diſtorted, ever-green, branched ſhrub, eighteen inches in height and more; the lower branches lying on the ground, put out fibres, and hence it may eaſily be increaſed, without the principal root, which being fixed deep in the fiſſures of rocks, is not pulled up without much difficulty. Leaves in cluſters at the ends of the branchlets, dry, coriaceous, ovate, narrowed to both ends, bent back at the edge, on ſhort petioles; underneath they are ferruginous, with innumerable little dark-coloured dots; if this be wiped off they are yelloviſh; ſometimes there are a few ciliate hairs on young leaves, eſpecially towards the baſe, but theſe ſoon diſappear. Flowers in an upright raceme at the end of every branchlet. Peduncles one-flowered, upright, dotted. Corollas nodding, of a beautiful roſe-colour with aſh-coloured or yelloviſh dots, having little or no ſcent. It varies, but not commonly, with a white flower. The two lower ſegments of the corolla are a little narrower and longer than the three others. Filaments whitiſh red, hairy at bottom, the lower ones gradually ſhorter, not exceeding the tube, inſerted into the receptacle itſelf by an attenuated toothlet: anthers oblong, erect, yellow. The ſtamens commonly fall before the corolla. Germ ſuperior, green: ſtyle nearly the length of the ſtamens: ſtigma capitate-five cleft[a].

Native of high mountains in Switzerland, Auſtria, Savoy, Piedmont, Dauphiné. Where this and the *hirſutum* terminate ligneous vegetation as we aſcend, and furniſh the ſhepherds with their only fuel. The goats are ſaid to eat it; and the white hares ſometimes gnaw the bark in hard weather; but animals do not ſeem to feed on it, except from want of other food; and it is ſuſpected of being in a ſmall degree poiſonous. The galls of ſome ſmall inſect are frequent on it.

Mr. Miller cultivated it in 1739. It flowers from may to july[a]: but ſeldom produces them with luxuriance in a garden.

2. Root tuberous-knobbed, thick, deeply bound down by roodets ſtriking into the ground, or into the fiſſures of rocks. Trunks very ſhort above ground, twiſted and knobbed; theſe and the roots put out many ſhoots or runners, which are ſtiffly upright, two cells high at moſt, round, covered with a gray bark, which throws off yearly an aſh-coloured ſkin: the

[a] Jacquin. Haller. [a] Hort. kew.

wood is white, with a ſlender ruſſet pith. Branches frequent, ſtiffiſh, wand-like: the annual ones tenderly pubeſcent. Leaves alternate, ovate-acute, ſubcoriaceous, very ſmooth, dotted, very obſcurely crenulate on the edge, on petioles very finely pubeſcent: before they are completely unfolded they are rolled back at the edge: in cold weather they become of a duſky purple. The flowers come out before the leaves at the ends of the branchlets of the former year, from a bud that continues the branch, compoſed of ferruginous, ſubpubeſcent, concave ſcales: they nod a little, and have ſome ſmell. The calyx is only the margin of the receptacle ſlightly five-toothed. Corolla large, purple, half-five-cleft; the three upper ſegments ſcarcely wider. Stamens unequal, purpliſh: anthers purple, emitting a greeniſh-livid pollen. Germ ſuperior: ſtyle declined, longer than the ſtamens, purple: ſtigma fungus-ſhaped, twin. Capſule ripening in autumn, at the baſe of the year's ſhoots, ſolitary, convex, five-cornered, acute, faſtened by naked peduncles to an oblique rugged receptacle, five-celled, opening at top. Seeds ferruginous, irregular like ſawduſt [d].

Stem naked, proliferous, leafy at the end. Leaves petioled, oblong, naked above, dotted on both ſides in cluſters, ferruginouſly dotted underneath very cloſely. Corollas violet-coloured, wider than the leaves. Stamens ſpreading, the length of the corolla. Style blood-red. It reſembles Azalea lapponica [e].

Native of Siberia; peculiar to the ſubalpine tracts of eaſtern Aſia; it appears firſt at the jaws of the river Jeniſea, and beyond that, eſpecially from the river Uda, in the pine woods, it begins to be common, but about Baikal it is moſt abundant, and extends through the deſerts of the Mongols to China and Tibet: at the Lena it becomes more rare, and beyond that it is much lower with a more ſlender flower and narrower leaves [f].

It was introduced here in 1780, by Anthony Chamier, Eſq. [g]

3. This ſhrub, in alpine ſituations is leſs than a foot in height, in lower grounds it grows to a foot and half, ſending out abundance of decumbent branches, having their ends emerging from the moſs, ſubdivided, bearing both leaves and flowers. Trunk ſeldom the thickneſs of two or three fingers, commonly an inch thick. Leaves terminating, few, alternate, ovate, uſually ſharpiſh, attenuated to the petiole, the upper ſurface netted and very rugged, the under pale or ſubferruginous, levigated, very ſmooth, the margin quite entire and bent in, of a ſtiff conſiſtence. The flowering-buds at the ends of the laſt year's branches, are made up of gray-teſtaceous ſubtomentoſe ſcales, the outer of which are ovate, the inner oblong and whiter. Among theſe ſcales iſſue the peduncles, placed alternately at the end of the branches, ſo cloſe as to reſemble an umbel; they are commonly ſix or fewer, but ſometimes ten, upright and hairy. Flowers handſome, large, nodding. Calyx none, except the receptacle of the flower, and eſpecially of the fruit, ſlightly margined and oblique. Corolla yellow, ſpreading-bell-ſhaped, with five rounded nearly equal ſegments, the three upper ones being only a little larger than the other two, towards the tube ſtriated with livid dots, the lower ones unſpotted. Stamens unequal, bent in downwards, with oblong pale anthers. Style longer than the ſtamens, declined: ſtigma five-lobed. When the flower falls, the peduncle becomes ſtiffly upright, to bear the capſule; which is of an oblong-pentagon form, ſlightly curved, ſubtomentoſe, teſtaceous, five-valved, opening at top; valves boat-ſhaped, contracted at both edges. Seeds irregular like ſawduſt, gray.

Native of Siberia, in the higheſt mountains [h].

The younger Linneus remarks, that it reſembles the preceding ſpecies ſo much, as to be perhaps no more than a variety [i].

This plant and its effects were firſt deſcribed in 1747 by Gmelin and Steller, who mention it as uſed in Siberia for the cure of rheumatiſm. Little attention however was paid to it till the year 1779, when it was recommended by Koelpin not only in rheumatiſm and gout, but even in venereal caſes; and it is now generally employed in chronic rheumatiſm, in various parts of Europe. The leaves, which are the part directed for medicinal uſe, have a bitteriſh ſubaſtringent taſte, and, as well as the bark and young branches, manifeſt a degree of acrimony. Taken in large doſes they prove a narcotic poiſon.

Dr. Home, who tried this ſhrub unſucceſsfully in ſome caſes of acute rheumatiſm, ſays that it appears to be one of the moſt powerful ſedatives which we have, as in moſt of the trials it made the pulſe remarkably ſlow, and in one patient reduced it thirty-eight beats. In other caſes, wherein the Rhododendron has been uſed at Edinburgh, it has been productive of good effects, and accordingly it is now introduced into their pharmacopœia.

The manner of uſing the plant by the Siberians, is by putting two drams of the dried leaves in an earthen pot, with about ten ounces of boiling water, keeping it near a boiling heat for a night: this they take in the morning, and by repeating it three or four times, generally effect a cure. It is ſaid to occaſion heat, thirſt, a degree of delirium, and a peculiar ſenſation of the parts affected [k].

This medicine ſhould be taken with caution, and the patient ſhould begin with ſmall doſes, increaſing them gradually: but it is not probable that it will ever be a favourite remedy in this country.]

4. This ſhrub ſeldom riſes two feet high, and ſends out many ſhort woody branches, covered with a light brown bark. Leaves ovate-lanceolate, about half an inch long, and a quarter of an inch broad, ſitting pretty cloſe to the branches; they are entire, and have a great number of fine ferruginous hairs on their edges and under ſide. The flowers are produced in bunches at the ends of the branches. The tube of the corolla is about half an inch long: the five ſegments of the brim are obtuſe, ſpread half open, and are of a pale red colour.

It bears great reſemblance to the firſt ſpecies, but the leaves are ſhorter, blunter and ciliate at the edges, of a brighter colour, not ruſt-coloured underneath, but having larger and fewer dots; the dots of the recent leaves are round lamellæ with a more lucid margin; they are alſo more evidently petioled. The flowers are ſmaller, of a paler roſe colour, with pale puſtules: theſe are obſerved on the calyx, corolla and germ [l].

Native of the mountains of Switzerland, Auſtria, Styria, Dauphiné. In auguſt 1779, I found it in great abundance on mount Scheidegg, in croſſing from Berne to Grindelwald.

It was cultivated here in 1739, by Mr. Miller [m].

Trials have been made on its medicinal effects, which have been found to be ſimilar to thoſe of the preceding ſpecies [n].

5. This is a ſmall ſhrub, very much branched, the extreme branches leafy. Leaves oblong, hard, on ſhort, reddiſh petioles. Peduncles one, or more, an inch long, villoſe, reddiſh brown, terminating. Calyx deeply five-cleft, of the ſame colour with the peduncle; the ſegments acute. Corolla purple; the ſegments ovate. Stamens longer than theſe. Style longer than the ſtamens [o].

Native of Auſtria, Carniola, Monte Baldo, and near Saltzburgh.

6. Trunk upright, ſhrubby, commonly the height of a man, but ſometimes only half ſo high, frequently thicker than the human arm, very much branched from the bottom irregularly; the wood white, the bark aſh-coloured. Branches round, ſcarred, with a ſmoothiſh teſtaceous bark. Leaves alternately ſcattered, coriaceous, large, quite entire, very ſmooth, becoming ferruginous underneath, ſcarcely nerved except the midrib, having a longitudinal ſtreak on the upper ſurface, of a wide-lanceolate form, more attenuated towards the thick petiole. Flowering-buds formed in

[d] Pallas. [e] Linn. ſyſt. [f] Pallas. [g] Hort. kew. [h] Pallas. [i] Suppl. [k] Woodville. [l] Haller, Scopoli. [m] Hort. kew. [n] Villars. [o] Scopoli.

autumn for the year following, and conſiſting of ferruginous, ovate-acute, concave, very ſmooth, imbricate ſcales. Flowers in a ſhort raceme at the end of the branchlets, about ten, and very handſome. Calyx minute, five-toothed, ſomewhat cartilaginous. Corolla purple, large, ſpreading, deeply five-cleft; the ſegments ovate, acute, one a little wider than the reſt. Stamens the length of the corolla, purpliſh, converging in a bow. Germ ſuperior, with a purpliſh declining ſtyle, longer than the ſtamens, and a twin ſtigma. Capſules cylindrical, grooved along the ſutures of the valves, opening at top by five or ſix linear valves, channelled within, incloſing the middle pillar, which is the continuation of the ſtyle. Seeds irregular like ſawduſt [p].

Leaves like thoſe of the Laurel (Prunus Lauro-ceraſus) perennial, acute, on ſhort ſmooth petioles. Raceme the length of the pedicels or leaves. Pedicels alternate, naked. Calyx very minute. Corolla bell-ſhaped, the ſize of Oleander, (Nerium) purple. It bears a reſemblance to Azalea pontica; but differs in the number of ſtamens [q].

Native of the Levant and Gibraltar; alſo of Georgia, in the ſouthern ſubalpine tracts of Caucaſus, &c. where it affects wet places in Beech and Alder coppices, on rocky mountains, but not on high alps [r]. Pallas doubts whether the Gibraltar plant be the ſame with that of the Levant and Caucaſus.

Tournefort has related that the flowers of this plant were reputed to impart a noxious quality to honey; this Guldenſtadt contradicts, and imputes it to Azalea pontica [s]. Introduced in 1763. It flowers in may and june [t].

7. Root creeping among moſs, thick, woody. Trunk arboreſcent, eighteen inches high, diffuſed and procumbent, ſcarred, aſcending at the end, and there leafy and flowering. Leaves cluſtered at the ends of the branches, ovate-lanceolate, coriaceous, quite entire, rolled back at the edge, obſcurely nerved; the upper ſurface duſky green, netted and rugged, the lower covered with a very ſhort nap, of a whitiſh yellow colour. Petioles ſhort, thick, wrinkled. Flowers in an umbel-ſhaped corymb, having from ſix to nine erect peduncles, the length of the leaves, hairy, one-flowered. Bractes remaining from the flowering-bud, larger than in R. chryſanthum, ovate-lanceolate, ferruginous, ſubtomentoſe. No calyx, except the receptacle of the flower margined, oblique, five-notched; the two upper notches larger. Corolla nodding, very large, white or reddiſh, ſpreading bell-ſhaped, half-five-cleft; the ſegments nearly equal, a little waved, the three upper ones with livid ſpots at the baſe. Stamens for the moſt part ten, but ſometimes eight, ſeven, ſix or five, little more than half the length of the corolla, unequal, even; with ovate, two-grooved anthers; the filaments adhere to the receptacle and bottom of the corolla. Germ pyramidal, five-cornered, ſuperior, hirſute: ſtyle thick, declining in a bow, longer than the ſtamens: ſtigma headed, lobed. Capſule an oblong pentagon, blunt, ſcarcely curved, five-celled, opening at the top, ſubtomentoſe. Seeds like ſawduſt brown.

Native of the higher rocks of Caucaſus, near the perpetual ice, in the higheſt range of ſhrubby vegetation, with Myrtillus and Vitis idæa.

8. This is a very elegant underſhrub. Root woody, dry, the ſize of a quill, creeping by proſtrate runners, of a brown teſtaceous colour. Branchlets riſing, leafy, frequent. Leaves cluſtered, alternate, ſeſſile, ovate attenuated to the baſe, five-nerved, ſomewhat acute, quite entire at the edge, and ciliate with remarkable hairs. Peduncles from few only of the branchlets two or three inches long, accompanied at the baſe by ſmaller leaves, and commonly by two ſeſſile ovate leaves, two-flowered (ſeldom one or three-flowered,) very hairy. The partial peduncles have one or two lanceolate leaflets, and a nodding flower. Calyx from five foliaceous, three-nerved, ciliate leaflets, like the reſt of the leaves, two of them more approximating than the others. Corolla wheel-ſhaped, irregular, purple, with a very ſhort tube, and a deeply five-cleft border: ſegments lanceolate, pubeſcent at the edge, unequal, the three upper ones being a little ſmaller, and leſs deeply cloven, ſpotted with red at the baſe, and ſomewhat erect like a helmet; the lower ones ſpreading very much and unſpotted. Stamens from the bottom of the flower, declined, purple, unequal, the upper ones ſhort, the lower double their length, but not ſo long as the corolla; anthers ovate, twin, dark purple. Germ ſuperior, five-cornered: ſtyle as long as or longer than the corolla, declining in a bow, purple: ſtigma fungus-ſhaped, thick, three-lobed. Capſule within the leafy calyx now augmented and converging, ovate, five-cornered, five-celled. Seeds brown.—It agrees with R. Chamæciſtus in its ciliate leaves, and wheel-ſhaped flowers; but differs widely from it in the nervature and ſize of the leaves; its leafy two-flowered ſolitary peduncles; leafy calyxes; the whole form of the flower, and the manner of growth.

It was firſt diſcovered by Steller, and grows abundantly in the peninſula of Kamtſchatka and Bering's iſland, in muddy places on the mountains. It begins to flower at the end of july, and ripens its ſeeds towards the end of ſeptember [u].]

9. This riſes, in its native ſoil, fifteen or ſixteen feet high, with a ſhrubby ſtalk, ſending out a few branches towards the top. Leaves ſtiff, ſmooth, ſix inches long and two broad, of a lucid green on their upper ſide, and pale on their under, whilſt young, but afterwards changing to the colour of ruſty iron: they have ſhort thick footſtalks, and are placed without order round the branches: between theſe the buds are formed for the next year's flowers; theſe ſwell to a large ſize during the autumn and ſpring months till the beginning of june, when the flowers burſt out from their covers, forming a roundiſh ſeſſile bunch or corymb. The corolla is of a pale colour, and cut almoſt to the bottom into five blunt roundiſh ſegments, one of which is ſtudded with yellow green and purpliſh protuberancies. [The branches and leaves are of the ſame ſize and conſiſtence with the Laurel (Prunus Lauro-ceraſus,) the latter have reticulated veins, and are bent back at the edge. The loweſt ſegment of the corolla is ſpotted [v]. Capſule oblong, rounded-pentagonal, pubeſcent, viſcid, ferruginous, five-celled, five-valved: partitions doubled, formed of the margins of the valves bent in. Receptacle columnar, fungous, five-lobed, lobes flatted a little, prominent between the cells. Seeds linear-oblong, ſomewhat chaffy, acuminate at both ends, ſmooth, ſulvous or deeply ruſeſcent [w].]

Native of North America, upon rocks and in barren ſoils, where it continues flowering great part of the ſummer, and is a great ornament to the barren rocks.

[It was introduced here in 1736, by Peter Collinſon, Eſq. and flowers from june to auguſt [x].] Mr. Miller ſays, the only perſon who ſucceeded well in raiſing it, was Mr. James Gordon of Mile-end, who poſſeſſed many of the plants, which grew with him from ſeeds. He adds, that the ſhrub from which the drawing was made (about 1756) for his figures of plants, was the firſt which had flowered in England.

PROPAGATION AND CULTURE.

Theſe ſhrubs are propagated by ſeeds, but theſe are ſo very ſmall, that if they are covered deep, they will not grow. They ſhould be ſown as ſoon as poſſible after they are ripe, either in a ſhady border, or in pots filled with freſh loam, and very lightly covered with a little fine earth. Plunge the pots up to their rims in a ſhady border, and in hard froſt cover them with bell or hand-glaſſes; taking them off in mild weather. If theſe ſeeds be ſown early in autumn, the plants will come up the following ſpring. Theſe muſt be kept ſhaded from the ſun, eſpecially the firſt ſummer, and duly refreſhed with water: in the autumn following tranſplant them to a ſhady ſituation, and on a loamy

[p] Pallas. [q] Linn. ſpec. [r] Pallas. [s] Idem. [t] Hort. kew. [u] Pallas. [v] Linn. [w] Gærtner. [x] Hort. kew.

ſoil, covering the ground about their roots with moſs, to guard them from froſt in winter, and keep the ground moiſt in ſummer.

They may alſo be increaſed from ſuckers or offſets, which they produce plentifully where they grow naturally, but they ſeldom produce ſuckers in England, nor do the ſeeds come to maturity.

[RHODODENDRUM. See *Nerium Oleander*.

RHODORA. (*Ῥοδωρον ſ. ῥοδοειδες, roſy: the colour of the Roſe, applied to the colour in the ſkin of a young perſon in health.*)

Lin. gen. n. 547. *Schreb. n.* 745. *Duhamel. Juſſ.* 159.

Claſſ. 10. 1. Decandria Monogynia.

Nat. order of *Bicornes*. *Rhododendra*, Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* one-leafed, five-toothed, permanent.

COR. *Petals* three, unequal: the two upper ones lanceolate, equal; the loweſt concave, oblong, ſubtrilobate; the middle lobe ſmaller, concave.

STAM. *Filaments* ten, filiform, declined, the length of the corolla. *Anthers* roundiſh, twin.

PIST. *Germ* ovate. *Style* filiform, declined, a little longer than the ſtamens. *Stigma* five-cleft, thickiſh.

PER. *Capſule* ovate, five-celled.

SEEDS very many, minute.

OBS. *The deſcription is borrowed from Duhamel.*

ESSENTIAL CHARACTER.

Cal. five-toothed. *Pet.* three, unequal. *Stam.* declined. *Capſ.* five-celled.

SPECIES.

1. Rhodora canadenſis.

Lin. ſpec. 561. *L'Herit. ſt. nov.* 141. *t.* 68.

Chamærhododendros. *Duham. ſem. app.* 10. *t.* 27. *f.* 2.

DESCRIPTION, *&c.*

It is chiefly diſtinguiſhed from the Rhododendrons by its three-petalled corolla, and appears to be generically diſtinct from them: but has nothing of the herb of Rhododendron. It has the habit rather of *Azalea*. The ſtem is upright, ſomewhat branched, round, aſh-coloured, two feet high. Leaves alternate, oblong, almoſt entire, ſcarcely nerved, with the midrib prominent underneath; the upper ſurface almoſt naked, bright green, the lower pubeſcent, glaucous, ſpreading, two inches long, one inch wide; on round petioles, flatted on one ſide, pubeſcent, eight times ſhorter than the leaf. Flowers in umbels, on ſhort pedicels, purple, the upper lip with darker ſpots.

Rhodora agrees with the foregoing genus in having the calyx inclined; the filaments villoſe at the baſe, aſcending a little at the end, inſerted into the receptacle; the anthers biperforated; the ſtyle a little declined; the capſule faſtened obliquely to the calyx; the receptacle of the ſeeds five-cornered: but the corolla is abſolutely three-parted in *Rhodora*, whereas it is bell-wheel-ſhaped, with an inclined five-parted nearly equal border in *Rhododendrum*; the ſeeds are margined all round in this, but in that they are ſcarcely augmented at each end.

Native of Newfoundland; whence it was introduced by Sir Joſeph Banks.

PROPAGATION AND CULTURE.

It is raiſed with great difficulty from ſeeds, like other ſhrubs in which they are ſo very ſmall. It may be propagated by ſlips or cuttings; and thrives beſt in a good moiſt ſandy loam*.

RHOEAS. See *Papaver*.

RHOIS. See *Rhus*.

RHOMPHAL. See *Arum*.

RHOPALA. See *Rupala*.

RHOPIUM. *Schreb. gen. n.* 1382. is *Mebrea* of Aublet, *t.* 323.

RHUBARB. See *Rheum*.

——— Monk's. See *Rumex alpinus*.]

RHUS (*of Pliny.* Ῥους of *Dioſcorides, a tree or ſhrub uſed for tanning leather; by contraction from* ῥυτος, *and that from* ῥυω; Rhus *a colore coccineo acinorum.* Bod. a Stapel:—*but the derivation, as that of many others, is uncertain.*)

* L'Heritier.

Lin. gen. n. 369. *Reich. n.* 399. *Schreb. n.* 502. *Tournef. t.* 381. *Juſſ.* 369. *Gærtn. t.* 44. Toxicodendron. *Tournef. t.* 381. Cotinus. *Tournef. t.* 320.

Claſſ. 5. 3. Pentandria Trigynia.

Nat. order of *Dumoſæ*. *Terebintaceæ*, Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* five-parted, inferior, erect, permanent.

COR. *Petals* five, ovate, from upright ſpreading.

STAM. *Filaments* five, very ſhort. *Anthers* ſmall, ſhorter than the corolla.

PIST. *Germ* ſuperior, roundiſh, the ſize of the corolla. *Styles* ſcarcely any. *Stigmas* three, cordate, ſmall.

PER. *Berry* roundiſh, one-celled.

SEED one, roundiſh, bony.

OBS. Rhus T. *has a villoſe berry, with a globular nucleus.*

Toxicodendron *has a ſmooth ſtriated berry, with a compreſſed grooved nucleus.*

R. Vernix, radicans & Toxicodendron *are dioecous plants.*

ESSENTIAL CHARACTER.

Cal. five-parted. *Pet.* five. *Berry* one-ſeeded.

SPECIES.

* *With pinnate leaves.*

1. Rhus Coriaria. *Elm-leaved Sumach.*

Lin. ſpec. 379. *Reich.* 1. 727. *Willd.* 1477. *arb.* 287. *mat. med.* 87. *hort. cliff.* 110. *upſ.* 68. *Sauv. monſp.* 227. *Gron. orient. n.* 91. *Deſfont. atlant.* 266. *Roth. germ.* 2. 367. *Alion. pedem. n.* 1775. *Knipb. cent.* 3. *n.* 74. *Blackw. t.* 486. *Ludw. elt. t.* 122. *Ehrh. beitr.* 6. 88. *Plenck, ic. t.* 232. *Regnault, bot. ic.* (Le Sumac).

Rhus. *Matth.* 215. *Camer. epit.* 121. *Park. theat.* 1450. 1.

R. folio ulmi. *Baub. pin.* 414. *Tournef. inſt.* 611. *Shaw, ſpec.* 509.

R. ſ. Sumach. *Baub. hiſt.* 1. 555. *Raii hiſt.* 1590.

R. obſoniorum ſ. coriariorum. *Lob. ic.* 2. 98. *Cluſ. hiſt.* 17.

R. coriaria. *Dod. pempt.* 779. *Ger.* 1291. 1. *emac.* 1474. 1.

Leaves pinnate, leaflets elliptic bluntly toothed villoſe underneath.

2. Rhus typhinum. *Virginian Sumach.*

Lin. ſpec. 380. *fiſt.* 293. *Reich.* 1. 727. *Willd.* 1478. *arb.* 288. *amoen.* 4. 311. *cent.* 139. *Du Roi barbk.* 2. 291.

R. virginianum. *Baub. pin.* 517. *Raii hiſt.* 1591. *Dill. elth.* 323. *Duham. arb.* 2.

Sumach ſ. R. virg. *Park. parad.* 609. *f.* 6.

Leaves pinnate, leaflets lanceolate acuminate ſharply ſerrate tomentoſe underneath.

[3. Rhus javanicum. *Java Sumach.*

Lin. ſpec. 380. *Reich.* 1. 727. *Willd.* 1478. *Thunb. jap.* 121. *Laur. cochinch.* 183. *ed. Willd.* 228. *Oſb. it.* 1. 375. *engl. edit.*

Leaves pinnate ovate acuminate ſerrate tomentoſe underneath.]

4. Rhus glabrum. *Scarlet Sumach.*

Lin. ſpec. 380. *Reich.* 1. 727. *Willd.* 1478. *Ait. kew.* 1. 365. *Kalm. it.* 2. 211. *engl. edit.* 1. 66. 75. *Giſeck. ic. faſc.* 1. *t.* 5. *Gron. virg.* 148. *Cold. noveb.* 63. *Dill. elth.* 323. *t.* 243. *f.* 314. *Cateſb. car.* 3. *t.* 4. *Plenck, ic.* 237.

R. anguſtifolium. *Baub. pin.* 414. *Raii hiſt.* 1591. *Duham. arb.* 4.

Sumach anguſtif. *Baub. prodr.* 158.

Leaves pinnate lanceolate ſerrate naked on both ſides, flowers hermaphrodite.

5. Rhus elegans. *Carolina Sumach.*

Lin. ſpec. ed. Willd. 1478. *Ait. kew.* 1. 366.

R. carolinianum. *Mill. dict. n.* 4.

R. glabrum panicula ſpecioſa coccinea. *Cateſb. car. app.* 4. *t.* 4.

Leaves pinnate lanceolate ſerrate naked on both ſides, flowers dioecous.

6. Rhus Vernix. *Varniſh Sumach.*

Lin. ſpec. 380. *fiſt.* 293. *Reich.* 1. 728. *Willd.* 1479. *mat. med.* 87. *hort. cliff.* 210. *upſ.* 68. *Gærtn. fruct.* 1. 205. *Du Roi barbecc.* 2. 306. *Gron. virg* 148. *Cold. noveb.* 64. *Wangenh. amer.*

amer. 290. Thunb. jap. 121. Kalm. it. 2. 211. engl. edit. 1. 68. 77. Plenck, ic. 234. Pluk. phyt. t. 145. f. 1.

Toxicodendron pinnatum. Mill. dict. n. 4. Duham. arb. 2. 99. Dill. eltb. 390. t. 292. f. 377.

Poiſon-wood Tree. Phiſof. tranſ. n. 367. p. 145.

Sits ſ. Sits-dsju, vulgo Urus no Ki. Kæmpf. amoen. 5. 791. ic. 792.

Leaves pinnate quite entire annual opaque, petiole entire equal.

7. Rhus ſuccedaneum. *Red Lac Sumach.*
Lin. ſyſt. 293. Reich. 1. 728. Willd. 1479. mant. 221. Ait. kew. 1, 366. Thunb. jap. 122.

Faſi no Ki. Kæmpf. amoen. 5. 794. t. 795.

Toxicodendron altiſſimum. Mill. dict. n. 10.

Leaves pinnate quite entire perennial ſtining, petiole entire equal.

[8. Rhus ſemialatum. *Half-winged Sumach.*
Lin. ſyſt. 293. ſpec. ed. Willd. 1479. Murr. in comm. gott. 6. 1784. p. 27. t. 3.

Leaves pinnate ſerrate, petioles on the outmoſt internodes membranaceous.]

9. Rhus Copallinum. *Lentiſcus-leaved Sumach.*
Lin. ſpec. 380. Reich. 1. 729. Willd. 1480. mat. med. 88. Gærtn. fruct. 1. 205. Du Roi harbecc. 2. 298. Gron. virg. 149. Fabric. helmſt. 409. Wangenb. amer. 96. Duham. arb. 7. Pluk. phyt. t. 56. f. 1. Plenck, ic. 223.

R. virginianum lentiſci foliis. Raii hiſt. 1799.

Copalli Quahiutl. Hernand. mex. 45.

Leaves pinnate quite entire, petiole membranaceous jointed.

[10. Rhus alatum. *Winged Sumach.*
Lin. ſpec. ed. Willd. 1480. Thunb. prodr. cap. 52.

Leaves pinnate, leaflets ovate ſerrate at the end, petioles on all the internodes winged.

11. Rhus pauciflorum. *Few flowered Sumach.*
Lin. ſyſt. 293. ſpec. ed. Willd. 1480. ſuppl. 185. Thunb. prodr. cap. 52.

Leaves pinnate, leaflets alternate decurrent wedge-ſhaped ſerrate at the end, panicle ſeſſile few-flowered.

12. Rhus Metopium. *The Heg Gum Tree.*
Lin. ſpec. 381. Reich. 1. 729. amoen. 5. 395. Brown. jam. 177. t. 13. f. 3. (Metopium.) Sloan. jam. 2. 90. t. 199. f. 3. Raii dendr. 51. (Terebinthus.) Plum. ic. 61. (Borbonia.)

Leaves pinnate quinate quite entire roundiſh ſmooth.

13. Rhus digitatum. *Finger-leaved Sumach.*
Lin. ſyſt. 293. ſpec. ed. Willd. 1481. ſuppl. 184.

Scandent, leaves pinnate, leaflets oblong quite entire very ſmooth.

14. Rhus pentaphyllum. *Five-leaved Sumach.*
Deſfont. atlant. 267.

Rhamnus pentaphyllus. Lin. ſyſt. 233. Reich. 1. 541. Jacqu. obſ. 2. 17.

R. ſiculus. Lin. ſyſt. 3. 229.—pentaphyllus. Bocc. ſic. 43. t. 21. Raii hiſt. 1626.

Thorny, leaves digitate, leaflets linear-lanceolate, wider upwards, blunt, toothed or entire at the end.

* *With ternate leaves.*

15. Rhus cirrhiflorum.
Lin. ſyſt. 294. Willd. 1481. ſuppl. 184. Thunb. prod. cap. 52.

Scandent, leaves ternate, leaflets quite entire ſmooth.

16. Rhus tridentatum.
Lin. ſyſt. 294. Willd. 1481. ſuppl. 184. Thunb. prodr. cap. 52.

Scandent, leaves ternate, leaflets hoary ſerrate, ſerratures three to five.]

17. Rhus radicans. *Rooting Poiſon-oak* or *Sumach.*
Lin. ſpec. 381. ſyſt. 293. Reich. 1. 729. hort. cliff. 110. Gron. virg. 33. Kalm. it. 2. 296, 214. engl. edit. 1. 67. 177. Fabric. helmſt. 409. Wangenb. amer. 93. Plenck, ic. 236.

α. R. radicans opacum. Ait. kew. 1. 367.
Common upright Poiſon-oak or *Sumach.*
Toxicodendrum vulgare. Mill. dict. n. 1.
T. triphyllum glabrum. Tournef. inſt. 611. Duham. arb. 2. t. 98.
T. amplexicaule, foliis minoribus glabris. Dill. eltb. 390.

β. R. radicans lucidum. Ait. kew. 1. 367.
Small-leaved Poiſon-oak or *Sumach.*

Toxicodendrum glabrum. Mill. dict. n. 1.
T. rectum, foliis minoribus glabris. Dill. eltb. 389. t. 291.

Leaves ternate, leaflets petioled ovate naked quite entire, ſtem rooting.

18. Rhus Toxicodendron. *Trailing Poiſon-oak* or *Sumach.*
Lin. ſpec. 381. ſyſt. 293. Reich. 1. 730. Willd. 1481. Kalm. it. 2. 318. Du Roi harbecc. 2. 303. Kniph. cent. 2. n. 71. Wangenb. amer. 94. Gron. virg. 149. Plenck, ic. 235.

Toxicodendron pubeſcens. Mill. dict. n. 2.

T. triphyllum folio ſinuato pubeſcente. Tournef. inſt. 611. Duham. arb. 2.

Vitis canadenſis. Munt. phytogr. t. 60.

Edera trifolia canadenſis. Cornut. canad. 96. t. 97. Barr. ic. 228.

Hedera trifolia Virginenſis. Park. theat. 679. 5.

Arbor trifolia venenata virginiana, folio hirſuto. Raii hiſt. 1799.

Leaves ternate, leaflets petioled angular pubeſcent, ſtem rooting.

[19. Rhus aromaticum. *Aromatic Sumach.*
Lin. ſpec. ed. Willd. 1482. Ait. kew. 1. 367.

Leaves ternate, leaflets ſeſſile ovate-rhombed gaſh-ſerrate ſomewhat hairy.

20. Rhus ſuaveolens. *Sweet Sumach.*
Lin. ſpec. ed. Willd. 1482. Ait. kew. 1. 368.

Leaves ternate, leaflets ſeſſile wedge-rhombed gaſh-ſerrate ſmooth.

21. Rhus dentatum. *Toothed Sumach.*
Lin. ſpec. ed. Willd. 1482. Thunb. prodr. cap. 52.

Leaves ternate, leaflets obovate mucronate-toothed ſmooth, ſtem rugged.

22. Rhus ſinuatum. *Sinuate-leaved Sumach.*
Lin. ſpec. ed. Willd. 1482. Thunb. prodr. cap. 52.

Leaves ternate, leaflets ovate blunt ſinuate villoſe underneath.

23. Rhus cuneifolium. *Wedge-leaved Sumach.*
Lin. ſyſt. 294. Willd. 1482. ſuppl. 183. Thunb. prodr. cap. 52.

Leaves ternate, leaflets ſeſſile wedge-ſhaped very ſmooth ſeven-toothed, teeth mucronate.

24. Rhus inciſum. *Gaſh-leaved Sumach.*
Lin. ſyſt. 294. Willd. 1483. ſuppl. 183. Thunb. prodr. cap. 52.

Leaves ternate, leaflets ſeſſile wedge-ſhaped gaſh-pinnatifid, underneath tomentoſe veined, calyxes tomentoſe.]

25. Rhus tomentoſum. *Woolly-leaved Sumach.*
Lin. ſpec. 382. Reich. 1. 731. Willd. 1483. hort. cliff. 111. vir. cliff. 25. Pluk. phyt. t. 219. f. 7.

Vitex trifolia minor indica ſerrata. Comm. hort. 1. 279. t. 92.

Leaves ternate, leaflets ſubpetioled rhombed angular tomentoſe underneath.

26. Rhus villoſum. *Hairy-leaved Sumach.*
Lin. ſyſt. 293. Willd. 1483. ſuppl. 183. Thunb. prodr. cap. 52. Ait. kew. 1. 368. Pluk. phyt. t. 219. f. 8.

R. incanum. Mill. dict. n. 8.

Leaves ternate, leaflets obovate quite entire ſeſſile hairy on both ſides.

[27. Rhus pubeſcens. *Hairy-branched Sumach.*
Lin. ſpec. ed. Willd. 1484. Thunb. prodr. cap. 52.

Leaves ternate, leaflets obovate mucronate ſmooth, branches villoſe.

28. Rhus viminale. *Willow-leaved Sumach.*
Lin. ſpec. ed. Willd. 1484. Vahl. ſymb. 3. 50. Ait. kew. 1. 368.

R. lanceum. Lin. ſuppl. 184? Thunb. prodr. 52?

Leaves ternate, leaflets linear-lanceolate quite entire ſmooth attenuated at the baſe the middle one ſubpeticled.]

29. Rhus anguſtifolium. *Narrow-leaved Sumach.*
Lin. ſpec. 382. Reich. 1. 731. Willd. 1484. hort. cliff. 111. Thunb. prodr. cap. 52. Pluk. phyt. t. 219. f. 6.

R. argenteum. Mill. dict. n. 12.

Leaves ternate, leaflets petioled linear-lanceolate quite entire tomentoſe underneath.

[30. Rhus roſmarinifolium. *Roſemary leaved Sumach.*
Lin. ſpec. ed. Willd. 1484. Vahl ſymb. 3. 50. Burm. afr. 251. t. 91. f. 1.

Leaves

Leaves ternate, leaflets ſeſſile linear revolute ferruginous underneath.

31. Rhus lævigatum. *Smooth-leaved Sumach.*
Lin. ſpec. 1672. *ſyſt.* 293. *Reich.* 1. 731. *Willd.* 1485. *Thunb. prodr. cap.* 52.

Leaves ternate, leaflets ſeſſile lanceolate even.]

32. Rhus lucidum. *Shining-leaved Sumach.*
Lin. ſpec. 382. *Reich.* 1. 731. *Willd.* 1485. *vir. cliff.* 25. *hort. cliff.* 111. *upſ.* 78. *Fabric. helmſt.* 40. *Cavan. ic.* 2. 27. *t.* 132. *Thunb. prodr. cap.* 52. *Pluk. phyt. t.* 219. *f.* 9. *Burm. afr.* 252. *t.* 91. *f.* 2.
Vitex trifolia minor indica rotundifolia. *Comm. hort.* 1. 181. *t.* 93.

Leaves ternate, leaflets ſeſſile wedge-ſhaped even.]

*** *With ſimple leaves.*

33. Rhus Cotinus. *Venice Sumach.*
Lin. ſpec. 383. *ſyſt.* 294. *Reich.* 1. 732. *hort. cliff.* 111. *Hall. helv. n.* 827. *Villars dauph.* 2. 546. *Jacqu. auſtr.* 3. *t.* 210. *Allion. pedem. n.* 1776. *Pallas it.* 3. 590. *Kniph. cent.* 2. *n.* 70. *Mill. fig. t.* 270. *Pluck. ic.* 238.
Cotinus Coccygria. *Scop. carn. n.* 368. *Gron. orient.* 92. *Lob. ic.* 99.
C. coriaria. *Ded. pempt.* 780. *Duham. arb.* 1. *t.* 78. *Tournef. inſt.* 610.
Cotinus. *Camer. epit.* 123.
Cocconilea ſ. Coccygria. *Baub. pin.* 415. *Cluſ. hiſt.* 1. 16.
Coccygria ſ. Cotinus putata. *Baub. hiſt. Raii hiſt.* 1696.
C. Theophraſti vel Cotinus coriarius Plinii. *Ger.* 1293. 1, 2. *emac.* 1476, 1, 2.
C. ſ. Cotinus coriaria. *Park. theat.* 1450. *n.* 4. 1451. *f.* 4.

Leaves ſimple obovate.

34. Rhus atrum.
Lin. ſpec. ed. Willd. 1486. *Forſt. prodr. n.* 142.

Leaves ſimple ovate-oblong, flowers polygamous.]

DESCRIPTIONS, *&c.*

1. The common or elm-leaved Sumach has a ſtrong woody ſtem dividing into many irregular branches, and riſes to the height of eight or ten feet; the bark is hairy, and of an herbaceous brown colour whilſt young. The leaves are compoſed of ſeven or eight pairs of leaflets terminated by an odd one: theſe leaflets are about two inches long, and half an inch wide in the middle, and are of a yellowiſh green colour. The flowers grow in looſe panicles at the end of the branches, each panicle being compoſed of ſeveral thick ſpikes of flowers ſitting cloſe to the footſtalks: they are of a whitiſh herbaceous colour, and appear in july, but are not followed by ſeeds in England.

It grows naturally in Italy, Spain, [the South of France, the Levant, about Aleppo Rama, &c.; near Algiers in Africa.—From the catalogue of the botanic garden at Oxford it appears that it was cultivated there in 1648 [a].]

The branches are uſed inſtead of Oak bark for tanning leather, and it is ſaid that Turkey leather is all tanned with this ſhrub. The leaves and ſeeds are uſed in medicine, and are eſteemed very reſtringent and ſiptic. [The Tripoli merchants ſell the ſeeds at Aleppo; and they are in common uſe there at meals to provoke an appetite [b].]

2. This has a woody ſtem, from which are ſent out many irregular branches, generally crooked and deformed. The young branches are covered with a ſoft velvet-like down, reſembling greatly that of a young ſtag's horn both in colour and texture, whence it has vulgarly the name of the Stag's-horn tree. The leaves have ſix or ſeven pairs of leaflets, terminated by an odd one; their under ſurface and the midrib are hairy. The flowers are produced in cloſe tufts at the end of the branches in july; and are followed by ſeeds, incloſed in purple woolly ſucculent covers, ſo that the bunches are of a beautiful purple colour in autumn: the leaves alſo then change firſt to a purpliſh, and before they fall, to a feuillemort colour. This ſhrub, as well as the preceding, is uſed for tanning leather; and the roots are preſcribed in medicine, where it grows naturally; that is in almoſt every part of North America, [particularly Virginia and Carolina. It was cultivated here in 1629, as appears from the Paradiſus terreſtris of Parkinſon [c]; who ſays, that it was then only kept as a rarity and ornament to a garden or orchard.

3. This is a large tree with ſpreading branches. Leaves unequally pinnate, with from five to ſeven pairs of leaflets; theſe are parallel-nerved, ſmooth above, but ferruginous-tomentoſe underneath, an inch long, the upper ones gradually larger. Petiole below the leaflets round, ſmooth; between them, winged on each ſide. Flowers ſmall, in a compound, tomentoſe, terminating panicle. Corolla white, bell-ſhaped, longer than the calyx, ſtriated. Anthers ſeſſile, very ſmall. Styles three ſhort.

Native of China and Japan, where it flowers in ſeptember [c].

The Chineſe extract an oil from the berries by bruiſing them and boiling them in water; they uſe it as a varniſh, which is beautiful, but does not keep its poliſh ſo well as the true ſort [d].

4. This is not ſo high as the common Virginian Sumach, the branches are much more ſpreading and ſmooth, the leaflets are wider and leſs ſerrate, they are of a deeper green, and have only a hoary cloud or bloom on the under ſurface, which may be wiped off with the fingers; whereas in that they are covered with a hoary pubeſcence; the panicle is more diffuſed in this [e].

Native of North America, in woods, high glades, and old corn fields. It is like a weed in ſome parts of the country, and if a field be left a few years uncultivated, this ſhrub overruns it, from berries which are brought by birds; and when the ground comes again into tillage, the roots ſtop the plough very much. The fruit remains on the ſhrub during winter; but the leaves drop very early in autumn. It ſeldom grows above three yards high. The wood burns well, without much crackling. On cutting the ſtem, a yellow juice comes out between the bark and the wood; one or two of the outer circles are white, but the innermoſt are of a yellowiſh green: it contains a pith frequently half an inch in diameter or more, of a brown colour, and ſo looſe that it is eaſily puſhed out by a ſtick. The branches boiled with the berries afford a black ink-like tincture. The berries are eaten by children with impunity, but they are very ſour: they are red, and are made uſe of for dyeing the ſame colour [b].

It was cultivated in 1726, by James Sherard, M. D. in his garden at Eltham [f].

There are many ſpecies or perhaps varieties of *Sumach* in North America. Mr. Miller has two which ſeem to belong to this, namely his *glabrum, n.* 3. and *canadenſe, n.* 5. To the former he gives as a ſynonym the ſame which Linneus has given from Dillenius; to the latter Tournefort's name of Rhus canadenſe folio longiori utrinque glabro.]—The former, he ſays, is commonly called by the gardeners New England Sumach. The ſtem is ſtronger, and riſes higher than that of the *typhinum*; the branches ſpread more horizontally, they are not quite ſo downy, and the down is of a browniſh colour; the leaves are compoſed of many more pairs of leaflets, and they are ſmooth on both ſides: the flowers are diſpoſed in looſe panicles, and are of an herbaceous colour.

R. canadenſe has ſmooth branches of a purple colour, covered with a gray pounce. The leaves are compoſed of ſeven or eight pairs of leaflets, which are four inches and a half long, and one inch broad in the middle, terminating in acute points, and a little ſerrate; they are of a lucid green on their upper ſurface, but hoary on their under, and are ſmooth. Panicle large, compoſed of ſeveral ſmaller, each on ſeparate footſtalks, the whole covered with a gray pounce: the flowers are of a deep red colour. It grows natu-

[a] Hort. kew. [b] Rauwolf. [c] Parkinſon. [d] Loureiro and Thunberg. [e] Loureiro. [f] Dillenius. [g] Kalm. [h] Hort. kew.

turally in Canada, Maryland, and ſeveral other parts of North America.

5. This riſes commonly to the height of ſeven or eight feet, and divides into many irregular branches, which are ſmooth, of a purple colour, and pounced over with a grayiſh powder; as are alſo the petioles, which are of a purpliſh colour. The leaves have ſeven or eight pairs of lobes, not always exactly oppoſite; they are three or four inches long, and almoſt an inch broad in the middle; above they are of a dark green, underneath hoary but ſmooth. Flowers of a bright red colour, in very cloſe thick large panicles; appearing in july and auguſt, and continuing till autumn.

Native of South Carolina, whence it was brought by Mr. Cateſby.

[Introduced in 1726 [h].

6. Trunk ſtraight. Leaflets four or five pairs, ſometimes more, the upper ſurface green and ſmooth, the lower paler and pubeſcent, entire about the edge or ſometimes ſlightly ſinuate, with oblique ſuperficial veins, and the midrib inclining to the inner ſide, except in the odd leaflet which it divides into equal parts. Petioles oblong, purple. From the baſe of theſe come out the pedunckes, which are green, and bear many flowers in a racemed ſpike; theſe are ſmall and herbaceous [i]. Fruit a juiceleſs drupe, ſlightly compreſſed, or as Gærtner expreſſes it, turgidly lenticular, ovate or round-rhomboid, with the top acuminate, oblique, excentrical: rind thick, on the outſide highly poliſhed and ſhining, within of a fibrous and fungous ſubſtance, or at firſt pulpy but not ſucculent, becoming dry when ripe, with a fibrous net, in which the ſtone lies; ſhell bony, tranſverſely elliptic, obſcurely wrinkled, thickiſh, of a pale teſtaceous colour without; in that, its figure and poliſh reſembling the fruit of Job's tears (Coix Lacryma Jobi). Seed obliquely elliptic, pale, faſtened by an umbilical chord, which aſcends from the bottom of the ſhell to the top of the ſeed [k].

According to Cutler, the bloſſoms are whitiſh; the panicles open; the fruit yellowiſh, ſmall and pear-ſhaped. It is common in ſwamps in North America, whence it is called Swamp-Sumach, and flowers in june.

It flowers here in july, and was cultivated in the botanic garden at Cheliea in 1713 [l].] Mr. Miller ſays, that he received ſeeds and plants of it from Virginia, Penſylvania, New England and Carolina; and that it grows alſo in Japan.

[The milky juice ſtains linen a dark brown. The whole ſhrub is, in a high degree, poiſonous; and the poiſon is communicated by touching or ſmelling any part of it. In forty-eight hours inflammation appears on the hands in large blotches, principally on the extremities, and on the glandulous parts of the body: ſoon after, ſmall puſtules riſe in the inflamed parts, and fill with watery matter, attended with burning and itching. In two or three days the eruptions ſuppurate; after which the inflammation ſubſides, and the ulcers heal in a ſhort time. It operates however ſomewhat differently in different conſtitutions; and ſome are incapable of being poiſoned with it at all. Perſons of irritable habits are moſt liable to receive it.

The leaves of ſome of our Poiſon-wood trees are entirely ſimilar to Kæmpfer's figure of the true Japan Varniſh tree.

The Abbé Sauvages ſtained linen black with the juice of *R. Vernix*, which it retained after a great number of waſhings in lye. The Abbé Mazeas made trial of *R. Toxicodendron*. The inſtant, he ſays, the cloth was expoſed to the ſun, it became the fineſt black he had ever ſeen [o].

Kalm gives much the ſame account of the American Poiſon Tree or Swamp Sumach. An inciſion being made, a whitiſh-yellow juice, which has a naufeous ſmell, comes out between the bark and the wood: it is noxious to ſome perſons, but does not in the leaſt affect others. On himſelf it had no effect, except once, in a hot day, when being in ſome perſpiration he cut a branch, and carried it in his hand for half an hour, ſmelling at it now and then. It produced a violent itching in his eyelids and the parts thereabouts, during a week, his eyes were very red, and the eyelids very ſtiff: but the diſorder went off by waſhing the parts in very cold water.

Thunberg affirms that the very beſt Japan varniſh is prepared from the *Rhus Vernix*, which grows in great abundance in many parts of that country, and is likewiſe cultivated in ſeveral places, on account of the great advantage derived from it. This varniſh, which oozes out of the tree on its being wounded, is procured from ſtems that are three years old, and is received in ſome proper veſſel. When firſt caught, it is of a lightiſh colour, and of the conſiſtence of cream; but grows thicker and black on being expoſed to the air. It is ſo tranſparent, that when laid, pure and unmixed, upon boxes or furniture, every vein of the wood may be clearly ſeen. For the moſt part a dark ground is ſpread underneath it, which cauſes it to reflect, like a mirror; and for this purpoſe recourſe is frequently had to the fine ſludge, which is caught in the trough under a grind-ſtone, or to ground charcoal: occaſionally a red ſubſtance is mixed with the varniſh, and ſometimes leaf-gold ground very fine. This varniſh hardens very much, but will not endure any blows, cracking and flying almoſt like glaſs; though it can ſtand boiling water without receiving any damage. With this the Japoneſe varniſh over the poſts of their doors and windows, their drawers, cheſts, boxes, ſcymitars, fans, tea-cups, ſoup-diſhes, their portable ſtools, and moſt articles of houſhold furniture, which are made of wood [p]. It far exceeds the Chineſe and Siameſe varniſh; and the beſt is collected about the town of Jaſſino. It is cleared from impurities, by wringing it through very fine thin paper; then about a hundredth part of an oil called Toi, which is expreſſed from the fruit of Bignonia tomentoſa is added to it; and being put into wooden veſſels, either alone, or mixed with native Cinnabar, or ſome black ſubſtance, it is ſold all over Japan. The expreſſed oil of the ſeed ſerves for candles [q].]

Mr. Miller thus deſcribes the North American Sumach or Poiſon Aſh. Where it grows naturally, this tree riſes with a ſtrong woody ſtalk to the height of twenty feet or more; but in England it is ſeldom more than five or ſix feet high. The *trunk* is covered with a light brown bark inclining to gray. The leaves have only two or three pairs of leaflets, varying greatly in ſhape, but for the moſt part lanceolate, three or four inches long, and an inch and half broad in the middle, ſometimes rounded at the baſe, but always acute at the end; their upper ſurface is ſmooth, and of a pale lucid green, but their under ſide is pale and a little hairy. The petioles change to a bright purple, eſpecially towards the end of ſummer, and in autumn the leaves are of a beautiful purple colour before they fall off. The male flowers are produced in looſe panicles from the axils; they are ſmall and of an herbaceous white colour; the petals are roundiſh. The female flowers are on a ſeparate tree, in looſe panicles, ſhaped like the males, but ſomewhat larger, and have in their centre a rounding germ, ſupporting three very ſhort ſtyles, crowned with globular ſtigmas. The berry is variable in ſhape, being almoſt oval, or ſhaped like a ſmall Pear; but the moſt general form is roundiſh, with a protuberance almoſt like the Cicer. In warm ſeaſons the female plants produce fruit; but it does not ripen here.

This is undoubtedly Kæmpfer's *Sitz*, or true Varniſh tree, with a walnut leaf, and a fruit in a raceme, like Cicer. The dried ſpecimens alſo brought from Japan agree with the American Poiſon Tree; and the milky juice of both have the ſame quality of ſtaining.

7. [This is certainly diſtinct from the preceding, to which it is allied, but differs from it particularly in the ſize of the leaves. In this ſpecies theſe are ſomewhat rigid, ſhining on both ſides, very ſeldom equal on both margins. In Rh. Vernix the leaves are of an

[h] Hort. kew. [i] Dillenius. [k] Idem and Gærtner.
[l] Hort. kew. [m] Cutler in mem. acad. amer. vol. 1.
[o] Travels, vol. 4. p. 62. [p] Fl. japon. 121.

opaque green. The fruit in this ſpecies is the ſize of a Cherry, and not white: in that it is only the ſize of a Pea, and white.

Native of Japan and China[r]. Introduced in 1773, by John Blake, Eſq. It flowers in june[s].

The oil of the ſeeds expreſſed whilſt warm, acquires the conſiſtence of ſuet, and ſerves for making candles. The trunk yields a varniſh, but in ſo ſmall a quantity as not to be worth collecting[t].

Oſbeck informs us that the Chineſe call the Rh. japonicum *Tay-ſhu*, and the Rh. Chinenſe, by which I ſuppoſe he means this ſpecies, *Moukbi*.

The true Chineſe Varniſh or Lacker Tree, is named in China *Sat Shu*, and not *U Tung Shu*. In collecting the varniſh, they make an inciſion in the bark, and inſert a tube for the juice to run into a little pot; which is taken in every morning before ſun-riſe. The juice bliſters the ſkin[u].]

Mr. Miller's Toxicodendron altiſſimum, to which he puts the ſynonym of Faſi no ki from Kæmpfer, grows to a large ſize, ſending out many branches on every ſide, with very long pinnate leaves, having fifteen or ſixteen pairs of ſeſſile leaflets. He raiſed it from ſeeds ſent him from China; theſe ſeeds were pretty much like thoſe of the Beech tree, but ſmaller, being thick on one ſide and narrow on the other, in ſhape of a wedge.

[8. Obſerved near Macao. Deſcribed by Chevalier Murray in the Gottingen Commentaries.]

9. This ſeldom riſes more than four or five feet high, dividing into many ſpreading branches, which are ſmooth, of a light brown colour, and pretty cloſely furniſhed with pinnate leaves; theſe have four or five pairs of narrow leaflets, which are entire, two inches long and half an inch broad, ending in acute points; they are of a light green on both ſides, and in autumn change to purple: the petiole has on each ſide a winged or leafy border, running from one pair of leaflets to another, ending in joints at each pair. The flowers are produced in looſe panicles at the end of the branches; they are of a yellowiſh herbaceous colour, and appear in july, but the ſeeds do not ripen in England.

[The fruit, which is called a Berry, by Linneus, is a ſmall Drupe, of a rhomb-globular figure, blood-red, pubeſcent. Rind thin, becoming looſe by age. Shell very hard, teſtaceous. Seed kidney-ſhaped, pale; with a ſetaceous, brown umbilical chord. Cotyledons oblong, yelloviſh. Radicle bent in[x].

Native of North America. Cultivated here in 1697, by the Dutcheſs of Beaufort[y].

10. 11. Natives of the Cape of Good Hope.

12. This tree ſeldom riſes to more than twenty-five or thirty-five feet, and is very ſpreading towards the top. It is ſurrounded with round pinnate leaves, which have ſeldom above five leaflets on every rib; and the flowers, which grow in cluſters, are ſucceeded by ſo many reddiſh ſucculent capſules. It yields a great quantity of a gummy-reſin, which, when pure, is of a yellow colour, and after a ſhort time, acquires a hard brittle conſiſtence. It is daily uſed in ſtrengthening plaiſters, for which it is deſervedly much recommended. It is of a warm diſcutient nature, and may be uſed in all ſwellings ariſing from colds, &c. both externally and internally. The gum diſſolved in water is an eaſy purgative, and thought to be an extraordinary diuretic.

Native of America. In Jamaica it is frequent enough, and the hogs are ſaid to have recourſe to it when wounded in the woods[z].

13. Native of the Cape of Good Hope.

14. This tree is very much branched, and has ſtout floriferous thorns: the bark is gray. Leaves alternate, perennial, ſmooth, except the younger ones, which are ſomewhat villoſe: leaflets three to five: petiole winged, almoſt the length of the leaves. Flowers dioecous. Segments of the calyx ovoid. Petals ſpreading, ovate, pale yellow. Berry roundiſh, with three tubercles at the top, red when ripe, ſubacid, and not unpleaſant to the taſte. The bark dyes red, and is fit for tanning leather.

Native of Barbary, near Arzeau, on uncultivated hills[a].

15. 16. Natives of the Cape of Good Hope.]

17. This has a low ſhrubby ſtalk, which ſeldom riſes more than three feet high, ſending out ſhoots near the bottom, which trail upon the ground, putting out roots from their joints, whereby it multiplies and ſpreads greatly. If it be near a wall, the fibres will ſtrike into the joints, and ſupport the ſtalks when ſevered from the root. When it is thus ſupported, the ſtalks become more woody, and riſe much higher, than when it trails on the ground. The petioles are near a foot long: the three leaflets are ovate-cordate, five inches long, three inches and a half broad, each on a ſhort petiole; the two ſide ones oblique to the petiole; but the middle one equal; they have many tranſverſe veins running from the midrib to the borders. The flowers come out from the ſide of the ſtalk in looſe panicles; they are ſmall and of an herbaceous colour, male and female on diſtinct trees: the latter are ſucceeded by roundiſh, channelled, ſmooth berries, of a gray colour, incloſing one or two ſeeds. It grows naturally in many parts of North America, and flowers in july.

[Having in common with Ivy, the quality of not riſing without the ſupport of a wall, tree or hedge, it is called in ſome parts of America *creeping Ivy*. It will climb to the top of high trees in woods, the branches every where throwing out fibres that penetrate the trunk. When the ſtem is cut, it emits a pale brown ſap of a diſagreeable ſcent; and ſo ſharp that letters or marks made upon linen with it cannot be got out again, but grow blacker, the more it is waſhed.

Like Rhus Vernix it is poiſonous to ſome perſons, but in a leſs degree. Kalm relates, that of two ſiſters, one could manage the tree without being affected by its venom, whilſt the other felt its exhalations as ſoon as ſhe came within a yard of it, or even when ſhe ſtood to windward of it, at a greater diſtance; that it had not the leaſt effect upon him, though he had made many experiments upon himſelf, and once the juice ſquirted into his eye; but that on another perſon's hand, which he had covered very thick with it, the ſkin, a few hours after, became as hard as a piece of tanned leather, and peeled off afterwards in ſcales[b].

β. Trunk ſtraight and ſtout, with a browniſh aſh-coloured bark. Leaves ſmooth, veined, bright green above, ſomewhat paler underneath, pendulous and ſomewhat bent back: in the male plant the leaves are rather wider and longer, and are drawn more to a point; in the female they are ſhorter and blunter, and the petioles are reddiſh, whereas in the other they are green. Flowers axillary, in racemes; the males larger, whitiſh yellow; the females ſmaller, herbaceous, on the germ inſtead of the ſtyle there are two, ſometimes three black dots. Fruits round, the ſize and form of Coriander ſeeds, ſtreaked with five lines, remaining on the tree till new flowers come out; when the outer rind comes off, and a cretaceous ſubſtance comes into view, in which an aſh-coloured, hard, horny ſeed is involved, ſlightly divided on the upper part, and in a manner kidney-ſhaped.

The corolla is ſometimes divided only into four parts to the baſe; in the male the parts do not fall ſeparate; but in the female they are quite diſtinct. The former have a ſweet ſcent, like Lily of the valley; but the latter have no ſmell.

It differs from the next ſpecies, which is a leſs robuſt plant, with a trunk not ſo ſtout, the bark dotted and aſh-coloured: from that and from the root itſelf runners and ſuckers come out, and frequently rooting fibres, as in Ivy: the leaves alſo are much wider, leſs ſmooth, having a ſlender lanugo underneath, and the petioles are much longer than in this ſpecies. The leaves alſo in that are commonly ſinuated here and there; and the fruit is larger.

[r] Linn. mant. [s] Hort. kew. [t] Thunberg. [u] Blake, M.S. [x] Gærtner. [y] Hor. kew. [z] Browne. [a] Deſfontaines. [b] Travels, 1. 177. engl. edit.

a. Differs

α. Differs no otherwiſe from this than in having more ſtems and ſuckers from the ſame root, and the branches lying over each other and twiſted together [s].

It was cultivated in 1727, by James Sherard, M.D.[t]

18. The ſtalks of this ſort riſe higher than thoſe of the preceding; the branches are ſlender but woody, and have a brown bark. Leaves on pretty long petioles: leaflets oval, two inches long, one inch and a half broad, inciſented angularly, and hoary on their under ſide. The male flowers, which are produced on ſeparate plants from the fruit, come out from the ſide of the ſtalks in cloſe ſhort ſpikes, and are of an herbaceous colour. The females are produced in looſe panicles, agree in ſhape and colour with the males, but are larger, and have a roundiſh germ ſupporting three very ſhort ſtyles.

Native of many parts of North America.

[It appears from Parkinſon that it was cultivated here in 1640 [u]. It was one of the rare trees and ſhrubs that adorned Biſhop Compton's garden at Fulham [v].

19. Native of Carolina, where it was found by Mr. John Bartram. Introduced in 1772. It flowers in may.

20. Native of North America. Cultivated in 1759, by Mr. Miller. It flowers in may [x].

21. 22. 23. Native of the Cape of Good Hope, where they were obſerved by Thunberg.

24. Leaflets ſmall and very finely divided, like the leaves of Myrica quercifolia.—Native of the Cape [y].]

25. This riſes with a woody ſtalk to the height of ſeven or eight feet, covered with a brown bark, and having many irregular branches. Leaves on long petioles. Leaflets angular, near two inches long, and one inch broad, dark green above, downy underneath. The flowers comes out in ſlender bunches from the ſide of the branches; they are of a whitiſh herbaceous colour, and ſoon fall away.

Native of the Cape of Good Hope. [It was cultivated in 1694, by Mr. Jacob Bobart [z].

26. This is eaſily diſtinguiſhed from the other ſpecies by the hoary down on the ſtem and leaves, but it often puts off this down, and becomes only ſubvilloſe [a].]

It has a ſtrong woody ſtalk ten or twelve feet high, covered with a gray bark, with many ſmooth branches on every ſide. Leaves upon pretty long footſtalks. Leaflets about an inch long, and three quarters of an inch broad, of a lucid green above, but hoary underneath. Flowers axillary in ſmall panicles, of an herbaceous colour, appearing in july.

Native of the Cape of Good Hope. [Cultivated in 1714 [b], in the botanic garden at Chelſea.

27. Native of the Cape of Good Hope, where it was found by Thunberg [c].

28. The whole of this plant is ſmooth. The branches are ſpreading. The leaflets an inch long, the ſide ones ſmaller, paler underneath, mucronate, veined. Raceme terminating, ſuperdecompound, ſpreading. Flowers ſmall. Allied to R. anguſtifolium [d].

Leaflets mucronate. Panicle ſubterminating, ſhorter than the leaves. Peduncles long, capillary. R. lanceum of the ſupplement and Thunberg's prodromus ſeems not to be different from this [e].

Native of the Cape of Good Hope, where it was obſerved by Maſſon, and introduced in 1774 [f].]

29. This riſes with a woody ſtalk ſeven or eight feet high, dividing into ſeveral irregular branches, covered with a dark brown bark. Leaves on pretty long footſtalks. Leaflets two inches long, and half an inch broad in the middle, ending in acute points, lucid green above, but downy underneath. The flowers are produced in ſmall looſe bunches from the ſide of the branches; they are ſmall and herbaceous.

Native of the Cape of Good Hope. [Cultivated in 1714 [g], in the Apothecaries botanic garden at Chelſea.

30. Branches ſmooth. Leaves on very ſhort petioles. Leaflets very narrow, an inch and half long, mucronate, ſmooth above, ſcored with a line along the middle, having a longitudinal groove underneath from the revolute margins of the leaves. Panicles terminating and axillary. Linnæus does not ſeem to have diſtinguiſhed this from the preceding, but they are evidently different. This was remarked at the Cape by Bulow [h].

31. This reſembles the next ſucceeding ſpecies, but the leaflets are lanceolate, leſs lucid, even on both ſides. Panicle long and very ſlender [i].

Native of the Cape of Good Hope, and cultivated by Mr. Miller in 1758 [k]. Perhaps it may be his R. africanum, n. 11.]

32. This riſes with a woody ſtalk like the villoſum, dividing into many branches, covered with a brown bark. Leaflets of a lucid green.

Native of the Cape of Good Hope. [Cultivated in 1697, by the Dutcheſs of Beaufort. It flowers in july and auguſt [l].]

Mr. Miller (1759) ſays, that he had then poſſeſſed ſome of the plants almoſt forty years, but they had not flowered.

33. This riſes with an irregular ſhrubby ſtalk to the height of ten or twelve feet, ſending out many ſpreading branches covered with a ſmooth brown bark, garniſhed with ſingle, obovate leaves about two inches long, and of the ſame breadth, rounded at their points, and ſtand upon long footſtalks; they are ſmooth, ſtiff, and of a lucid green, having a ſtrong midrib, whence ſeveral tranſverſe veins run towards the border. The flowers come out at the end of the branches upon long hair-like footſtalks, which divide, and branch into large hair-like bunches of a purpliſh colour; they are ſmall, white, and compoſed of five ſmall oval petals, which ſpread open. They appear in july, but are not ſucceeded by ſeeds in England. The root is uſed for dyeing: the leaves and young branches dye black: and the bark is uſed for tanning leather.

[The braćtes of the panicle are filiform, hairy, and longer than the pedicels. Berries ſmooth, reſembling half the fruit of Shepherd's Purſe (Thlaſpi Burſa Paſtoris).

Native of the South of France, Spain, Italy, Auſtria, Carniola, Hungary, Bohemia, Switzerland, the Levant, and Siberia. It was cultivated in 1656, by Mr. John Tradeſcant, junior [m].

Dr. Smith found this ſhrub cultivated for tanning leather near Valcimara in the Apennines: it is called there *Scotino* [n]; which is evidently from Pliny's Cotinus. Gerarde ſays, "divers would have it named "*Scotinus*, which name is not found in any of the old "writers." He adds, "that the leaves of Venice or "ſilken Sumach are ſold in the markets of Spain and "Italy for great ſums of money unto thoſe that dreſs "Spaniſh ſkins, for which purpoſe they are very ex-"cellent." The French call it *Fuſtet*.

34. Native of New Caledonia [o].

General Obſervations.

This genus conſiſts of trees and ſhrubs: the flowers are in panicles or cloſe racemes, in ſome hermaphrodite; in others (5. 14. 17. 18.) male and female on ſeparate plants; in the two laſt polygamous, having males mixed with the hermaphrodites. From this diſtinction of the ſexes, Mr. Miller has divided the genus into *Rhus* having hermaphrodite flowers, and *Toxicodendron* having dioecous flowers. Tournefort had made the ſame diviſion before, but on different principles: *Rhus* with unequally pinnate leaves, and a villoſe berry with a globular nucleus; *Toxicodendron* with ternate leaves, a ſtriated berry and compreſſed nucleus. In *Cotinus* the leaves are ſimple, and the berry more compreſſed.

Sumach is an Arabic word. *Toxicodendron* is greek, and ſignifies *Poiſon-wood*.

[s] Dillenius. [t] Hort. kew. [u] Idem. [v] Ray.
[x] Hort. kew. [y] Linn. ſuppl. [z] Hort. kew.
[a] Linn. ſuppl. [b] Hort. kew. [c] Prodr. cap. [d] Vahl.
[e] Willdenow. [f] Hort. kew. [g] Idem.
[h] Vahl. [i] Linn. ſpec. [k] Hort. kew.
[l] Idem. [m] Idem. [n] Forſter. [o] Travels, 2. 308.

PROPAGATION AND CULTURE.

1. 2. 4. 5. 29. Theſe are hardy plants, and will thrive in the open air in England. The firſt and fifth ſorts not being quite ſo hardy as the others, muſt have a better ſituation, otherwiſe their branches will be injured by ſevere froſt in the winter; they are eaſily propagated by ſeeds, obtained from the countries where they grow, if theſe be ſown in autumn, the plants will come up the following ſpring; but if ſown in the ſpring, they ſeldom come up till the next ſpring; they may be either ſown in pots, or the full ground. If they are ſown in pots in autumn, the pots ſhould be placed under a common frame in winter, where the ſeeds may be protected from hard froſt, and, if in the ſpring the pots are plunged into a very moderate hot-bed, the plants will ſoon riſe, and have thereby more time to get ſtrength before winter. When the plants come up, they muſt have a large ſhare of air, and ſhould be gradually hardened to bear the open air, into which they ſhould be removed as ſoon as the weather is favourable, placing them where they may have the morning ſun, and keeping them clean from weeds; in dry weather, if they are ſupplied with water, it will greatly promote their growth; but towards autumn it will be proper to ſtint their growth by keeping them dry, that the extremity of their ſhoots may harden; for if they are replete with moiſture, the early froſts in autumn will pinch them, which will ſometimes cauſe their ſhoots to decay almoſt to the bottom, if the plants are fully expoſed. If the pots are put under a common frame again in autumn, it will ſecure the plants from injury, for while they are young, and the upper part of the ſhoots are ſoft, they will be in danger of ſuffering if the winter proves very ſevere; but in mild weather they muſt always enjoy the open air, therefore ſhould never be covered but in froſt.

The ſpring following, juſt before the plants begin to ſhoot, they ſhould be ſhaken out of the pots, and carefully ſeparated, ſo as not to tear the roots, and then tranſplanted into a nurſery in rows three feet aſunder, and about one foot diſtance in the rows. In this nurſery they may ſtand two years to get ſtrength, and then may be tranſplanted where they are to remain.

The ſeeds which are ſown in the full ground, may be covered the firſt winter with ſome old tanner's bark to keep out the froſt, and in the ſpring it may be drawn off again after the danger of the hard froſt is over; and when the plants come up, they muſt be kept clean from weeds, which is all the care they will require the firſt ſummer; but as the plants in the full ground are apt to grow luxuriant, and continue growing late in autumn, they ſhould be covered to ſcreen them from the early froſt, which will otherwiſe kill their tops, and this often occaſions them to die down a conſiderable length, and frequently almoſt to the ground in hard winters. In the ſpring following the plants may be taken up carefully, and tranſplanted into a nurſery at the ſame diſtance as before directed.

This method of propagating the plants from ſeeds is ſeldom practiſed after a perſon is once poſſeſſed of the plants, for they are very ſubject to ſend up a great number of ſuckers from their roots, whereby they are eaſily propagated. The ſuckers of all the ſorts may be taken up and planted in a nurſery for a year or two to get ſtrength, and then may be planted where they are to remain.

Theſe ſhrubs are generally planted in plantations of flowering ſhrubs in large gardens, where they make a fine variety in autumn, eſpecially the ſecond, fourth, and fifth ſorts, with their large purple, or red panicles, which have a good effect; but where theſe are planted, their ſuckers muſt be every year taken off, otherwiſe they will grow up to a thicket and deſtroy the neighbouring plants.

The 6th, 17th, 18th, 19th, 20th ſorts propagate in plenty by their creeping ſtalks and roots, or by laying down their branches, which will put out roots in one year, and may then be taken off and tranſplanted, either in the places where they are to remain, or in a nurſery, to grow two or three years to get ſtrength before they are planted out for good; they are alſo propagated by ſeeds, which ſhould be ſown on a bed of light earth, and when the plants come up they muſt be kept clean from weeds the following ſummer; and before the froſt comes on in autumn, the bed ſhould be hooped over, that the plants may be covered with mats, for otherwiſe the early froſts will kill their tops, which frequently cauſes their ſtalks to decay to the ground; for as the plants are tender, and generally ſhoot late the firſt year, they are in much greater danger than when they get more ſtrength. In ſpring the plants may be tranſplanted into nurſery-beds to grow a year or two, and may then be tranſplanted for good.

Theſe plants are preſerved by the curious in botany for the ſake of variety, but as there is little beauty in them, there are not many of the ſorts cultivated in England. The wood of theſe trees, when burnt, emits a noxious fume, which will ſuffocate animals when they are ſhut up in a room where it is burnt: an inſtance of this is mentioned in the Philoſophical Tranſactions by Dr. William Sherard, which was communicated to him in a letter from New England by Mr. Moore, in which he mentions ſome people who had cut ſome of this wood for fuel, which they were burning, and in a ſhort time they loſt the uſe of the limbs, and became ſtupid; ſo that if a neighbour had not accidentally opened the door, and ſeen them in that condition, it is generally believed they would ſoon have periſhed.

10. 11. 13. 15. 16. 21. 22. 23. 24. 25. 26. 27. 28. 29. 30. 31. 32. All theſe African ſorts being too tender to live through the winter in the open air in England, are planted in pots or tubs, and houſed in autumn, and during the winter they muſt be treated in the ſame way as other hardy green-houſe plants. They all retain their leaves through the year, and make a good variety when intermixed with other plants in the green-houſe in winter. They may be propagated by cuttings, which ſhould be planted in pots filled with loamy earth the beginning of april, and plunged into a very moderate hot-bed, covering them cloſe with hand or bell-glaſſes, and ſcreening them from the ſun in the heat of the day. The cuttings ſhould be now and then refreſhed with water, but it ſhould not be given in too great a quantity. With this management they will put out roots in about two months, and when they begin to ſhoot, they ſhould have air admitted to them, and be gradually hardened to bear the open air, into which they muſt be removed, placing them in a ſheltered ſituation; and when the cuttings have filled the pots with their roots, they ſhould be ſhaken out of the pots, and parted carefully, planting each into a ſeparate ſmall pot, placing them in the ſhade till they have taken new root, when they may be intermixed with other exotic plants in a ſheltered ſituation for the ſummer, and in autumn removed into the green-houſe.

33. Venice Sumach is propagated by layers in autumn; by the autumn following theſe will have taken root, when they may be taken off, and tranſplanted into a nurſery; there let them grow a year or two to acquire ſtrength, and then plant them out where they are to remain. This ſhrub is ſo hardy, as not to be injured by froſt in England, where it is cultivated for ornamental plantations.

[RHUS. See *Connarus, Coriaria, Euonymus, Fagara, Myrica.*

RHUS COBBE. See *Schmidelia.*

—— COMINIA. See *Allophylus.*]

RIBES. (*An Arabic name.*)

Lin. gen. n. 281. *Reich. n.* 301. *Schreb. n.* 390. *Juſſ.* 310. Ribeſium. *Dill. elth.* 246. Groſſularia. *Tournef. t.* 409. *Gærtn. t.* 28.

Claſſ. 5. 1. Pentandria Monogynia.

Nat. order of *Pomaceæ. Calli*, Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* one-leafed, half-five-cleft, ventricoſe: *ſegments* oblong, concave, coloured, reflex, permanent.

COR. *Petals* five, ſmall, obtuſe, erect, growing to the margin of the calyx.

STAM. *Filaments* five, ſubulate, erect, inſerted into the calyx. *Anthers* incumbent, compreſſed, opening at the margin.
PIST. *Germ* roundiſh, inferior. *Style* bifid. *Stigmas* obtuſe.
PER. *Berry* globular, umbilicated, one-celled: *receptacles* two, lateral, oppoſite, longitudinal.
SEEDS very many, roundiſh, ſomewhat compreſſed.

ESSENTIAL CHARACTER.

Petals five, inſerted with the ſtamens into the calyx. *Style* bifid. *Berry* many-ſeeded, inferior.

SPECIES.

** *Unarmed.* Ribeſia or Currants.

1. Ribes rubrum. *Common Currant.*
Lin. ſpec. 290. *Reich.* 1. 564. *Willd.* 1153. *arb.* 293. *hort. cliff.* 82. *vir. cliff.* 21. *hort. upſ.* 51. *fl. ſuec. n.* 205. *lapp. n* 68. *mat. med.* 99. *Woodv. med. bot.* 207. *t.* 74. *Hudſ. angl.* 99. *Wither. arr. ed.* 3. 264. *Smith, brit.* 263. *Lightf. ſcot.* 146. *Relh. cant. n.* 186. *Sibth. oxon. n.* 260. *Fl. dan. t.* 967. *Hall. helv. n.* 818. *Roth. germ.* 1. 107. 2. 275. *Heſſm. germ.* 80. *Pollich pal. n.* 233. *Neck. gallob.* 125. *Leers, herborn. n.* 169. *Krock. ſileſ. n.* 354. *Villars dauph.* 2. 541. *Allion. pedem. n.* 1787. *Pallas roſſ.* 1. 2. 35. *Gmel. ſib.* 3. 173. *Du Roi barbeec.* 2. 309. *Blackw. t.* 285. *Ludw. eſt. t.* 92. *Kniph. cent.* 2. *n.* 73. *Knorr. del.* 1. *t.* 1. 5. *Berg. phyt. t.* 67. *Plenck, ic.* 146.
Groſſularia rubra. *Scop. carn. n.* 269.
α. *G.* multiplici acino, ſ. non ſpinoſa hortenſis rubra. *Baub. pin.* 455. *Duham. arb.* 272. *t.* 1.
Ribes vulgaris. *Matth.* 168.—fructu rubro. *Ger. emac.* 1593. 1. *Raii hiſt.* 1485. *ſyn.* 456.
R. vulgaris acidus ruber. *Baub. hiſt.* 2. 97.
R. fructu rubro. *Park. theat.* 1561. *parad.* 558. *t.* 559. *f.* 2. *Dod. pempt.* 749. 1.
β. R. vulgaris fructu dulci. *Cluſ. hiſt.* 1. 120. *Raii ſyn.* 456.
Groſſularia vulgaris fructu dulci. *Baub. pin.* 455.
Sweet Currant.
γ. R. fructu parvo. *Merr. pin. Dill. in Raii ſyn.* 456.
δ. R. fructu rubro majore. *Park. theat.* 1562. *f.* 1. *Raii hiſt.* 1486.
Groſſularia hortenſis fructu majore rubro. *Baub. pin.* 455.
Great Red Currant.
ε. R. vulgaris fructu albo. *Ger. emac.* 1593. 2. *Park. theat.* 1562. 2.
R. vulg. acidus albas baccas ferens. *Baub. hiſt. Raii hiſt.* 1486.
Groſſularia hortenſis fructu margaritis ſimili. *Baub. pin.* 455.
White Currant.
Racemes ſmooth nodding, flowers flattiſh, petals obcordate—leaves obtuſely five-lobed, ſtem erect.
[2. Ribes petræum. *Rock Currant.*
Lin. ſyſt. 243. *ſpec. ed. Willd.* 1553. *Jacqu. ic.* 1. *t.* 49. *miſc.* 2. 36. *Lamarck, encycl.* 3. 46. *Smith, brit.* 265.
R. montana oxyacanthæ ſapore 1. *Baub. prodr.* 160.
R. vulg. rubro flore. *Cluſ. hiſt.* 1. 119.
Racemes ſomewhat hairy erect, when fruiting pendulous, petals obtuſe, bractes ſhorter than the flower—leaves acuminate-lobed gaſh-toothed, ſtem erect.
3. Ribes procumbens. *Trailing Currant.*
Lin. ſpec. ed. Willd. 1154. *Pallas roſſ.* 2. 35. *t.* 65. *Gmel. ſib.* 3. 173. *Amman. ruth.* 197.
Racemes erect, flowers flattiſh, leaves obtuſely lobed, ſtem procumbent.
4. Ribes glandulóſum. *Glandulous Currant.*
Lin. ſpec. ed. Willd. 1154. *Ait. kew.* 1. 279. *Weber, dec. pl. min. cogn. p.* 2.
R. proſtratum. *L'Herit. ſtirp. nov.* 3. *t.* 2. *Lamarck, encycl.* 3. 48.
Racemes erect with glandular hairs, flowers flattiſh, leaves acuminate-lobed toothed, ſtem aſcending rooting.]
5. Ribes alpinum. *Taſteleſs Mountain Currant.*
Lin. ſpec. 291. *ſyſt.* 243. *Reich.* 1. 565. *Willd.* 1154. *arb.* 294. *hort. cliff.* 82. *fl. lapp. n.* 97. *fuec. n.* 206. *Hudſ. angl.* 99. *Wither. arr. ed.* 3. 264. *Smith, brit.* 264. *Lightf. ſcot.* 146. *Dickſ. hort. ſicc.* 15. 13. *Fl. dan. t.* 968. *Gunn. norv.* 2. *t.* 2. *f.* 1, 2. *Hall. helv. n.* 817. *Heſſm. germ.* 80. *Roth. germ.* 1. 107. 2. 279. *Pollich, pal. n.* 234. *Leers, herborn. n.* 171. *Krock. ſileſ. n.* 355. *Jacqu. auſtr.* 1. 29. *t.* 47. *Villars dauph.* 2. 542. *Allion. pedem. n.* 1786. *Gmel. ſib.* 3. 173. *Pallas roſſ.* 1. 2. *p.* 36. *Du Roi barbeec.* 2. 213. *Retz. obſ.* 2. 11. *n.* 17.
R. alp. dulcis. *Baub. hiſt.* 2. 98. *Raii hiſt.* 1486. *ſyn.* 456.
R. montana oxycanthæ ſapore 2. *Baub. prodr.* 160.
Groſſularia vulgaris fructu dulci—item diſtinctis baccis. *Baub. pin.* 455.
Racemes erect, bractes longer than the flower, leaves ſhining underneath.
[6. Ribes ſpicatum. *Acid Mountain Currant.*
Robſon in Linn. tranſ. 3. 240. *t.* 21. *Wither. arr. ed.* 3. 265. *Smith, brit.* 264. *Sym. ſyn.* 62.
Spikes erect, petals oblong, bractes ſhorter than the flower.
7. Ribes fragrans. *Fragrant Currant.*
Lin. ſpec. ed. Willd. 1155. *Pallas nov. act. acad. Petrop.* 10. 377. *t.* 9.
Racemes erect, corollas bell-ſhaped, leaves bluntly three-lobed, ſtem aſcending.
8. Ribes triſte.
Lin. ſpec. ed. Willd. 1155. *Pallas nov. act. acad. Petrop.* 10. 378.
Racemes pendulous, corollas flattiſh, leaves five-lobed.]
9. Ribes nigrum. *Common Black Currant.*
Lin. ſpec. 291. *ſyſt.* 243. *Reich.* 1. 565. *Willd.* 1156. *hort. cliff.* 269. *upſ.* 51. *fl. lapp. n.* 99. *ſuec. n.* 207. *mat. med.* 69. *Woodv. med. bot.* 209. *t.* 75. *Hudſ. angl.* 99. *Wither. arr. ed.* 3. 265. *Smith, brit.* 265. *Relh. cant. n.* 187. *Abbot, beſſ.* 53. *n.* 180. *Fl. dan. t.* 556. *Heſſm. germ.* 81. *Roth. germ.* 1. 107. 2. 279. *Pollich pal. n.* 235. *Leers, herborn. n.* 170. *Krock. ſileſ. n.* 356. *Villars dauph.* 2. 542. *Allion. pedem. n.* 1788. *Gmel. ſib.* 3. 173. *Pallas roſſ.* 1. 2. 34. *Du Roi barbeec.* 2. 315. *Ludw. eſt. t.* 91. *Kniph. cent.* 2. *n.* 72. *Knorr. delic.* 1. *t.* 1. 6. *Blackw. t.* 285. *Plenck, ic. t.* 147. *Berg. phyt. t.* 153.
R. nigrum vulgo dictum folio olente. *Baub. hiſt.* 2. 99. 1. *Raii hiſt.* 1486. *ſyn.* 456.
R. fructu nigro. *Park. theat.* 1562. 2. 3. *Ger. emac.* 1593. *Dod. pempt.* 749. 2.
Groſſularia non ſpinoſa fructu nigro. *Baub. pin.* 455.
Racemes looſe hairy pendulous, peduncle ſimple at the baſe, flowers bell-ſhaped, bractles ſhorter than the pedicels—leaves dotted underneath.
10. Ribes floridum. *American Black Currant.*
L'Herit. ſtirp. nov. 4. *Ait. kew.* 1. 280. *Lin. ſpec. ed Willd.* 1156.
R. americanum. *Mill. dict. n.* 4.—nigrum. *Moench. hort. weiſſenſ.* 104. *t.* 7. *Medic. ſoc. econ. palat.* 1764. *p.* 268. *Pallas roſſ.* 2. 1. 34.
R. nigrum β. *Lin. ſpec.* 291.
Ribeſium nigrum penſilvanicum, floribus oblongis. *Dill. elth.* 324. *t.* 244. *f.* 315.
Groſſularia amer. fructu nigro. *Duham. arb. n.* 23.
Racemes pendulous, flowers cylindrical, bractles longer than the germ (ſcarcely longer than the flower)—leaves dotted on both ſides.

** *Prickly.* Groſſulariæ or Gooſeberries.

[11. Ribes Diacantha. *Two-ſpined Gooſeberry.*
Lin. ſyſt. 243. *Willd.* 1157. *ſuppl.* 157. *Pallas roſſ.* 2. 36. *t.* 66. *itin.* 3. *app. n.* 79. *t.* 2. *f.* 2. *Amm. ruth.* 198. (Groſſularia).
Prickles in pairs ſtipular, flowers in racemes, leaves wedgeform-three-parted toothed.
12. Ribes ſaxatile. *Mountain Groſeberry.*
Lin. ſpec. ed. Willd. 1157. *Pallas nov. act. acad. Petrop.* 10. *p.* 376.
Prickles ſcattered, leaves wedgeform obtuſely three-lobed, racemes erect.]
13. Ribes reclinatum. *Procumbent Gooſeberry.*
Lin. ſpec. 291. *Reich.* 1. 566. *Willd.* 1158. *hort. cliff.* 82. *upſ.* 51. *Hall. helv. p.* 365.
G. fructu obſcure purpuraſcente. *Cluſ. hiſt.* 120.
Groſſularia ſpinoſa ſativa altera, foliis latioribus. *Baub. pin.* 455.

G. reclinata

' &; -*3*' 1 '& %' '
(') # + '% 7 0' ' %'N '% '
F & ' 7 ! &
/+' @;9' 05 6 * *' 2 % ? &' % %%'
)% ',P/' 2 ' ' #QQ' 4 ?&' //#C' &
`PQ' ' %%' C,' ! ' %%' L/' ?- 'R '
&' L',QQ' # ' ',QQ' #' 'M,'
B 7'% C' ' L#C' * ' & % ',' #+L'
'? & #' ' /ECP' 7' ' /+C
' :*' ; 54*' '& ' ' #+Q"
0556 * *'= 563*' 1 '& ' ',
' 5 65 6' 8*? 80' = 54 10' 8 * 3* 3 8' 5& &' ;0 0 &'
2 ' 0 ' /+C+
(' 7 ' ' & ' % a &'
'% ! % '
/#' @&9' :*' ; 54*' ♯ # % &' 0 '
C ' NQ ') % ',+L' 2 ' -N<M' 4 &
//#C' ' %%' C,' % % ',KC' 4 '
' &'L',QQ' # ' ',QQ' 2 ? ' <
' /CC' ' > ' ' M ' ' :# ' #'
) 'Q,' @ ' ! ' C,K' @ %%#' #' ^,'
2 0' ' #' /' /KC',' ,PP' ' ',LQ'
B 7'% %' @' L#E' * ' & ' ,' #+L'
0&?7 % & # @' ' 7 ' /,#' (7 '
',EE' ' / #' 7'7' /+P'
05 1* *' :*';-54*' 1 '& ' 'L' %
' /+L' # & ' ' ' ! 'Q2
ÐS'2"f§ "' ' ' ' ' VÐ
5 B4 ;'*; -0':&' 4 -05*5' :;6-9' ('% '
I #' ' ' /KP
:*' ; 54*' " %' %' /CE' I ' # ' E+C
' //+L' # '/L,+' 7 ' /#QK' '
:* 4 -*' 1 ' /QE
(' ' 7 ' &##& ' % + &' ' '
% %#
/Q' @&9' 0?'*;*-3=0 1&9' @ # ! &' '
) ',P/' 2 ' '#QE' 4 ?&'//#P'

05 *D*'0?'*;*-3=0 1&9' 1 '& & ' '+
' 0?'*;*-3=9'50 9* -4 0 @6 ' 586 6150- 0'
7' # ',/,' I ' '/QQ' ' /LP"D' -Q
" (' 7 ' ' ! %&
/E' @&9' '-050*6' 7- % &'
? %% ',P*' ,+L' 2 ' '#QE' 4 &
//#') 8 ' ',#Q' ',,L
05 6*-*;'-05@*3 ' 1 '& & ' '#
7 % & '% ' 7 ' ' #

R ' %%

^ 9'2&-6.';0-5 39'05'>& 'G-0>-'5= 6@9'50 8&05'
>=;=' *;' 4 ;G ''03=&9 -03F =&-;&' 06 8&05'0 8&0 5'*-1'
& '=*:&'1 : 1&1' 3' 6-1& '3=&' -*8&9'05' @&9'*-1'
05 1* *' 055;6' *-1' 0 3-&' 4 &5& '3=&' *33&'
-*8&' 50 '3=&' >=0 &' 2&-69' -' 3=&' 4 ;G ''1 : 5 0-'
3=&' 4 ;G &9'* &';08 80- ''5 8 4 &'@63'5080&; 8&9'3=&''
* ;'4* 3&1' =&' &*:&9'* ;'* 3& -*3&' > 3=' 3=*&4&3 0 &'
> 1&-&1'*3 3=&' @*5&' *-1' =* 5'& 8 @ *; -2' -' 3=&' 6-'*
9 8 &1' 1 : 0=' ; *3&' 0' 50 8 &3 8 &9' &:&-' 54 -6 05&'
&16-;&9'*? * *' 0 '@6 - -2'5 08'3=&' 2&8 9'F -'3=&'
4 ;G '' 54;;;' 5 08' 0&' 30' 3= &&"5 0>&' &1' -' 3=&'
6-* 8&1' 8*-'"5 0>& &1' -' *;& 8 &9' =&' 5 0>& 9'
=*:&'&*;=' 0-&' @*T &7 -' *34 -6 8' 3=&'' * &' 1 0&'"
;09 9' =&' 5 6 3'9'*-'&5;6 &-3'@& '' =&'4& 54& 8'
-' ' 6@ 68' 9' =0 -'' *9 -' 3=&' *-6-;6 *;&9' -03'
5* -*;&069' 9'3=*3'3=&';*5&' -'3=&0;=&'54&;&9.'
!' (*-;=&9'58 003=' &*:&9'0-' 0- 8' 4&3 0 &93=&' ?!' '3=&'58*' *4&'05'I*-3&' 0'3=&'
106@''5& *3&' 56@46@;5;&-' *;& 8 &9'5 8 4 &' -01H
1 -2' >=&-' -'5 6 3'4&-16 069' (*1&' 0:*3&' 58*'
5=0 3;'3=*-' 3=&' 4&1 ;&9' 0 0 *' '& 0> =' 2 &&-'
> 3=' 0@;0 1*;&' 4&3*9' (& &9'*;1' = - -2.
3 :&' 05' 6 04&' ;= &5 '' -'3=&' -0 1 ; -' 4 39' -'
=&12&9'*-1' >0019' 5 0>& -2' -' 8*'' -106@3&1 ''
> 1' -'3=&' -0 3=& -' ;06-3 &9' 05' -2*-1' e0 ;5= ;'
R6 =*8' *-1' &53 8 0 & *-1' *9 0-' 3=&' @*-G9' 05'3=&'
&&9' '*-1' -' ;03*-1' -' 3=&' 5*-1'05' 5 *♯ @63'
-'03=&' 4* 39' 05'06' %*-1' ;' 0;;6 9' 0 -'' -'=&12&9'
*;; 1;8*3'
=&' 5 6 3'05'3=&' 6 *-3' 9' 2&-&* '' *;;&43*@ &'
& 3=&' *9' -*36 &' 4 &5&-39' 3' 0' 8*1&' -30' F& '' 5'
&<6*'>& 2=39' 05'4 ;G&1' 6 *-39' *-1'46 &'5>2*'*;

' 6 '2&-' .' 8 3

463' 0:&' 3=&' 5 &' 3=&' <60' 3=*3' 5&4* *3&9' 405 3*''
-&065 '' 9 *' 8 053'*2 &&*@ &' F& '' =&' F6 ;&' 9 *'
4G* *-3'*;1' -' 46-;=&' *-1'>*9*';08 80-'@&:& *2&F
-' 3=&';05 ;"=065&9'*3' * 9.'>=&-' '>*9'3=& &' -'3=&
'&* ' /EQL
= 9'5 33 ;' @& -2' ;0- 1& &1'*9' * 8 &-3* '' >*9' -03'
&;& :&1' -30' 3=&' *3& *' &1 ;*' =& &' 3 '1 &' M*53
&1 3 0-'05'3=&' 0-10-' =* 8*;04;& *' -' /ECC
=&' 8 &1 ; -*' <6* 3 &9'05' &1' 6 *-39' *44&*' 30'
@&' 5 8 *'30' 3=05&' 05' 03=&' 56@*; 1' 5 6 39' =;=' *;'
&53&& 8 &1' 30' @&' 801& *3& '' &5 2& *-3' *-3 5;43;' *3'"
3&-6*-3' *-1' *4& &-3' =&*'' 8 *'' @&' 65&1' > 3=';0-"'
5 1;*@ &' *1:*-3*2&' 30' *' *''3= 1' -' 8 053'5&@ &';08 H
4 *-39'g 30' &5 &-' *-' -;&*5&1' 5&;&3 0-' 05' @ &' *-1'
30';0 >53' *' 463 1' *-1' 5;0 @63;' 53*3;' 05' 3=&' 5 6 19'
;54;;*'' -X G-26-&' 3&8 4&*8 &-39*@63' -';0-53 36"'
3 0-9'05'*;0-3*''G-1'3=&'*'*43'30' 03?*0R'5*36H
&-;''*-1' -1 2&53 0-
= 9'5=-@' 9' :&''*43'30' @&' -5&53&1' @''3=&' '
2 '*-1'3=&-'3=&'2 &&-' &*:&9' @&;08 &' &1' 4 33&1'
*-1' 46;G& &1'. g
=&' 6 *-3'=*9'@&&-'0-2' ;6 3:*3&1' -' 06' 2* H
1&-9'*-1'2 &*3'' 8 4 0:&1' 3' 4 &5&-3'>&'=*:&'3=&
50 0>-2':* &3 &9' =&';08 80-'50 3'>3=' 58*' &1'
5 6 3' 3=&' 5*8 &' >3=' >=3&' 5 6 3'F *-03=&' >3=' 4* &
5 6 3';08 80-''1*&1'3=&' =*84*2-' 6 *&'1 5H
5& -2'0-''-'@&-2'05'*'4*&' &1'0'5 &=";0 06'F 3=&
3*53;'9'3=&' *;' @63'3=&';0 06' 8*G&9'*:* &3'' 50'
3=&'3*@ &' (63' -;&'3=&' >=3&'*-1' &1' R63;=' 6 H
-39'=:&'@&&-'-3 016;&1'*-1'@&;08 &';08 80-'3=&'
0 1'50 39'=*:&'@&&-'*8 053'@*-53;1'*-1'*;' * &''30'
@&'506-1'-'3=&' -2 =' 2* 1&-9
^ ' >&&3' 6 *-3'>*9 0@5&:&1'@'' (0@*3' -' 0 1'
& & 9 9'2* 1&-'*3 *-30-' @ 062=3'063'05'3=&-&2=H
@06 -2' >0019' R ';=* 150-' * 50'5*6-1' 3' -&*'
;3 &' -' e;G=;
' 8* "3 6 &1' 6 *-3'>*9' &8* G&1'@'' & &3'
-' 8*-''4* 39' 05' * ;*=;' * 50' *3 8 @;30-' -'
6 8 &'' > & &' ' *8 &9' =& * 1' 506-1' 3' 5 -;&
4 &-3 56 '' (63' 3=9';06 1' 0-'' @&' 3=&';08 80-'
2* 1&-' &1' 6 *-3' -'*' > 1'53*3&';* &1' 3=53 0'4 0H
@*@''@'' @ 19]
' ' :* &3'' > 3=' @ 03;=&1' &*:&9' 9' G&43' -' 50 8 &'
4 *-3*3 0-9'@63' *9 3@&' : &2*;0-' 9' *43' 30' 20' 053.'
'-&-'3=&' 4 *-3' 9' : 20 069';5;*;;'' 1&5& :&9' -0H
3;&
^ =9'>=0;5@8 &'*-1'*2 &&*@ &'5 6 3'10&9'-03'5&& 8'
;05*:&' @&&-'G-0>-'30' 3=&'*-;&-3' &&G9'*-1' 0H
8*-9' =&'5063=&-'-*3 0-9'05' 6 04&'10'-03'5&& 8'
30' =*:&'*-'*44 04 *&'-*8 &' 50 "' 3 &:&-'*3' 3=9' J *''
=&' 3* *-9' =*:&' 0-''3=&' 1 8 -60:&' ?! .' 3'
&-&:*'3=&'';*' ;'2 0 '&' 1 ' -' *-;&' 3'=*9'
-0' *44& *3 0-' 1 53 -5 3' 5 08' 3=&' 00 &&;' '' @63' 9'
-*8 &1' 5''8 53*G&'-03' % ' ' =&'5=6@
05' @03=' =*9 3=&' -*8 &' 03' 5D&A & > 3=' 3=&' &4 3=&39
#!'*-1' >' =&' & 8*-9';*' 3=&8' @03=
)) ' > 3=' 3=&' &4 3=&3 50 '3=&' 6 *-3
*-1' 50' 3=&' 005&@& '' =&' 0 1' &-;=' -*8 &
'% '&; '# ' *-1' 3=&' R63;=' (%7 ' ! ')&&'
4 0;*8' 3=&'=*:-2' @&&-'53 *-2& 9' 840 3&1' =&'
0 3=&-'*3 0-9'=*:&'5&4*;&'*44& *3 0-9'50' 3=&&'
5 6 39?-1 55& &-3' 4 0:-;&9' 05' >&1&-'3=&' 6 *-3'
9';;1'%* '2 '*-1'2)'F *-1' 3=&' 005&@& ''
B 0 '*-1' 7 ' 6' -2 =' -*8 &'05' ' B'
9 &:1&-3'' 5 0 8' 3=&' 5 8 361&'05'3=&' 5 6 3'30' 3=*3'05'
;0 8 80-'2 0;&9' ' '0 ' '
, ' & 2=3'3=&&' 0' 506'% ' (*G' @*;G=' &1'
5 -*'' *5=";06 '' *;&8 &9'5;*33;;1'*'0:&'3=&'
3 6-G' *-1' @*-;=&9' 50 3*'' >=&-' -' 5 0>&' *>*'9'
64 2=3' *-1'&:&-'>=&-' -' 5 6 3'50 8 &1 8 &9' 50' 5'3=&&'
@&'0-''0-&' 0' 3>0' @&-;9' 0>&9' &2*-3' &*H
3:&''*2& '5;*33;&1'0-'J=0 3'4&1;&9'>=;=*:&'*'
53 '5=0 3;'@*1&'*;'3=&'@*5&' & 8' 2 &&-'' @6;'
3=&';*'7 0-'3=&'304'05' 3' 05&";0 06 &1'0'50 8 &1 8 &9'
@ 001" 5=*4&1'=G&'*' 1 =':=*"5:&";&5;'>3=' '
>=;&"3=*4&1'@0 1& '=*:3'5:&' ;9'05'*1&&4&'
&1' &3*9'5 8*'>=3&'*3 8 1&1'*;'3=&'&12&'*-1'&-H
3 &'5&5 &'0-'3=&'4*39'05'3=&';*'?'(&-;9'*2&

S 3@&--' .' 00>&' S 3G;*

very deep red, extremely acid, and not losing their acidity by culture, and full of juice, but less glutinous than in R. alpinum. The leaves grow mostly at the ends of the branches, so as to conceal the bunches of flowers and fruits: they are much larger than those of R. alpinum, and usually three-lobed, the lobes more or less acute, and serrate; they are naked, at first bright green, but becoming afterwards very dark; the petiole is ciliated with longer hairs. This species and the common garden Currant have been inoculated on each other, but without changing their nature. The R. petræum has been cultivated many years without changing its acidity or acerbity; but it once produced white fruit [6].

It is distinguished from R. spicatum, by the flowers being in racemes. The fruiting racemes are pendulous; and it is entirely different from R. alpinum [5]. Dr. Smith remarks, that it has altogether the appearance of R. spicatum, and doubts whether it be distinct, as a species, from that.

Native of Carinthia, Styria, Silesia, Bohemia, England. The Rev. Mr. Harriman found it near Egleston, and Mr. Robson near Consciffe, in the county of Durham [1].

3. Stems concealed in the moss, scarcely thicker than a swan's quill; branches filiform, procumbent also in the moss, till within a span of the end, where they rise up and are herbaceous. Leaves on long petioles, three-lobed, much broader than they are long, entire at the base, which is almost straight; the lobes are serrate, the side ones somewhat gashed; the lower surface and the petioles are slightly hairy. Racemes axillary, five, six, or seven-flowered, naked, in flowering-time upright. Flowers of the same shape and structure with those of R. rubrum, but smaller, spreading with five, livid-purple, pubescent, acute segments. Anthers scarcely prominent from the calyx. Berries often larger than those of the Black Currant, hanging down from almost erect racemes, yellowish green, or when ripe rufescent, very pleasant to the taste, and therefore in much request in Dauria, where the shrub grows wild.

In Demidoff's garden at Moscow, this shrub raised from seed grew taller and more robust [2].

4. Stem a foot and half in length, ash-coloured. Branches alternate, longer than the stem, when bruised smelling stronger than the black Currant. Leaves spreading, cordate, five-lobed, the upper lobes less divided, unequally serrate, rolled back at the edge, acute, five nerved, veined, wrinkled, when young pubescent, but afterwards smooth, void of scent, from three to four inches in length and breadth; petiole round, scarcely shorter than the leaf. Racemes lateral, on the year's shoots before the leaves come out, solitary, erect, becoming pendulous when fruiting, hispid. Flowers spreading, purplish, on purplish-hispid pedicels, at the base of each a linear-lanceolate, concave, subhispid bractle, much shorter than the pedicel and permanent. Calyx bell-shaped, with purple pedicelled glands. Petals wedge-form or deltoid, truncate, shorter than the calyx. Anthers purple. Germ truncate, pedicelled-glandular. Styles two, approximating as if united, distinct at top, reflexed, the length of the stamens. Berry hispid. Seeds from six to eight. Fruit eatable, but not good.

It differs by its creeping branches and pedicelled glands on all the outer parts of the inflorescence; from all the thornless species in having hispid fruits. The buds, especially when the leaves are fallen, are more divaricate, and red, not pubescent, as in R. nigrum [3].

Native of North America. Introduced in 1777, by John Fothergill, M.D. It flowers in april and may [4]. L'Heritier says Le Monnier first cultivated it in France.

5. Leaves smaller than in the common Currant, (R. rubrum) three-lobed, serrate, smoothish, shining, especially underneath; the segments lanceolate, pointed. Racemes always erect, with the flowers on short pedicels, yellowish green. Calyx tubular, bluntly five-sided. Bractes lanceolate, longer than the flower. Stamens shorter than the petals. Pistil as long as the calyx. Berries elliptic, red, mucilaginous and insipid; or with a flat sweetish taste, agreeable only to children. The wood being hard and tough, makes good teeth for rakes [5].

Native of Europe and Asia, in woods, thickets and hedges. In England only in the northern parts: as in Yorkshire, (Dodsworth) especially about Bradford; (Richardson) about Darlington, Durham; (Robson) Edgbaston, and Ilam in Staffordshire, (Withering and Sneyd.) Flowering in april and may.

It has been observed both here and abroad to be sometimes dioecous. Jacquin and Leers have remarked this. Grimm says it is constantly so: but Pallas thinks it proceeds from a weakness in garden plants. The female flowers, as found in Staffordshire, had five imperfect stamens, and formed a shorter and more thinly set bunch, than the male flowers, which had five perfect stamens, and two styles, but no germ [6].

6. This has the leaves of R. rubrum, but with sharper lobes and serratures, and more tomentose underneath. Spikes always erect, with the flowers on very short pedicels, of a reddish-brown colour. Bractes ovate, small, scarcely exceeding the pedicel, but by no means the flower, in length, reflex at the tips. Petals wedge-oblong. Berries like those of the Black Currant in colour and taste [7].

It is not a hybrid plant, for its seeds are fertile. It approaches R. petræum in some respects, but the fruit of that is pendant. The upright spikes are sufficient to distinguish it from all its brethren. The shortness of the bractes will prevent it from being taken for R. alpinum [8].

It was first discovered and described by Mr. Robson, who had the first shrub from the neighbourhood of Richmond in Yorkshire; and afterwards found it by the Tees between Pierbridge and Gainford in the county of Durham [9].

7. This shrub is a foot and half in height, with the bark inclining to a testaceous colour; branches alternate, those of the year dotted with a very yellow resin that exudes from them. Leaves on long petioles, smooth, coriaceous, obsoletely five-cornered, three-lobed, or sometimes five-lobed serrate, underneath very much veined and more glaucous: from this surface they exude, in very frequent little yellow drops, a very fragrant balsamic resin, having a strong smell approaching a little to that of the Black Currant, which it resembles much in its whole appearance. Racemes short, composed of about ten flowers, clustered, stiffly upright. Flowers bell-shaped, white, deeply five-cleft, smelling very strong: petals lanceolate, acute, spreading. Bractes deciduous, smaller than in R. procumbens. The racemes, when in fruit, are elongated, but continue upright, except in a few instances when they bend with the weight of the fruit. Fruit at most the size of the Black Currant, red, and very sweet.

Native of Siberia, on mountains bordering on Mongolia, where there are no woods.

8. From a creeping root this rises two or three feet high with several upright shoots: at the end of these are a few leaves of the same shape as in R. rubrum. The flowering and fruiting racemes are pendulous and smooth. Corollas flattish, red without and yellowish within; the petals rolled back. Berries small, black, insipid, full of a blackish red juice, very excellent for colouring wines.

Native of Siberia, in the same parts with the preceding, and on the summits of the Jablerinoi ridge [10].

9. The common Black Currant is distinguished by its more humble habit, its strong-smelling leaves glandular underneath, its hairy racemes, tubular calyx, and black fruit, but especially by its solitary, one-flowered peduncle at the base of the raceme, and distinct from it [11].

[1] Wolfen fir Jacq. misc. [2] Harriman in Smith's brit. [3] Smith. [4] Pallas. [5] L'Heritier. [6] Hort. kew. [7] Smith and Withering. [8] Withering. [9] Smith from Robson. [10] Withering from Robson. [11] Withering. [12] Willdenow from Pallas. [13] Smith.

The buds are glandular: the bractes woolly and as long as the pedicels; the flowers villose; the petioles alſo ſubvilloſe and glandular [a].

The petals are blunt; the ſtyle ſimple, ſcarcely half-divided by a groove; the ſtigma bifid [b].

Flowers turban-ſhaped. Segments of the calyx often of a rich brown red colour. Stamens ſometimes more than five, and then there are fewer petals, ſo that when there are ten ſtamens there are no petals: this change of the petals into ſtamens is juſt the reverſe of the proceſs by which ſingle flowers are known to become double; but it is the only fact of the kind that has been hitherto obſerved [c].

Native of moſt parts of Europe, eſpecially the more northern parts; alſo of Siberia, eſpecially the ſubalpine regions, by river ſides and in woods; where the bunches and berries are very large and ſapid; and of woods in the northern parts of Ruſſia [d]. In Britain it is found in wet hedges, on the banks of rivers, in alder-ſwamps, and ſometimes in woods; flowering in may.

The berries of the Black Currant have a very peculiar flavour, which many perſons diſlike; they are however commonly eaten in puddings in ſome parts of England, and make a tart little inferior to the Cranberry. The juice is frequently boiled down to an extract, with the addition of a ſmall proportion of ſugar; in this ſtate it is called Rob, and is much uſed in ſore throats, but chiefly of the inflammatory kind, in the ſame intention as gargles. The fruit from their efficacy in this way have acquired the name of Squinancy berries. The jelly in common domeſtic uſe for this purpoſe, is rendered leſs efficacious by having too much ſugar in its preparation [e]. The officinal preparations in the London Pharmacopœia are, Syrupus ribis nigri, and ſuccus ribis nigri inſpiſſatus, the jelly and rob [f]. Some put the berries into brandy, for the ſame purpoſe as others put black Cherries [g]. The Ruſſians make a wine of the berries alone, or fermented with honey, with or without ſpirits; or they mix the expreſſed juice with ſpirit drawn from wheat. They make a drink alſo of the leaves in Siberia [h]. The leaves when young tinge common ſpirits ſo as to reſemble brandy: an infuſion of them is ſaid to have the taſte of green tea, and is to ſome people peculiarly agreeable. They have been likewiſe recommended for their medicinal virtue, as cleanſing, pellent and diuretic [i]. An infuſion of the young roots is uſeful in fevers of the eruptive kind, and in the dyſenteric fevers of cattle. Goats eat the leaves [k]; and bears are fond of the berries [l].

10. In this, as well as in the preceding, the leaves are covered with yellow or fulvous ſhining glandular dots, viſible only in the microſcope [m]; in this they are on both ſides, but in the common Black Currant only underneath. Bractes linear, longer than the pedicel, produced half way the flower; whereas in R. nigrum they are very ſmall, and ſhorter than the pedicel. Buds cinereous, not red. Racemes numerous, conſpicuous, villoſe, hanging down very much. Flowers ſulphur-coloured, ventricoſe-cylindrical; ſegments longer, revolute. Berries black [n].

According to Pallas, it agrees exactly with R. nigrum in its form and manner of growth, but differs in having the racemes a long ſpan in length, erect, not pendulous; and the leaves, bark and berries without any ſmell.

Dillenius ſays that the ſtems are from a foot and half to three feet in height, covered with a bay-coloured bark, rather more ſlender than in the preceding, and with ſmaller leaves, divided into narrower lobes, more like thoſe of Merret's R. fructu parvo (n. 1.7.); when rubbed they ſmell ſomewhat like Savin, leſs ſtrong than thoſe of the common Bl. [illegible] Currant, and of a paler green. Flowers oblong, pale, divided into longer ſegments than in the other ſorts, upright, not ſpread out as in them. Berries black, oblong; the pulp purpliſh, having a vinous ſmell, and a taſte like Strawberries, hardiſh and not viſcid. Seeds ſmall, roundiſh, brownish, ſomewhat wrinkled.]

[a] Linn. ſuec. [b] Leers. [c] Withering. [d] Pallas.
[e] Withering and Woodville. [f] Woodville. [g] Withering.
[h] Pallas. [i] Woodville. [k] Withering. [l] Pallas.
[m] Willdenow. [n] L'Heritier.

The ſhoots are much ſmaller and more compact than in the common Black Currant; the bark is of a darker colour; the leaves are ſmaller, thinner, ſmoother, and have not a rank ſmell. The flowers are ſmaller, bell ſhaped, and grow in thinner bunches; the fruit is ſmaller and not ſo round. The plants do not produce much fruit here, and therefore are kept only by way of curioſity.

Native of Pennſylvania, whence it was ſent to Mr. Peter Collinſon, [who gave it to Dr. James Sherard, and it was cultivated in his garden at Eltham before 1732. It flowers in april and may [a].

11. This is a ſort of intermediate ſpecies between the Currants and Gooſeberries; it has a pair of prickles only at the buds; in other parts it is unarmed [b].

It has the habit of R. alpinum, but it is abundantly diſtinct both *in the* leaves and prickles [c].

This ſhrub is an ell and half in height, upright, and rod-like. Branches ſtiffly upright, with a whitiſh-gray bark, and ſomewhat ſubdivided. Prickles diverging, ſtraightiſh or a little curved in, on the older branches and trunk obliterated. Leaves in bundles, three-lobed-gaſhed. Racemes among the leaves ſolitary, upright, many-flowered, with a linear bracte to each flower. Flowers flattiſh, ſmall, greeniſh-yellow, with oblong, bluntiſh, ſpreading ſegments. Berries the ſize of R. alpinum, reddiſh, more duſky red when ripe, of a ſweetiſh acid flavour, having four, or ſometimes five, biggiſh, flatted ſeeds.

Native of Siberia; flowering in may. The berries dried are uſed there as we do the Currants of Zante [d]. Introduced in 1781, by Mr. John Buſh [e].

In Demidoff's garden at Moſcow, this ſpecies raiſed from ſeed, produced widiſh leaves, more rounded, and gaſhed: and ſome of the ſhrubs, as Jacquin obſerved in the Vienna garden, produced barren flowers, of which there are none in the wild plants.

A variety has been diſcovered in the high rocks of Mongolia, with leaves three times as big, deeply gaſhed, having ſeveral ſmaller prickles ſcattered round the axillary; but it had neither flower nor fruit [f].

12. This is an intermediate ſpecies between *alpinum* and *Diacantha*, with the habit of *Groſſularia* and a fruit like the true *Ribes* or Currant. It is nearly upright. Prickles on the branches ſcattered, ſolitary, like ſtiff briſtles, ſtraight, remote from the buds, worn off on the old wood. Leaves on long petioles, having a gaſh or two on the lobes. Both flowering and fruiting racemes upright, having ſeven or eight flowers, on longiſh pedicels, with linear bractes the length of the pedicel. Petals ſmall, patulous, of a livid-green colour. Berries globular, when ripe red and ſomewhat acid, ſcarcely ſo big as the common red Currant. Native of Siberia [g].

13. The leaves are not only wider, but of a darker colour; prickles to each leaf one or two, but ſometimes there are none; they are ſhort and much weaker than in the common Gooſeberry, beſides others that are harmleſs and much ſhorter ſcattered over the branches. Fruit when ripe commonly dark purple, but ſometimes red or even yellow [h].

Native of Germany; common in hedges all over Switzerland; fond of cold ſituations. It flowers in april, and the fruit is ripe in june and july. Cluſius ſays that he firſt ſaw it at Leyden in 1594.

14. This is a branching ſhrub. Prickles under the buds one, two, or three. Leaves three-lobed, gaſhed, ſubpubeſcent. Petioles hairy, commonly longer than the leaves. Peduncles one-flowered, nodding, having one, two or three oppoſite ovate ciliate bractes in the middle. Germ villoſe. Berries pendulous, hairy [i].

If the bractes will not diſtinguiſh this from R. Uva-criſpa, the roughneſs or ſmoothneſs of the berries will hardly do it, for Mr. Robſon has obſerved, that ſeeds from the ſame plant will produce both rough and ſmooth fruit [k]. I cannot regard them as different ſpecies; and in other caſes there ſeems to be a diſpoſition to multiply ſpecies in this genus. Ray does not diſ-

[a] Hort. kew. [b] Linn. ſuppl. [c] Willdenow.
[d] Pallas. [e] Hort. kew. [f] Pallas. [g] Idem.
[h] Cluſius. [i] Smith. [k] Withering.

tinguiſh the Gooſeberries, but comprehends them all under the general terms of Uva criſpa, Groſſularia, or Gooſeberry-buſh.

Native of ſeveral parts of Europe. According to Mr. Robſon, it is common in woods and hedges about Darlington.

16. Buds woolly. Calyx bent back. Peduncle woolly. Bractes ovate, embracing, generally with three diviſions. Flowers ſolitary, pendant. Stipules ciliate with knobbed hairs. A triple thorn beneath the buds [a]. Berry crowned with the permanent calyx, peduncled, pulpy, ſubdiaphanous, pale, amber-coloured, red or purple, ſmooth; the pulp watery and ſweet. Receptacles formed of the ſkin of the berry thickened, oblong, narrow; with filiform umbilical chords, the length of the ſeeds, and inſerted into their inner and blunter extremity. Seeds as far as thirty, ovate-oblong, with a pellucid jelly about them, ruſcſcent.

This differs from the preceding only in the ſmoothneſs of the berries, in having the bractes united into a tube at the baſe, and the hairs of the petioles glandular; all fallacious and uncertain marks [b].

Native of Europe, eſpecially the northern parts. It is common in Cambridgeſhire, Norfolk and other counties of England, but only in hedges, on walls and old buildings and decaying trees, where the ſeeds have been depoſited by birds: or if it be found ſometimes in woods, it has got there by the ſame chance. I am of opinion with Dr. Smith, that the Gooſeberry-buſh is apparently not truly indigenous.

Villars ſays that Ribes Groſſularia, in Dauphiné is five or ſix feet high, with wide leaves, that are villoſe as well as the fruit; and that it is common every where in the champain, in hedges. But that R. uva criſpa, which he calls *Le petit Groſeiller epineux ou ſauvage*, is only a foot or two in height, ſtraight, and wholly covered with yellowiſh ſtiff prickles, and is found in the mountains. This is evidently the Gooſeberry-buſh in its wild ſtate; and the other as it appears in cultivation: as to the ſmoothneſs or hairineſs of the fruit, it is merely accidental. I believe that the Gooſeberry is a fruit not eſteemed in the ſouthern countries of Europe. Monſ. De La Lande was ſurpriſed at the excellence of our Engliſh Gooſeberries, and aſſured me that they had not an appropriate name at Paris; I ſuppoſe he meant, diſtinct from the Currant, both being called *Groſeilla*. Alſioni ſays they are eatable, but ſomewhat aſtringent and neglected—"ſalent a noſtratibus negligi." In Piedmont they are called *Griſolle*, which is the ſame with the French. Our name *Gooſeberry* is probably derived from its being uſed as a ſauce with young, commonly called green Geeſe, at leaſt I know not any better reaſon for the name. Parkinſon ſays, that the berries whilſt they are ſmall, green and hard, are much uſed to be boiled or ſcalded to make ſauce, both for fiſh or fleſh of divers ſorts.

Gerarde ſays, it is called Fea-berry buſh in Cheſhire my native country. It has the ſame name in Lancaſhire and Yorkſhire. In Norfolk, it is abbreviated into *Feabes*, or as they pronounce it, *Fopes*. I do not know the origin of this, any more than of *Carberry*, which is ſaid to be another name.

The varieties in Parkinſon's Paradiſus, are "beſides "the common kind, which is of three ſorts, ſmall, "great and long; three red Gooſeberries, a blue and "a green."

Johnſon upon Gerarde has "the long green, the "great yelloviſh, the blue, the great round red, the "long red, and the prickly Gooſeberry."

Ray has no Engliſh name but *the Pearl* Gooſeberry.

Rea mentions the Red of three ſorts, the Blue, the Yellow of ſeveral ſorts, the White Holland, and the Green.]

Miller only ſays, there are ſeveral varieties obtained from ſeeds, moſt of them named from the perſon who raiſed them, as Lamb's, Hunt's, Edwards's Gooſeberry, &c. but as there are frequently new ones obtained, it is needleſs to enumerate them.

[It ſeems to have been a fruit in very little eſteem; but it has received ſo much improvement that it is now become valuable, not only for tarts, pies and ſauces, both freſh and preſerved in bottles, but as an early deſert fruit, and preſerved in ſugar for winter uſe, to anſwer the ſame purpoſe.

The varieties now beſt known, are of the Red; the hairy, ſmooth, deep red, damſon or dark-red blueiſh, red raſpberry, early black-red, Champaigne, &c.

Green; hairy, ſmooth, Gaſcoigne, Raſpberry, &c.

Yellow; great Oval, great Amber, hairy Amber, early Amber, large Tawney or Great Mogul, &c.

White; common, white-veined, and large cryſtal.

Beſides theſe, there is the Rumbullion, large Ironmonger, ſmooth Ironmonger, hairy Globe, and innumerable others, ſome of very large ſize, annually raiſed from ſeed; weighing from ten to fifteen pennyweights, but there are ſmall ones better raiſed. There are ſaid to be upwards of two hundred, at leaſt in name.

16. This has more frequent and milder prickles than the common Gooſeberry; the leaves are ſmooth and more deeply cut; the fruit ſmall and round, the ſize and ſhape of a Currant; colour at firſt purple, but when ripe dark purple with a blue bloom; it is ſmooth, on a ſhort ſlender peduncle; the pulp ſubacid, duſky purple, with one or two brown ſeeds, of a round form ſlightly angular.

The ſtems are aſh-coloured, with frequent ſlender browniſh prickles, like the Burnet Roſe, but leſs rigid; the young ſhoots are pale green and have green prickles. Leaves ſomewhat paler underneath, the petioles beſet with harmleſs prickles; thoſe at the ends of the branches larger than the others. Flowers one or two from an axil, white and yelloviſh white [c].

Native of Canada. Cultivated, according to Plukenet, by Mr. Reynardſon, in 1705. It flowers in april and may [d].

17. This has the appearance of the other ſpecies, but the leaves are little gaſhed. Prickle like a thorn under the axils. Peduncles generally three-flowered. Germ in the flower hairy, but not prickly. It has the corolla of R. groſſularia. Berries the ſize of a hazel-nut, armed all over with ſtout prickles [e].

Native of Canada. Cultivated by Mr. Miller in 1759. It flowers in april [f].]

PROPAGATION AND CULTURE.

Theſe are propagated either by ſuckers taken from the old plants, by layers, or by cuttings; the latter of which I prefer to the former, becauſe thoſe plants which are produced from ſuckers are always more diſpoſed to ſhoot out a great number of ſuckers from their roots, than ſuch as are raiſed from cuttings, which generally form much better roots.

The beſt ſeaſon for planting theſe cuttings is in autumn, juſt before their leaves begin to fall; obſerving always to take the handſomeſt ſhoots, and from ſuch branches as generally produce the greateſt quantity of fruit; for if you take thoſe which are produced from the ſtem of the old plants (which are commonly very luxuriant) they will not be near ſo fruitful as thoſe taken from bearing branches: theſe cuttings ſhould be from ſix or eight to ten or twelve inches long, and muſt be planted in a border of light earth, expoſed to the morning ſun, about three inches deep, obſerving to water them gently when the weather proves dry, to facilitate their taking root; and in the ſummer, when they have put out branches, you ſhould rub off all the under ſhoots, leaving only the uppermoſt or ſtrongeſt, which ſhould be trained upright, to form a regular ſtem. In october following theſe plants may be removed, at which time you ſhould prepare an open ſpot of freſh earth, which ſhould be well dug, and cleanſed from all noxious weeds, roots, &c. and being levelled, you ſhould proceed to take up your plants, trimming their roots, and cutting off all ſide branches; then plant them at three feet diſtance row from row, and one foot aſunder in the rows, obſerving to place ſome ſhort ſticks to the plants, in order to train their ſtems upright and regular. In this place they may remain one or two years, being careful to keep them clear from weeds, as alſo to trim off all lateral ſhoots which are produced

[a] Linn. [b] Smith. [c] Dillenius. [d] Hort. kew. [e] Linn. [f] Hort. kew.

below

below the head of the plant, ſo that the ſtem may be clear about a foot in height above the ſurface of the earth, which will be full enough; and as the branches are produced commonly very irregular in the head, you muſt cut out ſuch of them as croſs each other, or thin them where they are too cloſe, whereby the head of the plant will be open, and capable of admitting the air freely into the middle, which is of great uſe to all kinds of fruits.

After theſe plants have remained in this nurſery one or two years at moſt, they will be fit to tranſplant to the places where they are deſigned to remain; for it is not ſo well to let them grow in the nurſeries too large which will occaſion their roots to be woody, whereby the removing of them will not only hazard the growth of the plants, but ſuch of them as may take very well will remain ſtinted for two or three years, before they will be able to recover their check. The ſoil in which theſe plants thrive to the greateſt advantage, is a rich light earth; though they will do very well upon middling ſoils, which are not too ſtrong or moiſt, and in all ſituations; but where the fruit is cultivated, in order to procure it in the greateſt perfection, they ſhould never be planted in the ſhade of other trees, but muſt have a free open expoſure. The diſtance they ought to be planted is eight feet row from row, and ſix feet aſunder in the rows. The beſt ſeaſon for tranſplanting them is in October, when their leaves begin to decay; obſerving, as was before directed, to prune their roots, and trim off all lateral ſhoots, or ſuch as croſs each other, ſhortening all long branches, ſo as to make the head regular.

In the pruning theſe ſhrubs common gardeners are apt to make uſe of garden-ſhears, obſerving only to cut the head round, as is practiſed for Evergreens, &c. whereby the branches become ſo much crowded, that what fruit is produced, never grows to half the ſize as it would do were the branches thinned, and pruned according to art; which ſhould always be done with a pruning-knife, ſhortening the ſtrong ſhoots to about ten inches, and cutting out all thoſe which grow irregular, thinning the fruit-bearing branches where they are too thick, obſerving always to cut behind a leaf bud. With this management your fruit will be near twice as large as thoſe which are produced upon ſuch buſhes as are not thus pruned, and the ſhrubs will continue in vigour much longer; but you muſt obſerve to keep the ground clear from weeds, and dig it at leaſt once a year; and every other year you ſhould beſtow a little rotten dung upon it, which will greatly improve the fruit.

It is a common practice with the gardeners near London, who have great quantities of theſe buſhes in order to ſupply the markets, to prune them ſoon after michaelmas, and then to dig up the ground between the rows, and plant it with Coleworts for ſpring uſe, whereby their ground is employed all the winter, without prejudicing the buſhes; and in hard winters theſe Coleworts often eſcape, when thoſe which are planted in an open expoſure are all deſtroyed; and theſe are generally pulled up for uſe in february or march, ſo that the ground is clear before the ſhrubs come out in the ſpring; which is a piece of huſbandry well worth practiſing where ground is dear, or where perſons are confined for room.

Currants, whilſt they remain in the nurſery, muſt be pruned and trained for the purpoſes to which they are deſigned; that is, to clear ſtems about one foot high, if for ſtandards, but if they are to be ſet againſt walls or pales, they muſt be trained up flat: but the beſt method is to train them againſt low eſpaliers, in which manner they will take up much leſs room in a garden, and their fruit will be much fairer. For this purpoſe they ſhould not be planted leſs than eight or ten feet diſtant, that their branches may be trained horizontally, which is of great importance to their bearing.

If they are planted againſt a ſouth-eaſt wall or pale, their fruit will ripen at leaſt a fortnight or three weeks ſooner than thoſe in the open ground; and againſt a north wall or pale it will be later: thus the fruit may be continued in uſe during ſix months, eſpecially if thoſe to the north be covered with mats.

Currants produce their fruit upon the former year's wood, and alſo upon ſmall ſnags which come out of the old wood; in pruning therefore, theſe ſnags ſhould be preſerved, and the young ſhoots ſhortened in proportion to their ſtrength: obſerving not to lay the ſhoots too cloſe, and never to prune the ſnags to make them ſmooth.

Theſe ſhrubs will thrive in almoſt any ſoil and ſituation, and are often planted under the ſhade of trees; but the fruit is always beſt when they are planted in the open air, and upon a light loamy ſoil.

[RIBESIOIDES. *Lin. zeyl.* is Embelia Ribes, *Burm. ind.* 62. and is referred by Gærtner (1. 189.) to *Antideſma*.

RIBESIUM. See *Ribes*.

RICCIA. (*So named by Micheli, in honour of Pietro Franciſco Riccio, Senator of Florence, and Preſident of the Order of St. Stephen.*)

Lin. gen. Schreb. n. 1666. *Mich. gen. t.* 57. *Schmid. ic. t.* 44, 45. *Hedw. theor.* 116. *t.* 29.

Claſſ. 24. 4. Cryptogamia Hepaticæ.—Algæ *ed. prior.*

GENERIC CHARACTER.

* *Male Flowers?* ſeſſile on the ſurface of the frond.

CAL. and COR. none.

STAM. *Anther?* conical, truncate, ſeſſile, opening at the top?

* *Female Flowers* on the ſame, or according to Micheli on a diſtinct plant.

CAL. none, except a veſicular cavity, within the ſubſtance of the leaf.

COR. none.

PIST. *Germ* turbinate. *Style* filiform, erect, reaching the ſurface of the frond or exceeding it. *Stigma* ſimple.

PER. *Capſule* ſeſſile, globular, one-celled, at the apex of the leaf, crowned with the ſtyle.

SEEDS very many, (twenty to thirty) hemiſpherical.

OBS. *The little bodies which Micheli takes for the anthers, ſeem to Schreber not to be different from the other papillæ on the ſurface of the frond, except in ſize. He conjectures that the tube on the germ is the anther, and the little granules within it, the pollen. He recommends the examination to be made before the germ becomes ſpherical.*

Linnæus has five ſpecies, all natives of Europe; Withering has alſo the ſame number, natives of Britain, one of which, namely *R. fruticuloſa*, is the ſame with *Jungermannia furcata* of Linneus. Swartz has added another ſpecies (R. reticulata) from Jamaica; figured by Dillenius as a *Lichenoides*, in *t.* 19. *f.* 21. Theſe plants were formerly known under the names *Lichen*, *Lichenaſtrum* and *Hepatica*.

RICE. See *Oryza*.

RICHARDIA. (*So named by Linneus, from Richardſon, placed by Linneus among the Nomina Commendata. Boehmer ſays, a quo multa ſperaverat' Linneus, fruſtra.*)

Lin. gen. n. 439. *Reich. n.* 472. *Schreb. n.* 591. *Houſt. reliqu. t.* 9. *Gærtn. t.* 25. *Juſſ.* 198.

Claſſ. 6. 1. Hexandria Monogynia.

Nat. order of *Stellatæ*. *Rubiaceæ*, Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* one-leafed, ſix-parted, erect, acuminate, ſhorter by half than the corolla.

COR. one-petalled, cylindric-funnel-ſhaped: *border* ſix-cleft, acute, erect.

STAM. *Filaments* ſix, very ſhort. *Anthers* roundiſh, ſmall, at the inciſures of the corolla.

PIST. *Germ* inferior. *Style* filiform, the length of the ſtamens, three-parted at top. *Stigmas* blunt.

PER. none.

SEEDS three, round on one ſide, angular on the other, at top wider, gibbous.

OBS. *It varies, according to Gærtner, with the calyx and corolla eight-cleft, and eight ſtamens.*

ESSENTIAL CHARACTER.

Cal. ſix-parted. *Cor.* one-petalled, ſubcylindric. *Seeds* three.

SPECIES.

1. Richardia ſcabra.

Lin. ſpec. 470. *ſyſt.* 341. *Reich.* 2. 103. *Willd.* 222. *Gærtn. fruct.* 1. 124.

Ricardia. *Houſt. reliqu.* 5.

DESCRIP-

DESCRIPTION, &c.

Stem high, brachiate, ſomewhat jointed, obſoletely four-cornered, hiſpid with ſtiffiſh ſcattered reflex hairs. Leaves lanceolate-ovate, alternately nerved, quite entire, ſubpetioled, rugged. Flowers in terminating heads, and alſo heaped into whorls; the former radiate with four or more leaves, alternately larger and ſmaller. Corollets as in Aſperula, ſlender and long, but ſix-cleft; and the fruit conſiſting of three ſeeds: thus it differs from Spermacoce in number and other circumſtances[1].

The calyx is ſometimes eight-parted, and ſuch flowers have eight ſtamens; it is hiſpid and the length of the fruit: which Gærtner conſiders as a Capſule, becauſe the ſeeds have an outer cruſt of a different colour, and ſeparable from them. He deſcribes this Capſule as inferior, compound, tricoccous, inverſely conical, ſubtrigonal, three-celled, tripartile, the three component parts (cocculi) are coriaceous, valveleſs, oblong but thicker upwards, on one ſide convex and rugged, on the other ſmooth, angular, prominent into a longitudinal ridge. Seeds in each part one, obovate, ruſeſcent, on one ſide convex and ſmooth, on the other having two grooves with a raiſed ſtreak between them, faſtened at the baſe[2].—Found by Houſtoun at Vera Cruz.

RICHERIA. (*So named by Vahl, in memory of Pierre Richer de Belleval, Profeſſor of Botany at Montpelier.*) *Vahl ecl.* 1. 30.

Claſſ. 22. 5. Dioecia Pentandria—or 23. 2. Polygamia Dioecia.

GENERIC CHARACTER.

* *Male Flower.*

CAL. *Perianth* one-leafed, permanent, inferior, four-cleft or five-cleft: *clefts* ovate, acute, ſubtomentoſe: (three-leaved, very ſmall, *Ryan.*)

COR. *Petals* four or five, roundiſh, the length of the calyx:—(one-petalled, with five concave ſegments, *Ryan.*)

Nectary four or five glands at the baſe of the germ.

STAM. four or five (ſometimes ſix, *Ryan.*) between the glands of the nectary, erect, longer than the calyx, (length of the corolla, *Ryan.*) *Anthers* oblong, erect, (twin, *Ryan.*)

PIST. *Germ* conical, villoſe. *Style* none. *Stigma* none.

* *Female Flower.*

CAL. and COR. as in the Male.

Nectary a rim round the baſe of the germ.

STAM. none.

PIST. *Germ* ſuperior, ovate. *Style* very ſhort. *Stigmas* three, revolute, channelled above. (*Stigma* bicapitate, *Ryan.*)

PER. *Capſule* corticate, ſubovate, ſmooth and even, three-celled, having ſix valves opening from the baſe.

SEED one in each cell, berried, pendulous below the tip of the columella.

OBS. *According to Ryan, the fruit is a capſular berry, or a berried capſule.*

ESSENTIAL CHARACTER.

Capſ. corticate, ſix-valved, three-celled. *Seeds* ſolitary, pendulous below the tip of the columella. *Style* trifid.

SPECIES.

1. Richeria grandis.
Vahl, ecl. 1. 30.

DESCRIPTION, &c.

This is a large Tree, having the habit of Mammea americana. Branches round, the thickneſs of a gooſe quill, rigid, angular at the end, warted, ſmooth. Leaves moſtly at the ends of the branches, alternate, frequently ſix or ſeven inches in length, on a ſhort petiole convex underneath and channelled above, elliptic or obovate, attenuated at the baſe, acute, commonly blunt at the end, but ſometimes ſharpiſh, quite entire, ſomewhat coriaceous, ſmooth on both ſides, almoſt veinleſs on the upper ſurface, but veined underneath and paler. Spikes axillary, ſolitary, three times ſhorter than the leaf, commonly ſimple, but ſometimes having a ſpreading branch at the baſe. Flowers frequent, ſcattered, ſeſſile; each has a concave ovate bracte, almoſt the length of the calyx. Peduncle angular, appearing villoſe when examined by a microſcope. Capſule the ſize of a hazel nut, having ſix obſcure longitudinal ſutures; the outer valves are ſuberous, the inner ſubcartilaginous and flexible: partitions membranaceous and thin: columella woody, three-cornered, gradually a little thicker upwards, curved at the tip, after the valves are opened unequally three-winged from the remains of the partitions adhering. Seeds inverted, oblong, three times ſhorter than the cell, flattiſh on the inner ſide, obovate, convex: integuments four; the firſt a ſubcartilaginous diaphanous pellicle, the ſecond pulpy, the third a cruſtaceous ſhell, the fourth a thin membrane: albumen the ſame figure with the ſhell and whitiſh; embryo the ſize of the albumen, radicle ſuperior roundiſh, cotyledons cordate-roundiſh, leafy, of a pale yelloviſh colour. Beſides the male and female flowers, Ryan ſaw ſome that were hermaphrodite. He diſcovered this very rare tree in Montſerrat, in one place only, where fifteen or twenty trees all together filled up a ſmall valley among the high mountains[3].

RICINELLA. See *Adelia.*

RICINO AFFINIS. See *Croton.*

RICINOCARPOS. See *Acalypha, Croton, Mercurialis, Tragia.*]

RICINOIDES. See [*Ceanothus, Croton,*] *Jatropha.*

RICINUS. (*So named from the ſimilitude of the ſeed to a tyke or tick, which in latin is* Ricinus. *Dioſcorides calls it* Κικι *or* Κροτων, *for the ſame reaſon; but* Κικι *is an eaſtern word, to be met with in the prophet Jonah, the ſignification of which is uncertain.* Ray.)

Lin. gen. n. 1085. *Reich. n.* 1484. *Schreb. n.* 1464. *Tournef. t.* 307. *Juſſ.* 388. *Gærtn. t.* 107.

Claſſ. 21. 8. Monoecia Monadelphia.

Nat. order of *Tricoccæ. Euphorbiæ*, Juſſ.

GENERIC CHARACTER.

* *Male.*

CAL. *Perianth* one-leafed, five-parted: *ſegments* ovate, concave.

COR. none.

STAM. *Filaments* very numerous, filiform, branchingly collected below into various bodies. *Anthers* twin, roundiſh.

* *Females* on the ſame plant.

CAL. *Perianth* one-leafed, three-parted: *ſegments* ovate, concave; deciduous.

COR. none.

PIST. *Germ* ovate, covered with ſubulate corpuſcles. *Styles* three, two-parted, from erect ſpreading, hiſpid. *Stigmas* ſimple.

PER. *Capſule* roundiſh, three-grooved, prickly all over, three-celled, three-valved.

SEEDS ſolitary, ſubovate.

ESSENTIAL CHARACTER.

Cal. five-parted. *Cor.* none.

MALE. *Stamens* numerous.

FEM. *Styles* three, bifid. *Capſ.* three-celled. *Seed* one.

SPECIES.

1. Ricinus inermis. *Smooth-fruited Palma Chriſti.*
Lin. ſyſt. 865. *Jacqu. miſc.* 2. 362. *icon. rar. Mill. dict. n.* 6.
Leaves peltate ſubpalmate ſerrate, petioles glandular, fruits unarmed.

2. Ricinus communis. *Common Palma Chriſti.*
Lin. ſpec. 1430. *ſyſt.* 865. *Reich.* 4. 194. *hort. cliff.* 450. *upſ.* 289. *fl. zeyl. n.* 339. *mat. med.* 208. *Woodv. med. bot.* 171. *t.* 61. *Gærtn. fruct.* 2. 116. *Deſcont. atlant.* 355. *Brown. jam.* 350. *Thunb. jap.* 270. *Lour. cochinch.* 584. *ed. Willd.* 716. *Gron. orient.* 299. *Ludw. eſſ. t.* 7. *Regnault, bot.* (Le Ricin.)

Ricinus. *Camer. epit.* 959. *Dod. pempt.* 367. *Taborn. ic.* 776. *Lob. ic.* 688. *Matth.* 862. *Fuchſ. hiſt.* 340. *Ger.* 399. *emac.* 496.

R. vulgaris. *Baub. pin.* 432. *Baub. hiſt.* 3. 642. *Raii hiſt.* 166. *Tournef. inſt.* 532. *Blackw. t.* 148. *Mill. dict. n.* 1. *Mor. hiſt.* 3. 347. *ſ.* 10. *t.* 3. *f.* 1. *ord.* 3.

R. f. Cataputia major vulgatior. *Park. theat.* 182.

[1] Linn. ſpec. [2] Gærtner. [3] Vahl.

R. major & minor. *Beſl. eyſt. æſt.* 8. *t.* 11. & 12. *f.* 1.
R. albus. *Rumph. amb.* 4. 92. *t.* 41.
β. R. americanus. *Great American Palma Chriſti. Mill. dict. n.* 2.
R. amer. major. *Bauh. pin.* 432. *Mor. f.* 15.
R. amer. *Ger.* 399. 2. *emac.* 496. 2. *Park. theat.* 182. 4. & 183. 4. *Raii hiſt.* 166.
Lobes of the leaves wider, green on both ſides.
γ. R. urens. *Green-ſtalked American Palma Chriſti. Mill. dict. n.* 3. *fig. t.* 219.
R. amer. major, caule virescente. *H. R. Par. Raii hiſt.* 1855.
Leaves unequally ſerrate, ſtem green.
δ. R. rugoſus. *Wrinkled-capſuled Palma Chriſti. Mill. dict. n.* 4. *fig. t.* 220.
Capſules wrinkled not prickly.
ε. R. africanus. *Red-ſtalked African Palma Chriſti. Mill. dict. n.* 5.
R. afr. maximus, caule geniculato rutilante. *Tournef. inſt.* 642. *Lin. ſpec.* β. *Raii hiſt.* 1855.
R. major afric. ſyriacus vel ægyptiacus. *Park. theat.* 183. 2. *Raii hiſt.* 167.
R. ruber. *Rumph. amb.* 4. 97.
Lobes of the leaves very large, ſtem reddiſh jointed.
ζ. R. minor. *Small American Palma Chriſti. Mill. dict. n.* 7.
R. americanus minor. *Bauh. pin.* 432.
R. minor. *Park. theat.* 183. 3. *Raii hiſt.* 167.
Leaves very deeply divided.
[η. R. lividus. *Livid-leaved Palma Chriſti. Jacqu. miſc.* 2. 360. *icon. rar.*
Leaves peltate ſubpalmate ſerrate, fruits prickly.
3. Ricinus Tanarius.
Lin. ſpec. 1430. *Reich.* 4. 194. *Lour. cochinch.* 584. *ed. Willd.* 717.
Tanarius minor. *Rumph. amb. l.* 5. *c.* 37. *t.* 121. L.
Leaves peltate repand.
4. Ricinus Mappa.
Lin. ſpec. 1430. *Reich.* 4. 194. *Forſt. prodr. n.* 356. *Burm. ind.* 307.
Folium mappæ. *Rumph. amb.* 3. 172. *t.* 108.
Leaves peltate undivided.
5. Ricinus Apelta.
Lour. cochinch. 585. *ed. Willd.* 718.
Leaves petioled at the baſe, conical, quite entire.
6. Ricinus dioicus.
Forſt. prodr. n. 357.
Dioecous, leaves cordate acuminate.

DESCRIPTIONS, &c.

1. This is ſtouter than the common ſort at the ſame age. Stem the firſt year red and ſhining very much; afterwards aſh-coloured with duſky-purple ſpots. Leaves green on both ſides, the larger ones almoſt a foot and half in diameter, on a petiole a foot in length. Glands the ſame in number and ſituation as on the common ſort, but either wholly green, or elſe reddiſh with a green top. Calyx reddiſh green. Germ ſomewhat wrinkled, dark purple. Fruit ovate, larger, ſhining, dark green, ſomewhat wrinkled, but without the leaſt appearance of prickles [f].

It can ſcarcely be regarded as a diſtinct ſpecies. Miller has two ſpecies without prickles: *rugoſus*, n. 4. which is undoubtedly the ſame with this of Jacquin's, and *inermis*, n. 6. The former native of both Indies; the latter of the Spaniſh Weſt Indies.]

2. The common Palma Chriſti of Europe riſes with a ſtrong herbaceous ſtalk to the height of ten or twelve feet; the joints are at a great diſtance from each other; the ſtalk and branches are of a gray colour; the leaves are large, and on long foot-ſtalks; they are deeply divided into ſeven lobes, and are gray on their under ſide. The flowers are diſpoſed in long ſpikes, which ſpring from the diviſion of the branches: the males are placed on the lower part of the ſpike; the females, which occupy the upper part, have prickly calyxes.

[The root is biennial, long, thick, whitiſh, and beſet with many ſmall fibres. Stem round, thick, jointed, channelled, glaucous, of a purpliſh red colour towards the top [a]. The capſule is ſubglobular, corticate, echinated all over with ſmall ſpines, tricoccous: rind herbaceous, thin: the three component parts or cells (coccuſi) ovate, papery, on one ſide convex with a dorſal ſtreak, on the other angular and perforated with a cordate hole below the tip, two-valved but ſeldom or ever opening, at leaſt in Europe. Receptacle columnar, three-cornered, widening above, entering by a triple blunt end the ventral perforations of the cells. Seeds ſolitary, biggiſh, ovate, convex on one ſide, very bluntly angular on the other, ſmooth, ſomewhat ſhining, ſometimes livid with cloudy ſpots, ſometimes variegated like the abdomen of the ſpider with white lines, dots and ſtains on a teſtaceous or brown ground; on the top is a fungous thick white umbilicus or navel [b].

Loureiro deſcribes the ſtem as eight feet high, upright, round, of an even ſurface, with a few ſpreading branches. Leaves eight-parted; the ſegments lanceolate, ſerrate, ſpread out in a ring: petioles very long, ſtraight, ſmooth, hollow, ſcattered. Flowers in terminating racemes: the males below, with a five-parted calyx, and about one hundred oblong white anthers in different bundles; females at the top, having the calyx commonly five-parted, and three red ſtil form bifid ſtigmas. Capſule roundiſh, villoſe-echinate. Seeds ovate, ſhining, black dotted with white. There are two varieties of it with the ſtem and petioles whitiſh, and with the ſame parts red.

This plant, which in our gardens is annual and herbaceous, in Africa becomes a tree [c]. In Candia it continues many years, and according to Belon, requires a ladder to come at the ſeeds. Cluſius relates, that he obſerved it in Spain, of the ſize of the human body, and the height of three men. And Ray ſaw it in Sicily, frequent in the hedges, as big as our common Elder trees, woody, and long-lived [d].

The ſeveral varieties are natives of the Eaſt and Weſt Indies, China, Cochinchina and Japan, about Tripoli in Syria, Africa, and the South of Europe.

It was cultivated in England in 1562, as appears from Turner's herbal. It flowers here in July and auguſt [e].

An oil extracted from the ſeeds of this plant, and known by the names of oleum Ricini, Palma Chriſti or Caſtor oil, has lately come into frequent uſe, as a quick but gentle purgative. The London College direct this oil to be expreſſed from the ſeeds in the ſame way as that of Almonds, and without the aſſiſtance of heat, by which method it would ſeem to be obtained in the pureſt ſtate: but we have ſome reaſon to believe that this method is ſeldom practiſed, and that the oil uſually employed here is imported from the Weſt Indies, where it is commonly prepared by freeing the ſeeds from the huſks, bruiſing them in a mortar, tying them up in a linen bag, throwing them into a large pot, with about eight gallons of water to one gallon of ſeeds, and boiling them till the oil is riſen to the ſurface, when it is carefully ſkimmed off, ſtrained and kept for uſe. Thus prepared, the oil is entirely free from acrimony, and will ſtay upon the ſtomach even when it loaths moſt other medicines; but its mildneſs ſeems to be chiefly owing to the action of the fire; for the expreſſed oil, as well as the mixt juices of the ſeeds, is far more active and violent in its operations [m]. Mr. Long affirms, that the oil intended for medicinal uſe is more frequently cold-drawn, or extracted from the bruiſed ſeeds by means of a hand-preſs; but remarks, that it is thought more acrimonious than what is prepared by boiling. It is well known, however, that the oil obtained by boiling becomes much ſooner rancid than that by expreſſion. The beſt oil is limpid, and deſtitute of taſte or ſmell.

Dr. Cullen obſerves, that Caſtor Oil, when the ſtomach can be reconciled to it, is one of the moſt agreeable purgatives we can employ. It has theſe advantages, that it commonly operates in two or three hours, ſeldom gripes, and is generally moderate in its operation: it is particularly ſuited to caſes of coſtiveneſs,

[f] Jacquin.
[a] Woodville. [b] Gærtner. [c] Deſfontaines. [d] Ray hiſt. [e] Hort. kew. [m] Browne.

and even of ſpaſmodic colic; is one of the moſt certain remedies in the dry belly-ach or colica pictonum; has been experienced to be uſeful in various febrile complaints, in bilious colics, nephritic caſes, worms and eſpecially the tape-worm. It is not heating or irritating to the rectum, and is therefore ſuited to hæmorrhoidal perſons. The only inconvenience attending this medicine is, that it is nauſeous to thoſe who diſlike oil, and that when the doſe is large, it occaſions ſickneſs at the ſtomach. The moſt effectual means to obviate this, is to take it in a little ardent ſpirit. In the Weſt Indies they uſe rum for this purpoſe, but compound tincture of ſenna is much better. This, in the proportion of one part to three parts of the oil, intimately mixed by being ſhaken together in a phial, makes the oil leſs nauſeous and therefore fit better on the ſtomach. The common doſe of Caſtor Oil is a table ſpoonful or half an ounce, but many perſons require a double quantity. It is remarkable, that if this medicine be frequently repeated, the doſe may be gradually diminiſhed; inſomuch that perſons of a coſtive habit, who at firſt required half an ounce or more for a doſe, have afterwards found two drams enough, at leaſt to keep the belly regular[2].

The Ricinus is called Oil-nut tree in our Weſt Indian iſlands, and the oil is burned in the boiling-houſe lamps, by many of the ſugar-planters. The roots are looked upon as ſtrong diuretics, and the leaves are generally uſed to dreſs bliſters, of which they make too frequent uſe in that part of the world[3].

In China, the oil is rendered eſculent and palatable, but is ſeldom uſed in medicine[4].

In Japan, the ſeeds pounded with Moxa and Touche (Japan ink) together, are put into a little box or caſe, over which a piece of ſilk is ſtretched, and that is beſmeared with oil, that the powder underneath may be moiſtened by it. Whenever a Japaneſe has occaſion to put his ſeal, which is often curiouſly wrought in horn, to any thing, he firſt dips the ſeal into this box, and then impreſſes it upon the writing. Thus this powder ſupplies the place of printer's ink, and it is therefore neceſſary, that the ſilk ſhould be moiſtened afreſh with oil, as faſt as it dries[5].]

Varieties.

β. This has brown ſtalks, which divide into two or three branches, and riſe ſix or ſeven feet high, the leaves are broader, and not ſo deeply divided; they are of a deep green on both ſides, and are unequally ſerrate. The ſpikes of flowers are ſhorter, the ſeed-veſſels rounder and of a browniſh colour, and the ſeeds are much leſs and brown.—Native of the Weſt Indies.

γ. Stem thick, herbaceous, and of a grayiſh green, with the joints not ſo far aſunder as in the two preceding. It riſes about four feet high, and divided at the top into three or four branches, which ſpread out almoſt horizontally. The leaves are large, of a deep green on their upper ſide, but grayiſh on their under; they are deeply cut into ſix or ſeven (ſometimes eight) lanceolate ſegments, which are unequally ſerrate. The petioles ſpread out more horizontally than thoſe of the common ſort, and are much ſhorter. The principal ſtalk and branches are terminated by looſe ſpikes of flowers. The covers of the capſules are green, and cloſely armed with ſoft ſpines. The ſeeds are ſmaller and lighter coloured than thoſe of the preceding.—This alſo is a native of the Weſt Indies.

δ. This riſes with an herbaceous ſtalk about four feet high, the lower part is purpliſh, and the upper deep green, the joints are pretty far aſunder. The leaves are of a deep green on their upper ſide, but paler underneath; they are not ſo deeply divided as ſome of the others, and are more regularly ſerrate. The ſpikes of flowers are large: the males have more ſtamens, with yellow anthers. The capſules are oval and wrinkled, but have no prickles. The ſeeds are ſmall and brown. It is a native of both Indies. [This having no prickles on the capſules, probably belongs to the firſt ſpecies, if that be really diſtinct, as well as n. 6. of Miller, which he ſays] is in every reſpect like the African variety (ε or n. 5.) except that the capſules are ſmooth. It is a native of the Spaniſh Weſt Indies, whence Mr. Robert Millar ſent the ſeeds.

ε. This riſes with a large reddiſh ſtalk to the height of ten or twelve feet, with many joints, and dividing into ſeveral branches. Leaves very large, ſome meaſuring more than two feet and a half in diameter; they are of a dark green, unequally ſerrate, and not ſo deeply cut as in ſome of the varieties. The ſpikes of flowers are large, the calyxes brown, the anthers whitiſh. Capſules large, oval, and cloſely ſet with ſoft prickles. The ſeeds are very large and beautifully ſtriped.—Native of Africa and both Indies.

ζ. Of this there are two varieties, one with a red, the other with a pale green ſtalk, diſtinguiſhed in America by the names of red and white Oil-ſeed. The ſtems ſeldom riſe more than three feet high, ſometimes dividing at the top into two or three branches. The leaves are much ſmaller and more deeply divided than in the other varieties, their borders are unequally ſerrate, and the ſegments of the leaves are frequently cut on the ſides. The ſpikes of flowers are ſmaller and more compact. The capſules are alſo ſmaller, rounder, of a light green, and cloſely ſet with ſoft prickles. Seeds ſmall, and finely ſtriped.—Native of Carolina and other parts of America.

[η. This becomes an evergreen tree, ten feet in height, and more. The trunk, during the firſt year is blood red and very ſhining; afterwards it becomes woody, as thick as the wriſt, hollow with tranſverſe ſepta, pithy, with circular warts at the joints from fallen ſtipules, aſh-coloured, interruptedly and ſlightly ſtreaked. Before the leaves come out, they are wrapped up in red ſtipules like ſheaths, that fall off ſoon after. The leaves are divided half way into eight, ſometimes ten lobes, which are ſerrate and acute, and the petiole is long; they are of a dark blood-red colour on the upper ſurface, and livid on the lower, with blood-red veins, the largeſt leſs than a foot in diameter, quite ſmooth without any hairineſs whatever. Petioles round, blood-red, with two remote glands, of the ſame colour, and obliquely truncate, above the baſe; and two others on the upper part in front, placed near each other, roundiſh, concave, ſometimes united into one. Other glands ſimilar to thoſe now and then appear on the ſtem and branches, ſitting on each ſide of the axils of the leaves. Such glands are not found on the common Ricinus. The calyx is blood-red; the diviſions are lanceolate, acute, ſpreading very much, and concave. Filaments in about ten bodies, with globular, twin, yellow anthers. Piſtil blood-red. Fruit of a livid colour, with long ſoft prickles. Seeds ſhining, variegated with black and brown.—Native of the Eaſt Indies[6].

ι. This is a middle-ſized tree, with twiſting ſpreading branches. Leaves ſuboval, ſubacuminate, ſmooth, whitiſh on the upper ſurface, odorous, ſcattered, on long petioles. Racemes ſimple, long, ſubterminating. Flowers hermaphrodite, apetalous. Calyx three-leaved: leaflets ovate-lanceolate, curved, ſpreading, deciduous. Filaments diſtinct, about thirty, adhering to the receptacle, longer, than the calyx. Anthers two-lobed, roundiſh. Germ three-cornered, ſuperior. Style thick, ſhort. Stigmas three, filiform, reflex. Capſule three-lobed, ſmooth, three-valved, three-celled; with ſolitary, roundiſh ſeeds[7].

Native of the Eaſt Indies, and the woods of Cochinchina.

4. Native of Ternate, the Molucca iſlands, and Tanna in the South Seas.

5. This is a ſhrub, four feet high, and very much branched. Leaves not peltate, rounded at the baſe, ſmooth, whitiſh underneath, ſcattered, on long petioles. Stigmas three, ſeſſile, undivided, woolly, reflex. Capſule extremely villoſe.—Native of China, about Canton[8].

6. Native of the iſland of Tanna[9].]

[2] Woodville. [3] Browne. [4] Staunton, embaſſy, 2. 401. [5] Thunberg, fl. jap. & travels, 4. 118. engl. ed.

[6] Jacquin. [7] Loureiro. [8] Idem. [9] Forſter.

PROPAGATION AND CULTURE.

Theſe plants are generally annuals in theſe countries, though in their native places of growth they continue longer; and in England the plants are often preſerved through the winter, but young plants are much preferable to thoſe which are thus preſerved; therefore few perſons are at the trouble to keep them, unleſs when the ſeaſons prove ſo bad as that their ſeeds do not ripen, whereby the ſpecies might be loſt, if the plants are not preſerved through the winter.

Theſe plants are propagated by ſeeds, which muſt be ſown upon a hot-bed in the ſpring, and when the plants are come up, they ſhould be each planted into a ſeparate pot filled with light freſh earth, and plunged into a freſh hot-bed, obſerving to water and ſhade them until they have taken root; after which they muſt have a great ſhare of free air when the ſeaſon is mild, otherwiſe they will draw up tall, and be very weak; and as theſe plants grow very faſt, their roots will in a ſhort time fill the pots; therefore they ſhould be ſhifted into larger pots, filled with the like freſh earth; and towards the end of may, when the ſeaſon is warm, they may be hardened to endure the open air by degrees; and then if ſome of the plants are ſhaken out of the pots, and planted out into a very rich border, and in dry weather duly watered, they will grow to a very large ſize, and produce a great quantity of flowers and ſeeds: but if you intend to preſerve any of the plants through the winter, they muſt not be planted in the full ground, becauſe after their roots have been widely extended, there will be no tranſplanting them with ſafety; therefore the beſt way is to ſhift them into larger pots from time to time, as their roots ſhall require, placing them in the open air during the ſummer ſeaſon in ſome warm ſituation, where they may remain until october, when they muſt be removed into the houſe with other exotic plants, obſerving to water them ſparingly in winter, and alſo to admit the free air in mild weather; for they only require to be protected from froſt and cold winds, ſo that they will endure the winter in a warm green-houſe, without any addition of artificial warmth.

Theſe plants deſerve a place in every curious garden for the ſingular beauty of their leaves (notwithſtanding their flowers make no great appearance) eſpecially thoſe which may be propagated every year from ſeeds; becauſe thoſe perſons who have no green-houſe to place them into in winter, may cultivate them as other annual plants, amongſt which theſe being placed either in pots or on borders, afford an agreeable variety; but it muſt be obſerved, as theſe are large-growing plants, never to place them too near others of leſs growth, becauſe they will overbear and deſtroy them; and thoſe which are planted in pots, ſhould be allowed room for their roots to ſpread, and muſt be frequently watered, otherwiſe they will not grow very large.

[RICINUS. See *Cluytia*, *Croton*, *Jatropha*, *Phylica*, *Tragia*.

RICOPHORA. See *Dioſcorea*.

RICOTIA.

Lin. gen. n. 810. *Reich. n.* 874. *Schreb. n.* 1086. *Juſſ.* 239.

Claſſ. 15. 2. Tetradynamia Siliquoſa.

Nat. order of *Siliquoſæ* or *Cruciformes*. *Cruciferæ*, Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* four-leaved: *leaflets* oblong, parallel-approximating, deciduous.

COR. four-petalled, cruciform. *Petals* obcordate, ſpreading.

STAM. *Filaments* ſix, the length of the tube: two oppoſite, a little ſhorter. *Anthers* oblong, acute.

PIST. *Germ* cylindrical, the length of the ſtamens. *Style* ſcarcely any. *Stigma* acute.

PER. *Silique* lanceolate-oval, one-celled, two-valved: *valves* flat.

SEEDS about four, orbicular, compreſſed.

ESSENTIAL CHARACTER.

Silique one-celled, oblong, compreſſed; with flat valves.

SPECIES.

1. Ricotia ægyptiaca. *Egyptian Ricotia.*
Lin. ſpec. 912. *Reich.* 3. 243.
Cardamine foliis ſupradecompoſitis, ſiliquis unilocularibus pendulis. *Lin. ſpec. ed.* 1. 656.
Lunaria fol. ſuprad. folioliis trifidis, ſiliquis oblongis pendulis. *Mill. fig.* 113. *t.* 169.
L. Ricotia. *Gærtn. fruct.* 2. 289.—ægyptiaca. *Dict. noſtr.*

DESCRIPTION, *&c.*

See *Lunaria ægyptiaca*.

Loureiro has a ſpecies under the name of *R. cantonienſis*.

RINDERA. See *Cynogloſſum*.

RITRO. See *Echinops*.

RITTERA. (*So named by Schreber, in honour either of Albertus or Joannes Jacobus Ritter, phyſician in Sileſia, born at Berne* 1714, *died* 1784.)

Lin. gen. Schreb. n. 919. Poſſira. *Aublet. t.* 355. *Swartz, prodr.* 81. *Juſſ.* 351.

Claſſ. 13. 1. Polyandria Monogynia.

Nat. order of *Leguminoſæ*.

GENERIC CHARACTER.

CAL. *Perianth* four-leaved: *leaflets* ovate, rounded, concave, deciduous.

COR. *Petal* one, wide, roundiſh, upright, fringed, lateral, with a very ſhort claw.

STAM. *Filaments* many, longer than the corolla, inſerted into the receptacle, of which ſome oppoſite to the petal are ſhorter and barren. *Anthers* oblong, incumbent.

PIST. *Germ* pedicelled, oblong, compreſſed, curved inwards. *Style* ſhort. *Stigma* blunt.

PER. *Legume* oblong, ventricoſe, compreſſed, one-celled, two-valved.

SEEDS three or four, compreſſed, angular.

OBS. *It is referred by Aublet to order Monoecia of claſs Polygamia.*

ESSENTIAL CHARACTER.

Cal. four-leaved. *Petal* one, lateral. *Legume* one-celled, two-valved.

SPECIES.

1. Rittera ſimplex.
Vahl ſymb. 2. 60.
Poſſira ſimplex. *Swartz prodr.* 82.
Leaves ſimple, petal roundiſh obovate larger than the calyx, many-ſtamened.
2. Rittera grandiflora.
Vahl, ecl. 2. 37.
Leaves ſimple oblong-ovate, peduncles ſubtriflorous, petal roundiſh kidney-form very large, legumes oblong.
3. Rittera dodecandra.
Vahl, ſymb. 2. 6. *t.* 34.
Leaves ſimple, petal oblong the length of the calyx, flowers twelve-ſtamened.
4. Rittera triphylla.
Poſſira triphylla. *Swartz prodr.* 82.
P. arboreſcens. *Aubl. guian.* 934. *t.* 353.
Leaves ternate, petioles margined.
5. Rittera pinnata.
Vahl, ecl. 2. 38.
Leaves pinnate.

DESCRIPTIONS, *&c.*

1. Branches round, ſmooth, brown, with raiſed ſcattered white dots, angular at the end. Leaves alternate, ovate, three inches long, very ſmooth, veined, quite entire, blunt, emarginate. Petiole very ſhort, ſlightly margined, two-toothed at the top, convex underneath. Stipule on both ſides ſetaceous, rigid, erect, deciduous. Peduncles axillary and terminating, ſolitary or ſometimes in pairs, much ſhorter than the leaf. Flowers in racemes, four or five on each peduncle, before they open, globular and the ſize of a pea. Calyx ſmooth, coriaceous, thick, burſting into four oblong equal ſegments. Petal large, clawed, veined, twice as long as the calyx. Stamens numerous, the length of the corolla. Germ lanceolate, ſharp at both ends, double the length of its pedicel.—Native of the Caribbee iſlands *.

2. This is a middle-ſized tree, with round ſmooth ſubdichotomous branches, of a brown colour, except the younger ones, which are green. Leaves alternate, three inches long, very ſmooth on both ſides, veined,

* Vahl, ſymb.

ſomewhat

ſomewhat waved, a little acuminate, blunt, the midrib underneath yelloviſh. Petioles ſhort, with an obſolete toothlet on each ſide at the tip. Stipule on both ſides ſetaceous, ſtiffiſh. Peduncles from the upper axils and the end of the branches, ſolitary, ſhorter than the leaf, ſmooth, generally three-flowered. Pedicels alternate, an inch long, a little thicker towards the flower. Bracte minute, on each ſide at the baſe of the pedicels. Calyx coriaceous, burſting into two, three or four unequal obovate parts, three times ſhorter than the petal; which is clawed, roundiſh-reniform, an inch and half long, nerved and veined, both nerves and veins diſappearing towards the periphery. Filaments ſhorter than the petal; about fifteen of them longer and ſtouter than the reſt declining with the piſtil to the ſide oppoſite to the petal; the reſt are ſhorter, more ſlender, and incumbent on the petal. Germ linear, leſſening to both ends, ſmooth and even, ſhorter than the petal: ſtigma ſharp. Legume pedicelled, two inches long, ſharp at both ends, terminated by the ſtyle, containing one or two ſeeds, and contracted between each. Seed oval, an inch long, nearly as thick as the middle finger, black and ſhining: navel ventral, linear: aril incomplete, covering the ſeed almoſt to the oppoſite margin, orbicular, ſomewhat fleſhy, many-parted; ſegments linear, a little wider outwards, parallel, cohering only at the baſe.

This reſembles the preceding ſo much, that it is difficult to aſſign any infallible limits between them: but the leaves are narrower than in this, more acuminate, and of a thinner texture; the apex of the petiole has an obſcure tooth, but by no means running down the petiole, the peduncles are commonly no more than three-flowered, and the petals are larger. When the petals and legume ſhall be examined more accurately, we ſhall perhaps know better whether theſe be diſtinct ſpecies or not.

Native of the iſland of Trinidad [7].

3. Branches round, pubeſcent at top. Leaves alternate, two inches long, ovate, rounded at the baſe, acuminate with a blunt point, emarginate, membranaceous, very ſmooth, veined, quite entire. Petiole very ſhort, with a very ſmall tooth on each ſide a little below the baſe of the leaf. Stipule on each ſide, ſetaceous, upright, the length of the petiole. Racemes axillary, ſhorter than the leaf. Peduncles filiform: pedicels remote, an inch long, a little thickened. Bractes two at the baſe of the pedicels, ſetaceous. Calyx four-parted: ſegments oblong, ſmooth, very ſhort. Petal ſmall, oblong, the length of the calyx. Filaments from fourteen to nineteen, yellow, twice as long as the calyx: anthers globular. Germ the length of the filaments, attenuated to each end.

This is more tender and ſmaller in all its parts than the firſt ſpecies, the leaves are rounded at the baſe, inſtead of the teeth of the petioles there are two minute tubercles; but in the number of ſtamens, the figure and ſize of the petal this is very nearly allied to that.—Native of South America [8].

4. This is a middle-ſized tree, with a trunk from ſeven to eight feet in height, and ſeven or eight inches in diameter, with a ſmooth, thin, gray bark, and a yelloviſh, hard, compact wood. It divides at top into twiſted branches that extend themſelves on all ſides. Leaves alternate, compoſed of three ſeſſile leaflets, which are entire, ſmooth, thin but firm, ovate, acuminate; the middle leaflet much larger than thoſe on the ſides. Stipules two, ſmall, deciduous, at the baſe of the midrib. Flowers axillary, in corymbs, with two bractes at the baſe of the peduncle and each pedicel. Leaflets of the calyx two, three or four. Corolla yellow. Stamens twenty-five or twenty-ſix, ſix or ſeven of which are ſhorter and abortive. Seeds from one to four, of a diſagreeable taſte, and very acrid, inflaming and ſwelling the lips of thoſe who bite them.

Native of the foreſts of Guiana, near the ſource of the creek of the Galibis; flowering and fruiting in the month of may. The French call it *Bois dard* or *Bois a fleche*, becauſe the natives arm their arrows at the point with a piece of the wood cut very ſharp [9].

5. Branches round, ſmooth. Leaves alternate, a foot long, unequally pinnate, with two pairs of leaflets: theſe are oppoſite, about a ſpan in length, the inner ones ſmaller, elliptic, ſmooth on both ſides, very finely veined, quite entire, acuminate: general petiole roundiſh, flatted above at the leaflets; partial very ſhort, toothleſs. Racemes ſometimes two together, half a foot long: common peduncle round at bottom and dotted, angular above, gray with a very fine nap, as are alſo the pedicels and calyxes: pedicels ſcattered, frequent, an inch long, flatted a little, from upright ſpreading, one-flowered. Calyx before it opens globular, the ſize of a pea, membranaceous, burſting. Petal twice as long as the calyx. Two of the filaments oppoſite to the petal, aſcending, longer and ſtouter than the reſt; the reſt ſhorter, more ſlender, and incumbent on the petal. Germ flexuoſe, oppoſite to the petal, linear, hoary, longer than the petal. Legume pedicelled, pendulous, often a ſpan long, the thickneſs of the thumb, roundiſh, contracted between the ſeeds, terminated by the ſtyle, which is an inch and half in length. Seeds from two to five, oblong-ovate, on a fleſhy filiform pedicel, twice curved at the baſe, adhering at top to the valves; they are pale yellow, with one end towards the baſe of the legume ſharp, the other flat: ſcar at the upper end, linear, orange-coloured: aril incomplete, veiled, covering the upper end of the ſeed, fleſhy, ſtriated, crenulate, whitiſh yellow, ending in the pedicel.—Native of the iſland of Trinidad.

The fructification of Swartz's agrees ſo exactly with that of R. pinnata, that it can ſcarcely be deemed to form a diſtinct genus [10].]

RIVINA. (*So named by Plumier, in honour of Auguſtus Quirinus Rivinus, Profeſſor of Phyſiology and Medicine at Leipſic. Author of* Introductio in rem herbariam *and* Ordines Plantarum, 1690, 1691, 1699, fol. *ob.* 1723.)

Lin. gen. n. 162. *Reich. n.* 174. *Schreb. n.* 219. *Blum.* 39. *Juſſ.* 84. *Gærtn. t.* 77. Solanoides. *Tournef. aſt. gall.* 1706. Piercea. *Miller.*

Claſſ. 4. 1. Tetrandria Monogynia.

Nat. order of *Holoraceæ*. *Atriplices*, Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* four-leaved, coloured, permanent: *leaflets* oblong-ovate, blunt.

COR. none, unleſs the calyx be taken for it.

STAM. *Filaments* four or eight, ſhorter than the calyx, approaching by pairs, permanent. *Anthers* ſmall.

PIST. *Germ* large, roundiſh. *Style* very ſhort. *Stigma* ſimple, blunt.

PER. *Berry* globular, placed on the green reflex calyx, one-celled, with a point curved in.

SEED one, roundiſh, lens-ſhaped, rugged.

ESSENTIAL CHARACTER.

Cal. four-leaved (or, *Cor.* four-petalled) permanent. *Berry* containing one lens-ſhaped ſeed.

SPECIES.

1. Rivina humilis. *Downy Rivina.*
Lin. ſpec. 177. *Reich.* 1. 346. *Willd.* 694. *hort. cliff.* 35. *Knipb. cent.* 2. *n.* 75. *Gærtn. fruct.* 1. 375.
Piercea tomentoſa. *Mill. dict. n.* 2.
β. R. canescens.
R. hum. racemoſa, baccis puniceis. *Plum. gen.* 48.
Solanoides americana, Circeæ foliis canescentibus. *Tournef. aſt. gall.* 1706.
Solanum barbadenſe racemoſum minus tinctorium. *Pluk. phyt. t.* 112. *f.* 2. *Mor. hiſt.* 3. 522. *n.* 23.
Amarantus bacciſer, Circeæ foliis. *Comm. hort.* 1. 127. *t.* 66.
Racemes ſimple, flowers four-ſtamened, leaves pubeſcent.
2. Rivina lævis. *Smooth Rivina.*
Lin. ſyſt. 165. *Reich.* 1. 346. *Willd.* 694. *mant.* 41. *Knipb. cent.* 2. *n.* 74.
R. humilis. *Mill. dict. n.* 1.

[7] Vahl, ecl. [8] Vahl, ſymb. [9] Aublet. [10] Vahl, ecl.

Solanoides americana, Circeæ foliis glabris. *Tournef. act. gall.* 1706.

Racemes ſimple, flowers four-ſtamened, leaves ovate acuminate ſmooth flat, ſtem round.

[3. Rivina braſilienſis. *Wave-leaved Rivina.*
Lin. ſpec. ed. Willd. 695.

Racemes ſimple, flowers four-ſtamened, leaves ovate waved and wrinkled, ſtem grooved.]

4. Rivina octandra. *Climbing Rivina.*
Lin. ſpec. 177. *ſyſt.* 165. *Reich.* 1. 347. *Willd.* 695. *amoen.* 4. 305. *Loeſl. it.* 207. *Jacqu. obſ.* 1. *p.* 6. *t.* 2. *Plum. gen.* 48. *ic.* 241. *Brown. jam.* 149. *t.* 23. *f.* 2.

R. ſcandens. *Mill. dict. n.* 2.

R. dodecandra. *Jacqu. amer. pict.* 17. *t.* 21.

Racemes ſimple, flowers eight-ſtamened or twelve-ſtamened, (leaves elliptic ſmooth.)

DESCRIPTIONS, *&c.*

1. This grows taller than the ſecond, and the branches are more erect. The leaves are ſmaller, heart-ſhaped, and covered with ſhort hairy down. The ſpikes of flowers are not ſo long; the flowers are not ſo cloſely placed together, and have longer peduncles.

[Mr. Miller ſeparates this plant from the Rivinas or Rivinias, becauſe, as he affirms, the flowers have eight ſtamens. He gave it therefore the name of Piercea, in honour of Hugh Percy, duke of Northumberland.

Native of the Weſt Indies. Cultivated before 1699, in the Apothecaries garden at Cheſſea, according to Moriſon[c]: who deſcribes the ſtems as a cubit high; leaves round at the baſe from an inch to two inches in breadth, running out into a point, reſembling very much thoſe of Circæa or Enchanter's Nightſhade, ſoft, pale green, pubeſcent with a very ſhort nap, on petioles an inch in length. Spike long, ſlender. Flowers ſmall, on ſlender pedicels, pale, divided into *five* parts and acute.

2. This reſembles the preceding very much, but is wholly ſmooth. The leaves are purpliſh about the edge. The flowers are red on the outſide[d].]

It riſes with ſhrubby ſtalks ſix or eight feet high, dividing into ſeveral ſpreading branches, and covered with a gray ſpotted bark. Leaves alternate, lanceolate, entire, two inches and a half long and one inch broad in the middle, drawing to a point at each end, ſmooth, of a lucid green, and pretty thick conſiſtence, on long ſlender footſtalks, and placed at pretty great diſtances on the branches. Flowers in long bunches, from the ſide and at the end of the branches, each on a ſlender peduncle near half an inch long: calyx ſcarlet: ſtamens *eight*, longer than the calyx. Berry roundiſh, with a thin pulp, outwardly ſcarlet changing to purple; incloſing one roundiſh hard ſeed.

[Gærtner, who ſeems to conſider this and the preceding as making one ſpecies, deſcribes the berry as ſmall, ſpherical, red terminated by a black callous dot; within one-celled, filled with a watery pulp tinging yellow. Seed lenticular, rugged with little ſoft briſtles, but under the outer cuticle very ſmooth, ſhining black.

Native of the Weſt Indies. Cultivated by Mr. Miller in 1733. It flowers moſt part of the year[e].]

Mr. Miller ſays of his *Piercea glabra*, that it riſes with a ſlender herbaceous ſtalk, three or four feet high, and by age becomes a little woody at bottom; that it divides into many herbaceous branches, which are angular; that the leaves are oval-lanceolate, near four inches long, and two broad in the middle, of a bright green, on ſlender foot-ſtalks an inch and half long; that the peduncles come out from the ſide of the branches, at the baſe of the petioles, are from four to five inches long, and ſuſtain a great number of ſmall white flowers, ranged along the upper part on both ſides; that the berries are ſmall, red, full of red juice, and incloſe one hard ſeed of the ſame form. Theſe berries hang on the branches in long bunches, great part of the year.

[3. This is diſtinct from the preceding in ſize, leaves, bigneſs and colour of the fruit, and time of flowering. Native of Braſil[f].]

4. This riſes with a climbing woody ſtalk to the height of twenty feet, covered with a dark gray bark. Leaves oval-lanceolate, near three inches long, and an inch and half broad, ſmooth, entire, on ſhort footſtalks. The flowers come out in long bunches from the ſide of the branches, ſhaped like thoſe of the ſecond ſort. The berries are blue, of the ſame ſize with thoſe of the other.

[Stamens four within the leaves of the calyx, alternate with eight others. Anthers haſtate. Style none. Stigma pencilled. Seed lens-ſhaped, ſhining[g].

The ſtem is commonly weak and ſuſtains its long flexile branches on other ſhrubs and trees; but ſometimes it is upright, and puts on the appearance of a very branching and not inelegant tree, fifteen feet high. Leaves oblong-lanceolate, acuminate, entire, very ſmooth, petioled, alternate, numerous, from three to ſix inches long. Racemes few, ſimple, terminating the younger branches; and ſometimes others from the axils of the leaves. Calyx, in the flower white, in the fruit violet-red. Berries dark-purple, the ſize of a pea. Seed black. Stamens always twelve.—Loeſling numbers from eight to twelve ſtamens, and deſcribes the berry as wrinkled, and the ſeeds as angular, whereas in Jacquin's plant, the ſeed has no angles, and the berry no wrinkles[h].

Browne ſays, it ſtretches a great way among the neighbouring ſhrubs and buſhes, the main ſtalk being ſeldom under an inch or two in diameter, and throwing out a few ſlender branches towards the top, which are generally adorned with flowers at their extremities. The berries make the principal part of the food of the American thruſh or nightingale; they contain a very oily ſeed, and after the bird has ſwallowed many of them, he frequently flies to the next bird-pepper buſh, (Capſicum) and picks a few of thoſe warm berries; nature doubtleſs having taught it what was neceſſary to promote the digeſtion of that oleaginous heavy food.

The ſtalk is very tough and flexile, and often made into hoops in Jamaica, when there is a ſcarcity of thoſe imported from Europe or North America, but they are not ſo ſtrong and durable. Hence the name of Hoop-Withe, given to this plant in Jamaica[i].

From the ſame circumſtance, the French in Martinico name this ſhrub *Liane à baril*[k].

Native of the Weſt Indies. Cultivated before 1752 by Mr. Miller[l]: who ſays that he received the ſeeds from Antigua, and that Dr. Houſtoun found it at the Havannah.

PROPAGATION AND CULTURE.

Theſe ſhrubs are propagated by ſeeds, which remain long in the ground before they vegetate; I have had them lie two years before the plants have appeared, but they never riſe the ſame year the ſeeds are ſown.

Theſe berries muſt be procured from the countries where they naturally grow, and when they arrive, ſhould be ſown in pots filled with freſh earth, and plunged into a moderate hot-bed. If this happens late in the autumn or winter, the pots muſt be plunged into the tan-bed of the ſtove; but if in the ſpring, they may be plunged in a common hot-bed under a frame. The earth muſt be moiſtened frequently in ſummer, to promote the vegetation of the ſeeds, but as they will not come up the ſame year, the pots ſhould be removed into the ſtove before winter, and plunged into the tan-bed; during the winter ſeaſon, the earth muſt be ſometimes refreſhed, but muſt not be too moiſt. In the ſpring the pots may be taken out of the ſtove, and plunged into a freſh hot-bed to bring up the plants; but if they ſhould not then riſe, the earth muſt not be diſturbed, becauſe the plants may come up the following ſeaſon.

When the plants come up and are two inches high, they ſhould be each tranſplanted into a ſeparate ſmall pot, filled with light loamy earth, and plunged into a

[c] Hort. kew. [d] Linn. mant. [e] Hort. kew.

[f] Willdenow. [g] Linn. ſyſt. [h] Jacquin. [i] Browne. [k] Jacquin. [l] Hort. kew.

hot-bed, obſerving to ſhade them from the ſun till they have taken new root; after which they muſt be treated in the ſame way as other plants from the ſame countries.

Theſe plants being tender, cannot be preſerved in this country, unleſs they are kept in a warm ſtove, eſpecially while they are young; but when they have obtained ſtrength, they will live in a moderate warmth in winter, and in ſummer they may be removed into the open air, placing them in a ſheltered ſituation, where they may remain near three months in the warmeſt part of the ſummer. During the winter ſeaſon they ſhould be ſparingly watered, for as they grow naturally on a dry ſoil, much wet will deſtroy them, eſpecially in cold weather.

[RIVINA PANICULATA. See *Salvadora perſica.*

ROBERGIA. (*So named by Schreber, in honour of Laurentius Roberg, Profeſſor of Medicine at Upſal in Sweden.*)

Lin. gen. Schreb. n. 787. Rourea. *Aubl.* 187. *Juſſ.* 369.

Claſſ. 10. 4. Decandria Pentagynia.

Nat. order of *Terebintaceæ*, Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* one-leafed, five-parted, permanent: *ſegments* roundiſh, concave.

COR. *Petals* five, roundiſh, the length of the calyx.

STAM. *Filaments* ten, inſerted into the receptacle, the length of the corolla. *Anthers* roundiſh.

PIST. *Germ* roundiſh, villoſe, ſuperior. *Styles* five, capillary. *Stigmas* thickiſh, grooved.

PER. *Drupe* ovate, more convex on one ſide, very ſlightly hollowed on the other.

SEED. *Nut* the form of the drupe, one-celled, with a two-valved ſhell.

ESSENTIAL CHARACTER.

Cal. five-parted. *Pet.* five. *Drupe* with a one-ſeeded nut, and a two-valved ſhell.

SPECIES.

1. Robergia fruteſcens.
Willd. ſpec. 752.
Rourea fruteſcens. *Aubl. guian.* 467. *t.* 187.

DESCRIPTION, *&c.*

This is a ſhrub five feet in height. Leaves alternate, unequally pinnate, four-paired: leaflets petioled, oblong, acuminate, quite entire, veined, ſmooth above, tomentoſe underneath: the lower leaflets are ſmaller. Flowers white. Panicle corymbed axillary and terminating, much ſhorter than the leaf.

Native of the woods of Guiana, flowering and fruiting in the month of auguſt. The flowers have a ſmell ſweeter than that of the Lilac[a].]

ROBINIA. (*From Jean Robin, arboriſte du Roy, author of* Hiſtoire des Plantes, &c. *Par.* 1620. 12. *printed alſo with the ſecond edition of Linocier's Hiſtory of Plants.*)

Lin. gen. n. 879. *Reich. n.* 953. *Schreb. n.* 1195. *Gærtn. t.* 145. *Juſſ.* 358. Pſeudoacacia. *Tournef. t.* 417. Caragana. *Lamarck, encycl.* 1. 615. *Juſſ.* 358.

Claſſ. 17. 4. Diadelphia Decandria.

Nat. order of *Papilionaceæ* or *Leguminoſæ.*

GENERIC CHARACTER.

CAL. *Perianth* one-leafed, ſmall, bell-ſhaped, four-cleft: the three lower toothlets more ſlender; the upper fourth toothlet wider, ſcarcely emarginate to the naked eye, all equal in length.

COR. papilionaceous: *ſtandard* roundiſh, larger, ſpreading, blunt; *wings* oblong, ovate, free, with a very ſhort blunt appendix; *keel* almoſt ſemiorbicular, compreſſed, blunt, the length of the wings.

STAM. *Filaments* diadelphous (ſimple and nine-cleft) aſcending at top. *Anthers* roundiſh.

PIST. *Germ* cylindrical, oblong. *Style* filiform, bent upwards. *Stigma* villoſe in front at the top of the ſtyle.

PER. *Legume* large, compreſſed, gibbous, long.

SEEDS few, kidney-form.

OBS. Caragana *of Lamarck has a ſmooth truncate ſtigma, and a ſubcylindrical inflated legume.* Schreb.

[a] Wildenow and Aublet.

ESSENTIAL CHARACTER.

Cal. four-cleft. *Legume* gibbous, elongated.

SPECIES.

1. Robinia Pſeud-Acacia. *Falſe* or *common Acacia.*
Lin. ſpec. 1043. *ſyſt.* 668. *Reich.* 3. 485. *hort. cliff.* 354. *upſ.* 212. *Gærtn. fruct.* 2. 307. *L'Herit. ſtirp. nov.* 158. *Gron. virg.* 105. *Duham. arb.* 2. *t.* 42. *Du Roi harbecc.* 2. 320. *Manting. phyt. t.* 8. *Knipb. cent.* 3. *n.* 76. *Pluk. phyt. t.* 73. *f.* 4.
Acacia americana, ſiliquis glabris. *Raii hiſt.* 1719. *Seba, theſ.* 1. *t.* 15. *f.* 1.
A. amer. Robini. *Corn. canad.* 171. *t.* 172. (excluſo fructu.)
Arbor ſiliquoſa, virginenſis ſpinoſa. *Park. theat.* 1550. *f.* 2.
Pſeudo-acacia. *Riv. tetrap. t.* 63.
Racemes with pedicels one-flowered, leaves unequally pinnate, ſtipules thorny.

[2. Robinia ſcpium. *Hedge Robinia.*
Jacqu. amer. 211. *pict.* 260. *f.* 40. *Swartz, prodr.* 106.
Unarmed, peduncles racemed, the partial ones two-flowered, leaves unequally pinnate, pinnas ovate acuminate.]

3. Robinia violacea. *Aſh-leaved Robinia.*
Lin. ſpec. 1044. *ſyſt.* 668. *Reich.* 3. 485. *Jacqu. amer.* 210. *t.* 177. *f.* 49. *pict.* 103. *t.* 262. *f.* 61.
Pſeudacacia floribus violaceis. *Plum. ſpec.* 19.
Racemes with pedicels one-flowered, leaves unequally pinnate, ſtem unarmed.

4. Robinia hiſpida. *Roſe Acacia* or *Robinia.*
Lin. ſyſt. 668. *Reich.* 3. 486. *mant.* 101. *Jacqu. amer.* 221. *t.* 179. *f.* 101. *Mill. fig.* 163. *t.* 244. *Du Roi harbecc.* 2. 325. *Jungh. ic. cent.* 1. *f.* 3. *Curt. magaz.* 311.
Pſeudo-acacia hiſpida, floribus roſeis. *Cateſb. car.* 3. *t.* 20.
Racemes axillary, leaves unequally pinnate, ſtem unarmed hiſpid.

[5. Robinia mitis.
Lin. ſpec. 1044. *ſyſt.* 668. *Reich.* 3. 486. *Lour. cochinch.* 455. *ed. Willd.* 555. *Burm. ind.* 163. *Pluk. phyt. t.* 310. *f.* 3.
Cytiſus ſolitis pinnatis. *Lin. ſpec. ed.* 1. 741.
Racemes with pedicels in threes, leaves unequally pinnate, ſtem unarmed.]

6. Robinia Caragana.
Lin. ſpec. 1044. *Reich.* 3. 486. *hort. upſ.* 212. *L'Herit. ſtirp. nov.* 160. *Gmel. ſib.* 4. 17. *n.* 22. *Du Roi barbecc.* 2. 327. *Knipb. cent.* 5. *n.* 76.
R. Altagana. *Pallas roſſ.* 1. *t.* 42. *fig. intermedia.*
Aſpalathus arborefcens, pinnis foliorum crebrioribus oblongis. *Amm. ruth.* 285.
Pſeudo-acacia foliorum pinnis crebrioribus. *Duham. arb.* 3.
Caragana ſibirica. *Roy lugdb.* 537.
Peduncles ſimple very many, leaves abruptly pinnate four or five-paired, petioles unarmed, legumes cylindrical.

[7. Robinia ſpinoſa. *Thorny Robinia.*
Lin. ſyſt. 668. *Reich.* 3. 487. *mant.* 269. *L'Herit. ſtirp. nov.* 160.
R. ſpinoſiſſima. *Laxm. nov. com. petrop.* 15. 558. *t.* 30. *f.* 4.
R. ferox. *Pallas roſſ.* 70. *t.* 44. *itin.* 3. *app.* 752. *n.* 125. *t.* Ee. *f.* 2, 3.
Peduncles ſimple ſubſolitary, leaves abruptly pinnate many-paired, petioles ſpineſcent.

8. Robinia Altagana. *Dauriau Robinia.*
Pallas roſſ. 1. 68. *t.* 42. *L'Herit. ſtirp. nov.* 159. *t.* 76.
Peduncles ſimple ſolitary, leaves abruptly pinnate ſeven or eight-paired, ſtipules ſpineſcent, legumes compreſſed.

9. Robinia Chamlagu. *Shining Robinia.*
L'Herit. ſtirp. nov. 161. *t.* 77. *Ait. kew.* 3. 54.
Peduncles ſimple ſubſolitary, leaves abruptly pinnate two-paired, petioles and ſtipules ſpineſcent.

10. Robinia ſquamata.
Vahl ſymb. 3. 88. *t.* 69.
Racemes with pedicels one-flowered, leaves unequally pinnate, leaflets oval ſpiny-mucronate, petioles unarmed.

11. Robinia florida.
Vahl symb. 3. 89. t. 70.
Peduncles simple one flowered, leaves abruptly pinnate, petioles and ſtipules unarmed.
12. Robinia Halodendron. *Salt-tree Robinia.*
Lin. ſyſt. 668. ſuppl. 330. L'Herit. ſtirp. nov. 162. Ait. kew. 3. 54. Pallas, it. 2. 741. t. W. roſſ. 1. 72. t. 46. Gmel. ſib. 4. 15. n. 19. Amm. ruth. 208. n. 284. (Aſpalathus.)
Peduncles three-flowered, leaves abruptly pinnate two-paired, petioles and ſtipules ſpineſcent.]
13. Robinia fruteſcens. *Shrubby Robinia.*
Lin. ſpec. 1044. Reich. 3. 487. hort. upſ. 212. Du Roi harbecc. 2. 330. Gmel. ſib. 4. 16. Pallas roſſ. 1. 69. t. 43. Amm. ruth. 293. Duham. arb. 4. (Aſpalathus.)
Peduncles ſimple, leaves in fours ſubpetioled terminated by an unarmed ſpine.
14. Robinia pygmæa. *Dwarf Robinia.*
Lin. ſpec. 1044. ſyſt. 668 Reich. 3. 487. hort. upſ. 212. Du Roi harbecc. 2. 332. Gmel. ſib. 4. 16. n. 21. Pallas, it. 2. 687. roſſ. 1. 71. t. 45. Amm. ruth. 204. n. 282. t. 35. Duham. arb. 5. (Aſpalathus.)
Peduncles quite ſimple, leaves in fours ſeſſile.
[15. Robinia ſubdecandra.
L'Herit. ſtirp. nov. 157. t. 75.
Racemes ſimple, filaments almoſt diſtinct, leaves unequally pinate, ſtem unarmed.
16. Robinia amara. *Bitter-rooted Robinia.*
Laur. cochinch. 455. ed. Willd. 556.
Racemes elongated, pedicels in threes, leaves unequally pinnate five or ſix-paired, ſtem unarmed.
17. Robinia flava.
Laur. cochinch. 456. ed. Willd. 556.
Peduncles in threes, three-flowered, terminating, leaves abruptly-pinnate, ſeven or eight-paired, ſtem unarmed.

DESCRIPTIONS, *&c.*

Theſe are chiefly Shrubs; ſome, as (1. 2. 3.) are Trees. Leaves pinnate. Stipules diſtinct from the petiole. Peduncle axillary and terminating. Fruit oblong, two-valved, containing ſeveral ſeeds*. They are moſtly natives of North America or Siberia, and are proper for ornamental plantations.

Thorny: 1. 7. 8. 13. 14. The reſt unarmed.
Stipules or petioles armed: 6 to 10. 12. 13. 14.
Leaves pinnate unequally: 1 to 5. 10. 15. 16.
——— pinnate abruptly: 6 to 9. 11 to 14. 17.
——— two-paired: 5. 9.
——— two or three-paired: 12.
——— three-paired: 3.
——— three or four-paired: 7.
——— four or five paired: 6.
——— five-paired: 2.
——— five or ſix-paired: 16.
——— ſix or ſeven-paired: 4.
——— ſeven or eight-paired: 8. 17.
——— eight to ten-paired: 1.
——— nine-paired: 10.
——— nine or ten-paired: 11.
——— twelve to fifteen-paired: 15.
——— quaternate: 13. 14.
Flowers in racemes: 1 to 5. 12. 15. 16.
——— on ſingle peduncles: 6 to 11. 13. 14.
——— tern, three-flowered: 17.
——— White: 1. 17.
——— Purple: 11. 12.
——— Roſe-coloured. 2. 4.
——— Violet: 3. 16.
——— Yellow; 5 to 9. 13 to 15: in n. 9. becoming blood-red.]

1. The common falſe or baſtard Acacia, called in America Locuſt Tree, grows very faſt whilſt young, ſo that in a few years from ſeed, the plants riſe to eight or ten feet high, and it is not uncommon to ſee ſhoots of this tree ſix or eight feet long in one ſummer. The branches are armed with ſtrong crooked thorns. Leaflets eight or ten pairs, ovate, bright green, entire, ſeſſile. The flowers come out from the ſide of the branches in pretty long bunches, hanging down like thoſe of Laburnum: each flower on a ſlender pedicel, white, and ſmelling very ſweet: they appear in June, and when the trees are full of flower, they make a fine appearance and perfume the air round them; but they ſeldom continue more than one week. [Legume oblong, flat, having a longitudinal nerve next the ſeeding future, and on the outſide of that drawn out into a membranaceous margin, one-celled, two-valved. Seeds ſometimes as many as ſixteen, kidney-ſhaped, ending in a hooked beak, compreſſed like a lens, ruſeſcent*.]

Native of North America, where it grows to a very large ſize, and the wood is much valued for its duration. Moſt of the houſes which were built at Boſton in New England, on the firſt ſettling of the Engliſh, were conſtructed of this timber.

The ſeeds were firſt brought to Paris by Monſ. Robin, from Canada; and ſoon after, we had the ſeeds from Virginia. Many of the trees were raiſed in ſeveral gardens, which for ſome years were in great eſteem, but as they grew larger, their branches were frequently broken by ſtrong winds in the ſummer, which rendered them unſightly, and diſcouraged the introduction of them into ornamental plantations. Great numbers however have been raiſed of late years, ſo that there are now few plantations in which there are not ſome of theſe trees.

The leaves do not come out till late in the ſpring, and fall off early in autumn, which renders this tree leſs valuable in ornamental plantations.

[According to Parkinſon, it was cultivated in England in 1640 by Mr. John Tradeſcant, ſenior*.

Bradley (in 1720) makes mention of ſome then growing in the Court before Ruſſel-Houſe, Bloomſbury, and in the Old Palace Yard, Weſtminſter*. The latter have been long cut down, but the former have been ſeen by every body. They alſo are now (1801) demoliſhed along with the houſe.

The wood, when green, is of a ſoft texture, but becomes very hard when dry. It is as durable as the beſt white Oak, and eſteemed preferable for axle-trees of carriages, trenails for ſhips, and many other mechanic purpoſes. It makes excellent fuel, and its ſhade is leſs injurious to graſs than that of moſt other trees*. The leaves afford wholeſome food for cattle. A gentleman in New England ſowed ſeveral acres of it for that purpoſe.

It has been employed with ſucceſs in Virginia for ſhip-building, and found to be far ſuperior to American Oak, Elm, Aſh, &c. for that purpoſe*. In New York it has been found upon repeated trial, that poſts for rail-fencing made of this tree, ſtand wet and dry next the ground, better than any other in common uſe; almoſt as well as poſts of the ſwamp Cedar*.

Sir George Savile planted many thouſands of theſe trees at Rufford; ſo that the next generation will probably be ſufficiently furniſhed with this article of trenails at leaſt. The choiceſt pieces only of the beſt Oak-timber are applied to this purpoſe at preſent; and as the Suſſex Oak is generally reckoned the beſt, moſt ſhipwrights, even in the north, have their trenails from thence, and the demand for them is ſo great, that trenail-making is there become a conſiderable manufacture.

A Locuſt tree in New England, forty years old, was in 1782 ſixty feet high, and four feet ten inches in girt at three feet from the ground*.

Even in England, ſays Mr. Gilpin, it is often a very beautiful tree, whether it feathers to the ground, or is adorned with a light foliage hanging from the tree; but its beauty is very frail, being of all trees leaſt able to endure the blaſt.

Monſ. L'Heritier mentions a variety very lately introduced into gardens, having no thorns on the branches, which is eaſily known at firſt ſight by its peculiar appearance.]

* Juſſieu.

* Gertner. * Hort. kew. * Improvements, 3. 239.
* Cutler in mem. amer. 1. * Hunter's Evelyn.
* Pownall in Young's Annals, 8. 158. * Hunter's Evelyn.

Mr.

Mr. Miller has a variety, which he ſets down for a diſtinct ſpecies, under the name of *Rob. echinata*. The pods are much ſhorter, and cloſely beſet with ſhort prickles, but in other reſpects it agrees with the common ſort. There was a large tree of it in the Biſhop of London's garden at Fulham.

[2. This is a thornleſs tree, growing to the height of thirty feet, very much reſembling the preceding in habit, and dividing into round, almoſt upright, very long branches. Leaves ten inches long, ſcattered alternately over the whole branch: leaflets moſt commonly five on each ſide, ovate, blunt, attenuated at the end, ſhining, quite entire, oppoſite, petioled, two inches long. Racemes axillary. Flowers without ſcent, roſe-coloured. Legumes ſmooth, browniſh.

Native of Carthagena in New Spain, where they uſe it much for hedges to their gardens, but unleſs it be kept down, it will fill the ground by the great quantity of ſeeds which it ſcatters [x]. Found alſo in Hiſpaniola.

3. This is an upright tree without thorns, growing to the height of twelve feet. Leaves alternate, numerous, ſhining; having three leaflets on each ſide, ſometimes two, very ſeldom five; theſe are ovate, blunt, emarginate, entire, petioled, oppoſite, two inches long. Racemes axillary, half a foot in length; pedicels ſhort, two-flowered, numerous. The flowers have the ſmell and colour of Violets [y].]

According to Mr. Miller it riſes to the height of twenty feet, dividing at the top into ſeveral ſpreading branches, which are covered with a very light-gray bark. The leaves are compoſed of eleven pairs of leaflets, which are of a lucid green on the lower part of the branches, but thoſe towards the end are covered with a ſoft ferruginous down. The flowers come out in long bunches from the ſide of the branches; they are blue, and ſtand upon long foot-ſtalks. Legumes downy. Dr. Houſtoun found it growing naturally at Campeachy; [Jacquin, about Carthagena. It was cultivated before 1759, by Mr. Miller [z].]

4. This riſes in Carolina, where it grows naturally, ſometimes to the height of twenty feet, but in England it ſeems to be of low growth; the branches ſpread out near the ground, and produce their flowers very young. The young branches, and alſo the peduncles and calyxes are cloſely armed with ſmall brown prickles, or rather ſtiff briſtly hairs, like Raſpberries and ſome ſorts of Roſes. The leaves are like thoſe of the firſt ſort, but the leaflets are larger and rounder. The flowers are larger, and of a deep roſe-colour; but they have no ſcent: they come out early in june, and make a fine appearance. Each flower is on a ſhort ſeparate pedicel. Legumes flat oblong.

[Mr. Marſhall ſays, it ſends up weak branching ſtalks, to the height of ſix or eight feet only, but often flowers much ſmaller; that the leaves have five or ſix pairs of oval concave leaflets, with their midribs protruding in ſhort briſtly points; that the flowers are of a peach-bloſſom colour, with the ſtamens diſtinctly in two bodies; whereas thoſe of *R. Pſeudacacia* are frequently all joined at the baſe [a]. It was cultivated by Mr. Miller in 1758 [b].

5. Stem ſhrubby, three feet high, upright, branched. Leaflets ovate-lanceolate, ſmooth, bright green, two or three-paired. Racemes terminating, ſhort. Corolla yellow. Legume oblong, narrowing to each end, ſmooth [c].

Branches round, unarmed. Leaflets five, ovate, ſmooth, quite entire. The racemes have three flowers fixed at each tooth, each on its proper pedicel. Calyx ſubtruncate [d].—Native of the Eaſt Indies, China and Cochinchina [e].

6. Trunks arboreous, commonly branched from the bottom, ſlender, with a ſmooth, ſhining, coriaceous bark, covered by a greeniſh aſh-coloured ſkin: branches alternate, very much divided; twigs rod-like, weak, very leafy, aſh-coloured or greeniſh, with longitudinal nerves running from bud to bud. Buds alternate, frequent, bearing both leaves and flowers, unarmed, with the ſtipules of the bud-leaves ſoft, but in the new branches ſpinеſcent, divaricating, rigid; Pairs of leaflets from four to ſix, oblong, ſmooth, quite entire, ſubmucronate with a ſpinule from the nerve; the common petiole grooved above, between the extreme pair ſetaceous and a little prominent. Peduncles from the buds of the branches of the former year, two and three together ſolitary, with a broken joint near the flower. Calyx drooping a little, bell-ſhaped, ſmooth, permanent, five-toothed but not deeply, the upper tooth wider and more diſtant. Corolla larger than the calyx, yellow, having wings as long as the ſtandard, and a keel ſcarcely ſhorter. Legumes cylindrical, rigid, mucronate. Seeds five to eight, oblong, yellowiſh-gray powdered with brown, rather large. The germination is made by the firſt leaves being ternate, and the laſt of the firſt year two or three-paired [f].

Leaves five or ſix-paired. Stipules and point of the petioles ſubſpinеſcent, as in the following ſpecies. Flowers ſix, at the bud of the former year, on their proper peduncles [g].]

It riſes with a tree-like ſtem near twenty feet high, ſending out many ſide branches, with leaves compoſed of four or five pairs of oval leaflets, placed oppoſite. Flowers axillary, one on a peduncle. Pods oblong, taper, containing three or four ſeeds.

[Wood hard, compact, very tough, yellow on the outſide, within waved and ſtriped with bay and red. The leaves are good fodder for cattle; and it is ſuggeſted that they contain a blue colouring matter like Indigo. The ſeeds are good for poultry. The bark is very tough, and fit for tying; the twigs may alſo be uſed as withes [h].

Native of Siberia. Cultivated in 1768, by Mr. Miller. It flowers in april and may [i].

7. This reſembles the preceding, but is diſtinguiſhed by its ſtiff or thorny ſtipules. It is a ſhrub above the height of a man. Leaflets ſix or eight, ovate, even. Common petiole woody, the whole of it perennial, thorny at the end. Stipules awl-ſhaped, thorny, perennial [k].

The trunk is ſcarcely an inch and half in diameter, with branches often a fathom in length, ſubdivided, twiſted and diffuſed, ſo as to form a hemiſpherical head, full of branches and thorns. Being covered with flowers during the whole ſummer, it appears very beautiful. Wood bay-coloured within, on the outſide yellow, very hard. Cuticle on the younger branches greeniſh yellow, leſs ſhining and more ſtriated than in *R. pygmæa*, with aſh-coloured longitudinal nerves, running from branch to branch. Branches round, divaricating, alternate. Thorns ſpreading out every way almoſt at right angles, alternate, very large, ariſing from the permanent petioles enlarged, marked alſo with the ſcars of the leaflets, and having at the baſe on each ſide a ſmall, briſtle-ſhaped ſpinule, ſtanding up, and ariſing from the ſtipules. There are ſeveral leaves and two or three flowers from the axils of all the ſpines on the branches. The petioles are ſpinеſcent. The leaflets commonly two pairs, but ſometimes three and even four, linear-lanceolate, mucronate at the end with a ſpinule, oppoſite and remote. Peduncles ſo ſhort that the flowers ſeem to be ſeſſile. Calyx angular, ſmooth, five-toothed; the two upper teeth, longer than the others and approximating. Corolla deep yellow, twice as long as the calyx, with an oblong reflex ſtandard, ſcarcely longer than the wings, which are linear. Legumes teſtaceous, cylindrical, very ſtiff. Seeds oval, greeniſh dotted with brown.

On account of the length and toughneſs of the branches, and its large ſtout thorns, this ſhrub is admirably adapted to form impenetrable hedges, and is ſufficiently hardy to bear our climate. It is a native of Siberia, and alſo of China; where, about Pekin, they ſtick the buſhes in clay on the tops of their walls, to prevent perſons from getting or looking over them [l].

[x] Jacquin. [y] Idem. [z] Hort. kew. [a] Arbuſt. amer. 134. [b] Hort. kew. [c] Loureiro. [d] Linn. [e] Loureiro.

[f] Pallas. [g] Linn. [h] Pallas. [i] Hort. kew. [k] Linn. [l] Pallas.

It was introduced here in 1775, by Hugh Duke of Northumberland; and flowers in april and may[a].

8. This is a ſhrub, ſomewhat thorny, about three feet in height. Root ſparingly branched, having ſomewhat of the ſmell and taſte of Liquorice. Stems upright, ſcarcely branched, round, gray, tubercled: bark bay-coloured, torn: branches alternate, erect, round, like the ſtem: ſhoots ſomewhat angular with three lines running down from the ſtipule, prickly as it were with the ſtipules, putting off the cuticle, of a greeniſh bay-colour. Leaves alternate, petioled, ſpreading, two inches long: leaflets commonly oppoſite, ſubſeſſile, ovate obovate or cuneate, mucronate with a fine point, entire, at firſt pubeſcent but afterwards almoſt naked, one-nerved, the upper ones gradually leſs, bright green, the ſame colour on both ſides, ſpreading, flat. Petioles roundiſh on one ſide, having one ſlight ſtreak on the other, pubeſcent, ending in a ſoft ſpinule. Stipule two-parted, the ſegments lanceolate-linear and ſpreading, becoming ſtiff or thorny, permanent. Flowers axillary, ſolitary, on longer peduncles, ſpreading, yellow. Peduncles ſuberect, filiform, jointed at top, pubeſcent, having an acute little bracte at the joint. Calyx pubeſcent; the teeth almoſt equal, ſharp, the two upper ones approximating. Standard of the corolla oval, emarginate, almoſt upright, reflex at the ſides, larger than the other petals: wings oblong, blunt, creſcent-ſhaped at the baſe, ſtraight, looſe, a little ſhorter than the ſtandard: keel two-petalled, oblong, acuminate, ſcarcely ſhorter than the wings. Legumes linear, roundiſh but flatted a little, acuminate, naked, bay-coloured. Seeds oblong, bay ſomewhat variegated.

It differs from R. Caragana, with which Pallas confounded it, in being of much ſmaller ſtature, in having leaves that are leſs and many-paired, and ſtiffer ſtipules; the flowers are ſolitary, not aggregate, and are produced on the annual ſhoots, not on the branchlets of the year preceding; the legumes are ſlightly compreſſed, not cylindrical as in R. Caragana.—Native of Dauria.

The ſynonyms in Pallas that belong to R. Caragana, the middle figure in his plate, and the former part of his deſcription, are to be omitted here, and referred to that ſpecies[b]. See his whole deſcription there.

9. This is a diffuſed ſmooth ſhrub or underſhrub. Root ſomewhat branched, thicker than the ſtems, having a ſmell approaching to that of Liquorice. Stems upright, round, ſomewhat branched, gray, from a yard to a yard and half in height. Branches alternate, like the ſtem, at firſt upright, then decumbent, with a torn cuticle. Shoots angular with a ſtipule running down in three lines more raiſed than in the other ſpecies, at firſt green, afterwards bay-coloured. Leaves alternate, two-paired: leaflets oppoſite, ſeſſile, remote, the two upper ones larger, obovate, ſcarcely emarginate or rather repand, having a very fine point ſcarcely viſible, entire, one-nerved; the midrib prominent beneath, ſcored above; ſmooth, ſcarcely paler on the under ſurface. Petioles round on one ſide, having one groove on the other, ending in a very ſhort prickle between the uppermoſt pair of leaflets. Stipules ſupporting the petiole, two-parted, linear on each ſide, very ſharp, ſpreading, becoming prickles and permanent. Flowers lateral, ſolitary, ſeldom two together, obliquely peduncled, pendulous, yellow with the diſk of the ſtandard green, becoming afterwards blood-red. Peduncles filiform, at the end jointed and bracted, patulous, continuing a little white after they are fallen off. Bracte very ſmall and ſhort, at the joint. Teeth of the calyx nearly equal, acute, pubeſcent at the edge, upright. Standard of the corolla inverſely oblong or lanceolate, ſubemarginate, ending in a wide channelled claw, the whole reflex: wings oblong, blunt, creſcent-ſhaped at the baſe: keel two-petalled. Legume cylindrical, many-ſeeded.

Native of China, as ſuppoſed, where it has the name of *Chamlagu*[c]. Introduced in 1773, by Monſ. Richard[d].

[a] Hort. kew. [b] L'Heritier. [c] Ides. [d] Hort. kew.

10. Branches round, ſmooth, with a purpliſh-gray bark, leafy only at top, ſcaly below the leaves: branchlets alternate, four-cornered with ovate acuminate imbricate ſcales. Leaves alternate, diſtant, from the end of the branchlets or a little below, ſolitary or two or three together, all petioled, nine-paired: leaflets on very ſhort petioles, alternate, the outmoſt a little ſmaller; all oval or roundiſh, ſmooth on both ſides, ſhining, ſimply veined, ſubretuſe, the midrib beyond the leaflet running out into a ſpine. Petiole unarmed. Stipules rigid, thorny, from upright-ſpreading, permanent. Peduncles axillary, ſolitary, filiform, pubeſcent, ſhorter than the leaf. Pedicels four or five, diſtant, jointed below the flower. Bracte ſmall, linear, at the baſe of the pedicels. Calyx ſmooth, with lanceolate ſegments. Legume compreſſed, linear, ſtraight, acute, jointed or contracted between the ſeeds, which are from two to five.—Native of the iſland of St. Thomas in America.

11. This is a very handſome ſhrub, leafleſs in the time of flowering, when it is quite covered with flowers. Branches round, ſmooth, purpliſh-aſh-colour, ſmooth. Lower leaves from the bud of the former year after the fall of the flowers, commonly two or three, approximating, a finger's length; at top and on the younger branches ſolitary, alternate, more remote; on the lower ones longer by half, with leaflets hardly an inch in length: all petioled, alternate. Leaflets on ſhort petioles, oppoſite, ſmooth, oblong, veined, mucronate, the inner ones a little ſmaller. Petiole unarmed. Stipules lanceolate, ſmall, attenuated, unarmed, flexile, permanent. Peduncles four or five from each bud, capillary, one-flowered, jointed below the flower. Calyx goblet-ſhaped, ſmooth, with the margin entire, villoſe when magnified. Corolla large, purpliſh, with the claws of the petals of the ſame length with the calyx. Germ ſmooth.—Native of America, in Krabben Iſland[e].

12. This is a ſmall tree or ſhrub, commonly the height of a man, irregular, very much branched, rigid, leafy only at the ends of the branches, ſtouter than *R. fruteſcens*, with a ſtrigoſe gray bark. Branches ſubflexuoſe, alternate, the extreme ones ſtriated; the petioles, when old, become thorns, and are ſcattered alternately. Branchlets and leaves from the axils of the ſpines. Leaflets obovate-oblong, hoary with a very fine nap, mucronate with a ſpinule; the common petiole is ſpineſcent. Stipules at the baſe of the petioles, very ſmall, ſoft. Sometimes two-paired and three-paired leaves are ſeen on the ſame ſhrub. Flowers on the upper branches copious, in racemes commonly of three, but ſometimes only of two flowers, purpliſh, almoſt the colour of Lathyrus tuberoſus, ſmelling ſweet. Calyx five-toothed, with two of the teeth approximating: ſtandard nearly equal to the wings and keel: all the petals whitiſh at the baſe. The corolla in many flowers, and frequently all on a ſhrub, ſix-petalled, the wings being doubled. Each pedicel has a ſtipule. The peduncles with the permanent calyx are hoary. Legumes ſhort, inflated, hard, remaining on to another year. Seeds reniform-ſubglobular, of a yellowiſh gray colour[f].

The whole of this ſhrub is ſilky. It has all the habit of a *Robinia*, but a pedicelled germ, and an inflated legume, like that of *Phaca* or *Colutea*[g].

Native of Siberia, in dry naked ſalt fields by the river Irtis; flowering in june, and highly agreeable to many inſects, eſpecially of the genus Meloe, many ſpecies of which are peculiar to this region. It flouriſhes in gardens, but has never produced flowers in them, probably for want of the ſaline principle in the ſoil. As it is a handſome ſhrub, this is to be lamented[h]. It was introduced here in 1779, by William Pitcairn, M. D.[i]

13. Trunk branched from the bottom, with a duſky or greeniſh-aſh-coloured bark; there are commonly many lateral ſhoots or ſuckers from the root. Branches rod-like, pliant, loaded with leaves and flowers, of a ſhining yellowiſh colour, with longitudinal gray nerves,

[e] Vahl. [f] Pallas. [g] L'Heritier. [h] Pallas. [i] Mort. kew.

with triple ſpines. Leaves on the ſhoots of the year alternate, with ſpineſcent ſtipules; from the buds in bundles, with unarmed ſtipules. Leaflets cluſtered, obovate, attenuated at the baſe, with a ſpinule at the end: petiole ſpineſcent, after the leaves are fallen, hardening with the ſtipules into a triple ſpine. Peduncles on the branches of the preceding year, from each bud, one, two or three, bent a little at the joint, one-flowered.[a] Calyx, like the whole plant, ſmooth, permanent, ſhortly bell-ſhaped, deeply four-toothed; the teeth ſubciliate, the upper one larger and more remote. Corolla frequently drooping topſy-turvy, three times as large as the calyx, yellow: ſtandard reflex; wings with the keel bigginſh, oblong, entire. Legumes cylindrical, of a teſtaceous-gray colour and hard. Seeds oval, gray[a].]

It grows with a ſhrubby ſtalk eight or ten feet high, ſending out ſeveral branches which grow erect, covered with a ſmooth yelloviſh bark. The leaves have two pairs of oval pointed leaflets, on ſhort foot-ſtalks. The flowers are produced upon ſingle peduncles, which come out at the joints of the branches: they are yellow, ſhaped like thoſe of Laburnum, but ſmaller, appear in may, and if the plants ſtand in a moiſt ſoil and ſhady ſituation, the ſeeds will ripen at the end of auguſt.

[Native of Siberia, by the Volga, &c. in temperate ſituations, on hills and the rocky banks of the river[y]. Cultivated in 1759, by Mr. Miller[z].

14. Trunks covered with a ſhining yelloviſh bark. Wood of a very deep bay, almoſt as hard as horn: the older twigs round, with a beautifully golden ſhining cuticle; branchlets gray, with very frequent two-ſpined buds. Spinules ſlender like needles, ſpreading, ariſing from the ſtipules, in the older branches deciduous. Leaflets four or ſix in the ſpontaneous ſhrub cluſtered in bundles, quite ſeſſile, linear acuminate, a little hiſpid. Peduncles ſpringing ſingly from moſt of the buds on the branchlets among the leaves, the length of the leaflets, bent at the joint. Calyx ſomewhat hairy, five-toothed, the two upper teeth approximating. Corolla twice the ſize of the calyx, deep yellow: ſtandard ovate, compreſſed, tawny at the back; wings wide-lanceolate, equal to the ſtandard; keel a little ſhorter. Legumes round flatted a little, rigid, mucronate. Seeds partly ovate, partly oblong, yelloviſh powdered more or leſs with black dots.

The Altaic plant is ſcarcely a ſpan high, more branched, with more remarkable ſpines, but with ſlender leaves and ſmaller flowers. In the gardens, the leaves are more remarkable, being four in form of a ſtar, on a large ſpreading petiolar ſpine; there is a third acceſſory pair at the very baſe of the ſpine, ſpringing out between the ſtipular ſpines. The firſt leaves of the ſeminal plant are ternate[a]. That Linneus ſays is the caſe in all the Siberian ſpecies. He remarks, that this reſembles the preceding very much, but is of a dwarf ſtature and more thorny; that the leaves are wedge-ſhaped, very blunt, and hardiſh; and that the ſtipules in the primordial leaves are leafy and lanceolate in this ſpecies only.]

It is a weak low ſhrub, ſeldom riſing more than three feet high in England: the branches are ſlender, and are covered with a light bark. The leaves are compoſed of four oblong ſeſſile leaflets: the flowers are produced ſingly upon axillary peduncles; they are yellow and appear in april, but are rarely ſucceeded by ſeeds in England.

[Native of Siberia; where this elegant ſpecies begins by the Irtis, in the ſouthern, rocky, open parts; becomes more frequent by the Jeniſea; and moſt common in the regions beyond the lake Baikal. It riſes commonly with twigs an ell in height where it is expoſed to the firing of the country in ſpring; but in the mountains it grows with a trunk the height of a man, and the thickneſs of his wriſt. The twigs are very tough and fit for withes; and are of an elegant golden colour[b]. Mr. Miller cultivated it before 1768[c].

[a] Pallas. [y] Idem. [z] Hort. kew. [a] Pallas.
[b] Idem. [c] Hort. kew.

15. This is a ſhrub about a fathom in height. Root branched, having the ſmell and taſte of Liquorice. Stem upright, ſomewhat branched, round, tubercled, gray: branches alternate, ſpreading, like the ſtem. Leaves alternate, ſpreading, eight inches long. Leaflets from twelve to fifteen pairs, oppoſite, on ſhort petioles, thoſe of the outmoſt longer, oblong, blunt and ſcarcely acuminate, quite entire, one-nerved; the midrib prominent below, the veins ſcarcely apparent; almoſt naked, bright green, paler underneath, ſpreading very much, flat, from twelve to eighteen lines long, from ſix to eight lines wide. Petioles round on one ſide, channelled on the other; both theſe and the petiolets pubeſcent. Stipules linear, acute, pubeſcent, browniſh, upright, permanent. Racemes axillary, ſolitary, peduncled, patulous, bracted, pubeſcent, four or five inches long. Flowers alternate, nodding, pedicelled, yellow. Pedicels round, jointed at the top. Bractes lanceolate, acute, concave, preſſed cloſe, pubeſcent, brown. Calyx half-four-cleft, pubeſcent; ſegments lanceolate, acute, upright, the upper one double the width of the reſt and bifid. Corolla longer than the calyx: ſtandard obcordate, wholly bent back; wings oblong, blunt, appendicled and creſcent-ſhaped below: keel two-petalled, oblong, acute, compreſſed, of the ſame ſhape with the wings. Filaments ſcarcely united at the baſe. Germ pedicelled. Stigma blunt. Legume oblong, narrowing into a pedicel, acuminate, compreſſed. Seeds few (about three) oblong, almoſt kidney ſhaped, ſmooth.

It recedes a little from its congeners in having all the filaments united together at the baſe only, and in having a pedicelled germ. It has the leafing of the firſt ſpecies, but the branches have no thorns. The ſtigma is naked, not villoſe, as in *R. Pſeudacacia* and *biſpida*.

Native of Abyſſinia; whence the ſeeds were brought by Bruce, and introduced into the Paris garden, with many other plants of that country[a].

16. This is a ſhrubby plant, four feet high, without any thorns: branches diffuſed, of a reddiſh brown colour. Leaflets about five pairs, ovate-oblong, greeniſh-brown above, whitiſh underneath. Racemes upright, long, ſubterminating. Calyx flattiſh, four-toothed. Corollas violet: ſtandard roundiſh, ſpreading; wings oblong, ſtraight; keel ſhorter, blunt, one-leafed. Legume long, roundiſh, ſtraight, acuminate, ſmooth; containing many oblong-reniform ſeeds. Root ſomewhat fleſhy, of a yelloviſh-brown colour, and very bitter.—Native of China and Cochinchina.

17. This alſo is a ſhrubby plant, but only one foot high. Leaves upright. Leaflets ſeven or eight-paired, oblong, ſubacute, ſmooth, pale green. Flowers white, terminating; with peduncles in threes, upright, and three-flowered. Root ſimple, woody, thick, yellow, bitter.—Native of the northern provinces of China[a].]

PROPAGATION AND CULTURE.

1. Falſe or Baſtard Acacia or Locuſt-tree is generally propagated in the Engliſh nurſeries, by ſuckers from the roots of the old trees; or by cutting off ſome of the roots, and planting them upon a gentle hot-bed. But theſe are not ſo valuable as plants raiſed from ſeeds; becauſe they do not make ſo great progreſs, and are very ſubject to ſend forth many ſuckers.

Sow the ſeeds on a bed of light earth at the end of march or beginning of april. If the bed be well expoſed to the ſun, the plants will appear in five or ſix weeks, and will require no farther care but to keep them clear from weeds. The following ſpring, about the end of march, tranſplant them into a nurſery, in rows three feet diſtant, and a foot and half aſunder in the rows. After two years more they will be fit to tranſplant where they are deſigned to grow: for as they ſend forth long tough roots, if they ſtand long unremoved, the roots will be cut off, when they are tranſplanted, which ſometimes occaſions their miſcarrying.

[a] L'Heritier. [a] Loureiro.

This

This tree will grow well upon almoſt any ſoil, but beſt in ſuch as is light and ſandy; where it will ſhoot ſix or eight feet in a year. Whilſt young and well furniſhed with leaves it makes an agreeable appearance; but when old, the branches being frequently broken by winds, it is rendered unſightly, eſpecially in an expoſed ſituation.

[In New England, the Locuſt tree is increaſed not only by ſeeds and ſuckers, but alſo by ſets, as we do Willows; but they get the largeſt trees from ſeed.]

4. The Roſe-Acacia, as it is commonly called, not producing ſeeds in England, is propagated by cutting off part of the roots, and planting them upon a gentle hot-bed, where they will put out fibres and ſhoots. It ſhould have a ſheltered ſituation, and a light moiſt ſoil. Though the ordinary winters of this country never injure it, yet in very ſevere ſeaſons the young plants are ſometimes killed in expoſed places. [Their branches are alſo liable to be broken by high winds. Marſhall, in his *Arbuſtum Americanum*, deſcribes it as ſpreading much from its running roots; but it does not do ſo in any great degree here. It may be increaſed by layers, and by grafting. It is of a ready growth, diſpoſed to flower even when young, and not nice as to ſoil or ſituation. On account of its large, beautiful branches of roſe-coloured flowers, it is one of the moſt valuable ſhrubs we have for ornamental plantations[r].]

6. 7. 8. 9. 12. 13. 14. The Siberian ſorts are propagated from ſeeds ſown in a ſhady ſituation in autumn; and then the plants will come up the following ſpring: but if the ſeeds are ſown in the ſpring, the plants ſeldom riſe the ſame ſeaſon. When the plants come up, they will require no other care but to keep them clean from weeds till autumn; when, if they have made any progreſs, they ſhould be planted on a north border, at about ſix inches diſtance, where they may grow two years, and then be planted out where they are to remain, which ſhould be in a cool moiſt ſoil, not too much expoſed to the ſun. [They may alſo be increaſed by the roots, by layers and grafting.]

2. 3. 5. 10. 11. 15. Being tender, cannot be maintained in England, unleſs they are placed in a ſtove in winter. Theſe are propagated by ſeeds procured from the countries where they grow naturally. Sow them in ſmall pots filled with earth from the kitchen garden, and plunged into a hot-bed of tanner's bark. The plants will appear in ſix weeks or two months. When theſe are fit to tranſplant, ſhake them out of the pots, and put each plant into a ſmall pot filled with the like earth, and plunged into the tan-bed; ſhading them till they have taken new root, and then treating them as other tender plants.

Whilſt the plants are young they are more tender than afterwards; therefore it will be proper to keep them in the tan-bed for two or three years: but when they have obtained ſtrength, they may be kept in a dry ſtove of a temperate heat in winter: and in ſummer they may be expoſed to the open air in a ſheltered ſituation. Some of the ſorts may be propagated by cuttings. [The 15th ſometimes ripens its ſeeds in France[s].

ROBINIA. See *Æſchynomene*.

——— alata. See *Piſcidia Erythrina*.

Robinſon Cruſoe's Coat. See *Cactus*.

ROBINSONIA. (*So named by Scopoli. We have two Engliſh Robinſons—Thomas, rector of Ouſley in Cumberland, author of the natural hiſtory of Cumberland—and Tancred, phyſician in London, and* amicorum alpha *of our excellent Ray; author of many letters in his philoſophical correſpondence, and papers in the Philoſophical Tranſactions of the Royal Society: the name is probably given from the latter.*)

Lin. gen. Schreb. n. 852. *Scop.*

Touroulia. *Aubl. t.* 194. *Juſſ.* 434.

Claſſ. 12. 1. Icoſandria Monogynia.

GENERIC CHARACTER.

CAL. *Perianth* one-leafed, turbinate, five-toothed; *teeth* acute.

COR. *Petals* five, roundiſh, concave, ſpreading, inſerted into the calyx.

STAM. *Filaments* very many, capillary, thickened towards the top, inſerted into the calyx below the petals. *Anthers* two-celled: *cells* oblong, divaricated at the baſe.

PIST. *Germ* ſuperior. *Style* none. *Stigma* oblong, ſtriated.

PER. *Berry*, globular-depreſſed, ſcored longitudinally with many contiguous grooves, crowned with the teeth of the calyx, fleſhy, ſeven-celled: *partitions* membranaceous.

SEEDS ſolitary, oblong, compreſſed, outwardly convex, villoſe.

ESSENTIAL CHARACTER.

Cal. five-toothed. *Pet.* five. *Berry* ſtriated, two-celled, cells one-ſeeded. *Seeds* villoſe.

SPECIES.

1. Robinſonia melianthifolia.
Willd. ſpec. 999.
Touroulia guianenſis. *Aubl. guian.* 1. 492. *t.* 194.

DESCRIPTION, *&c.*

This is a large tree. Leaves alternate, almoſt like thoſe of *Melianthus major*, unequally pinnate, the leaflets lanceolate-acuminate, finely ſerrate, veined, the upper ones decreaſing at the baſe into the common petiole. Stipules oblong, acute, ſmall. Flowers yellow, minute, in a terminating panicle. Berry eatable, ſlightly acid and of a pleaſant taſte, the ſize of a Cherry. Native of Guiana, in woods[h].

ROBIN, WAKE. See *Arum*.

ROCAMBOLE. See *Allium*.

ROCCELLA. See *Lichen*.

ROCHEFORTIA. (*So named by Swartz, in memory of de Rochefort, a traveller at the beginning of the 17th century; and author of* Hiſtoire naturelle & morale des iſles Antilles de l'Amerique. Rotterdam, 1639, &c.)

Lin. gen. Schreb. n. 1740. *p.* 797. *Swartz, prodr.* 53. *deſcr.* 551.

Claſſ. 5. 2. Pentandria Digynia.

Nat. order of *Dumoſæ*. *Rhamni*, Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* one-leafed, five-parted: *ſegments* ovate, blunt.

COR. one-petalled, funnel-form: *tube* ſhort: *aperture* open: *border* five-parted: *ſegments* ovate-oblong, ſpreading.

STAM. *Filaments* five, inſerted in the throat of the corolla at the openings, awl-ſhaped. *Anthers* oblong.

PIST. *Germ* ſuperior, roundiſh, compreſſed. *Styles* two, awl-ſhaped. *Stigmas* ſimple.

PER. ſubglobular, two-celled.

SEEDS a few, angular.

ESSENTIAL CHARACTER.

Cal. five-parted. *Cor.* one-petalled, funnel-form, inferior, with the aperture open. *Fruit* two-celled, many-ſeeded.

SPECIES.

1. Rochefortia cuneata.
Lin. ſpec. ed. Willd. 1328. *Swartz, prodr.* 54. *deſcr.* 552.
Leaves wedge-ſhaped obovate entire.
2. Rochefortia ovata.
Lin. ſpec. ed. Willd. 1328. *Swartz, prodr.* 54. *deſcr.* 554.
Leaves ovate emarginate.

DESCRIPTIONS, *&c.*

1. This is a ſhrub, three or four feet high, with a branching, upright, unarmed ſtem: branches ſubdivided, flexuoſe, round, thorny, almoſt even, covered with an aſh-coloured bark. Thorns near the baſe of the petioles, ſolitary, ſtretched out, three times ſhorter than the petioles. Leaves in bundles, or threes, ſeldom more, alternately cluſtered, on ſhort petioles, ſometimes emarginate, ſmooth on both ſides, browniſh-green, paler underneath, ſlightly nerved, ſomewhat rigid. Peduncles commonly terminating, axillary, ſubdichotomous, cluſtered, cymed, ſhorter than the leaves. Flowers ſmall, greeniſh or whitiſh: ſegments of the calyx upright, pubeſcent: tube of the corolla five-cornered. Germ villoſe: ſtyles ſhorter than the filaments, villoſe: ſtigmas villoſe, ſubplumoſe.—Native of Jamaica, on dry rocky mountains.

[r] Curtis. [s] L'Heritier. [h] L'Heritier.

2. This is a small tree, with round smooth branches. Leaves alternate, petioled, entire, somewhat villose, nerved and veined, an inch long. Peduncles five times shorter than the leaves, many-flowered; with the flowers in pairs. Calyx divided to the base: segments villose at the edge, upright, incumbent. Tube of the corolla bell-shaped, the length of the calyx: segments blunt, a little longer than the tube. Anthers large, subincumbent. Germ smooth.—Native of Jamaica[1].

Rock-Cress. See *Iberis*.

Rocket. See *Braſſica*, *Eryſimum Barbarea*, *Heſperis*.

———, Baſe. See *Reſeda*.

Rock-Roſe. See *Ciſtus*.

ROELLA. (*So named by Linnæus in honour of William Roell, profeſſor of anatomy at Amſterdam, who ſent many ſeeds of plants to Linnæus from both Indies, Africa and Japan, among others the ſeeds of this plant from Africa.*)

Lin. gen. n. 219. *Reich. n.* 235. *Schreb. n.* 291. *Gærtn. t.* 31. *Juſſ.* 165.

Claſſ. 5. 1. Pentandria Monogynia.

Nat. order of *Campanaceæ*. *Campanulaceæ*, Juſſ.

GENERIC CHARACTER.

Cal. *Perianth* one-leafed, turbinate, five-parted, permanent, ſuperior: *ſegments* lanceolate, acute, toothed, large.

Cor. one-petalled, funnel-form, deciduous: *tube* a little ſhorter than the calyx: *border* from upright-ſpreading, five-parted, longer than the calyx.

Nectary of five converging ſcales, at the bottom of the corolla.

Stam. *Filaments* five, awl-ſhaped, placed on the nectary. *Anthers* awl-ſhaped, converging, the length of the filaments, the height of the calyx.

Pist. *Germ* oblong, inferior. *Style* filiform, the length of the ſtamens. *Stigmas* two, oblong, depreſſed, ſpreading.

Per. *Capſule* cylindrical, ſhorter than the calyx, crowned with the calyx which ſpreads and is become larger, two-celled (according to Bergius ſubbilocular—to Gærtner, unilocular, opening at top by a large round hole.)

Seeds very many, angular.

Obs. *Allied to Campanula.*

ESSENTIAL CHARACTER.

Cor. funnel-form, with the bottom cloſed by ſtamiferous valves. *Stigma* bifid. *Capſ.* two-celled (one-celled, *G.*) cylindrical, inferior.

SPECIES.

1. Roella ciliata. *Ciliate Roella.*

Lin. ſpec. 241. *ſyſt.* 211. *Reich.* 269. *Willd.* 918. *hort. cliff.* 492. *t.* 35. *Thunb. prodr.* 38. *Berg. cap.* 41. *Gærtn. fruct.* 1. 155. *Deſfont. atlant.* 182. *Lamarck, illuſtr. n.* 2576. *t.* 123. *f.* 1. *Pluk. phyt. t.* 252. *f.* 4. *Curt. magaz.* 378.

Campanula africana fruteſcens aculeoſa, flore violaceo. *Comm. hort.* 2. 77. *t.* 39.

C. afr. humilis piloſa, flore exalbido languide purpureo. *Seba, theſ.* 1. 25. *t.* 16. *f.* 5.

Leaves lanceolate, ciliate, flowers ſolitary terminating.

2. Roella ſquarroſa. *Trailing Roella.*

Lin. ſyſt. 211. *Willd.* 918. *ſuppl.* 143. *Thunb. prodr.* 38. *Berg. cap.* 42.

Leaves ovate toothed ciliate, flowers terminating aggregate.

3. Roella decurrens. *Decurrent Roella.*

Lin. ſpec. ed. Willd. 918. *L'Herit. ſert.* 4. *t.* 6. *Ait. kew.* 1. 206.

Leaves lanceolate ciliate quite entire decurrent, flowers ſolitary terminating.

4. Roella muſcoſa. *Moſſy Roella.*

Lin. ſyſt. 211. *Willd.* 918. *ſuppl.* 143. *Thunb. prodr.* 38.

Herbaceous, diffuſed, leaves ovate toothed reflex, flowers terminating ſolitary.

5. Roella ſpicata. *Spiked Roella.*

Lin. ſpec. ed. Willd. 919. *ſyſt.* 211. *ſuppl.* 143. *Thunb. prodr.* 38.

Leaves lanceolate ciliate, flowers terminating aggregate.

[1] Swartz.

DESCRIPTIONS, *&c.*

1. This is a low ſhrubby plant, ſomewhat like a heath when not in flower. The narrow ciliate leaves are cluſtered about the flower-bud like bractes. A ſingle flower terminates each branch, differing from that of the Campanula, to which it is very nearly related, in being funnel-ſhaped, that is having a tube, and a border ſpreading out; whereas in Campanula, the corolla is bell-ſhaped, or ſpreads gradually from the bottom.—When a flower is recently expanded, five ſhades of colour appear, which being diſpoſed in circles, produce a ſtriking effect: the bottom of the flower is white, of a yellowiſh caſt, next ſucceeds a circle of deep blue inclining to black, with a ſurface highly glazed, the next circle is greyiſh-blue reſembling ſatin, the next nearly white, and the outermoſt pale purple. The anthers at firſt are cloſely applied to the ſurface of the corolla, and reſemble ſo many ſmall ridges; the ſtigma, as in many other flowers, does not aſſume its true appearance till the corolla is on the decay; then it becomes bifid[a]. Capſule ovate-cylindrical, crowned with the pinnate-toothed rigid leaflets of the calyx; and within theſe, by five ſcaleleſs of the ſtamens, united at the baſe into a hemiſpherical cup. Seeds ſubovate, angular, rugged with raiſed dots, or ſhagreened as it were, ferruginous, faſtened to the branchlets of very ſlender threads hanging down from the top of the capſule[b]. Gærtner could not diſtinguiſh any veſtige of a partition in ripe capſules.

Native of the Cape of Good Hope and Barbary.—It was introduced by Mr. Francis Maſſon in 1774[c]: but it was long before known to Dutch botaniſts. It flowers in june, and continues ſeveral weeks[d].

2. Native of the Cape of Good Hope, where it was found by Thunberg.—Maſſon alſo introduced it from thence in 1787. It flowers in june[e].

3. This differs from the two preceding in being annual. It is a native of the Cape, like the others, and was introduced by Maſſon in 1787. It flowers in ſeptember[f].

4. This is a very ſmall plant, annual, herbaceous and diffuſed, reſembling a moſs when not in flower.—Thunberg found it at the Cape.

5. This is ſhrubby and upright. The flowers are not ſolitary, but aggregate; forming a ſort of ſpike.—Found at the Cape by Thunberg[g].

PROPAGATION AND CULTURE.

The firſt, and other ſhrubby ſpecies may be increaſed by cuttings, but not very readily. They are not ſo eaſy of culture as many others. They muſt be kept in a dry ſtove, good green-houſe or glaſs caſe.

Roella reticulata is *Gorteria ciliaris*.

ROHRIA. (*So named by Schreber, in honour of Julius von Rohr, who travelled into America, and ſent many plants to Europe from Surinam, Carthagena, St. Martha, Cayenne, Jamaica, Martinico and other iſlands of the Weſt Indies, which are edited by Vahl.*)

Lin. gen. Schreb. n. 63. Tapura. *Aubl. t.* 48. *Juſſ.* 419.

Claſſ. 3. 1. Triandria Monogynia.

GENERIC CHARACTER.

Cal. *Perianth* one-leafed, bell-ſhaped, five-parted: *ſegments* ovate, concave, blunt, ciliate, coriaceous; the two inner ones a little longer.

Cor. *Petals* five, upright, longer than the calyx, the two upper ones a little larger, the three lower ſmaller: *claws* narrow, wider at the baſe, woolly within, under the laminæ a little bent outwards: *laminæ* ovate, erect, in the larger petals bent inwards and cowled, in the ſmaller ſpread out and bluntiſh.

Stam. *Filaments* three, one between the two larger petals, and two by the ſide of them, united at bottom with their claws, filiform, longer than the corolla, woolly within. *Anthers* roundiſh, erect, with the face turned inwards.

Pist. *Germ* turbinate, tomentoſe. *Style* filiform, the length of the ſtamens, villoſe. *Stigmas* three, revolute.

Per. Capſule?

Seeds.

[a] Curtis. [b] Gærtner. [c] Hort. kew. [d] Curtis. [e] Hort. kew. [f] Idem. [g] Linn. ſuppl.

ESSENTIAL CHARACTER.

Cal. bell-ſhaped, five-parted. *Cor.* five-petalled, unequal. *Stigmas* three, revolute. *Capſule?*

SPECIES.

1. Rohria petioliflora.
Lin. ſpec. ed. Willd. 186.
Tapura guianenſis. *Aubl. guian.* 126. *t.* 48.

DESCRIPTION, *&c.*

This is a branching ſhrub. The leaves are alternate, petioled, oblong, acuminate, quite entire, netted-veined. The petioles are floriferous. Flowers ſmall, yellow, at the top of the petiole and baſe of the leaf, heaped into ſmall very ſhort four-flowered or five-flowered racemes.

Native of the woods of Guiana[r].

ROJOC. See *Morinda.*

ROLANDRA. (*So named by Rottboell, in honour of Daniel Rolander, a pupil of Linneus's, who travelled to Surinam.*)
Lin. gen. Schreb. n. 1355. *Rottboell. coll. hafn.* 2. 256. *Swartz prodr.* 116.
Claſſ. 19. 5. Syngeneſia Polygamia Segregata.
Nat. order of *Compoſitæ Capitatæ. Cinaroceph alæ*, Juſſ.

GENERIC CHARACTER.

CAL. *common* none. *Florets* in bundles, in a roundiſh head: *bundles* diſtinct, pedicelled, with many ſcales interpoſed, ſhorter than the florets, ovate and lanceolate awned.
Perianth partial chaffy, two-valved: *valves* unequal, compreſſed, keeled; the *upper* one larger, incloſing the other, awned; *lower* acuminate.
COR. *Proper* hermaphrodite, very ſmall, funnel-ſhaped: *tube* filiform, long: *border* five-cleft; *ſegments* very ſhort, erect, acute.
STAM. *Filaments* five, ſhorter than the tube. *Anther* tubular, within the aperture.
PIST. *Germ* compreſſed-three-cornered, acute at the baſe, retuſe at the top. *Style* the length of the tube, bifid at the top. *Stigmas* thickened, erect.
PER. none. *Partial calyx* includes.
SEED three-cornered, crowned with a toothed rim. *Down* none.

ESSENTIAL CHARACTER.

Florets bundled into a head with ſcales interpoſed. *Calyx partial* two-valved, one-flowered. *Corollets* hermaphrodite. *Down* none.

SPECIES.

1. Rolandra argentea.
Rottb. coll. baſſn. med. 2. 256. *Swartz prodr.* 116.
Echinops fruticoſus. *Lin. ſpec. ed.* 1.
E. fruteſcens ad nodos floridus. *Plum. ic.* 114. *t.* 123.
Amaranthoides fruticoſum, &c. *Sloan. jam.* 1. 43. *t.* 7. *f.* 3.

DESCRIPTION, *&c.*

Stem ſtraight, woody, covered with a ſmooth red-diſh-brown bark; having at every inch or two one, two or three leaves, greater and ſmaller, the largeſt about two inches long, and three quarters of an inch broad in the middle, ſmooth, dark green on the upper ſide, and very white underneath, on a very ſhort foot-ſtalk. At each axil a ſeſſile conglomerate head of flowers[s].

Native of the Weſt Indies.

ROMULEA. See *Ixia Bulbocodium.*

RONABEA. See *Pſychotria.*]

RONDELETIA. (*So named by Plumier, in memory of Guilleaume Rondelet, a famous phyſician and natural hiſtorian of Montpelier.*)
Lin. gen. n. 224. *Reich. n.* 240. *Schreb. n.* 296. *Plum.* 12. *Juſſ.* 201.
Claſſ. 5. 1. Pentandria Monogynia.
Nat. order of *Rubiaceæ*, Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* one-leafed, ſuperior, five-parted, acute, permanent.
COR. one-petalled, funnel-ſhaped: *tube* cylindrical, longer than the calyx, bellying a little at top: *border* five-parted, from reflex flat; ſegments roundiſh.
STAM. *Filaments* five, awl-ſhaped, almoſt the length of the corolla. *Anthers* ſimple.
PIST. *Germ* roundiſh, inferior. *Style* filiform, the length of the corolla. *Stigma* bifid.
PER. *Capſule* roundiſh, crowned, two-celled.
SEEDS ſeveral, or ſometimes ſolitary.
OBS. *Several of the ſpecies have four parts in the fructification.*

ESSENTIAL CHARACTER.

Cor. funnel-ſhaped. *Capſ.* two-celled, inferior, many-ſeeded, (or with one or two ſeeds only) roundiſh, crowned.

SPECIES.

* *With many ſeeds.*

1. Rondeletia americana.
Lin. ſpec. 243. *Reich.* 1. 473. *Willd.* 930.
R. arboreſcens tini facie. *Plum. gen.* 15. *ic.* 142. *f.* 1.
Leaves ſeſſile, panicle dichotomous.
[2. Rondeletia odorata.
Lin. ſpec. 1671. *Willd.* 930. *Jacqu. amer.* 59. *t.* 42. *pict.* 34. *t.* 61. *Swartz, obſ.* 67.
R. obovata. *Lin. ſyſt.* 212. *Reich.* 1. 474.
Leaves petioled ſubovate blunt.
3. Rondeletia trifoliata.
Lin. ſpec. 1671. *ſyſt.* 212. *Reich.* 1. 474. *Willd.* 930. *Jacqu. amer.* 60. *t.* 43. *pict.* 34. *t.* 62.
R. arboreſcens tini facie. *Ehret, pict. t.* 15.
Leaves tern tomentoſe underneath, panicles axillary.
4. Rondeletia virgata.
Lin. ſpec. ed. Willd. 931. *Swartz, prodr.* 41. *deſcr.* 354.
Leaves roundiſh, branches ſiliform ſpreading, peduncles trifid, flowers tern cluſtered four ſtamened.
5. Rondeletia piloſa.
Lin. ſpec. ed. Willd. 931. *Swartz, prodr.* 41. *deſcr.* 356.
R. triflora. *Vahl, ſymb.* 3. 34. *t.* 54.
Leaves ovate hairy on both ſides, peduncles axillary ſhorter than the leaves trifid, flowers four-ſtamened.

* *With ſubſolitary ſeeds.*

6. Rondeletia thyrſoidea.
Lin. ſpec. ed. Willd. 931. *Swartz, prodr.* 41. *deſcr.* 358.
Leaves oblong acute membranaceous pubeſcent underneath, thyrſes axillary.
7. Rondeletia racemoſa.
Lin. ſpec. ed. Willd. 931. *Swartz, deſcr.* 360.
Peteſia fruticoſa, &c. *Brown. jam.* 143. 1. *t.* 2. *f.* 3.
Leaves lanceolate-ovate acuminate ſmooth on both ſides, ſtipules elliptic with a ſhort point, racemes axillary trichotomous patulous.
8. Rondeletia laurifolia.
Lin. ſpec. ed. Willd. 931. *Swartz, deſcr.* 363.
Peteſia fruticoſa, &c. *Brown. jam.* 143. 2. *t.* 2. *f.* 2.
Leaves lanceolate-oblong acute ſmooth on both ſides, ſtipules deltoid, racemes compound axillary erect, tube of the flowers very ſhort.
9. Rondeletia tomentoſa.
Lin. ſpec. ed. Willd. 932. *Swartz, prodr.* 41. *deſcr.* 365.
Peteſia ſtipularis. *Lin. & Dill. muſſ.*
Leaves ovate acuminate tomentoſe, peduncles three-parted axillary ſhort.
10. Rondeletia umbellulata.
Lin. ſpec. ed. Willd. 932. *Swartz, prodr.* 41. *deſcr.* 367.
Peteſia fruticoſa, &c. *Brown. jam.* 144. *n.* 3?
Leaves lanceolate-ovate acute ſubhirſute, peduncles axillary trichotomous at top, flowers ſubumbelled.
11. Rondeletia incana.
Lin. ſpec. ed. Willd. 933. *Swartz, prodr.* 41. *deſcr.* 369.
Leaves ovate-lanceolate underneath hoary rugged, peduncles axillary ſimple three-flowered.
12. Rondeletia hirſuta.
Lin. ſpec. ed. Willd. 933. *Swartz, prodr.* 41. *deſcr.* 371.
Leaves oblong acute hirſute, peduncles axillary trichotomous looſe, flowers hirſute.

[r] Willdenow. [s] Sloane.

13. Rondeletia hirta.
Lin. ſpec. ed. Willd. 933. *Swartz, prodr.* 41. *deſcr.* 373. *Ait. kew.* 1. 227.
Leaves oblong acuminate rough-haired rigid nerved underneath, peduncles axillary trichotomous erect.

14. Rondeletia buxifolia.
Vahl, ecl. 2. 11.
Leaves obovate ſmooth, flowers four-ſtamened axillary ſolitary.]

DESCRIPTIONS, *&c.*

1. This riſes with a woody ſtalk ten or twelve feet high, branching out on every ſide; the branches covered with a ſmooth greeniſh bark. Leaves oblong, ending in acute points, entire, the upper ſurface lucid green, the under pale; they are a little crumpled, and ſtand alternate. The flowers come out in bunches at the end of the branches, are white, and have little ſcent. They appear in autumn, but are not followed by ſeeds in England.

[The leaves of this ſmall tree are oppoſite, lanceolate. Common peduncles ſolitary, very long, naked, forming at the top a dichotomous corymb, in each diviſion of which is a ſeſſile flower, with a two-leaved involucre [t].]

The ſeeds of this plant were firſt ſent to Mr. Philip Miller by Mr. Robert Millar, who collected them on the north ſide of the iſland of Jamaica; he alſo obſerved the trees growing plentifully in the Spaniſh Weſt Indies; Mr. Philip Miller alſo afterwards received the ſeeds from Barbadoes, which ſucceeded in the Chelſea garden. [It appears from the 5th edition of his Dictionary, that he cultivated it in 1748 [u].

2. This is an inelegant, irregular, upright ſhrub, five or ſix feet high. Branches round, the younger ones villoſe. Leaves oppoſite, ſubcordate at the baſe, entire, ſomewhat rugged on the upper ſurface, veined and rigid, on very ſhort petioles. Stipules within the petioles, wide, acute. Common peduncles erect, terminating, in threes, three-flowered, the middle diviſion ſometimes ſubdivided into three others that are ſimilar: the pedicels collecting the flowers into a handſome umbel, or umbelled-cyme. Flowers handſome, ſcarlet with the projecting rim of the tube orange-coloured, ſmelling very ſweet like violets. The corolla is very often ſix-parted, with a ſix-leaved calyx, though it has always five ſtamens. The capſules have many angular ſeeds [x].

Native of the Weſt Indies, but not very common. Jacquin obſerved it, at the Havannah, in rocky coppices near the coaſt, growing frequently on the very naked rocks; flowering in january, and at the ſame time loaded with ripe fruit.

By miſtake, the trivial name was printed *obovata* in all the editions of the Syſtema vegetabilium.

3. This is an upright tree, twelve feet in height. The younger branches are obtuſely triangular and hirſute. Leaves lanceolate, acute, quite entire, ſmooth on the upper, ſlightly tomentoſe on the lower ſurface, three inches long, on hirſute petioles. Stipules roundiſh-acuminate, in threes, alternating with the leaves. Racemes hirſute, unequal, branched, axillary, an inch and half in length. Flowers ſmall, reddiſh, ſeſſile and peduncled, void of ſcent. Fruit two-valved, with the partition oppoſite to the valves [y].

Linneus remarks, that the peduncles are ſhorter than the leaves, not longer as in Plumier's plant.

Native of America. Jacquin obſerved it in Jamaica, flowering in february.

4. This is a ſhrub, a fathom in height, with very long, alternately ſpreading, unarmed branches, with a rugged bark. Leaves oppoſite, half an inch long, cordate, in others roundiſh or ovate, entire, ſubreflex, veined, paler underneath, quite ſmooth, on very ſhort petioles. Stipules between the petioles, ſmall, acute. Peduncles axillary and terminating, oppoſite, elongated, upright, having a pair or two of leaves, three-parted, or terminating only three-flowered and leafleſs. Flowers terminating, ſubſeſſile, or ſometimes on very ſhort pedicels, upright, duſky-purple, ſilky-pubeſcent on the outſide. Bractes very ſmall, linear, two or four, under the flowers. Calyx four-leaved: leaflets linear, upright. Corolla ſalver-ſhaped: tube filiform, widening a little at top; border four-parted; ſegments convex, with a yellow notched ring placed on the aperture. Filaments four, very ſhort, in the middle of the tube: anthers linear, ſtriated, yellow. Style longer than the ſtamens, awl-ſhaped. Stigma below the ring of the aperture bifid; ſegments obtuſe. Capſule ſubdidymous, hoary-pubeſcent, crowned with the calyx, two-celled, two-valved, with the partition contrary. Seeds very many, acuminate, compreſſed, ſmall, brown, inſerted or faſtened to their proper ovate receptacle in each cell.

Native of Hiſpaniola, in maritime coppices towards the north, near Cul de ſac, flowering and fruiting in december.

5. This is a ſhrub with round or four-cornered branches, leafy towards the top, and hairy, below even, aſh-coloured, often warted with the old deciduous petioles. Leaves oppoſite, two or three inches long, the upper or terminating ones cluſtered, ovate-lanceolate, entire, nerved, hairy, underneath rough-haired or tomentoſe-hoary. Petioles ſhort, villoſe. Stipules between the petioles, ſubconnate, acuminate, hairy. Peduncles oppoſite, filiform, hairy, at the top trifid or three-flowered; the flowers pedicelled; the lateral pedicels half an inch long, the middle one ſhorter. Bractes two awl-ſhaped at the baſe of the lateral pedicels; and two others at the baſe of the germ, ſhorter by half than the calyx. Calyx four-parted: ſegments lanceolate-linear, acute, villoſe. Corolla ſalver-ſhaped: tube ſubcylindrical, the length of the calycine ſegments, wider at top, on the outſide villoſe or ſomewhat ſilky: border near the aperture crowned with a margined ring, four-parted, with the ſegments roundiſh, ſpreading, convex above, ſhorter than the tube. Filaments four, very ſhort, inſerted in the tube above the middle: anthers oblong, linear, included. Germ villoſe: ſtyle the length of the tube; ſegments of the ſtigma linear, blunt. Capſule ſmall, ſubglobular, twin, villoſe, two-valved with the partition contrary. Seeds numerous, brown.

Native of the Weſt Indies, in the iſlands of Santa Cruz and Montferrat [z].

Vahl thus deſcribes his *R. triflora*: Branches round, ſmooth below, hairy at top. Leaves at the top of the branches, on ſhort villoſe petioles, oppoſite, the uppermoſt in cluſters, two or three inches long, broad-lanceolate, a little narrowed towards the baſe, acuminate, quite entire, above marked with lines along the nerves, and having hairs thinly ſcattered about, underneath a little hoary with frequent longer hairs, ſoft eſpecially the younger ones, nerved. On each ſide an oblong, acuminate ſtipule, ſomewhat villoſe. Peduncles axillary, oppoſite, two inches long, filiform, three-flowered; the fruiting ones an inch and half long and more. Flowers pedicelled: the middle pedicel ſhorter, without any bracte; the lateral ones longer, with a ſubulate bracte on each ſide; at the baſe of the pedicels and above are two others ſimilar on each lateral pedicel. Calyx four-parted; the ſegments awl-ſhaped, villoſe. Corolla one-petalled, cinereous-villoſe on the outſide: tube filiform, widening a little at top, with the ſegments of the border oblong, blunt. Filaments four, very ſhort, inſerted into the tube above. Anthers linear, within the tube. Germ globular, villoſe-cinereous. Style linear, thickened towards the top, villoſe at the baſe. Stigma blunt. Capſule the ſize of black Pepper, globular, villoſe, crowned with the calyx, two-celled, containing many ſeeds.

6. This is a ſmall tree or ſhrub ſix feet high, branched, upright, even, with an aſh-coloured bark. Branches ſimple, almoſt upright, long, ſpreading, round or bluntly four-cornered, ſmooth. Leaves oppoſite decuſſated, three inches long, entire, nerved and veined, on petioles an inch long, ſtriated, ſpreading. Stipules between and above the petioles, preſſed to the branchlet, wide, ovate, acute, ſmooth, rigid. Thyrſes ſolitary oppoſite, ſhorter than the leaves, ob-

[t] Linn. [u] Hort. kew. [x] Jacquin and Swartz. [y] Jacquin. [z] Swartz.

long

long, ſpreading; on a common petiole, an inch in length, angular, ſtriated, ſmooth; branchlets oppoſite, decuſſated, ſubdivided; the outmoſt commonly three-flowered. Flowers ſmall, dull, whitiſh-yellow or ferruginous. Bractes ſmall, awl-ſhaped, or little leaflets under the ramifications of the thyrſe. Calyx very minute, five-toothed. Tube of the corolla elongated, cylindrical, ſwelling below the border, ſilky-pubeſcent on the outſide: border five-parted; ſegments roundiſh, convex, diſtant, patulous, with a ſmall ring contracting and crowning the aperture. Filaments five, inſerted into the upper part of the tube: anthers very ſmall, ovate, pale, placed in the very aperture. Germ roundiſh: ſtyle awl-ſhaped, bifid at the top: ſtigmas ſimple. Capſule roundiſh, with a groove along the middle, the ſize of a Coriander ſeed, crowned with the very ſmall calyx, two-celled; having two angular-rounded, ſtriated ſeeds in each cell.

Native of the drieſt hills of Jamaica, in the weſtern part of the iſland; flowering in may: the flowers ſmell very ſweet during the night.

7. This is a ſhrub with round ſpreading branches, covered with an irregular hoary bark: branchlets four-cornered, compreſſed a little at the tip, ſmooth. Leaves decuſſated, quite entire, ſcarcely nerved, veined, ſomewhat membranaceous. Petioles longiſh, four-cornered, ſmooth. Stipules interpetiolary, oppoſite, patulous, convex, wide, very minutely villoſe at the edge. Racemes ſolitary, oppoſite, from upright ſpreading, ſhorter than the leaves: common peduncle the length of the petioles, compreſſed; branches decuſſated, almoſt horizontal, with ſeſſile awl-ſhaped ſpreading bractes every where at the ſubdiviſions of the raceme; flowers pedicelled, diſtinct not cluſtered. Calyx ſmall, with five very ſhort upright teeth. Corolla ſmall, ſilky-hoary on the outſide, pale within: tube ſhort, oblong, equal; border five-parted, ſegments ovate, ſpreading, pubeſcent; aperture naked, five-cornered. Filaments from the middle of the tube: anthers oblong, yelloviſh in the aperture of the tube. Germ ovate, ſmooth: ſtyle ſimple, upright, the length of the tube: ſtigma thickiſh, with the apex more acute and undivided. Capſule ovate, crowned with the calyx, ſmooth, two-celled? opening by two valves, two-ſeeded. Seeds convex on one ſide, flat on the other, joined at the middle, diſtinct from the partition at the ſides. Beſides the ripening ſeeds there are other very minute embryos within the valves.—Native of Jamaica, on the mountains.

It is allied both to *R. thyrſoidea* and *laurifolia*, but differs in the leaves, ſpreading racemes, and flowers.

Browne's figure agrees very well with this plant. In his ſpecific character he makes the leaves verticillate-ternate, whereas in the figure they are oppoſite. He alſo ſpeaks of the flowers as four-ſtamened, which they very ſeldom are.

8. This is a ſhrub, with round, ſmooth, ſomewhat ſtriated branches, jointed as it were with the deciduous petioles, compreſſed a little at the top. Leaves oppoſite, three or four inches long, decuſſated, acuminate at both ends, entire, nerved and veined, paler underneath; on petioles an inch long, roundiſh, flat above, ſmooth. Stipules between the petioles, wide connate acuminate ſpreading rigid ſmooth, except at the edge where they are villoſe. Racemes often the length of the leaves, oppoſite: branches decuſſated, compreſſed a little: pedicels ſcattered, the laſt commonly three-flowered. Bractes minute, awl-ſhaped, at the diviſions of the raceme. Flowers ſmall, duſky-yellow. Calyx five-toothed, very ſmall, pubeſcent: teeth acute, erect, very ſmall. Tube of the corolla very ſhort, ſcarcely longer than the teeth of the calyx, wider under the the border; which is five-parted, with the ſegments the length of the tube, oblong, reflex, tomentoſe above: throat open, with the margin five-cornered, ſmooth, ſhining. Filaments from the middle of the tube, ſhorter than the tube: anthers in the throat, oblong, yellow. Style thickiſh, the length of the tube: ſtigma above the border thickened, bifid. Capſule globular, ſcarcely larger than a ſeed of hemp, ſmooth, crowned with a very minute calyx, two-celled, two-valved; partition contrary. Seeds very many, membranaceous, but two only ripening, and theſe hemiſpherical.—Native of Jamaica.

It is very like R. thyrſoidea, but has the leaves a little narrower and ſmooth on both ſides; the racemes are erect; the tube is very ſhort, not four times as long as the calyx; and two ſeeds only ripen in the capſule. It ſeems to be Browne's plant, though Linneus refers that to his Peteſia ſtipularis; which it can hardly be; becauſe in that caſe, the leaves ought to be tomentoſe underneath, and the flowers thyrſoid.

9. This ſhrub is three feet high, upright, branched above, even: branches and branchlets oppoſite, round, upright, ſomewhat villoſe at the top. Leaves on ſhort pubeſcent petioles, oppoſite, entire, nerved and veined, rough-haired, duſky green, villoſe-tomentoſe underneath, becoming hoary. Stipules between the petioles, ovate with a ſhort point, pubeſcent. Peduncles ſmall, ſeveral times ſhorter than the leaves, three-parted with three-flowered branchlets: flowers ſmall, whitiſh or duſky yellow, villoſe on the outſide. Calyx five-toothed, ſmall. Tube of the corolla longer than the calyx, narrow: border five-parted, with ovate concave ſegments: aperture crowned with a ſmall ring. Anthers within the aperture. Style bifid at the top. Capſule roundiſh, two-celled, ſmall, the ſize of a Coriander ſeed. Seeds ſolitary, hemiſpherical.

Native of Jamaica, on rocky hills; as in Sixteen-mile walk near Spaniſh Town.

It differs from R. thyrſoidea in being ſmaller, in having the leaves pubeſcent on both ſides and tomentoſe underneath, and the racemes flowers and fruit very ſmall.

Peteſia ſtipularis, *fyſt. veg.* belongs either to this or *R. thyrſoidea*: that ſpecies therefore in our Dictionary is to be blotted out.

P. tomentoſa, *fyſt. veg.* is certainly a different plant; for Jacquin has deſcribed it as having flowers in corymbs.

10. This ſhrub is two feet high and more, branched and upright: branches almoſt upright, ſubdivided, compreſſed a little, even: branchlets hirſute at the top. Leaves on hirſute petioles of a middling length. Stipules between the petioles, oppoſite, connate, membranaceous, broadiſh at the baſe, with a longer and ſomewhat briſtly point, hirſute, ſhrivelling. Peduncles oppoſite, ſolitary in the axils of the terminating leaves, ſhorter than the leaves, compreſſed, hirſute, at top three-parted, three-flowered. Pedicels forming an umbellet; with four ſmall linear acute leaflets, inſtead of an involucret, at the baſe. Segments of the calyx linear, hirſute, permanent. Corolla larger than the others, duſky-yellow, pubeſcent on the outſide: tube elongated, widening towards the border, which has five roundiſh convex ſegments: aperture crowned with a ring. Filaments as in *thyrſoidea*. Style bifid at the top. Capſule roundiſh, crowned with the ſegments of the calyx, two-celled, two-valved: valves bipartile: partition contrary. Seeds very many, but two ripening in each cell; theſe are angular-convex; the reſt are ſmall, flat and membranaceous.

Native of Jamaica, on rocks near ſtreams; flowering in april.

It is diſtinguiſhed by its ſhagginess, the ſize of the flowers, and the infloreſcence.

Browne's Peteſia, n. 3. ſeems to appertain to this ſpecies, rather than to the preceding.

11. Shrub from two to three feet in height, upright, branched, rugged. Branches round, rigid, rugged. Leaves moſtly terminating, on round tomentoſe-hoary petioles, oppoſite, entire, nerved, netted-veined, ſmooth, ſomewhat ſhining, underneath hirſute, rugged, rigid, ſomewhat leathery. Stipules within the baſe of the petioles, very ſhort, truncate, whitiſh-ciliate at the edge. Flowers ſubumbelled, on very ſhort pedicels, with a two-leaved involucret: leaflets ovate-acute, concave, pubeſcent-hoary. Calyx five-parted: ſegments ovate, acute, thick, rigid, ſilky-hoary within and without: five other little ſegments at the baſe of the germ; and two ovate-acute leaflets at the baſe of the calyx. Corolla biggiſh: tube the length

length of the calyx and hoary: border five-parted: ſegments ovate, convex, rigid, hoary: aperture margined. Filaments from the middle of the tube. Anthers below the border. Germ oblong, truncate at the top, hirſute: ſtyle bifid at the top: ſtigmas thicker. Capſule oblong, clothed and crowned with the calyx, two-celled, truncate at the top, perforated in the centre, two-valved, with the valves bipartile: partition contrary. Seeds very many, ſmall, oblong, membranaceous, two only ripening. This ſpecies is very diſtinct in its habit, flowers and hoarineſs.

Native of Jamaica, in the rocky calcareous mountains, but rare.

12. This ſhrub is a fathom high, branched and even. Branches ſubdivided, round-flatted, looſiſh, rugged; twigs hirſute. Leaves on ſhort, hirſute, ruſeſcent petioles, decuſſated, in the middle widiſh, acute, entire, nerved and veined, pale underneath. Stipules oppoſite, wide, ovate-lanceolate, long, hirſute. Peduncles oppoſite, ſolitary, nearly the length of the leaves, filiform, three-parted at top, trifid, hirſute. Flowers pedicelled, yelloviſh, hirſute on the outſide. Leaflets minute, oppoſite, linear, acute, hirſute, at the ſubdiviſions of the peduncles. Calyx five-cleft: ſegments lanceolate, acute, upright, hirſute. Corolla ſalver-ſhaped: tube the length of the calycine ſegments, round, narrower towards the border, hirſute on the outſide; border five-cleft, ſpreading; ſegments oblong, blunt, ſhort, incumbent: aperture contracted, ſcarcely margined. Filaments inſerted into the middle of the tube: anthers oblong, within the tube. Germ ovate, hirſute: ſtyle the length of the tube, bifid at the top. Stigmas erect, acute.

Native of Jamaica, on mountains in the ſouthern part; flowering in january [a].

13. This is very nearly related to *R. odorata*; but it differs from it in its axillary inflorescence, and larger ſharper leaves, not rugged above, ſcarcely cordate at the baſe, and longer petioles. The tube of the corolla in this is only double the length of the calyx. Style protended beyond the aperture. Stigmas erect, converging. Corolla yelloviſh or ruſeſcent [b].

It agrees in many reſpects with *R. piloſa* or *triflora* of Vahl; which however is diſtinguiſhed from this, by having the leaves generally narrower, tomentoſe-hoary, often cluſtered towards the ends of the branchlets; the peduncles only three-flowered, the flowers four-ſtamened, and many of the ſeeds ripening.

R. hirta differs from *hirſuta* in the leaves being rigid and nerved; the branches and peduncles ſtiff and upright, not looſe:—from *R. umbellulata*, in the leaves not being lanceolate-ovate, acute; the flowers in umbels not cluſtered [c].

Native of Jamaica. Introduced about 1776, by John Blackburne, Eſq. It flowers from june to auguſt [d].

14. Branches ſmooth, jointed: joints two inches long, gradually leſs upwards, the lower roundiſh, the upper flatted a little and ſometimes four-cornered, the upper compreſſed-ancipital, widening at the top: branchlets oppoſite, ſpreading, ſhort. Leaves oppoſite, an inch long, nerved and ſomewhat veined, quite entire, a little bent back at the edge, paler underneath, ſharp at the baſe, ending in an obſcure point, on very ſhort petioles. Peduncles oppoſite, a little longer than the petiole, one-flowered, ſometimes but very ſeldom in the laſt axils three-flowered with a ſmall leaf on each ſide, and in the middle on both ſides a minute hoary bracte. Calycine ſegments four, linear, bluntiſh, permanent; in the fruit reflex. Tube of the corolla hoary, filiform: aperture crowned with a ſhort ring: border four-cleft, with oblong ſhort blunt ſegments. Filaments ſcarcely any: anthers four linear erect ſtretched at the tip a little beyond the tube. Germ ſmall oblong: ſtyle the length of the tube: ſtigma ſubbifid, with one ſegment a little ſhorter than the other. Capſule the ſize of black pepper, globular, hoary, with a groove on each ſide, crowned with the reflex calyx, two-valved, two-celled, two-ſeeded.

Native of Monſerrat. *Ryan.*]

[a] Swartz. [b] Hort. kew. [c] Swartz. [d] Hort. kew. [e] Vahl.

PROPAGATION AND CULTURE.

Theſe plants being very tender, cannot be preſerved in England, unleſs they are kept in a warm ſtove. They are propagated by ſeeds, which ſhould be ſown on a hot-bed early in the ſpring; and when the plants are come up and fit to remove, they muſt be tranſplanted into ſeparate ſmall pots, and plunged into a moderate hot-bed of tanner's-bark, where they muſt be treated in the ſame manner as hath been directed for other tender plants from the Weſt Indies; in winter they muſt be placed in the tan-bed in the ſtove, where theſe plants will thrive, and in two or three years will flower, when they will make an agreeable variety amongſt other tender exotic plants, for they retain their leaves all the year.

[RONDELETIA. See *Peteſia*.

ROPOUREA. See *Camax*.

RORELLA and RORIDA. See *Droſera*.

RORIDULA. (*Dimin. from* Ros, *dew.*)

Lin. gen. Reich. n. 307. *Schreb. n.* 400. N. L. *Burmann.—Gærtn. t.* 62. *Juſſ.* 426.

Claſſ. 5. 1. Pentandria Monogynia.

GENERIC CHARACTER.

CAL. *Perianth* five-leaved: *leaflets* lanceolate, equal, permanent.

COR. *Petals* five, oblong, equal, larger than the calyx.

STAM. *Filaments* five, awl-ſhaped, ſhorter by half than the corolla. *Anthers* inſerted above their baſe, awl-ſhaped, ſemibifid, gaping at the top. *Nectary* from the ſcrotiform baſe of the anther protruded downwards.

PIST. *Germ* oblong. *Style* filiform, the length of the ſtamens. *Stigma* truncate, ſubtrilobate.

PER. *Capſule* oblong, three-cornered, three-celled, three-valved. *Partitions* contrary to the valves.

SEEDS ſolitary, oval, angular on one ſide, *G.*

ESSENTIAL CHARACTER.

Cal. five-leaved. *Cor.* five-petalled. *Anthers* ſcrotiform at the baſe. *Capſ.* three-valved.

SPECIES.

1. Roridula dentata.

Lin. ſyſt. 244. *Reich.* 1. 571. *Willd.* 1184. *Gærtn. fruct.* 1. 298.

Irion verticillatum. *Burm. prodr.* 6.

DESCRIPTION, *&c.*

This is a ſuffruticoſe plant, with the habit of Droſera. Leaves cluſtered, alternate, ſeſſile, half-embracing, awl-ſhaped, with filiform teeth ciliate. Scape branched into peduncles; which are axillary and terminating, few-flowered in a ſort of ſpike, each pedicel having one bracte. The whole plant, like Droſera, is viſcid with glanduſar hairs [a]. Capſule pyramidal, acuminate, roundly three-cornered: partitions faſtened to the axis, and ſeparating in ſuch a manner from the valves when ripe, that a three-ſided pyramidal column remains in the midſt. In each cell is one ſeed, biggiſh, ovate, compreſſed a little, flattiſh on the back, obſcurely angular on the belly, deeply honeycombed with very minute excavations in longitudinal rows, of a reddiſh-ferruginous colour. The ſeeds are faſtened to the axis of the capſule, a little above the baſe [f].

Native of the Cape of Good Hope.]

ROSA. (*From the Greek* Ῥόδη; *changing the* η *into* α: *and that from* ἔρω, *or* ῥεῖν *and* ὄψις.)

Lin. gen. n. 631. *Reich. n.* 687. *Schreb. n.* 863. *Tournef. t.* 408. *Juſſ.* 335. *Gærtn. t.* 73.

Claſſ. 12. 5. Icoſandria Polygynia.

Nat. order of *Senticoſæ. Reſaceæ*, Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* one-leafed: *tube* ventricoſe, contracted at the neck; with the *border* ſpreading five-parted, globular: *ſegments* long, lanceolate-narrow (in ſome of them two alternate ones appendicled on both ſides; two others, alſo alternate, naked on both ſides; the fifth appendicled on one ſide only.)

COR. *Petals* five, obcordate, the length of the calyx, inſerted into the neck of the calyx.

[a] Linn. and Juſſ. [f] Gærtner.

STAM. *Filaments* very many, capillary, very ſhort, inſerted into the neck of the calyx. *Anthers* three-cornered.

PIST. *Germs* numerous, in the bottom of the calyx. *Styles* as many, villoſe, very ſhort, compreſſed cloſe by the neck of the calyx, inſerted into the ſide of the germ. *Stigmas* blunt.

PER. none. *Berry* fleſhy, turbinate, coloured, ſoft, one-celled, crowned with the rude ſegments, contracted at the neck, formed from the tube of the calyx.

SEEDS numerous, oblong, hiſpid, faſtened to the inner ſide of the calyx.

OBS. *The calyx of the Pericarp reſembles a berry.*

ESSENTIAL CHARACTER.

Cal. pitcher-ſhaped, five-cleft, fleſhy, contracted at the neck. *Petals* five. *Seeds* very many, hiſpid, faſtened to the inner ſide of the calyx.

SPECIES.

* *With ſubglobular fruits.*

[1. Roſa berberifolia. *Single-leaved Roſe.*
Lin. ſpec. ed. Willd. 1063. *Pallas nov. act. petrop.* 10. 379. *t.* 10. *f.* 5.
R. ſimplicifolia. *Saliſb. hort. prodr.* 359. *Juſſ. gen.* 452.
Fruits globular, with the peduncles prickly, ſtem with prickles uſually in pairs hooked, leaves ſimple ſubſeſſile.]

2. Roſa lutea. *Single Yellow Roſe.*
Ait. kew. 2. 200. *Willd. ſpec.* 1064. *arb.* 303. *Lawrance, t.* 12.
α. R. eglanteria. *Lin. ſpec.* 703. (excluſis ſynonymis) *fyſt.* 473. *Reich.* 2. 524. *Scholl. barb. n.* 399. *Moench. haſſ. n.* 418. *Leyſ. bal. n.* 489. *Hoffm. germ.* 174. *Roth. germ.* 1. 217. 2. 553. *Retz. obſ.* 1. 20. *Kniph. cent.* 7. *n.* 77. *Villars dauph.* 3. 549. *Krock. ſileſ. n.* 768.
Roſa lutea. *Mill. dict. n.* 11. *Du Roi harbec.* 2. 344. *Curt. magaz.* 363. *Dalech. hiſt.* 126. *Lob. ic.* 2. 209. *Tabern. hiſt.* 1495. *Baub. hiſt.* 2. 47. *Raii hiſt.* 1475. *Ger.* 1085. 4. *emac.* 1267. 5.
R. lutea ſimplex. *Baub. pin.* 483. *Park. parad.* 417. *Dubam. arb.* 36.
R. lut. flore ſimpl. *Beſl. eyſt. vern.* 6. *t.* 5. *f.* 1. *Weinm. phytanth.* 4. 232. *t.* 870. *f.* C.
R. fœtida. *Allion. pedem. n.* 1792. *Herrm. monogr. n.* 13.
R. chlorophylla. *Ehrb. beitr.* 2. 69.
Single Yellow Roſe.
β. R. bicolor. *Jacqu. hort.* 1. *p.* 1. *t.* 1. *conſ. vol.* 3. *p.* 1.
R. punicea. *Corn. canad.* 11. *Mill. dict. n.* 12. *Du Roi harbec.* 2. 347.
R. ſylveſtris auſtriaca flore phœniceo. *Park. theat.* 1019. *n.* 6. *fig.* in 1018. *Raii hiſt.* 1475. *n.* 33.
R. graveolens ſimplex flore extus luteo intus rubro holoſerico. *Weinm. phytanth.* 4. 231. *t.* 868. *f.* C.
Red and Yellow Auſtrian Roſe. Lawrance, t. 6.
Fruits globular, with the peduncles ſmooth, calyxes and petioles ſpinuloſe, prickles of the branches ſtraight.

[3. Roſa ſulphurea. *Double Yellow Roſe.*
Ait. kew. 2. 201. *Willd. ſpec.* 1065. *arb.* 305. *Lawrance, t.* 77.
R. glaucophylla. *Ehrb. beitr.* 2. 69.
R. hemiſphærica. *Herrm. monogr. n.* 14.
R. lutea multiplex. *Baub. pin.* 483. *Ger. emac.* 1267. 6. *Hort. angl.* 66. *t.* 18. *Dubam. arb.* 37. *Du Roi harbec.* 2. 346. *Knorr. del.* 1. *t.* R.
R. lutea flore pleno. *Baub. hiſt. Raii hiſt.* 1475. *n.* 31.
R. lutea multiplex ſ. flore pleno. *Park. parad.* 417. *n.* 17. *t.* 415. *f.* 6.
R. flava pleno flore. *Cluſ. cur. poſt.* 6. *fig.*
Fruits globular, petioles and ſtem prickly, prickles of the ſtem of two ſorts, larger with numerous ſmaller ones, leaves oval.

4. Roſa blanda. *Hudſon's-Bay Roſe.*
Ait. kew. 2. 202. *Willd. ſpec.* 1065. *Lawrance, t.* 27.

Fruits globular ſmooth; the ſtems, when adult, and the peduncles even and unarmed.]

5. Roſa cinnamomea. *Cinnamon Roſe.*
Lin. ſpec. 703. *fyſt.* 473. *Reich.* 2. 525. *Willd.* 1065. *Herrm. monogr. n.* 2. *Leers herborn. n.* 381. *Hoffm. germ.* 174. *Roth. germ.* 1. 217. 2. 554. *Du Roi harbecc.* 2. 348. *Krock. ſileſ. n.* 770. *Allion. pedem. n.* 1793. *Lour. cochinch.* 323. *ed. Willd.* 395.
α. R. odore cinnamomi ſimplex. *Baub. pin.* 438.
R. cinnamomea ſimplex. *Park. parad.* 416. *n.* 15. *Raii hiſt.* 1473. *n.* 20.
R. cinnam. ſimplici flore. *Ger.* 1086. 5. *emac.* 1268. 8.
R. cinnam. floribus ſubrubentibus ſpinoſa. *Bauh. hiſt.* 2. 39.
R. ſaxatilis flore ruberrimo. *Camer. epit.* 99.
Single Cinnamon Roſe.
β. R. cinnam. multiplex. *Park. parad.* 416. *n.* 15. *Raii hiſt.* 1473. *n.* 19.
R. cinnam. flore pleno. *Ger.* 1086. *f.* 5. *emac.* 1268. 7. *Park. parad.* 419. *f.* 2.
R. odore cinnamomi, flore pleno. *Baub. pin.* 483. *Double Cinnamon Roſe. Lawrance, t.* 34.
Fruits globular, with the peduncles ſmooth, ſtem with ſtipular prickles, petioles moſtly unarmed.

[6. Roſa arvenſis. *White Dog Roſe.*
Lin. fyſt. 473. *Reich.* 2. 526. *Willd.* 1066. *mant.* 245. *Hudſ. angl.* 219. *Wither. arr. ed.* 3. 464. *Smith, brit.* 558. *engl. bot. t.* 188. *Relh. cant. n.* 366. *Sibth. oxon. n.* 457. *Abbot, bedf.* 111. *Hall. helv. n.* 1102. *Krock. ſileſ. n.* 771. *Allion. pedem. n.* 1796. *Villars dauph.* 3. 548. *Lawrance, t.* 86.
R. ſylveſtris. *Herrm. monogr. n.* 5.
R. arvenſis candida. *Bauh. pin.* 484.
R. ſylveſtris altera minor, flore albo noſtras. *Raii ſyn.* 455. *hiſt.* 1471. *n.* 14.
R. ſylv. folio glabro, flore plane albo. *Baub. hiſt.* 2. 44. 1.
Fruits globular, with the peduncles unarmed, prickles of the ſtem and petioles hooked, flowers ſubcymed.

7. Roſa pimpinellifolia. *Small Burnet-leaved Roſe.*
Lin. ſpec. 703. *Reich.* 2. 526. *Willd.* 1067. *arb.* 308. *Pallas it.* 2. 517. *roſſ.* 1. 2. 62. *t.* 75. *Hoffm. germ.* 176. *Retz. obſ.* 4. 27. *Krock. ſileſ. n.* 772.
Fruits globular, with the peduncles ſmooth, prickles on the ſtem ſcattered ſtraight, petioles rugged, leaflets blunt.]

8. Roſa ſpinoſiſſima. *Scotch Roſe.*
Lin. ſpec. 705. *fyſt.* 473. *Reich.* 2. 526. *Willd.* 1067. *mant.* 399. *Fl. ſuec. n.* 442. *Herrm. monogr. n.* 1. *Hudſ. angl.* 218. *Wither. arr. ed.* 3. 465. *Smith, brit.* 537. *engl. bot. t.* 187. *Lightf. ſcot.* 260. *Fl. dan. t.* 398. *Hall. helv. n.* 1106. *Pollich pal. n.* 487. *Leers, herborn. n.* 384. *Hoffm. germ* 176. *Roth. germ.* 1. 217. 2. 555. *Krock. ſileſ. n.* 773. *Villars dauph.* 3. 555. *Allion. pedem. n.* 1794. *Du Roi harbecc.* 2. 339.
R. pimpinellifolia. *Lin. fyſt. ed.* 10. 1062.
R. campeſtris ſpinoſiſſima, flore albo odorato. *Baub. pin.* 483.
R. pumila ſpinoſiſſima, foliis Pimpinellæ glabris, flore albo. *Baub. hiſt.* 2. 40. 2. *Raii hiſt.* 1472. *n.* 15. *ſyn.* 455.
R. campeſtris odorato flore. *Cluſ. hiſt.* 1. 116. 1. *Common Scotch Roſe. Lawrance, t.* 48.—*Tall Scotch Roſe. Lawrance, t.* 19.
β. R. Ciphiana, ſeu R. pimpinellæ foliis minor noſtras, flore eleganter variegato. *Sibb. ſcot.* 2. 46. *t.* 2. *Striped-flowered Scotch Roſe. Lawrance, t.* 15.
γ. R. alpina pumila, pimpinellæ fol. minoribus ac rotundioribus, flore minimo livide rubente. *Hort. catbol.*
R. ſcotica. *Mill. dict. n.* 5.
Red Scotch Roſe. Lawrance, t. 62.
δ. R. ſpinoſiſſima pedunculis aculeatis. *With.* 465.
ε. Double Scotch Roſe. *Lawrance, t.* 63.
Fruits globular ſmooth, peduncles ſmooth (or hiſpid,) prickles on the ſtem very numerous ſtraight briſtle-ſhaped, leaflets roundiſh ſmooth.

[9. Roſa parviflora. *Small-flowered American Roſe.*
Willd. ſpec. 1068. *arb.* 309. *Ehrh. beitr.* 4. 21.
R. carolina. *Du Roi harbecc.* 2. 355.—γ, δ. *Ait. kew.* 203.
R. penſylvanica. *Wangenh. amer.* 113.
R. humilis. *Marſh. arb.* 136.
Fruits globular-depreſſed, with the peduncles hiſpid, petioles pubeſcent ſomewhat prickly, ſtem ſmooth, ſtipular prickles ſtraight, leaflets elliptic, flowers moſtly in pairs.]

10. Roſa lucida. *Shining-leaved American Roſe.*
Willd. ſpec. 1068. *arb.* 310. *Ehrh. beitr.* 4. 11.
R. carolina fragrans, foliis medio tenus ſerratis. *Dill. elth.* 325. *t.* 245. *f.* 316.
R. virginiana. *Mill. dict. n.* 10.
Fruits globular-depreſſed, with the peduncles ſubhiſpid, petioles ſmooth ſomewhat prickly, ſtem ſmooth, ſtipular prickles ſtraight, leaflets oblong-elliptic ſoining ſmooth, flowers moſtly in pairs.

[11. Roſa carolina. *Carolina Roſe.*
Lin. ſpec. 703. *Reich.* 2. 527. *Willd.* 1069. *arb.* 311. *Wangenh. amer.* 112. *t.* 31. *f.* 71. *Abbot. georg. t.* 25. *Lawrance, t.* 3. & 24. & 36. & 54.
R. corymboſa. *Ehrh. beitr.* 4. 21.
R. virginiana. *Du Roi harbecc.* 2. 353.
Fruits globular, with the peduncles ſubhiſpid, petioles hairy ſomewhat prickly, ſtem ſmooth, ſtipular prickles ſomewhat hooked, leaflets oblong-lanceolate, flowers corymbed.]

12. Roſa villoſa. *Apple Roſe.*
Lin. ſpec. 704. *ſyſt.* 474. *Reich.* 2. 527. *Willd.* 1069. *fl. ſuec. n.* 1295. *mant.* 399. *Huds. angl.* 219. *Wither. arr. ed.* 3. 466. *Smith, brit.* 538. *engl. bot. t.* 583. *Lightf. ſcot.* 261. *Hall. helv. n.* 1105. *Pollich pal. n.* 483. *Laers, herborn. n.* 385. *Hoffm. germ.* 176. *Roth. germ.* 1. 217. 2. 556. *Krock. ſileſ. n.* 774. *Villars dauph.* 3. 551. *Allion. pedem. n.* 1795. *Retz. obſ.* 1. 19. *Du Roi harbecc.* 2. 341. *Pallas reiſ.* 1. 2. 63. *Lawrance. t.* 33. & *t.* 29. (flore pleno.)
R. pomo ſpinoſo folio hirſuto. *Bauh. hiſt.* 2. 38.
R. ſylveſtris pomifera major. *Bauh. pin.* 484. *Park. parad.* 419. 7. *Raii hiſt.* 1472. *n.* 17. *ſyn.* 455. *Duham. arb.* 42. *Herrm. monogr. n.* 11.
R. pomif. major. *Park. parad.* 418. *n.* 21. *t.* 419. *f.* 7. *Raii hiſt.* 1472. *n.* 18.
β. R. molliſſima. *Willd. prodr. n.* 1237.
R. ſylveſtris folio molliter hirſuto, fructu rotundo glabro, calyce & pediculo hiſpidis. *Dill. in Raii ſyn.* 478?
Fruits globular, with the peduncles hiſpid, prickles on the ſtem ſtraight hiſh, leaflets elliptic tomentoſe on both ſides.

[13. Roſa rugoſa. *Wrinkled-leaved Roſe.*
Lin. ſpec. ed. Willd. 1070. *Thunb. jap.* 213.
Fruits globular ſmooth, peduncles ſtem and petioles prickly, leaves tomentoſe underneath.]

14. Roſa provincialis. *Provence Roſe.*
Mill. dict. n. 18. *Ait. kew.* 2. 204. *Willd. ſpec.* 1070. *arb.* 314. *Du Roi harbecc.* 2. 349. *Herrm. monogr. n.* 4.
R. provincialis ſ. hollandica damaſcena. *Park. parad.* 413. 5. *t.* 415. 2. *Raii hiſt.* 1469. *n.* 7.
R. hollandica ſ. batava. *Ger.* 1080. 6. fig. in 1081. *emac.* 1262. 6.
Common Provence Roſe. Lawrance, t. 8.
β. R. provinc. rubra. *Park. parad.* 413. *n.* 6. *Raii hiſt.* 1469. *n.* 3.
R. rubra flore valde pleno. *Bauh. hiſt.*
Red or Scarlet Provence Roſe. Lawrance, t. 22.
γ. R. incarnata. *Mill. dict. n.* 19. *Park. parad.* 412. 2.
Bluſh Provence Roſe. Lawrance, t. 1.
δ. *White Provence Roſe. Park. parad.* 414. 7. *Lawr. t.* 4.
ε. *Roſe de Meaux. Lawrance, t.* 31.—or *great dwarf Roſe.*
ζ. *Roſe de Meaux*, or *ſmall dwarf Roſe.*
Pompone Roſe. *Curt. magaz.* 407. *Lawrance, t.* 50. *Willd.* β.
η. *Blandford* or *Portugal Roſe. Lawrance, t.* 21.
Fruits roundiſh, peduncles and petioles hiſpid, prickles of the branches ſcattered ſomewhat bent back, leaflets ovate villoſe underneath, ſerratures glandular.

** *With ovate fruits.*

15. Roſa centifolia. *Hundred-leaved Roſe.*
Lin. ſpec. 704. *ſyſt.* 474. *Reich.* 2. 528. *Willd.* 1071. *arb.* 315. *mat. med.* 128. *Woodv. med. bot.* 379. *t.* 140. *Du Roi harbecc.* 2. 367. *Knipb. cent.* 1. *n.* 75. *Knorr. del.* 1. *t.* B. *Regnault bot. Lour. cochinch.* 323. *ed. Willd.* 396. *Herrm. monogr. n.* 7.
R. multiplex media. *Bauh. pin.* 482. *Duham. arb.* 15.
R. centifolia batavica 2. *Cluſ. hiſt.* 1. 114.
α. Dutch Hundred-leaved Roſe. *Lawrance, t.* 11.
β. Bluſh Hundred-leaved Roſe. *Lawrance, t.* 40.
γ. Singleton's Hundred-leaved Roſe. *Lawrance, t.* 85.
δ. Burgundy Roſe. *Lawrance, t.* 44.
ε. Single Velvet Roſe. *Park. parad.* 416. 13. *t.* 419. *f.* 3. *Ger.* 1085. 3. *Lawrance, t.* 51.
ζ. Double Velvet Roſe. *Park. parad.* 416. 13. *t.* 419. *f.* 4. *Lawrance, t.* 2.
η. Sultan Roſe. *Lawrance, t.* 35.
θ. Stepney Roſe. *Lawrance, t.* 46.
ι. Garnet Roſe.
κ. Biſhop Roſe. *Lawrance, t.* 20.
λ. Liſbon Roſe. *Lawrance, t.* 67.
Fruits ovate, with the peduncles hiſpid, ſtem hiſpid prickly, petioles unarmed.

16. Roſa gallica. *Red Roſe.*
Lin. ſpec. 704. *mant.* 399. *ſyſt.* 474. *Reich.* 2. 529. *Willd.* 1071. *arb.* 315. *Hoffm. germ.* 176. *Roth. germ.* 1. 218. 2. 359. *Krock. ſileſ. n.* 776. *Allion. pedem. n.* 1797. *Woodv. med. bot.* 382. *t.* 141. *Du Roi harbecc.* 2. 363. *Blackw. t.* 82. *Regnault bot. Lawrance, t.* 16.
R. rubra multiplex. *Bauh. pin.* 481. *Duham. arb.* 2. *t.* 53.
R. rubra. *Ger.* 1079. 2. *emac.* 1261. *Raii hiſt.* 1468. *Pharm. Lond. & Edinb.*
R. anglica rubra. *Park. parad.* 412. *n.* 3.
R. rubra flore valde pleno, & ſemipleno & ſimplici fere. *Bauh. hiſt.* 2. 34.
Red officinal Roſe.
β. R. gallica verſicolor. *Ait. kew.* 205.
Munds Roſe. Lawrance, t. 13.
R. rubro & albo variegata Roſa mundi vulgo dicta. *Raii hiſt.* 1475. *n.* 35.
γ. Marbled Roſe. *Lawrance, t.* 57.
δ. Virgin Roſe. *Lawrance, t.* 7.
Fruits ovate, with the peduncles, hiſpid, ſtem and petioles hiſpid prickly.

17. Roſa damaſcena. *Damaſk Roſe.*
Mill. dict. n. 15. *Ait. kew.* 2. 205. *Willd. ſpec.* 1072. *arb.* 316. *Du Roi harbecc.* 2. 369. *Retz. obſ.* 3. 33. *Herrm. monogr. n.* 9. *Ger.* 1079. 3. *emac.* 1261. 3. *Park. par.* 413. 4. *Raii hiſt.* 1468.
α. Red Damaſk Roſe. *Lawrance, t.* 38.
β. Bluſh Damaſk Roſe. *Lawrance, t.* 52.
γ. York and Lancaſter Roſe. *Mill. fig.* 148. *t.* 221. *f.* 2. *Lawrance, t.* 10.
R. verſicolor. *Park. parad.* 414. *n.* 8. *Raii hiſt.* 1469. *n.* 6.
δ. Red Monthly Roſe. *Lawrance, t.* 5.
R. omnium calendarum vulgo dicta. *Raii hiſt.* 1475. *n.* 34.
R. italica flore ſuaviter rubente perpetua. *Ferrarii.*
ε. White Monthly Roſe. *Lawrance, t.* 17.
ζ. Bluſh Belgick Roſe. *Lawrance, t.* 70.
R. Belgica. *Mill. dict. n.* 17.—ſ. vitrea flore rubicante. *Rea flor.*
R. cryſtallina. *Park. parad.* 414. *n.* 9.
η. Great Royal Roſe. *Lawrance, t.* 58.
θ. Imperial Bluſh Damaſk Roſe. *Lawrance, t.* 90.
Calyxes ſemipinnate, fruits ovate turgid, with the peduncles, hiſpid, ſtem and petioles prickly, leaflets ovate acuminate villoſe underneath.

18. Roſa ſempervirens. *Evergreen Roſe.*
Lin. ſpec. 704. *Reich.* 2. 528. *Willd.* 1072. *Ait. kew.* 2. 205. *Hoffm. germ.* 176. *Roth. germ.* 1. 218. 2. 556. *Du Roi harbecc.* 2. 358. *Park. parad.* 420. *n.* 24. *Raii hiſt.* 1474. *n.* 29. *Lawrance, t.* 45.

R. ſem-

R. ſempervirens Jungermanni. *Cluſ. hiſt.* 2. *app. alt. auſtarium.* *Dill. elth.* 326. *t.* 246. *f.* 318.
R. ſcandens. *Mill. dict. n.* 8.
Fruits ovate, calyxes and peduncles hiſpid, ſtem and petioles prickly, flowers ſubumbelled, bractles lanceolate reflex.
[19. Roſa pumila. *Dwarf Auſtrian Roſe.*
Lin. ſyſt. 474. *Willd.* 1072. *ſuppl.* 262. *Ait. kew.* 2. 206. *Jacqu. auſtr.* 2. 59. *t.* 198. *Allion. pedem. n.* 1802. *Retz. obſ.* 3. 33.
R. ſylveſtris pumila rubens. *Baub. pin.* 483.
R. pumila pannonica flore rubello. *Baub. hiſt. Raii hiſt.* 1469. *n.* 6.
R. pum. rubra auſtriaca. *Park. theat.* 1019. *n.* 7.
R. 6. pumila. *Cluſ. hiſt.* 1. 117.
Fruits ovate, with the peduncles, hiſpid, petioles and ſtem prickly, leaves glaucous underneath with the ſerratures glandular.
20. Roſa turbinata. *Frankfort Roſe.*
Ait. kew. 2. 206. *Willd. ſpec.* 1073. *Lawrance, t.* 69.
R. campanulata. *Ehrh. beitr.* 6. 97.
R. francofurtenſis. *Park. parad.* 414. *n.* 11. *Raii hiſt.* 1475. *n.* 36.
Fruits turbinate, with the peduncles, hairy, petioles villoſe, prickles ſcattered recurved.]
21. Roſa rubiginoſa. *Sweet Briar Roſe.*
Lin. ſyſt. 473. *Reich.* 2. 525. *Willd.* 1073. *arb.* 317. *mant.* 564. *Withe. arr. ed.* 3. 466. *Smith, brit.* 540. *Relh. cant. n.* 365. *Sibth. oxon. n.* 455. *Abbot, bedf.* 110. *Jacqu. auſtr.* 1. 31. *t.* 50. *Hall. helv. n.* 1103. *Hoffm. germ.* 174. *Roth. germ.* 1. 218. 2. 558. *Krock. ſilef. n.* 769. *Villars dauph.* 3. 547. *Allion. pedem. n.* 1803. *Ehrh. beitr.* 4. 22. *Retz. obſ.* 1. 20. *Pollich pal. n.* 482. *Leers, herborn. n.* 379.
R. eglanteria. *Mill. dict. n.* 4. *Gouan, hort.* 245. *Herrm. monogr.* 17. *n.* 12. *Du Roi harbecc.* 2. 336. *Hudſ. angl.* 218. *Tabern. ic.* 1087. *Leers, herborn. n.* 379.
R. ſuavifolia. *Lightf. ſcot.* 262. *Fl. dan. t.* 870.
R. ſylveſtris fol. odoratis. *Baub. pin.* 483. *Dod. pempt.* 187. 10.
R. ſylv. odora. *Ger.* 1087. 1. *emac.* 1269. 1. *Raii hiſt.* 1471. *n.* 13.
R. ſylv. od. ſ. Eglanteria flore ſimplici. *Park. parad.* 418. *n.* 22.
R. fol. odoratis Eglentina dicta. *Baub. hiſt.* 2. 41.
Common ſingle Sweet Briar. Lawrance, t. 56.
ß. R. flore pleno ſ. multiplici. *Baub. pin.* 483.
R. ſilveſtris ſ. Eglanteria duplex. *Park. parad.* 419. *f.* 8.
R. eglentina fl. pleno. *Baub. hiſt.*
Common double Sweet Briar. Lawrance, t. 65.
γ. *Moſſy double Sweet Briar. Lawrance, t.* 72.
δ. *Evergreen double Sweet Briar.*
ι. *Marbled double Sweet Briar.*
ζ. *Red double Sweet Briar. Lawrance, t.* 61.
κ. *Royal Sweet Briar. Lawrance, t.* 74.
λ. *Yellow Sweet Briar.*
Fruits ovate, with the peduncles, hiſpid, petioles and ſtem prickly, prickles recurved, leaflets ovate glandular-hairy underneath.
22. Roſa muſcoſa. *Moſs Provence Roſe.*
Mill. dict. n. 22. *fig.* 148. *t.* 221. *f.* 1. *Ait. kew.* 2. 207. *Willd. ſpec.* 1074. *arb.* 318. *Du Roi harbecc.* 2. 368. *Curt. magaz.* 69. *Lawrance, t.* 14. *Retz. obſ.* 1. 20. *n.* 58. *conſ.* 3. 33. *n.* 59.
R. provincialis ſpinoſiſſima pedunculo muſcoſo. *Hort. angl.* 66. *n.* 14. *t.* 18.
R. rubra pleno ſpin. pedunc. muſcoſo. *Boerh. ind.* 2. 252.
Fruits ovate, calyxes peduncles petioles and branchlets hiſpid glandular-viſcid, ſpines of the branches ſcattered ſtraight.
23. Roſa moſchata. *Muſk Roſe.*
Mill. dict. n. 13. *Ait. kew.* 2. 207. *Willd. ſpec.* 1074. *arb.* 319. *Deſfont. atlant.* 1. 400. *Du Roi harbecc.* 2. 365. *Herrm. monogr. n.* 10.
R. opoſtemma. *Ehrh. beitr.* 2. 72.
R. moſchata minor flore ſimplici. *Baub. hiſt.* 2. 45. *Raii hiſt.* 1474. *n.* 26.
R. moſch. ſimpl. flore. *Baub. pin.* 482. *Ger.* 1084. 1. *emac.* 1265. 1.
R. moſch. ſimplex. *Park. parad.* 417. *n.* 18.
Single Muſk Roſe. Lawrance, t. 64.
ß. R. moſchata flore pleno.
R. moſch. multiplex. *Ger.* 1084. 2. *emac.* 1265. 2. *Park. parad.* 419. *f.* 5.
Double Muſk Roſe. Lawrance, t. 53.
Fruits ovate, with the peduncles, villoſe, ſtem and petioles prickly, leaflets oblong acuminate ſmooth, peduncles many-flowered.
[24. Roſa rubrifolia. *Red-leaved Roſe.*
Willd. ſpec. 1075. *Villars dauph.* 3. 549.
Fruits ovate, with the peduncles ſmooth and glaucescent, petioles prickly, ſtem with ſcattered uncinate prickles, leaflets oblong finely ſerrate ſmooth, flowers ſubcorymbed.
25. Roſa lagenaria. *Bottle-fruited Roſe.*
Willd. ſpec. 1075. *Villars dauph.* 3. 553.
Fruits obovate ſmooth, peduncles and petioles glandular-hiſpid, ſtem unarmed, leaflets oval ſmooth.]
26. Roſa alpina. *Alpine Roſe.*
Lin. ſpec. 703. *ſyſt.* 474. *Reich.* 2. 529. *Willd.* 1075. *arb.* 320. *Hall. helv. n.* 1107. *Hoffm. germ.* 176. *Roth. germ* 2. 559. *Jacqu. auſtr.* 3. 43. *t.* 279. *Pallas roſſ.* 1. 2. 61. *Gmel. ſib.* 3. 177. *Villars dauph.* 3. 552. *Krock. ſilef. n.* 767. *Allion. pedem. n.* 1798. *Retz. obſ.* 3. 32. *n.* 58. *Lawrance, t.* 30.
R. inermis. *Mill. dict. n.* 6. *Turra diar. alt.* 128.
R. rupeſtris. *Crantz. auſtr.* 85. *n.* 6.
R. campeſtris, ſpinis carens, biflora. *Baub. pin.* 484. *Raii hiſt.* 1472. *n.* 16.
R. rubello flore parvo ſimplici, non ſpinoſa. *Baub. hiſt.* 2. 39. *Raii hiſt.* 1470. *n.* 12.
Fruits ovate ſmooth, peduncles and petioles hiſpid, ſtem unarmed.
[27. Roſa pyrenaica. *Pyrenean Roſe.*
Willd. ſpec. 1076. *Gouan, illuſtr.* 31. *t.* 19.
R. hiſpida. *Krock. ſilef. n.* 783.
Fruits ovate, with the peduncles hiſpid coloured, petioles hiſpid-prickly, calyxes altogether leafy.
28. Roſa pendulina. *Smooth pendulous Roſe.*
Lin. ſpec. 705. *Reich.* 2. 531. *Willd.* 1076. *arb.* 322. *Ait. kew.* 2. 208. *Du Roi harbecc.* 2. 371. *Lawrance, t.* 9. *Herrm. monogr. n.* 21.
R. ſanguiſorbæ majoris folio, fructu longo pendulo. *Dill. elth.* 325. *t.* 245. *f.* 317.
Unarmed, fruits oblong, peduncles and petioles hiſpid, ſtem and branches ſmooth, fruits pendulous.
29. Roſa montana. *Mountain Roſe.*
Lin. ſpec. ed. Willd. 1076. *Villars dauph.* 3. 547.
Fruits oblong, with the peduncles, hiſpid, petioles prickly, ſtipular hooked prickles on the ſtem, leaflets ſmooth obovate glandular-ſerrate.
30. Roſa multiflora. *Many-flowered Roſe.*
Lin. ſyſt. 474. *ed. Willd.* 1077. *Tournef. inſt.* 214.
Fruits ovate, with the peduncles, unarmed villoſe, ſtem and petioles prickly.]
31. Roſa canina. *Dog Roſe, wild Briar* or *Hep-tree.*
Lin. ſpec. 704. *ſyſt.* 474. *Reich.* 2. 530. *Willd.* 1077. *mant.* 399. *fl. ſuec. n.* 441. *mat. med.* 129. *Woodv. med. bot.* 377. *t.* 139. *Gærtn. fruct.* 1. 348. *Herrm. monogr. n.* 6. *Willd. arb.* 321. *Du Roi harbecc.* 2. 359. *Hudſ. angl.* 219. *Withe. arr. ed.* 3. 467. *Smith, brit.* 541. *Lightf. ſcot.* 262. *Curt. lond. ſ. t.* 34. 299. *Relh. cant. n.* 194. *Sibth. oxon. n.* 158. *Abbot, bedf.* 111. *Fl. dan. t.* 555. *Hall. helv. n.* 1101. *Pollich pal. n.* 186. *Hoffm. germ.* 176. *Roth. germ.* 1. 218. 2. 560. *Pallas, roſſ.* 1. 2. 60. *Neck. gallob.* 225. *Scop. carn. n.* 604. *Krock. ſilef.* 777. *Villars dauph.* 3. 546. *Allion. pedem. n.* 1799. *Ludw. elt. t.* 70. *Blackw. t.* 8. *Lawrance, t.* 81. *Kniph. cent.* 7. *n.* 76. *Regnault, bot.*
R. ſylveſtris vulgaris, flore odorato incarnato. *Baub. pin.* 483.
R. ſylv. prima. *Camer. epit.* 99.
R. ſylv. inodora ſ. canina. *Park. theat.* 1017. 1. *Raii hiſt.* 1470. *n.* 13. *ſyn.* 454.
R. ſylv. alba cum rubore, folio glabro. *Baub. hiſt.* 2. 43. 2.

R. canina vulgo dicta. *Ded. pempt.* 187. 6. *t.* 186. *f.* 2.

R. can. inodora. *Ger.* 1087. 2. *emac.* 1270. 3.

β. Double Dog-Roſe. *Lawrance, t.* 60.

Fruits ovate, with the peduncles, ſmooth, prickles on the ſtem hooked, leaflets ovate acuminate very ſmooth.

[32. Roſa tomentoſa. *Downy-leaved Dog-Roſe. Smith, brit.* 539.

R villoſa β. *Hudſ. angl.* 219. *Wither. arr. ed.* 3. 466.

R. villoſa. *Relh. cant. n.* 367? *Sibth. oxon. n.* 458?

R. ſylveſtris fructu majore hiſpido. *Raii ſyn.* 454.

R. ſylv. alba, cum aliquo rubore, folio hirſuto. *Bauh. hiſt.* 2. 44.

Fruits ovate with the peduncles hiſpid, prickles on the ſtem hooked, leaflets ovate tomentoſe on both ſides.

33. Roſa collina. *Hill Roſe.*
Lin. ſyſt. 474. *Willd.* 1078. *Jacqu. auſtr.* 2. *t.* 197. *Hoſt. ſyn.* 280. *Allion. pedem. n.* 1801.

Fruits ovate ſmoothiſh, peduncles and petioles glandular-hirſute, ſtem prickly.

34. Roſa parvifolia. *Small-leaved Roſe.*
Willd. ſpec. 1078. *Ehrh. beitr.* 6. 97.

Fruits ovate ſmoothiſh, peduncles glandular, petioles and ſtem with very fine prickles, leaflets wrinkled ſomewhat villoſe underneath ovate glandular-ſerrate.

35. Roſa ſemperflorens. *Deep-red China Roſe.*
Willd. ſpec. 1078. *Curt. magaz.* 284. *Lawrance, t.* 28.

R. ſinica. *Lin. ſyſt.* 474.

β. Bluſh China Roſe. *Lawrance, t.* 26.

Fruits oblong, with the peduncles, hiſpid, ſtem and petioles prickly-hiſpid, leaves ſubternate prickly.

36. Roſa chinenſis. *Pale China Roſe.*
Willd. ſpec. 1078. *Jacqu. obſ.* 3. *p.* 7. *t.* 55.

Fruits ovate, with the peduncles ſmooth, petioles and ſtem prickly, leaflets ovate-lanceolate ſubternate ſerrulate ſmooth.

37. Roſa indica. *Indian Roſe.*
Lin. ſpec. 705. *ed.* 1. 402. *Reich.* 1. 531. *Willd.* 1079. *Lour. cochinch.* 323. 396. *Herrm. monogr. n.* 20.

R. cheuſan glabra, juniperi fructu. *Petiv. gaz.* 57. *t.* 35. *f.* 11.

Fruits ovate, with the peduncles ſmooth, ſtem almoſt unarmed, petioles prickly.

38. Roſa longifolia. *Long-leaved Roſe.*
Willd. ſpec. 1079.

Fruits ovate ſmooth, peduncles glandular-ſubaculeate, ſtem almoſt unarmed, petioles prickly, leaflets ſmooth ovate acuminate.

39. Roſa bracteata. *Bratted Roſe.*
Lin. ſpec. ed. Willd. 1079. *Wendl. obſ.* 50.

Fruits obovate, peduncles bratted, with the branchlets villoſe, ſtem and petioles prickly, leaflets ſmooth roundiſh crenate ſomewhat prickly.]

40. Roſa alba. *White Roſe.*
Lin. ſpec. 705. *ed.* 1. 492. *ſyſt.* 474. *Reich.* 2. 531. *Willd.* 1080. *arb.* 322. *mat. med.* 129. *Herrm. monogr. n.* 8. *Crantz, auſtr.* 85. *n.* 5. *Roth. germ.* 1. 219. 2. 561. *Hoffm. germ.* 176. *Krock. ſileſ. n.* 778. *Allion. pedem. n.* 1800. *Retz. obſ.* 3. 34. *Knorr. del.* 1. *t.* R. 6. *Du Roi barbarc.* 2. 361. *Lour. cochinch.* 323. 396. *D'Aſſo arag. n.* 437.

α. R. alba vulgaris major. *Bauh. pin.* 482. *Dubam. arb.* 16.

R. ſativa 1. *Ded. pempt.* 186.

Single White Roſe. Lawrance, t. 37.

β. R. alba flore pleno. *Beſl. eyſt. vern.* 6. *t.* 3. *f.* 1. *Blackw. t.* 73. *Kniph. cent.* 3. *n.* 76.

R. alba. *Ger.* 1079. *f.* 1. *emac.* 1260. *f.* 1. *Raii hiſt.* 1473. *n.* 23.

R. anglica alba. *Park. parad.* 412. 1.

Double White Roſe. Lawrance, t. 25.

γ. Small Maiden's-bluſh Roſe.

δ. Great Maiden's-bluſh Roſe. *Lawrance, t.* 32.

ε. Cluſter Maiden's-bluſh Roſe. *Lawrance, t.* 23.

Fruits ovate ſmooth, peduncles hiſpid, ſtem and petioles prickly.

DESCRIPTIONS, *&c.*

[This genus can ſcarcely be miſtaken; every body knows a Roſe at firſt ſight. It conſiſts of Shrubs, which for the moſt part are prickly. The leaves are unequally pinnate, with wing-ſhaped ſtipules faſtened to the common petiole. The flowers are either ſolitary or in a ſort of corymb at the ends of the branches, in their natural ſtate they have five petals, which are often large and generally red, but ſometimes white, ſeldom yellow. The tube of the calyx becomes a ſort of berry, crowned with the border; and being of a globular ſhape in ſome ſpecies, and ovoid in others, the genus divides commodiouſly into two ſections[a].

But though the genus be eaſy, it is very difficult to determine the ſpecies, or to aſcertain what is a ſpecies and what a variety. Scopoli, Gerard and others, regard all the European ſpecies as varieties from one ſource. Haller, on the contrary, thought he perceived ſufficient marks of diſtinction, accompanied with no more obſcurity than in other large genera. Linnæus remarks, that the ſpecies of Roſes are not without great difficulty circumſcribed within any certain limits, and perhaps that there are no ſuch limits ſet by nature.

Much pains has been beſtowed in Aiton's catalogue of the Royal garden at Kew, to aſcertain and characterize moſt of the ſpecies known in Europe, either wild or in gardens, and the ſeveral varieties are there ſet down under each. It is of little conſequence whether all theſe were originally diſtinct or not, if they now maintain their difference, and are generally acknowledged for ſpecies. It is ſcarcely neceſſary to add that the Roſe has been a favourite flower, in all ages, among all the poliſhed people both of Aſia and Europe. Some ſpecies are found in Africa, and others in North America. We are not acquainted with the native country of ſome double Roſes, and they are probably creatures of art and cultivation. The firſt ſpecies is the only one which has ſingle leaves.

1. Stem pubeſcent with ſtout hooked prickles. The leaves are different from all the other ſpecies, being ſimple, ovate, on very ſhort petioles, toothed, glaucous. Peduncles terminating the branchlets, ſhort, one-flowered, pubeſcent, with a few prickles. The tube of the calyx (germ, *Lin.*) is covered with numerous prickles. Petals obovate, yellow with a red ſpot at the baſe.—Native of northern Perſia[b].]

2. The ſingle Yellow Roſe has weak ſtalks, which ſend out many ſlender branches, cloſely armed with ſhort crooked brown prickles. Leaflets two or three pairs, ovate and thin, ſmooth, of a light green, ſharply ſerrate. Flowers on ſhort peduncles, ſingle, bright yellow, without ſcent.

[Leaves obovate, biſerrate, five or ſeven, ſmooth even underneath. Stem beſet, not here and there, but cloſely with ſtraight prickles. Segments of the calyx tomentoſe within, ſeldom pinnatifid. Petals large, obcordate, or two-lobed with a large rounded ſinus[c].

Authors differ as to the ſcent of the flowers. Miller ſays they have none; Parkinſon, that they are without any great ſcent whilſt freſh, but a little more, yet ſmall and weak when dried; Retzius ſays that they ſmell like bugs; and from this circumſtance Allioni names this ſpecies *Roſa fœtida*. The leaves, according to Linneus, ſmell very ſweet; and according to Krocker, they have a pleaſant vinous ſmell. Gerarde ſays, they have an excellent ſweet ſmell, more pleaſant than thoſe of the Eglantine.

Native of Germany, the South of France and Italy. Cultivated by Gerarde in 1596[b].]

β. The Auſtrian Roſe has the ſtalks, branches and leaves like thoſe of the ſingle yellow Roſe, but the leaves are rounder. The flowers are alſo larger; the petals have deep indentures at their points; are of a pale yellow on the outſide, and of a reddiſh copper colour, orange-ſcarlet or Batré colour within; are ſingle; have no ſcent, or a diſagreeable one; and ſoon fall away. It has ſometimes flowers entirely yellow on one branch, and copper-coloured on another.

[a] Juſſieu. [b] Willdenow. [c] Retzius. [b] Hort. kew.

[Ray ſays that the flowers ſmell like honey: to me they ſmell more like bugs; but the ſcent varies much.

According to Jacquin the petals are brimſtone-coloured on the outſide, and bright ſcarlet within, the flowers are in ſuch abundance as in a manner to cover the whole ſhrub, and their ſcent is unpleaſant and even rather fetid. Branches ſmooth, with ſtraight prickles. Petioles ſomewhat hirſute. Peduncles and calyxes very ſmooth. Petals obcordate, but ſometimes ſcarcely emarginate.

3. This differs from the preceding, not only in the doubleneſs of the flowers, but in having the leaflets ſimply ſerrate, not glandular, pubeſcent and glaucous underneath; whereas in R. lutea they are doubly ſerrate, glandular and glutinous, and of a ſhining green colour, the ſtipules lacerated; the fruits hemiſpherical and glandular, which in the other are ſubglobular and ſmooth. The prickles on the ſtem are of two ſorts in this; a few being larger, and many ſmaller[a].

* The flower, ſays Parkinſon, is ſo thick and double, that very often it breaketh out on one ſide or another, but a few of them abiding whole and fair in our country: being fair blown open, it doth ſcarce give place for largeneſs, thickneſs and doubleneſs, unto the great Provence or Holland Roſe.

Native of the Levant. It was firſt procured to be brought into England by Maſter Nicholas Lete, a worthy merchant of London, and a great lover of flowers, from Conſtantinople; which, as we hear, was firſt brought thither from Syria; but periſhed quickly both with him, and with all other to whom he imparted it: yet afterwards it was ſent to Maſter John de Franqueville, a merchant alſo of London, and a great lover of all rare plants, as well as flowers, from which is ſprung the greateſt ſtore, that is now flouriſhing in this kingdom[b].

Johnſon ſpeaks of it as of a ſhrub ſtill of great rarity, in 1633. Mr. Miller regards it as a variety of the ſingle Yellow Roſe. He ſeldom errs on that ſide. It flowers later than that, namely in July.

4. Hudſon's-bay Roſe has the ſtems, when full grown, unarmed; the younger ones, or thoſe of the firſt year, are armed with ſlender ſtraight prickles bent a little back at the top. Branches round, unarmed, ſhining, reddiſh. Leaflets commonly ſeven, oblong, ſharply and almoſt equally ſerrate, ſmooth. Petioles ſmooth, generally armed with one or two ſpinules.

Native of Newfoundland and Hudſon's-bay. Cultivated in 1773, by Mr. James Gordon. It flowers from may to auguſt[c].]

5. The Cinnamon Roſe riſes about four feet high. The branches are covered with a purpliſh ſmooth bark, and have no ſpines, except at the joints immediately under the leaves, where they are commonly placed by pairs; they are ſhort and crooked. Leaflets ſeven, ovate, ſerrate, hairy on their under ſide. Leaves of the calyx narrow and entire. Flower ſmall, with a ſcent like Cinnamon, whence its name.

[The ſingle Cinnamon Roſe, ſays Parkinſon, hath his ſhoots ſomewhat red, yet not ſo red as the double kind; armed with great thorns, like almoſt unto the Eglantine buſh; thereby ſhowing, as well by the multiplicity of its ſhoots, as the quickneſs and height of his ſhooting, his wild nature. The Roſes are ſingle, ſomewhat large, and of a pale red colour.

Native of the South of Europe.

β. The ſhoots of the Double Cinnamon Roſe are redder; the flowers ſmall, ſhort, thick and double, of a pale red colour at the end of the leaves, (petals) ſomewhat redder and brighter towards the middle[d].]

It is the ſmalleſt and earlieſt of the double garden Roſes; [flowering in may. Hence ſome authors call it *maialis*, but have ſuppoſed it to be different from the Cinnamon Roſe. Retzius thus deſcribes it. The root creeps much. The ſtems are from ſix to eight feet high, half-jointed, prickly; the prickles cloſer towards the bottom; they are ſtraight and recurved; under the joints larger. The branches have only two or three prickles at the baſes of the branchlets and petioles. Petioles without prickles, but rough-haired, widening into ſerrate ſtipules; the ſerratures ſphacelate-glandular. Leaflets five or ſeven, oblong, ſerrate beyond the middle, rough-haired underneath but ſmooth above, veined on both ſides. Peduncles naked, ſmooth, ſolitary or two and three together. Fruits ſubglobular, naked, ſmooth. Segments of the calyx ſmooth, entire, widening at the end, longer than the corolla, rough-haired within and at the edge; ſometimes one of the ſegments has a few linear jags. Flowers ſmall, full, pale red. It agrees with *Roſa fœcundiſſima* of Du Roi (2. 345.), except that Retzius did not obſerve any prickles upon the petioles. It is the *R. maialis* of Hermann (*diſſ. de Roſa, p.* 8. *n.* 3.): *R. collinea* of Ehrhart (2. 70.): and the *cinnamomea* of Miller: but Retzius can ſcarcely think it to be the *cinnamomea* of Linneus[e].

The petioles in our garden Cinnamon Roſe are not rough-haired (hirti) but villoſe, as are the leaflets underneath, giving them a glaucous hue. The ſtipules are of a very pale yellowiſh green, ſometimes tinged with red at the back along the midrib. The common petiole has prickles along it on the young ſhoots only.

Gerarde, who cultivated it in 1596, calls it the Canell or Cinnamon Roſe, and ſays that it took this name, not of the ſmell of its flowers, as ſome have deemed, for they have little or no ſavour, but from the ſmell of the leaves. I cannot diſcover any ſmell of Cinnamon either in the leaves or flowers.

6. White Dog-Roſe has round, glaucous, often mahogany-coloured ſtems; with very long, thong-like branches, bowing, with ſcattered, hooked prickles, ſmaller than in the common Dog-Roſe. Leaflets five or ſeven, but moſtly five, ovate, pointed, ſmooth, ſimply ſerrate, glaucеſcent underneath. Petioles prickly. Peduncles three or five in a terminating cyme, (rarely ſolitary) mahogany-coloured, covered with a glandular roughneſs, not all exactly from one point, accompanied by a few lanceolate bractes, and each bearing a ſingle white flower, like the common Dog-Roſe, but never red or bluſh-coloured, and leſs fragrant. Fruit oblong; but in ripening it becomes globoſe, and deep red. The ſtyles, as ſoon as they have paſſed through the neck of the calyx, are compacted into a cylinder, reſembling a ſingle ſtyle, terminated by a knob compoſed of the ſtigmas. This circumſtance alone will diſtinguiſh it from the other ſpecies[f].

Native of England, Switzerland, Germany, Dauphiné, Piedmont, and probably other parts of Europe, where it may not perhaps have been diſtinguiſhed from R. canina. It is however ſufficiently diſtinct. * With us it is frequent in hedges, and thickets; flowering in june and july. It is ſaid to be the moſt common wild Roſe in the weſt of Yorkſhire and about Mancheſter. Mr. Robſon has not obſerved it within fifty miles of Darlington.

7. The ſmall Burnet-leaved Roſe has been confounded with the *ſpinoſiſſima*, or what we commonly call the Scotch Roſe; and others think it is not diſtinct from that.

Pallas ſays, that the ſhrub, as it appears in the open graſſy ſteppes of New Servia and New Ruſſia, is quite the ſame with the European. It is three feet high, with ſtouter prickles thinly ſcattered, as in the garden plant. Stipules long, entire. Petioles ſpinuloſe. Leaflets ſeven. Peduncles hiſpid. Segments of the calyx ſeldom pinnate. Corolla white. In the garden plant there are larger and ſetaceous prickles intermixed, and nine leaflets, the lower ones ſmaller. The flowers are white, and the ſegments of the calyx entire.

The Siberian ſhrub is very elegant, a foot and half or at moſt two feet in height; the trunk thorny all over, the thickneſs of the little finger, very much branched, the branches collected into an ovate form. Spines on the trunk and branches very frequent, briſtle-ſhaped, tranſverſe or reclining, gray. Leaves very ſmall, on red petioles[g], ſometimes ſmooth, ſometimes with ſmall prickles on them. Stipules very narrow

[a] Ehrhart. [b] Park. parad. 420. [c] Hort. kew. [d] Parkinſon. [e] Obſ. 3. 33. n. 60. [f] Smith, brit. Engl. bot. and Stokes in Withering.

with wider earlets, external and serrate. Leaflets commonly seven, but sometimes nine or five, the size of the little finger nail, oval, cut round, sharply double-serrate, stiffish, rugged, more or less retuse, on some shrubs rather acute. Peduncles sometimes rough, sometimes smooth, with a ternate and simple leaf, almost to the flower. Fruit globose, smooth. Segments of the calyx linear-attenuated, tomentose at the edge, shorter than the petals; which are yellowish-white and subcordate. Fruit when ripe black, dry, insipid, crowned with the segments of the calyx.

Retzius distinguishes it by the following marks. Stems not decumbent but upright. Segments of the calyx villose on the interior margin; the ends dilated, twice trifid. Flower the size of the Dog-Rose, but white, tinged here and there slightly with red. Petioles underneath, and generally also the ribs of the leaves, prickly. Serratures of the leaflets glandular at the end. Stipules also serrate, and the serratures glandular.

Native of the South of Europe, as well as Asia. It flowers here in may and june.

8. The Burnet or Scotch Rose has its stems about two feet high, upright, much branched, with numerous straight, unequal, very slender needle-like prickles, on the young branches, which often disappear from the old ones. Leaflets seven or nine, small, roundish, blunt, serrate, smooth, sessile. Their common petiole is sometimes prickly. Peduncles solitary, one-flowered, smooth, or very seldom prickly. Stipules small, halbert-shaped, toothed. Tube of the calyx almost hemispherical, smooth: the segments are entire. Petals white or cream-coloured, yellow at the base, delicately fragrant, sometimes striped with red. Fruit globose, deep red, black when quite ripe, smooth, sometimes, as Haller describes it, somewhat prickly. The prickles on the stem and branches are very unequal in size; some are flat, others like needles[t].

According to Mr. Woodward, the petioles are not prickly; in my own notes the branches and midrib of the leaves are said to be prickly; the leaflets from three to five pairs; the peduncles smooth; the fruit subglobular, smooth and shining, of so dark a purple when ripe, as to appear black on the outside. The pericarp is full of a fine purple juice. Dr. Withering informs us, that this diluted with water, dyes silk and muslin of a peach-colour; and with the addition of alum a deep violet: but that it has very little effect on woollen or linen. He adds, that the ripe fruit is eaten by children, and has a grateful subacid taste; that its dwarfish growth, and the singular elegance of its little leaves, resembling those of the upland Burnet, entitle it to a place in the flower garden.

Native of most parts of Europe; with us on the borders of fields, on heaths and downs, in hedges and on ditch banks, on a gravelly or sandy soil: as near Yarmouth, about Worcester and Bewdley, Perran downs, Cornwall, by Dudiston-loch in Scotland, &c.

β. Sibbald mentions a variety growing upon a hill at his Ciphian farm, with variegated flowers, red striped with white.]

γ. This seldom rises more than a foot high. The stalks are covered with a brown bark, and are closely armed with small spines; the leaves are very small; the flowers are also small, sessile, and of a livid red colour; the fruit is round, of a deep purple colour inclining to black when ripe.

δ. Dr. Withering speaks of a specimen from Lancale Haws in Lancashire, with prickly peduncles, and cream-coloured flowers, changing to white. Mr. Atkinson, who sent it, relates that it covers several acres of sand, to the exclusion of every other vegetable.

It appears from Linneus's herbarium, that his *Rosa pimpinellifolia* is exactly, as Haller believed, the same plant as his original *spinosissima*, and not even a variety[t].

9. This very much resembles the two following species; but differs in having the stem two feet high, the petioles hairy at the top, and the flowers in pairs[v].

[t] Smith, Withering. [u] Smith in Eng[l]. bot. [v] Willdenow.

It rises with several slender stems to the height of two or three feet, covered with a brownish-green bark, and armed with a few sharp spines. Leaflets seven or nine, oblong-ovate and sharply serrate. The leaves of the flower-cup have often linear leafy elongations. The corolla is single and of a pale reddish colour. There is a variety of it with a double flower[x]. Mr. Marshall calls this species the Dwarf Pensylvanian Rose. In the Kew catalogue it is not distinguished from the Carolina Rose.

10. Stem four or five feet high, petioles smooth, leaves shining, flowers in pairs[y].]

It rises with several smooth stalks to the height of five or six feet. The young branches are covered with a smooth purple bark. The leaves are composed of four or five pairs of spear-shaped leaflets, smooth on both sides, of a lucid green on the upper surface, but pale on the under, and deeply serrate. Segments of the calyx long, narrow and entire. Flowers of a livid red colour, single, with little scent. They appear in july.

[According to Dillenius, the stems are slender and green, with very few spines; the branches also are slender and smooth, or very seldom prickly. Leaves smooth, like those of the Dog-Rose, but somewhat narrower; leaflets five or seven, not serrate the whole length, but only from a little above the middle to the end. Flowers on short peduncles, solitary, a little smaller and of a deeper red than those of the common wild Rose, and smelling sweet like the Damask Rose. Calyxes cut into oblong pointed segments: these, with the fruit, and the leaf-stalks, have slender hairs on them. The fruit is small and round, but does not ripen in England. It is not the *Rosa virginiensis* of Parkinson, theat. 1017. and Ray, hist. 1473.—Nor is it the *virginiana* of Du Roi.—It was cultivated in 1726, by James Sherard, M. D. at Eltham[z].

11. Stem five or six feet high, smooth. Stipular prickles two. Leaflets seven, oblong-ovate or nearly lanceolate, smooth, not shining but opaque, serrate, paler underneath. Petioles prickly. Peduncles several, branched, forming a corymb, unarmed, with glandular hairs scattered over them. Leaflets of the calyx undivided, hispid on the outside. Petals obcordate, red. It flowers late[a].

These three species are natives of North America.

12. The Apple Rose grows upright to the height of four feet or more: the branches are upright and short. Prickles on the stem and branches scattered, small, awl-shaped, nearly straight. Leaflets seven, elliptical, bluntish, clothed on both sides with short velvet-like down, fragrant when rubbed, their serratures fringed with glands. Petioles downy, prickly, glandular. Peduncles terminating, mostly solitary, one-flowered, rough with rigid glandular bristles. Germ globular, bristly. Segments of the calyx long, downy, prickly on the outside. Corolla of a full rose-colour, not very odoriferous. Fruit globular, larger than in any other species, for the most part bristly, blood-red[b].

According to Mr. Woodward, the peduncles, tube of the calyx, petioles, edges of the stipules, and serratures of the leaflets are beset with hairs of various lengths, terminated by a gland: the leaflets are ovate-lanceolate, more or less pointed: the petals longer than the calyx: and the fruit not always hispid. Dr. Stokes observes, that the leaflets are doubly serrate.

Retzius informs us, that a large variety of this, brought from Holland, and planted in a fertile soil, produced fruit that was quite smooth; and then, being transplanted into a worse soil, the fruit became very hispid. The experiment however, when repeated, did not succeed.

The Apple Rose, well known in gardens, and plantations, both in a single and double state, is found in many parts of Europe and Asia. It grows copiously with us in Westmoreland, Cumberland, and the north of Yorkshire, as well as in some parts of Scotland, as in the way from Edinburgh to Ravelston wood, about Killin in Breadalbane, upon the coast of Fife, &c.

[x] Marshall. [y] Willdenow. [z] Hort. kew. [a] Willdenow. [b] Smith.

It flowers in june, and the large deep-red fruit remains till eaten by birds or deſtroyed by froſt and wet.

β. Dillenius mentions a downy-leaved Roſe, found by Sherard near Kingſton upon Thames, which by his deſcription ſeems to be a variety of this [c].]

The fruit has a pleaſant acid pulp ſurrounding the ſeeds, which is ſometimes made into a conſerve or ſweetmeat, and ſerved up in deſerts.

[13. Branches round, ſubtomentoſe, cloſely covered with ſpreading white prickles, ſome larger and others ſmaller. Leaflets four pairs, ovate, blunt with a point, ſerrate, green and wrinkled on the upper ſurface. Petiole tomentoſe, with ſcattered patulous white prickles. Calyx tomentoſe within, hirſute without. It differs from all the other ſpecies, in having the leaflets blunt with a point, wrinkled and tomentoſe; and the branches exceedingly prickly and hiſpid. Native of Japan [d].]

14. The common Provence Roſe is well known in the Engliſh gardens, and is one of the moſt beautiful ſorts yet known. The flowers are ſometimes very large, and the petals cloſely folded over each other, like Cabbages, whence this variety is called the Cabbage Roſe. The flowers of the Provence Roſe have the moſt fragrant odour of all the ſorts.

[The great double Damaſk Province or Holland Roſe, hath his bark, ſays Parkinſon, of a reddiſh or brown colour. The leaves are likewiſe more reddiſh than in others, and ſomewhat larger. It uſually groweth very like the Damaſk Roſe, and much to the ſame height. The flowers are of the ſame deep bluſh colour, or rather ſomewhat deeper, but much thicker, broader, and more double by three parts almoſt, the outer leaves turning back, when the flower hath ſtood long blown, the middle part itſelf being folded hard with ſmall leaves. The ſcent cometh neareſt unto the Damaſk Roſe, but yet is ſhort of it by much.

β. The ſtem and branches of the Red Provence Roſe are not ſo great as thoſe of the other, but greener, the bark being not ſo red. The flowers are not ſo large, thick and double, but of a little deeper damaſk or bluſh colour, turning to red, but not coming near the full colour of the beſt red Roſe: nor is the ſcent ſo ſweet as that of the damaſk Provence, but coming near that of the ordinary red Roſe. This is not ſo plentiful in bearing as the Damaſk Provence [e].]

γ. The ſtalks of the Bluſh Provence Roſe riſe from three to four feet high, and are unarmed: the leaves are hairy on their under ſide: the peduncles have ſome ſmall ſpines: the ſegments of the calyx are ſemipinnate: the corolla has five or ſix rows of petals, which are large, and ſpread open; they are of a pale bluſh colour, and have a muſky ſcent.

[δ. The White Provence Roſe differs only in the colour of the flowers.

ε, ζ. The two dwarf Provence Roſes, both called Roſe de Meaux, differ from each other in little except ſize. The ſmaller of the two is generally known by nurſerymen and gardeners by the name of Pompone Roſe. This throws out numerous ſtems, which rarely exceed a foot or a foot and half in height; uſually ſtraight, rigid and very prickly. Flowers very ſmall, and diſtinguiſhed by the brilliant colour of the central petals: they appear in june [f].

Theſe laſt are of late introduction, but the others were cultivated by Gerarde in 1596, and probably much earlier. They flower from june to auguſt.]

15. This riſes with prickly ſtalks about three feet high. The leaves have three or five leaflets, which are large, oval, ſmooth, and of a dark green with purple edges. The peduncles are ſet with brown briſtly hairs. The ſegments of the calyx are ſmooth and ſemipinnate. The flowers are very double, and of a deep red colour, but have little ſcent.

[The petals are ſo cloſely wedged together that the flower appears as if it came out of the hand of the turner—*flos quaſi tornatus* [g].

The varieties of this ſpecies are very numerous; the moſt remarkable ones are ſet down from the Kew catalogue. Parkinſon deſcribes the Velvet Roſe; ſaying that the old ſtem is covered with a dark-coloured bark, but that the young ſhoots are of a ſad green, with few or no thorns: the leaves are of a ſadder green than in moſt Roſes, and very often ſeven on a ſtalk: the flower is ſingle; or double with two rows of petals, the outer larger, of a deep red like crimſon velvet; or more double, with ſixteen petals or more in a flower, moſt of them equal. They have all leſs ſcent than the ordinary red Roſe.—Several of the other varieties are of more modern date. The Burgundy Roſe is an elegant little plant, not more than a foot or eighteen inches in height.

According to Loureiro, the *Roſa centifolia* is a native of China.

This ſpecies is confounded with the Damaſk Roſe, and is named *Roſa damaſcena* in the London Pharmacopœia. The petals, which are of a pale red colour, and of a very fragrant odour, are directed for medicinal uſe. The ſmell is extremely agreeable to moſt perſons; but in too great quantities, theſe flowers are ſaid to produce ſneezing, inflammation of the eyes, faintings, hyſterical affections, &c. and where perſons have been confined in a cloſe room with a great heap of Roſes, they have been in danger of immediate extinction of life. From the experiments of Prieſtley and Ingenhouſz this effect ſeems owing to the mephitic air, which theſe and moſt other odoriferous flowers exhale.—Six pounds of freſh Roſes impregnate, by diſtillation, a gallon of water ſtrongly with their fine flavour. On diſtilling large quantities, there ſeparates from the watery fluid a ſmall portion of a fragrant butyraceous oil, which liquifies by heat and appears yellow, but concretes in the cold into a white maſs: an hundred pounds of the flowers, according to the experiments of Tachenius and Hoffman afforded ſcarcely half an ounce of oil.

The ſmell of this oil exactly reſembles that of the Roſes, and is therefore much uſed as a perfume. It poſſeſſes very little pungency, and has been highly recommended for its cordial and analeptic qualities.—The proceſs for making Attar or eſſential oil of Roſes is as follows: Forty pounds of Roſes, with their calyxes, are put into a ſtill, with ſixty pounds of water. The maſs being well mixed, a gentle fire is put under the ſtill; and when fumes begin to riſe, the cap and pipe are properly fixed and luted. When the impregnated water begins to come over, the fire is leſſened by gentle degrees, and the diſtillation continued until thirty pounds of water are come over, which is generally in four or five hours. This water is to be poured upon forty pounds of freſh Roſes, and from fifteen to twenty pounds of liquor are to be drawn from it, as before. It is then poured into pans of earthen ware or tinned metal, and left expoſed to the freſh air for the night. The Attar or eſſence will be found in the morning, congealed and ſwimming on the ſurface of the water.

Theſe flowers alſo contain a bitteriſh ſubſtance, which is extracted by water along with the odorous principle, and remains entire in the decoction, after the latter has been ſeparated by diſtillation or evaporation. This fixed ſapid matter of the petals manifeſts a purgative quality, and it is on this account that the flowers are received in the Materia Medica.

The Pharmacopœias direct a ſyrup to be prepared of this Roſe, which in doſes of a ſpoonful is found to be pleaſant and uſeful as a laxative for children, or to obviate coſtiveneſs in adults. The ſimple diſtilled Roſe-water ſeems to have nothing but its fragrance to recommend it [h].

It was cultivated by Gerarde in 1596 [i].]

16. The ſtalks of this grow erect, and have ſcarce any ſpines; they riſe from three to four feet high. The leaves are compoſed of three or five large oval leaflets, which are hairy on their under ſide. The leaves of the calyx are undivided. The flowers are large, but not very double, ſpread open wide, and

[a] Smith. [b] Thunberg. [c] Parkinſon. [d] Curtis. [e] Linn. ſyſt.

[h] Woodville. [i] Hort. kew.

decay

decay ſoon; they are of a deep red colour, and have an agreeable ſcent.

[Stem ſmooth or but little prickly. Peduncles hiſpid. Leaves ſubacute, naked above, ſcarcely tomentoſe or downy underneath. Fruit hiſpid at the baſe. Flowers red or white[k].

This ſpecies does not riſe ſo high as the *centifolia*, but much reſembles it in its foliage. Linneus reſts their ſpecific difference on the greater roughneſs and prickleneſs of the leaf-ſtalks in this, but this circumſtance is not ſufficiently remarkable to found the diſtinction. The petals, though large and ſpreading, are never half ſo numerous as in the *centifolia*, and are of a deep crimſon colour[l].

Parkinſon gives the Red Roſe the epithet of Engliſh, becauſe this and the White are the moſt ancient and known Roſes to our country, and aſſumed by our precedent Kings of all others, to be cognizances of their dignity, and becauſe the Red is more frequented and uſed in England than in other places. The flowers vary in colour; ſome are of an orient red or deep crimſon colour, and very double, although never ſo double as the White; ſome again are paler, tending ſomewhat to a damaſk: and ſome are of ſo pale a red, as that they are rather the colour of the canker Roſe; yet all for the moſt part with larger leaves than the Damaſk, and with many more yellow threads (ſtamens) in the middle. The ſcent hereof is much better than in the White, but not comparable to the excellency of the Damaſk Roſe; yet this being well dried and kept, will hold both colour and ſcent longer than the Damaſk.

β. Neither Gerarde nor Parkinſon mention the *Mundi Roſe*, which has the flowers very elegantly ſtriped or variegated with red and white; in other circumſtances it ſo perfectly reſembles the red Roſe, that there can be no doubt of its being a variety of that; indeed it frequently happens that a red Roſe or two appears on the ſame plant with the variegated flowers[m].]

γ, δ. The Childing, Marbled, and double Virgin Roſes, ſays Mr. Miller, have great affinity with each other.

[The flowers of the Red officinal Roſe poſſeſs neither the fragrance nor the laxative quality of thoſe of the *centifolia*, but are chiefly valued for their aſtringency, which is moſt conſiderable before the petals expand, and therefore in this ſtate they are choſen for medicinal uſe, and ordered in different preparations, as thoſe of a conſerve, a honey, an infuſion, and a ſyrup. Theſe preparations, eſpecially the firſt and ſecond, have been highly eſteemed in phthiſical caſes, particularly by the Arabian phyſicians. Riverius alſo cites ſeveral caſes in point, and that of Kruger, related in the German ephemerides, has been thought a ſtill more evident proof of the efficacy of conſerve of Roſes in phthiſis pulmonalis; but as the uſe of the conſerve was conſtantly joined with that of milk and farinacea, together with proper exerciſe in the open air, it has been doubted if theſe recoveries could be wholly imputed to the Roſes, though their mild aſtringent and corroborant virtues certainly contributed much. In ſome caſes, twenty or thirty pounds of the conſerve were taken in the ſpace of a month.

The infuſion of Roſes is a grateful cooling ſubaſtringent, and uſeful in ſpitting of blood; its efficacy however depends chiefly on the acid. The ſyrup derives its uſe merely from its colour.

Notwithſtanding the reputed aſtringent quality of red Roſes, Poterius relates, that he found a dram of the leaves dried and powdered, occaſioned three or four ſtools, and this not in a few inſtances, but conſtantly in ſeveral. The full-blown flowers are ſlightly laxative, eſpecially in the paler ſorts; but the buds of this Roſe are aſtringent.

Both the aſtringency and colour of the petals are beſt preſerved by haſty drying[n].

Gerarde ſays, in Leylande fields in Lancaſhire, our garden Roſe doth grow wild, in the plowed fields among the corn in ſuch abundance, that there may be gathered daily, during the time, many buſhels of Roſes, equal with the beſt garden Roſe in each reſpect: the thing that giveth great cauſe of wonder is, that in a field in the place aforeſaid, called Glover's-field, every year that it is plowed for corn, it will be ſpread over with Roſes; but when it is leye, and not plowed, then ſhall there be but few Roſes to be gathered: by the relation of a curious gentleman there dwelling, ſo often remembered in our hiſtory.

I give this improbable tale, as an inſtance of the dependance that is to be placed on the information of curious gentlemen. Johnſon, the emaculator of Gerarde, has ſet it right, by informing us, he had heard that the Roſes which grow in ſuch plenty in Glover's field are no other than the corn Roſe or red Poppies.]

17. The Damaſk Roſe riſes with prickly ſtalks eight or ten feet high, covered with a greeniſh bark, and armed with ſhort prickles. The leaves are compoſed of five or ſeven oval leaflets, dark green above, but pale underneath; the borders frequently turn brown and are ſlightly ſerrate; the peduncles are ſet with prickly hairs; the calyxes are ſemipinnate and hairy; the corolla is of a ſoft pale red, and not very double, but has an agreeable odour; the heps are long and ſmooth.

[Retzius ſays that the ſtipules are quite entire, with a glandular margin; and that the fruits are hiſpid-hairy half over.

It is a native of the South of France, and was cultivated in 1596 by Gerarde[o].

Theſe garden Roſes were certainly cultivated and highly eſteemed in England long before the time of Gerarde, as appears both from our hiſtorians and poets. Though ſome of them are ſet down as indigenous of the South of Europe, yet I cannot help thinking, that they were firſt produced and nurtured in the more benign and earlier cultivated regions of Aſia. Hakluyt ſays that the Damaſk Roſe was brought in by Dr. Linaker, phyſician to King Henry VII. and VIII.

Of this elegant ſpecies, which has not been well diſtinguiſhed from the *provincialis* and *centifolia*, there are many varieties.]

The Monthly, the ſtriped Monthly, the York and Lancaſter, and Mr. Hart's Roſe, ſays Mr. Miller, are all ſuppoſed to be varieties of the Damaſk Roſe.

[*α, β.* The Red and Bluſh Damaſk Roſe differ only in the ſhade of colour.]

γ. The York and Lancaſter Roſe, agrees with the Damaſk in ſtalk, leaf, &c. differing only in the flower being variegated with white ſtripes. Mr. Hart's Roſe has the white ſtripes more diſtinct. The flowers in theſe being leſs double than in ſeveral others, are frequently ſucceeded by fruit, and have ripe ſeeds, from which other varieties may be obtained[p]. [Some of theſe are particularized by Parkinſon. Sometimes one half of the petal is of a pale whitiſh colour, and the other half of a paler damaſk than common: or one petal is white or ſtriped with white, and the other half bluſh or ſtriped with bluſh; ſometimes alſo all ſtriped or ſpotted over, and at other times little or no ſtripes or marks, as nature liſteth to play with varieties, in this, as in other flowers: the longer it abideth blown open in the ſun, the paler and the fewer ſtripes, marks or ſpots will be ſeen in it. The ſmell is of a weak Damaſk Roſe ſcent.

δ, ε. The Red and White Monthly Roſes are ſo called, from their continuing to blow in ſucceſſion during the greater part of the ſummer; not that they blow in every month, as the name implies. They are in every reſpect like the Damaſk Roſe; unleſs it be, as Ferrarius obſerves, more full of prickles than that[q].]

ζ. The Bluſh Belgick Roſe, which Mr. Miller gives as a diſtinct ſpecies, riſes about three feet high, with prickly ſtalks. The leaves are compoſed of five or ſeven leaflets, which are oval, hairy on their under ſide, and ſlightly ſerrate: the peduncles and calyxes are hairy, and without prickles; the calyxes are large and ſemipinnate; the flowers very double, of a pale fleſh colour, with little ſcent, generally in great quan-

[k] Linn. mant. [l] Woodville. [m] Ray. [n] Woodville. [o] Hort. kew. [p] Mill. dict. [q] Ray.

tities. The Red Belgick Roſe differs only in having the colour of the flower a deep red.

18. The Evergreen Roſe has ſlender ſtalks which trail upon the ground unleſs they are ſupported, and if trained up to a pole or the ſtem of a tree, will riſe twelve or fourteen feet high; they are armed with crooked reddiſh ſpines, and have ſmall leaves, with ſeven oval acute leaflets, of a lucid green, and ſerrate. The leaves continue on all the year. The flowers are ſmall, ſingle, white, and have a muſky odour. In their natural place of growth they continue in ſucceſſion great part of the year, but their time of flowering in England is june.

[Parkinſon remarks, that this Roſe-buſh is very like the wild ſingle Eglantine; and that the loweſt pair of leaflets are ſmalleſt, the next bigger, the third bigger ſtill, and the end-leaf biggeſt of all. At firſt coming out, the ſhoots and young leaves are reddiſh; but this, I believe, is common to moſt, if not all the ſpecies. The flowers ſtand four or five together at the tops of the branches; they are of a pure white, much larger than the ordinary Muſk Roſe, and of a fine ſcent.

Native of Germany. Sherard gathered the ſeeds in Italy, and introduced this plant into his garden at Eltham about the year 1727. Mr. Miller relates that in the ſame year he ſaw it growing at Leyden, in the curious garden belonging to Boerhaave; who had it from Micheli; and that the latter found it growing naturally in the woods near Florence. According to Cluſius, Joachim Camerarius ſent the ſeeds to him at Padua, in the year 1592; and as he carried them to Leyden, Boerhaave's plants probably deſcended from them.—Parkinſon cultivated the Evergreen Roſe in 1629[f].

19. The branches have great abundance of prickles, which fall off on the ſtems. The fruits are large and pear-ſhaped.

Native of Auſtria and Italy.

According to the catalogue of the royal garden at Kew, it was introduced about 1773, by Meſſrs. Kennedy and Lee.

20. The young ſhoots of the Frankfort Roſe are covered with a pale purpliſh bark, ſet with a number of ſmall prickles like hairs; the older branches have but few thorns. The fruit is very large. The flower is thick and double as a Red Roſe, but ſo ſtrong ſwelling in the bud, that many of them break before they can be full blown; and then they are of a pale red-roſe colour, between a red and a damaſk, with a very thick broad hard umbone of ſhort yellow threads in the middle. The ſegments of the calyx are quite entire. The ſmell is neareſt unto a Red Roſe[g].]

Mr. Miller ſays, this may be a diſtinct ſpecies, but is of little value; the flowers rarely opening fair, and having no odour.

[Its native place is not known. Parkinſon cultivated it in 1629[h].

21. The Sweet Briar or Eglantine has yellow hooked prickles on the ſtem. Leaflets ſeven, very fragrant, elliptic or ſubovate, above ſmooth and wrinkled, underneath ruſt-coloured with reſinous atoms or little dots; ſerratures glandular. Petioles alſo glandular and prickly. Peduncles muricate and in corymbs. Calyx glandular. Petals roſe-coloured, white at the baſe. Fruit ſcarlet, muricate but ſometimes ſmooth, farinaceous, inſipid[i].

Leaflets doubly ſerrate, ſmooth above except a few ſcattered hairs along the midrib, even in the newly expanded leaves, half-doubled together, not ſo full-ſcented as thoſe of the Garden Sweet-Briar. The habit however and mode of growth of the wild plant are the ſame with that[k]. Dr. Stokes thinks they are at leaſt varieties; the leaves in the garden Sweet-Briar being beſet above with very ſhort hairs, between oval and ovate, and not unfrequently quite oval; the glands yelloviſh; the fruit ſcarlet and ſometimes quite ſmooth; whereas, according to Lightfoot, the fruit of the wild is black, when ripe. Dr. Withering remarks, that the prickles are not numerous on the tube of the calyx, or germ, as Linneus calls it, and chiefly on one ſide; that the ruſty appearance is chiefly confined to the lower leaves; and that the ſweet ſcent ſeems to be owing to the glands.

The garden ſhrub certainly grows larger and more erect, the leaves are bigger and much ſweeter than in the wild one, the ruſty colour of them diſappears, and the whole puts on a more vigorous appearance. But all this is owing to culture, which has done much in this favourite genus.

Native of moſt parts of Europe on heaths, in thickets, hedges and woods, chiefly in a gravelly ſoil.

The varieties with double flowers are very elegant ſhrubs in ornamental plantations.]

22. The Moſs Provence Roſe, commonly called the Moſs Roſe, from the moſs-like pubeſcence on the calyx, has the ſtalks and branches cloſely armed with brown ſpines. The peduncles and calyx are covered with long hair-like Moſs. The flowers are of an elegant crimſon colour, and have a moſt agreeable odour.

[This elegant Roſe is known to us only in its double ſtate, and we are ignorant of the country to which we are indebted for it. By Furber's catalogue it appears that it was cultivated here in 1724[l].

Retzius deſcribes the ſtem as very prickly, and at the ſame time hiſpid; the peduncles long, beſet with curled ſtrigæ terminated by a reſinous globule, as are alſo the whole calyxes; theſe ſtrigæ are often branched. The petioles are leſs hiſpid and unarmed. The leaflets are very large, three or five, ſmooth. The colour and ſmell of the clammy reſinous glands are very much the ſame as in the Flowering Raſpberry, or Rubus odoratus.]

23. The Muſk Roſe riſes with weak ſtalks to the height of ten or twelve feet, covered with a ſmooth greeniſh bark, and armed with ſhort ſtrong ſpines. Leaflets ſeven, light green and ſerrate. Flowers in large bunches, in form of umbels, at the end of the branches, they are white, and have a fine muſky odour, appear in july and auguſt, and continue in ſucceſſion till the froſt ſtops them. The ſtalks are too weak to ſupport themſelves. It varies with double flowers.

[Prickles remote, ſtout, bent back. Leaflets five, ovate, ſerrate, acute, ſmooth. Petioles often prickly, pubeſcent. Flowers numerous, in corymbs. Peduncles hirſute. Calyx oblong, villoſe; the ſegments lanceolate, entire, pubeſcent within. Petals white, obovate, of the ſame ſize with thoſe of the Dog Roſe. It grows every where in hedges in the kingdom of Tunis; and the Tuniſians cultivate it for the ſake of a highly odorous eſſential oil which they obtain from the petals by diſtillation[m].

It was cultivated in 1596, by Gerarde[n]. According to Hakluyt (1582) the Muſk Roſe plant was procured of later time out of Italy.

R. ſempervirens or Evergreen Muſk Roſe of Miller (n. 9.) ſeems to be the ſame with this.]

The ſeeds were ſent by Robert More, Eſq. who found it growing naturally in Spain.

Stems four or five feet high, erect, covered with a green bark, and armed with ſtrong crooked white ſpines. Leaves compoſed of five oval leaflets ending in acute points, ſmooth, of a lucid green, ſlightly ſerrate, and continuing all the year. The flowers grow in large bunches at the end of the branches; are ſingle, white, and have a muſky odour. They appear in auguſt, and continue in ſucceſſion till october.

[24. The veins of the leaves underneath are red. The ſtem, peduncles and fruits are covered with a glaucous bloom.

Native of the mountains of Dauphiné, Switzerland and Salzburgh.

25. Allied to the following ſpecies, but diſtinguiſhed by the obovate fruit and other marks. Different from *R. pumila* by the leaves not being glaucous underneath, the ſtem and petioles unarmed.—Native of the mountains of Dauphiné and Switzerland[o].

[a] Hort. kew. [b] Parkinſon. [c] Hort. kew. [d] Smith. [e] Withering.

[l] Hort. kew. [m] Deſfontaines. [n] Hort. kew. [o] Willdenow.

26. The Alpine Roſe is a low ſhrub, with reddiſh-brown ſtems, the lower half or thereabouts of which is covered with ſtraight awl-ſhaped ſlender white not pungent prickles; the upper part is quite naked. Stipules ciliate-glandular at the edge. Petioles hiſpid-glandular. Leaflets commonly ſeven, ſmooth on both ſides, ovate, biſerrate, ciliate-glandular. Peduncles naked, unarmed. Calyx ruſous-brown on the outſide; the tube ovate-oblong, naked; the leaflets or ſegments quite entire, ſpatulate, villoſe-white about the edge, villoſe within. Flowers ſolitary, red, middle-ſized.

Gouan has confounded Haller's Roſe, n. 1107. with Linnæus's *pimpinellifolia*. Haller has united the *pimpinellifolia* and *ſpinoſiſſima*, which Du Roi has very well diſtinguiſhed [r].

Jacquin deſcribes the ſtems as from one to four feet in height, branched and upright. Stipules lanceolate, acute, ſerrulate. Leaflets commonly ſeven, but ſometimes five or nine. The peduncles have always hairs, with glandular heads, ſcattered over them. The flowers have a very powerful and ſweet odour. The fruits are generally quite ſmooth, ſometimes but more ſeldom hiſpid. Leaflets of the calyx entire, lanceolate, concave, running out into a very long point. Petals emarginate, of a very deep purple-red colour, but ſometimes paler. Fruit oblong-ovate, contracted into a neck below the calyx, ſometimes a little curved in, ſhining very much, of an elegant red colour, crowned with the converging calyx, and very ſmooth; it always hangs down, and thus approaches very much to *R. pendulina*, from which it differs in little elſe than in never having the peduncles ſmooth, not even in cultivation. It varies in the hirſuteneſs of the ſtems, but they are commonly ſmooth, and the branches are always ſo. The midribs of the leaves and the ſtipules ſeldom have hairs on them. This ſhrub never has any genuine prickles on it.

Native of the Alps, Germany, Auſtria, Piedmont, and Siberia.—Cultivated in 1683, by Mr. James Sutherland. It flowers in june and july [s].]

According to Mr. Miller it riſes to the height of ſix or ſeven feet. The ſtalks and branches have no ſpines, but are covered with a ſmooth reddiſh bark. Leaflets ſeven, thin, oval, ſmooth, bright green, very ſlightly ſerrate, far aſunder. Peduncles armed with briſtly hairs. Leaflets of the calyx long, ſlender in the middle, terminating in an oval leafy point. Flowers ſingle, bright, appearing at the beginning of may; and ſucceeded by long ſmooth ſpear-ſhaped heps. The plants produce a ſecond crop of flowers about the end of auguſt, but theſe fall off, and are not ſucceeded by heps.

[27. Height from a foot to two feet. The ſtem covered with a ſmooth bark, often coloured. Branches weak, alſo coloured, alternate, one-flowered only. Leaves on each branch three or four, compoſed of five or ſeven leaflets, ovate or wedge-truncate, ſmooth, doubly ſerrate; the uppermoſt or outmoſt larger than the others. Stipules running much down, diverging at the end, ſmooth above, rugged underneath with clammy glandular prominent dots, ciliate: becoming bald when far advanced. Peduncle of the ſame colour with the flower, hiſpid, ſhorter than the oppoſite leaf: at the baſe of it is an ovate-lanceolate, ſmooth, ciliate bracte, twice the ſize of the ſtipules. Calyxes ovate; germs hiſpid with prickles; calycine leaflets long, widened at the end, lanceolate, ſerrate, unequal; one or two of them commonly awl-ſhaped and not dilated, having a denſe white cotton along the edge. Petals deep red, two-lobed or emarginate.—It differs from the *alpina* in having ſeven ovate leaves, larger ſtipules more decurrent, rugged underneath, larger bractes, the peduncles more hiſpid and prickly, and the germ rough with ſpinules, and laſtly the calycine leaflets not ſubulate-foliaceous, but dilated lanceolate [t].

Native of the Pyrenees, the Swiſs Alps, and the mountains of Sileſia.

28. Height from eighteen inches to two feet, ſlender, ſtraight, brown, covered with numerous ſlender innoxious ſpines, bending downwards. The branches have no ſpines, but ſmooth leaves, glaucous green above, and glaucous white underneath, compoſed of five or ſix pairs of leaflets; the midrib is thinly hairy. Peduncles ſhort. Flowers large; petals emarginate, pale fleſh-colour. Fruits long, pendulous, ſmooth, of a fine coral red. Calyxes then ſet with ſlender hairs; but in flowering-time fringed with a hoary lanugo; in other parts ſmooth and without prickles. It flowers earlier than the other Roſes, namely in may; and the fruit ripens in auguſt [u].

Native of North America. Cultivated at Eltham by James Sherard, M.D. in 1726 [x]. Dillenius ſays that the ſeeds were ſent from New England.

29. Petiole prickly, and thinly ſet with glandulifeous hairs, eſpecially towards the baſe. Leaflets orbicular-obovate, ſmooth, concolour, doubly ſerrate, the ſerratures glandular. Stem ſmooth, with prickles commonly in pairs and rencinate below the origin of the leaves. Petals obcordate, white.

Native of the mountains of Dauphiné and Switzerland [y].

30. Stem upright. Branches round, purple, ſmooth, upright. Prickles ſcattered, recurved. Leaves alternate, petioled. Leaflets oppoſite, ſometimes but ſeldom alternate, ſeſſile, ovate, ſerrate, green and pale above, pale and villoſe underneath. Petioles villoſe, with ſcattered ſmall recurved prickles. Flowers terminating in panicles, the ſize of Bramble flowers. Paniele decompound, ſpreading. Peduncles and pedicels villoſe, unarmed. Calyx very hirſute with a white pile, eſpecially at the edge. Corolla white. Germ villoſe, unarmed. It differs quite from the other Roſes in having ſmall flowers in panicles, on villoſe peduncles.

Native of Japan [z].

31. The common Dog Roſe or wild Briar has the ſtem ſmooth, with two alternate hooked prickles between the knots, growing to the height of ſix feet or more. Branches elongated, from upright ſpreading. Prickles conical-hooked, compreſſed, bright red when young, but afterwards aſh-coloured. Leaves alternate, having for the moſt part ſeven ſcentleſs ſerrate leaflets, the ſerratures terminated by minute purple glands; naked and quite ſmooth on both ſides, the upper ſide ſhining, the lower paler; the lower leaflets gradually ſmaller; the midrib and petiole prickly underneath, the edges beſet with purple glands. Stipules finely toothed, the teeth tipped with red, and terminated by a globule. Peduncles forming a ſort of corymb of two or three to ſix flowers together; but ſometimes they are ſolitary, round, even and naked. Calyx pubeſcent within and at the edge; the leaflets lanceolate and long-tailed, two ſimple, two pinnate on each ſide, and one pinnate only on one ſide. Petals obcordate, a little remote, pale red, fainter towards the baſe, ſometimes white, ſweet-ſcented [a]. Fruit, which is a ſort of berry formed from the ripened calyx, ſcarlet, quite ſmooth and ſhining, ſometimes cloſed and ſometimes pervious at the top; containing about thirty ſeeds, which are bony, ovate-acuminate, angular, having white ſilky briſtles diſperſed among them, terminated by the permanent ſtyle, pale: the outer ones are immerſed in the excavations of the fleſhy ſubſtance of the calyx, but thoſe in the middle have fleſhy, ſaffron-coloured, ſubvilloſe peduncles [b]. It is ſometimes ſeen with a hiſpid fruit [c].

Native of Europe, in hedges and woods, decorating them with its lively odorous flowers in the months of june and july. From theſe a perfumed water may be diſtilled, which is ſaid to be much more fragrant than that from garden Roſes. The leaves are recommended as a ſubſtitute for tea, giving out a fine colour, a ſubaſtringent taſte, and a grateful ſmell, when dried, and infuſed in boiling water. The fruit, commonly known by the name of *Heps*, is agreeable enough when ripe and mellowed by the froſt: beaten up with ſugar, it makes a pleaſant conſerve, more uſed as a vehicle for other medicines, than for any virtue of its own. Care

[r] Retzius. [s] Hort. kew. [t] Gouan. [u] Hort. elth. [x] Hort. kew. [y] Willdenow. [z] Thunberg. [a] Curtis, Smith, Withering. [b] Gartner. [c] Smith.

ſhould

ſhould be taken in making this conſerve, to remove all the chaffy or prickly fibres or briſtles with the ſeeds, which will otherwiſe produce conſiderable irritation on the primæ viæ. A moſſy protuberance is common on various parts of the wild Roſe, which is occaſioned by an inſect called Cynips Roſæ: formerly, under the name of *Bedeguar* it was uſed medicinally, but it is now juſtly diſcarded. The fruit in winter is much ſought after by birds, eſpecially the pheaſant. Its ſtrong thorns make it valuable for ſtrengthening hedges [a].

32. The downy-leaved Dog Roſe agrees in habit with the common Dog Roſe, except that the leaves are pubeſcent all over, and have a ſubcinereous appearance. It is leſs in all its parts than the Apple Roſe (R. villoſa.) Branches from upright ſpreading, ſubflexuoſe. Prickles on the ſtem hooked, widened at the baſe. Leaflets five or ſeven, ſweet, elliptic-ovate, very ſoftly tomentoſe on both ſides, with the ſerratures glanduloufly ciliate. Petioles tomentoſe, muricate. Peduncles terminating, ſubſolitary, muricate with rigid glandular briſtles. Germ alſo muricate, elliptic. Calyx glandular-hiſpid. Petals whitiſh at the baſe, but the reſt of a beautiful roſe-colour. Fruit ovate, ſcarlet, muricate, nearly of the ſame ſize and ſhape as in the *canina*.

Not uncommon in hedges and thickets. Obſerved about London by Hudſon. At St. Faith's, Catton, and other places near Norwich. In Shropſhire and Wales common. It flowers in june and july [b].

33. This alſo has very much the habit of *R. canina*. Stems round and ſmooth, armed with recurved, ſtrong, pungent, ſhining, browniſh prickles, which are reddiſh when young. Leaflets five, (ſeldom ſeven) ovate or rather roundiſh, acute, ſharply ſerrate, on very ſhort petioles, very dark green and ſmooth above, ſomewhat hoary or villoſe underneath, eſpecially along the nerves and veins and at the edges; the tips of the ſerratures are cartilaginous, and red ending in a brown colour, when examined by a magnifier. The midribs have prickles, ſhort whitiſh hairs, and thinly ſcattered pedicelled duſky red glands. Stipules ſharp and ciliate at the edge; in other parts ſmooth. The leaves differ from thoſe of the *canina*, not only in their pubeſcence, but in being thicker and leſs ſhining. Peduncles round, hiſpid with glands on long pedicels. Germ very ſmooth, or ſometimes with a few of theſe glands towards the baſe. Leaflets of the calyx villoſe within and at the edges, but glandular only at the back and on the leafy edges of the ſegments; two or three of them are pinnate-laciniate, the others quite entire. Petals obcordate, ſweet, fleſh-coloured or paler. Fruit ſmooth and ſhining, red with an orange-coloured pulp, hardly to be diſtinguiſhed from the fruit of the common Roſe.—Native of Auſtria, on hills [c].

34. This is a very dwarf ſhrub, with ſmall flowers. Leaflets five ſmall ovate acute.—Native of Europe [d].

35. Height ſeldom exceeding three feet. Flowers large in proportion to the plant, ſemidouble, with great richneſs of colour (dark red) uniting a moſt delightful fragrance, coming out in ſucceſſion during the greater part of the year, only more ſparingly in the winter months [e]. Segments of the calyx leafy at the end, one larger than the reſt. Germs and peduncles ſometimes but rarely ſmooth [f].

Native of China. Introduced by Gilbert Slater, Eſq. of Knots-green near Laytonſtone [g].

36. This is very nearly allied to the preceding, and perhaps may be only a variety of it [h]. It is diſtinguiſhed from the next ſpecies chiefly by the ſhining ſmoothneſs of the leaflets, and the ciliate hairineſs of the calycine ſegments. The upper leaves are ternate, the lower ones have a ſingle leaflet added, on one ſide, and thus become in ſome degree pinnate [i].—Native of China.

37. Branches unarmed; or ſometimes, but ſeldom, having one or two very ſlender prickles towards the leaves or on the petioles. Leaflets five, tomentoſe underneath, ſmooth above, ſerrate, the outmoſt twice as large as the reſt. Peduncles long, naked, ſimple. Calyx gaſhed, even. Fruit the ſize of that of Sorbus aucuparia.—Native of China [k], and Cochinchina.

38. Stem ſmooth without prickles, ſeeming to be entirely unarmed, with a large ſtem, and branches a foot long. Leaflets five, ſmooth on both ſides, ſimply and remotely ſerrate, the lateral ones an inch and half, the end one two inches long. The petiole has glandular hairs ſcattered over it, and has one or two hooked prickles. Flowers the ſize of thoſe of the Dog Roſe, in a ſort of corymb. Peduncles hiſpid with hairs which are glandular at the tip. Germ oblong, ſmooth. Leaflets of the calyx leafy at the tip, acuminate, toothed, ſmoothiſh on the outſide, tomentoſe within. It ſeems to differ from the preceding.—Native of the Eaſt Indies [l].

39. Stem villoſe, with ſcattered ſtraight prickles. Leaflets five or ſeven, roundiſh-elliptic, ſubcoriaceous, blunt, the upper ſurface ſhining. Flowers fragrant, terminating, ſolitary. Peduncle very ſhort, with lanceolate ſilky-villoſe bractes covering the germ. Leaflets of the calyx undivided, ovate-lanceolate, acuminate, ſilky-villoſe. Petals yelloviſh white obcordate. Native of China [m].

40. The white Roſe, in its wild ſtate, has an affinity to the *arvenſis* (n. 6.); but differs from it in having wider ovate leaves, ſmooth and deep green above, paler and ſlightly hairy underneath, unequally ſerrate and blunt: ſtem and petioles villoſe, prickly: peduncles ſolitary, long, hiſpid: fruits ovate, ſmooth, but more frequently having a few ſlender prickles on them: calyxes ſmooth, green, half-pinnate [n].

Loureiro deſcribes the ſtem as long, ſcandent, branched, having many recurved prickles ſcattered over it. Leaflets three or five, broad-lanceolate, ciliate, on prickly petioles. Flowers pale, without ſcent, many together. Fruits oblong-ovate, ſmooth, on hiſpid peduncles.

Retzius remarks, that the germs and calyxes are ſometimes hiſpid: and D'Aſſo that the ſegments of the calyx are entire.

Parkinſon deſcribes two varieties of the White garden Roſe; one attaining ſometimes the height of eight or ten feet, with a ſtock of a great bigneſs: the other ſeldom higher than a Damaſk Roſe. Both have ſomewhat ſmaller and whiter-green leaves than in many other Roſes, five moſt uſually on a ſtalk, and paler underneath; as alſo a whiter-green bark, armed with ſhort prickles. The flowers in the one are whitiſh with an eye of bluſh, eſpecially towards the bottom, very double, and for the moſt part not opening ſo fully as the Red or Damaſk Roſe. In the other more white, leſs double and opening more. Some have only two or three rows of petals; and all have little or no ſmell. Native of Europe, China, Cochinchina, &c.

All theſe ſorts of Roſes ſays Gerarde in 1597, we have in our London gardens; that is the White, Red, Province or Damaſk, leſſer Damaſk, and greater Province: and doubtleſs they were in our gardens long before his time. He affirms that the Double White Roſe grew wild in many hedges of Lancaſhire in great abundance, even as Briers do with us in the ſoutherly parts. But Gerarde muſt have been miſinformed, perhaps by the ſame perſon who ſent him intelligence of Red Roſes, which proved to be Corn Roſes or Red Poppies.]

PROPAGATION AND CULTURE.

Moſt of the ſorts of Roſes are of foreign growth, and have been at various times introduced into the Engliſh gardens, but they are generally natives of northern countries, or grow upon the cold mountains in the warmer parts of Europe, ſo they are very hardy in reſpect to cold, but love an open free air, eſpecially the Yellow Roſe, the Auſtrian Roſe, and the Monthly Roſe. The two former will not flower in a warm ſoil and ſituation, nor near the ſmoke of London, and the Monthly Roſe will flower much better in a free

[a] Curtis. Withering. Woodville. [b] Smith. [c] Jacquin.
[d] Willdenow. [e] Curtis. [f] Willdenow. [g] Curtis.
[h] Willdenow. [i] Jacquin.
[k] Willdenow. [l] Linn. ſpec. [m] Willdenow.
[n] Krocker.

open

open air, than within the reach of the ſmoke of London.

The uſual time of theſe ſhrubs producing their flowers is from the middle, or latter end of may, till the middle of july.

But in order to continue theſe beauties longer than they are naturally diſpoſed to laſt, it is proper to plant ſome of the Monthly Roſes near a warm wall, which will occaſion their budding at leaſt three weeks or a month before thoſe in the open air; and, if you give them the help of a glaſs before them, it will bring their flowers much forwarder, eſpecially where dung is placed to the back ſide of the wall (as is practiſed in raiſing early fruits;) by this method I have ſeen fair Roſes of this kind blown in february, and they may be brought much ſooner againſt hot walls or in ſtoves, where people are curious this way.

You may alſo cut off the tops of ſuch ſhoots which have been produced the ſame ſpring early in may, from ſome of theſe ſorts of Roſes which are planted in the open air, and upon a ſtrong ſoil; this will cauſe them to make new ſhoots, which will flower late in autumn, as will alſo the late removing the plants in ſpring, provided they do not ſuffer by drought, as I have ſeveral times experienced; but particularly in the year 1718, when I had occaſion to remove a large parcel of theſe plants in may, juſt as they were beginning to flower; in doing of which I cut off all the flower-buds, and, after having opened a trench where they were to be planted, I poured a large quantity of water, ſo as to render the ground like a pap; then I took up the plants, and placed them therein as ſoon as poſſible, that their roots might not dry; and, after planting them, I watered the ground well again, and covered the ſurface over with mulch to prevent the drying; after this I repeated watering the plants all over two or three times a week, in the evening, until they had taken root. In three weeks or a month after, the plants ſhot out again, and produced a great quantity of flowers in auguſt and ſeptember, which were as fair as thoſe produced in june. The Monthly Roſe is the beſt ſort for this purpoſe, there being no other ſort which will flower both early and late ſo well as this.

The next ſort of Roſe which flowers in the open air, is the Cinnamon, which is immediately followed by the Damaſk Roſe, then the Bluſh, York, and Lancaſter come; after which, the Provence, Dutch Hundred-leaved, White, and moſt other ſorts of Roſes follow; and the lateſt ſorts are the Virginia and Muſk Roſes, which, if planted in a ſhady ſituation, ſeldom flower until ſeptember; and, if the autumn proves mild, will continue often till the middle of october.

The plants of the two ſorts of Muſk Roſes, ſhould be placed againſt a wall, pale, or other building, that their branches may be ſupported, otherwiſe they are ſo ſlender and weak as to trail upon the ground. Theſe plants ſhould not be pruned until ſpring, becauſe their branches are ſomewhat tender; ſo that when they are cut in winter, they often die after the knife; theſe produce their flowers at the extremity of the ſame year's ſhoots in large bunches, ſo that their branches muſt not be ſhortened in the ſummer, leſt thereby the flowers ſhould be cut off. The ſhrubs will grow to be ten or twelve feet high, and muſt not be checked in their growth, if you intend they ſhould flower well, ſo that they ſhould be placed where they may be allowed room.

The loweſt ſhrub of all the ſorts here mentioned is the Scotch Roſe, which rarely grows above a foot high, ſo that this muſt be placed among other ſhrubs of the ſame growth, which ſhould have a moiſt ſoil and a ſhady ſituation. The Red Roſe, and the Roſa Mundi, commonly grow from three to four feet high, but ſeldom exceed that: but the Damaſk, Provence, and Frankfort Roſes grow to the height of ſeven or eight feet; ſo that in planting them, great care ſhould be taken to place their ſeveral kinds, according to their various growth, amongſt other ſhrubs, that they may appear beautiful to the eye.

The Yellow Roſe, and Auſtrian Roſe ſeldom ſhoot ſo ſtrong as moſt of the other ſorts, eſpecially in the light land near London, where they ſeldom produce their flowers. Theſe are eſteemed for their colour, being very different from all the other ſorts of Roſes; but as their flowers have no ſcent, and are of ſhort duration, they do not merit the price they are generally ſold at.

The Frankfort Roſe is of little value, except for a ſtock to bud the more tender ſorts of Roſes upon, for the flowers ſeldom open fair, and have no ſcent; but it being a vigorous ſhooter, renders it proper for ſtocks to bud the Yellow and Auſtrian Roſes, which will render them ſtronger than upon their own ſtocks; but the Yellow Roſes ſeldom blow fair within eight or ten miles of London, though in the northern parts of Great Britain they flower extremely well. This ſort muſt have a northern expoſure, for if it is planted too warm, it will not flower.

The Damaſk and Monthly Roſe ſeldom flower well in ſmall confined gardens, nor in the ſmoke of London, therefore are not proper to plant in ſuch places, though they frequently grow very vigorouſly there. Theſe always begin to ſhoot the firſt of any of the ſorts in the ſpring, therefore frequently ſuffer from froſts in april, which often deſtroy all their flowers.

All the ſorts of Roſes may be propagated either from ſuckers, layers, or by budding them upon ſtocks of other ſorts of Roſes; which latter method is only practiſed for ſome peculiar ſorts, which do not grow very vigorous upon their own ſtocks, and ſend forth ſuckers very ſparingly, or where a perſon is willing to have more ſorts than one upon the ſame plant; but where this is deſigned, it muſt be obſerved to bud only ſuch ſorts upon the ſame ſtock as are nearly equal in their manner of growth; for if there be a bud of a vigorous growing ſort, and others of weak growth budded in the ſame ſtock, the ſtrong one will draw all the nouriſhment from the weaker, and entirely ſtarve them.

If theſe plants are propagated by ſuckers, they ſhould be taken off annually in october, and tranſplanted out either into a nurſery in rows (as hath been directed for ſeveral other ſorts of flowering-ſhrubs) or into the places where they are to remain; for if they are permitted to ſtand upon the roots of the old plants more than one year, they grow woody, and do not form ſo good roots as if planted out the firſt year, ſo there is more danger of their not ſucceeding.

But the beſt method to obtain good-rooted plants is to lay down the young branches in autumn, which will take good root by the autumn following (eſpecially if they are watered in very dry weather,) when they may be taken from the old plants, and tranſplanted where they are to remain. The plants, which are propagated by layers, are not ſo apt to ſend out ſuckers from their roots as thoſe which are from ſuckers, therefore ſhould be preferred before them; becauſe they may be much eaſier kept within compaſs, and theſe will alſo flower much ſtronger. Theſe plants may be tranſplanted any time from october to april; but when they are deſigned to flower ſtrong the firſt year after planting, they ſhould be planted early; though, as I ſaid before, if they are planted late in the ſpring, it will cauſe them to flower in autumn, provided they do not ſuffer by drought.

Moſt of theſe ſorts delight in a rich moiſt ſoil and an open ſituation, in which they will produce a greater quantity of flowers, and thoſe much fairer, than when they are upon a dry ſoil or in a ſhady ſituation. The pruning which they require, is only to cut out their dead wood, and take off all the ſuckers, which ſhould be done every autumn; and if there are any very luxuriant branches, which draw the nouriſhment from the other parts of the plant, they ſhould be taken out, or ſhortened, to cauſe them to produce more branches, if there be occaſion for them to ſupply a vacancy; but you muſt avoid crowding them with branches, which is as injurious to theſe plants as to fruit-trees; for, if the branches have not equal benefit from the ſun and air, they will not produce their flowers ſo ſtrong, nor in ſo great plenty, as when they are more open, and better expoſed to the ſun,

ſo that the air may circulate the more freely between them.

[14. Thoſe little elegant varieties of the Provence Roſe, called greater Roſe de Meaux, and ſmaller Roſe de Meaux or Pompone Roſe, may be increaſed, like moſt of the other ſpecies, by ſuckers, which however are not very plentifully produced in theſe, and do not extend to any great length.

The roots ſhould not be divided oftener than once in three years: if the old wood be cut down every year, after the plants have done blowing, they will throw out more vigorous ſhoots, and flower more freely [c].]

22. The Moſs Provence Roſe rarely ſends up ſuckers, and when the branches are layed down they are long before they put out roots; it is therefore frequently propagated, by budding it upon ſtocks of the other ſorts; but the plants ſo raiſed are not ſo durable as thoſe which are propagated by layers; [and this latter method is now moſt uſually adopted.

ROSA hierochuntea. See *Anaſtatica.*]

—— ſinenſis. See *Camellia* and *Hibiſcus.*

—— ſolis. See *Droſera.*

ROSE-BAY. See *Nerium.*

—— Willow-herb. See *Epilobium.*

ROSE Campion. See *Agroſtemma.*

——, China. See *Hibiſcus.*

——, Guelder. See *Viburnum Opulus.*

ROSEMARY. See *Roſmarinus.*

ROSE of Jericho. See *Anaſtatica.*

——, Rock. See *Ciſtus.*

—— root. See *Rhodiola.*

ROSMARINUS. (*From* ros, dew, *and* marinus, *on account of its affecting maritime ſituations.*)

Lin. gen. n. 38. *Reich. n.* 41. *Schreb. n.* 49. *Tournef. t.* 92. *Juſſ.* 111.

Claſſ. 2. 1. Diandria Monogynia.

Nat. order of *Verticillatæ. Labiatæ*, Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* one-leafed, tubular, compreſſed above: *mouth* upright, two-lipped: *upper lip* entire, *lower* bifid.

COR. unequal: *tube* longer than the calyx; *border* ringent: *upper lip* two-parted, upright, ſhorter, acute, with the edges bent back; *lower lip* bent back, trifid; the middle ſegment very large, concave, narrow at the baſe, the lateral ones narrow, acute.

STAM. *Filaments* two, awl-ſhaped, ſimple with a tooth, inclined towards and longer than the upper lip. *Anthers* ſimple.

PIST. *Germ* four-cleft. *Style* of the ſame figure, ſituation and length with the ſtamens. *Stigma* ſimple, acute.

PER. none. *Calyx* containing the ſeeds at the bottom.

SEEDS four, ovate.

OBS. *This genus approaches very near to that of* Salvia, *and is diſtinguiſhed by not having the ſtaments at all forked.*

ESSENTIAL CHARACTER.

Cor. unequal, with the upper lip two-parted. *Filaments* long, curved, ſimple with a tooth.

SPECIES.

1. Roſmarinus officinalis. *Officinal Roſemary.*

Lin. ſpec. 33. *Reich.* 60. *Willd.* 126. *hort. cliff.* 14. *upſ.* 11. *mat. med.* 39. *Woodv. med. bot.* 239. *t.* 87. *Holl. helv. n.* 250. *Villars dauph.* 2. 401. *Allion. pedem. n.* 62. *Blackw. t.* 159. *Riv. mon. t.* 39. *Sabb. hort. rom.* 3. *t.* 67. *Kniph. orig. cent.* 1. *t.* 76. *Ludw. elt. t.* 196. *Plenck, ic.* 18.

α. R. latifolia. *Broad-leaved* or *wild Roſemary.*

Mill. dict. n. 2.

R. ſpontaneus, latiore folio. *Baub. pin.* 217. *Rait hiſt.* 515. 2. *Tournef. inſt.* 195.

R. coronarius fruticoſus ignobilior. *Baub. hiſt.* 2. 25.

Roſmarinum ſylveſtre. *Ger.* 1109. *emac.* 1292. 2.

Roſmarinum latifolium. *Park. theat.* 74. 3.

β. R. anguſtifolia. *Narrow-leaved* or *common garden Roſemary.*

Mill. dict. n. 1.

R. coronarius fruticoſus. *Baub. hiſt.* 2. 25. *Rait hiſt.* 515. 1.

R. hortenſis anguſtiore folio. *Baub. pin.* 217.

R. coronarium. *Ger.* 1109. 1. *emac.* 1292. 1.

Libanotis coronaria ſ. Roſmarinum vulgare. *Park. theat.* 74.

Leaves ſeſſile.

[2. Roſmarinus chilenſis. *Chili Roſemary.*

Willd. ſpec. 127. *Molina chil. ed. germ.* 134.

Leaves petioled.

DESCRIPTION, *&c.*

1. Root ſtrong, woody, fibrous. Stem ſhrubby, covered with a rough gray bark, divided into many branches, and in gardens riſing frequently to the height of eight or ten feet: but in its natural ſtate much lower. Leaves numerous, ſeſſile, linear, entire, blunt, contracted at the edges, dark green above, grayiſh or whitiſh underneath, with ſmall glandular excavations, placed in whorls on the branches. Flowers from the axils of the leaves, from ſix to twelve together, large, pale blue, ſometimes white with blue ſpots and dots. Calyx ſubtomentoſe [a].

Native of the South of Europe, the Levant and Barbary. Its cultivation in this country, like many other plants, is probably of ancient date, though we can now ſeldom trace them beyond the time of Gerarde [b], in 1596. It flowers from january to may.]

Mr. Miller, following the old writers, diſtinguiſhes two ſpecies of the Roſemary, having long cultivated both, and having raiſed them from ſeeds, without finding them to vary. The leaves of the wild are broader than thoſe of the garden Roſemary, and their points are blunter. The flowers are alſo much larger, and of a deeper colour. The ſtalks grow larger, and ſpread out their branches wider; and the whole plant has a ſtronger ſcent.

There are two other varieties; one of the garden ſort, with ſtriped leaves, which the gardeners call the Silver Roſemary: the other, of the wild ſort, ſtriped with yellow, and called Gold-ſtriped Roſemary. The former is ſomewhat tender, and all the plants of this variety were killed in the ſevere winter of 1740. The latter is pretty hardy, and will live in the open air through our common winters, on a dry ſoil.

[Roſemary has a fragrant aromatic ſmell, and a bitteriſh pungent taſte. The leaves and tops are ſtrongeſt in their ſenſible qualities: the flowers ought not to be ſeparated from their calyxes; the active matter reſiding principally, if not wholly, in the latter. Roſemary yields its qualities completely to rectified ſpirit, but only partially to water. The leaves and tops, diſtilled with water, yield a thin light pale eſſential oil of great fragrancy, though not quite ſo agreeable as the Roſemary itſelf. From one hundred pounds of the herb in flower eight ounces of oil have been obtained. The decoction, thus diveſted of the aromatic part of the plant, yields on being inſpiſſated, an unpleaſant bitteriſh extract. Rectified ſpirit likewiſe, diſtilled from Roſemary leaves, become conſiderably impregnated with their fragrance, leaving however in the extract the greateſt ſhare both of their flavour and pungency. The active matter of the flowers is ſomewhat more volatile than that of the leaves, the greateſt part of it ariſing with ſpirit.

Roſemary is reckoned one of the moſt powerful of thoſe plants which ſtimulate and ſtrengthen the nervous ſyſtem: it has therefore been recommended in various affections, ſuppoſed to proceed from debilities, or defective excitement of the brain and nerves; as in certain headachs, deafneſſes, giddineſſes, palſies, &c. and in ſome hyſterical and dyſpeptic ſymptoms.

The ancients were well acquainted with this ſhrub, and it is mentioned by Dioſcorides, Galen and Pliny [*]. It has ever been treated with great reſpect for its efficacy in comforting the brain, and ſtrengthening the memory. Hence the frequent alluſions to this property in our old poets:

"There's Roſemary, that's for remembrance;"

[a] Curtis.

[b] Haller and Woodville. [c] Woodville.

[*] Woodville, Lewis.

ſays Ophelia to Laertes, in Shakſpeare's Hamlet.—Again, Perdita ſays to Polixenes and Camillo:

——— "Reverend Sirs,
"For you there's Roſemary and Rue; theſe keep
"Seeming and favour all the winter long;
"Grace and Remembrance be to you both:——"

Rue ſignifying Grace, and Roſemary Remembrance.

Its quality of ſtrengthening the memory made Roſemary an emblem of fidelity in lovers. Thus in a ſonnet 1584:

"Roſemary is for remembrance
"Betweene us daie and night;
"Wiſhing that I might alwaies have
"You preſent in my ſight."

It was accordingly worn at weddings: and perhaps on the ſame principle at funerals[g], on which latter occaſions, in ſome parts of England, it is ſtill diſtributed among the company, who frequently throw the ſprigs into the grave along with the corpſe.

Roſemary has the character of being an emmenagogue; and the only diſeaſe in which Bergius ſtates it to be uſeful is the chloroſis. The officinal preparations of it are *Oleum eſſentiale roris marini*, and *Spiritus Roris marini*. It is a principal ingredient in what is known by the name of Hungary water: and the herb is taken as tea by many perſons[h], for headachs and diſorders called nervous[h].

2. This is a ſhrub known only from a ſhort deſcription given by Ignatius Molina. Future obſervations will inform us whether it belong really to this genus or not.—Native of Chili[i].]

PROPAGATION AND CULTURE.

Roſemary thrives prodigiouſly upon dry rocky ſoils near the ſea, in the South of France, in Spain and Italy. It is hardy enough to bear the cold of our ordinary winters in the open air, provided it be planted upon a poor dry gravelly ſoil, or near a wall.

The varieties with ſtriped leaves are ſomewhat tender, eſpecially that with ſilver ſtripes. Theſe therefore ſhould either be planted by a warm wall, or in pots filled with light freſh earth, and ſheltered in winter under a frame.

Roſemary may be increaſed by planting ſlips or cuttings in the ſpring, juſt before the plants begin to ſhoot, upon a bed of light freſh earth: when they are rooted, tranſplant them where they are to remain, about the beginning of ſeptember, that they may take new root, before the froſty weather comes on. If they are not tranſplanted thus early, let them remain unremoved till march following; obſerving to tranſplant them in mild ſhowery weather. They will then require no farther care but to keep them clear from weeds.

When Roſemary is by accident rooted in a wall, it will endure the greateſt cold of our winters, though it be much expoſed to cold winds.

[ROS SOLIS. See *Droſera*.

ROT, RED. See *Droſera*.

—— WHITE. See *Hydrocotyle*.

ROTALA. (*Diminin. from* Rota, *a wheel.*)

Lin. gen. Reich. n. 56. *Schreb. n.* 69. *Juſſ.* 303.

Claſſ. 3. 1. Triandria Monogynia.

Nat. order of *Caryophylleæ*.

GENERIC CHARACTER.

CAL. *Perianth* one-leafed, tubular, membranaceous, three-toothed, permanent.

COR. none.

STAM. *Filaments* three, capillary, the length of the calyx. *Anthers* round-iſh.

PIST. *Germ* ſuperior, ovate. *Style* filiform. *Stigma* trifid.

PER. *Capſule* ovate, ſubtrigonal, incloſed within the calyx, three-celled, three-valved.

SEEDS very many, roundiſh.

ESSENTIAL CHARACTER.

Cal. three-toothed. *Cor.* none. *Capſ.* three-celled, many-ſeeded.

SPECIES.

1. Rotala verticillaris.

Lin. ſyſt. 82. *Reich.* 94. *Willd.* 189. *mant.* 175.

DESCRIPTION, *&c.*

This is an annual plant, with a ſimple creeping root. Stem aſcending, a palm high, round, jointed, even. Branches quite ſimple, ſtiff; the lower oppoſite, the upper alternate, fewer; the joints below round, above ſomewhat four-cornered. Leaves in fours, ſometimes on the branches from five to eight, ſeſſile, linear, ſharpiſh, even, ſomewhat keeled, ſpreading. Flowers in fours, one from each axil of the leaves, ſeſſile, ſmall. Calyx covering the whole capſule, very finely membranaceous. Fruit the ſize of Muſtard ſeed. Whorls remote.—Native of the Eaſt Indies[k].

ROTANG. See *Calamus*.

ROTHIA. (*So named by Schreber, in honour of Albrecht Wilhelm Roth, phyſician at Bremen.*)

Lin. gen. Schreb. n. 1241. *Gærtn. t.* 174.

Claſſ. 19. 1. Syngeneſia Polygamia Æqualis.

Nat. order of *Compoſitæ Semiflosculoſæ. Cichoraceæ*, Juſſ.

GENERIC CHARACTER.

CAL. *Common* rounded, villoſe-tomentoſe: *ſcales* about ſeven, equal, linear, acute.

COR. *Compound* imbricate, uniform: *Corollets* hermaphrodite, numerous, equal.

Proper one-petalled, ligulate, linear, truncate, five-toothed.

STAM. *Filaments* five, capillary, very ſhort. *Anther* cylindrical, tubular.

PIST. *Germ* ovate. *Style* filiform, the length of the ſtamens. *Stigmas* two, reflex.

PER. none. *Calyx* converging.

SEEDS ſolitary.—In the *Diſk* cylindric-turbinate, ſtriated; with a capillary *Down*, feathered below and ſeſſile.—In the *Ray* cylindrical, ſtriated, wrapped up in chaffs, without any *Down*.

REC. flat, in the diſk hairy, in the ray chaffy. *Chaffs* in ſeveral rows, linear, channelled, erect, ſharpiſh, tubular at the baſe: outer the length of the calyx; inner gradually ſhorter.

OBS. *It is very nearly allied to* Andryala.

ESSENTIAL CHARACTER.

Cal. many-leaved in a ſingle row, equal, woolly. *Recept.* in the ray chaffy, in the diſk villoſe. *Seeds* in the ray bald, in the diſk pappoſe.

SPECIES.

1. Rothia andryaloides.

Gærtn. fruct. 2. 371.

Voigtia. *Roth diar. botan. tigur.* 1790. *n.* X. *p.* 17.

ROTTBOELLIA. (*So named by the younger Linnæus, in memory of Chriſtian Friis Rottboell, profeſſor of botany, at Copenhagen.*)

Lin. ſil. nov. gen. gram. 23. *ſuppl.* 13. *Schreb. gen. n.* 1573. *Juſſ.* 31.

Claſſ. 23. 1. Polygamia Monoecia—v. 3. 2. Triandria Digynia.

Nat. order of *Gramina*, *Gramineæ* or *Graſſes*.

GENERIC CHARACTER.

RECEPTACLE *common* elongated into the jointed rachis of a cylindrical ſpike: the joints alternately hollowed out to receive flowers of a two-fold ſtructure: *ſome* (in the calyx) one-glumed, placed on a thicker tooth, hermaphrodite; *others* two-glumed, each inſerted (alternately) on either ſide of the former, a little lower down, and a little ſmaller than the former, female hermaphrodites? in ſome ſpecies only one of each ſort.

* *Hermaphrodites, one-glumed.*

CAL. *Glume* one-flowered, one-valved: *valve* cartilaginous, ovate-oblong, truncate at the baſe, often emarginate, ſtriated, cloſing the ſinus of the joint (which is in place of a ſecond valve) like a lid.

COR. *Glume* two-valved, parallel to and ſhorter than the calycine glume: *valves* lanceolate, acute, concave, membranaceous, hyaline: outer longer, inner with the edges bent in.

Nectary one-leafed, lanceolate, blunt, membranaceous, hyaline, longer than the germ.

[g] See notes on Shakſpeare, Steevens's edit. vol. 15. p. 275.
[h] Woodville. [i] Willdenow.
[k] Linn. mant.

STAM. *Filaments* three, capillary. *Anthers* oblong, bifid at each end.

PIST. *Germ* oblong. *Styles* two, filiform. *Stigmas* oblong, feathered, ſpreading, ſtanding out.

PER. none. The ſinuſes of the joints of the ſpike cloſed by the glume of the calyx contain the ſeed, until the rachis ſeparates in joints.

SEED ſingle, oblong.

* *Hermaphrodites? two-glumed.*

CAL. *Glume* one-flowered, two-valved, tranſverſe: *valves* cartilaginous, oblong, mucronate, ſtriated; outer a little ſhorter, with a ſhorter dagger-point.

COR. *Glume* two-valved, tranſverſe: *valves* lanceolate, membranaceous, ſhorter than the calyx; outer concave, longer, inner with the edges folded together.

Neftary as in the other; or two-leaved, with the leaflets lanceolate, acuminate.

STAM. *Filaments* three, capillary. *Anthers* oblong, bifid at each end.

PIST. *Germ* oblong or ovate. *Styles* two, capillary. *Stigmas* oblong, feathered, ſpreading, ſtanding out.

PER. none. Calyx and corolla cherith the ſeed, faſtened to the rachis, which ſeparates in joints.

SEED ſingle, ovate or oblong.

OBS. *Flowers of both ſtructures are found in* R. exaltata, corymboſa, *and others: one-glumed only in* R. cylindrica *and* compreſſa; *two-glumed only in* R. incurvata. *Where both are preſent, both ſeem to be hermaphrodite; unleſs perhaps in the latter, the two-glumed flowers may have the anthers barren, for there does not ſeem to be any defect in the ſtyles and ſtigmas. If flowers of either ſort only be preſent, they are hermaphrodites. This genus therefore, in other reſpects very nearly allied to Ægilops, might have been put with the other Groſſes in the ſecond order of the third claſs,* Triandria Digynia. — *Schreber obſerved a two-leaved neftary in* R. incurvata *alone.*

ESSENTIAL CHARACTER.

Rachis jointed, roundiſh, in moſt ſpecies filiform. *Cal.* ovate-lanceolate, flat, one or two-valved. *Florets* alternate on a flexuoſe rachis.

SPECIES.

1. Rottboellia incurvata.
   Lin. ſuppl. 114. *Syſt.* 124. *Willd.* 463. *Fl. dan. t.* 938. *Desfont. atlant.* 110. *Cyrill. neap.* 1. 18. *t.* 6. *f.* A. *Wither.* 169. *Smith*, 151. *engl. bot.* 760. *Reth. ſuppl.* 2. 8.
   Ægilops incurvata. *Lin. ſpec.* 1490. *Syſt. ed.* 13. 762. *Huds. angl.* 441.
   Agroſtis incurvata. *Scop. carn. n.* 88.
   Gramen maritimum ſpicis articulatis. *Monti gram.* 43. *f.* 29. *Mor. hiſt.* 3. *ſ.* 8. *t.* 2. *f.* 8.
   Gr. loliaceum marit. ſcorpioides. *Scheuch. agr.* 42. *t.* 2. *f.* 1. A. B.
   Gr. parvum marinum, ſpica loliacea. *Rail ſyn.* 395.
   Spike round awl-ſhaped curved inwards, calycine glume two-valved awl ſhaped preſſed cloſe.
2. Rottboellia filiformis.
   Lin. ſpec. ed. Willd. 464. *Roth. catalect.* 1. 21.
   Gramen loliaceum minimum, ſpicis gracilibus reflexis. *Monti gram.* 43. *f.* 30.
   Gr. junceum nodoſum min. capillare. *Bar. ic.* 1164. *t.* 117. *f.* 1.
   Spike round awl-ſhaped ſubcompreſſed, erect, calycine glume two-valved uniform ſpreading.
3. Rottboellia cylindrica.
   Lin. ſpec. ed. Willd. 464.
   Nardus gangitis. *Lin. ſpec.* 78?
   Rottb. altiſſima. *Poiret itin.* 2. 105?
   R. faſciculata. *Desfont. atlant.* 110. *t.* 36?
   Gramen loliaceum, ſpicis articulosis erectis. *Monti gram.* 43. *f.* 28.
   Gr. lol. junceum majus. *Barr. ic.* 1162. *t.* 5.
   Spike round awl-ſhaped, erect, calycine glume one-valved.
4. Rottboellia Thomæa.
   Lin. ſpec. ed. Willd. 464. *Roxb. corom.* 2. 2. 17. *t.* 132. *f.* 2.—R. piloſa. *Willd. ſpec.* 465.
   Nardus Thomæa. *Lin. ſuppl.* 105. *Syſt.* 102. *Tranſ. Linn. ſoc.* 1. 116.
   Spike ſolitary erect awl-ſhaped imbricate two ways, rachis waved excavated but not jointed.
5. Rottboellia repens.
   Lin. ſpec. ed. Willd. 465. *Forſt. prodr. n.* 50.
   Spike round awl-ſhaped, calycine glume one-valved undivided.
6. Rottboellia lævis.
   Lin. ſpec. ed. Willd. 465. *Retz. obſ.* 3. 11. *n.* 26.
   Peduncles very long, ſpike with flowers in pairs lateral, calyxes ovate undotted even.
7. Rottboellia compreſſa.
   Lin. ſuppl. 114. *Syſt.* 124. *ſpec. ed. Willd.* 465. *Retz. obſ.* 3. 12. *n.* 27.
   Spike compreſſed awl-ſhaped, calycine glume lanceolate flat undivided.
8. Rottboellia hirſuta.
   Lin. ſpec. ed. Willd. 465. *Vahl, ſymb.* 1. 11.
   Triticum ægilopoides. *Forſk. deſcr.* 26. *n.* 94.
   Spike awl-ſhaped hirſute, hermaphrodite florets ſpreading, barren florets pedicelled preſſed cloſe.
9. Rottboellia Cymbachne.
   Lin. ſpec. ed. Willd. 465.
   Cymbachne ciliata. *Retz. obſ.* 6. 36.
   Spikes twin halved, ſheaths of the leaves ciliate.
10. Rottboellia Coelorachis.
    Lin. ſpec. ed. Willd. 466. *Forſt. prodr. n.* 49.
    Spike round one-ſided, florets twin, one of them pedicelled, calyx two-valved.
11. Rottboellia dimidiata.
    Lin. ſuppl. 114. *Syſt.* 124. *ſpec. ed. Willd.* 466. *Thunb. prodr.* 23.
    Spike halved compreſſed linear, outer ſide aggregate-ſeſcular, inner even naked.
12. Rottboellia exaltata.
    Lin. ſuppl. 114. *Syſt.* 124. *ſpec. ed. Willd.* 466. *Swertz, obſ.* 42.
    Spike round-filiform, ſeſcular every way, glumes ovate blunt, ſheaths dotted and hirſute.
13. Rottboellia corymboſa.
    Lin. ſuppl. 114. *Syſt.* 124. *ſpec. ed. Willd.* 466.
    R. punctata. *Retz. obſ.* 3. 12. *n.* 28.
    Ægilops exaltata. *Lin. mant.* 575. *Retz. obſ.* 2. 27.
    Spikes aggregate lateral filiform, florets bifarious ſpreading, leaves ciliate at the baſe.
14. Rottboellia muricata.
    Lin. ſpec. ed. Willd. 466. *Retz. obſ.* 3. 12. *n.* 29.
    Ægilops muricata. *Retz. obſ.* 2. 27.
    Spikes ſeveral round on long peduncles, calyxes ciliate-aculeate, the neutres bifid.
15. Rottboellia ſanguinea.
    Lin. ſpec. ed. Willd. 467. *Retz. obſ.* 3. 25.
    Spikes of the panicle awned alternate ſimple peduncled, the lateral bractæ of the flowers ciliate.
16. Rottboellia ſetacea.
    Roxb. corom. 2. *n.* 2. *p.* 17. *t.* 132. *f.* 1.
    Nardus indica. *Lin. ſuppl.* 105. *Diſt. noſtr. n.* 3.
    Spike ſolitary awl-ſhaped one-ranked, a little curved inwards, rachis excavated but not jointed.
17. Rottboellia monandra.
    Cavan. hiſp. 1. 27. *n.* 41. *t.* 39. *f.* 1.
    Gramen exile arundinaceum minimum, acumine reflexo. *Scheuch. agr.* 41. *t.* 1. *f.* 7. K.
    Culm erect, flowers diſtich in ſpikes.

DESCRIPTIONS, *&c.*

1. Culms branched, procumbent at the baſe, jointed, knobbed. Leaves ſmooth, wide. Spikes ſlender: rachis flexuoſe, knobbed, ſtriated, alternately excavated. Flowers ſolitary, ſeſſile, preſſed cloſe. Outer calyx two-flowered, one-glumed; glume coriaceous, two-parted, awl-ſhaped, ſegments converging at the edge and equal: inner calyx membranaceous, two-glumed, ſhorter, awnleſs: one of the flowers commonly abortive[1].

Culm branched. Spikes linear, rigid, curved inwards, having as far as fourteen joints. At each joint is a ſpikelet, with a two-glumed calyx; the glumes equal, acuminate, awnleſs, one-flowered. Petals two, acuminate, thin, twice as ſhort as the calyx; one of them bifid. Filaments ſhorter than the petals, with fulvous anthers. Germ fulvous[a].—Scopoli did not

[1] Desfontaines. [a] Scopoli.

find

find a three-flowered calyx, and male flowers mixed with the hermaphrodites.

Calycine glume ſolitary, undivided, for the flowers being faſtened to the rachis, a ſecond glume is not wanting. The caſe is the ſame in Lolium [a].

Root annual, fibrous, very much branched, elongated. Culms numerous, decumbent at the baſe, branched, jointed, round, very ſmooth, leafy. Leaves ſpreading, linear, acute, flat, ſtriated, rugged above and at the edge. Sheaths ſhorter than the leaves, ſomewhat ſwelling, ſtriated, ſmooth. Stipule ſhort, blunt. Spike ſolitary, filiform, ſomewhat bowed, round, ſmooth, many-flowered. Rachis jointed, alternately excavated; joints one-flowered. Calyx two-glumed: glumes lanceolate, acute, awnleſs, ſmooth, ſtriated, parallel, tightly cloſely each excavation, but ſpreading in flowering time. Floret ſolitary, hermaphrodite, a little ſhorter than the calyx: glumes membranaceous, white, awnleſs, nearly equal [a].

Native of many parts of Europe, on the ſea coaſt, and in ſalt-marſhes. In England, near Yarmouth and Sheringham in Norfolk. Wiſbech in Cambridgeſhire. Near Seaton, in Durham. Below King's Weſton, near Briſtol. At Exmouth, in Devonſhire. It flowers in july and auguſt.

2. This reſembles the preceding very much, but differs from it in having the culm more ſlender and purple; the leaves of a darker green, three times ſhorter and narrower, more acuminate, and channelled, not bright green and flat, above more ſtriated and rugged; the ligule almoſt three times as long, inſtead of being very ſhort ſcarcely the quarter of a line in length, retuſe; the ſpike as ſlender again; the florets more approximating, ſo as to be almoſt contiguous, and ſmaller; the glumes twice as ſmall and blunter, not lanceolate-acuminate.—Native of the South of Europe [b]. Perennial.

3. Culm erect, even, branched, alternately compreſſed and channelled from one knot to another. Leaves ſmooth; with a ſheath ſhorter than the internodes. Spikes three to ſix, in bundles, axillary, peduncled. Peduncles involved in the ſheath, preſſed cloſe. Several acute membranes come out from each knot. Spikes bowed, ſmooth. Flowers diſpoſed in four rows, cloſe preſſed. Outer calyx one-flowered, one-glumed; glume coriaceous, ovate, compreſſed, ſubacute. Inner calyx two-glumed, membranaceous, awnleſs, ſhorter. Rachis jointed, excavated in four rows [c].—Native of the South of Europe, and of Barbary. Perennial.

4. Culms minute, erect, compreſſed, about an inch high without the ſpike, and two with it. Leaves numerous, forming a tuft, two inches long, briſtle-ſhaped. Spike ſolitary, erect, awl-ſhaped, two-ranked, compreſſed, yelloviſh: rachis waved, excavated on the ſides, not jointed. Flowers all hermaphrodite, diſpoſed alternately in the excavations of the rachis. Calyx one-flowered, two-valved: outer valvelet rigid, linear; inner boat-ſhaped and leſs rigid. Corolla two-valved, membranous, hairy.—Found by Koenig in Tranquebar, at St. Thomas's mount; on old walls [d].

Willdenow has diſtinguiſhed another ſpecies, found alſo by Koenig in Malabar, which ſeems to be the ſame with this. He thus deſcribes it under the name of *R. piloſa*. It is the ſmalleſt ſpecies of the genus. The whole graſs being hardly more than an inch in height. Culms ſimple, cloſely covered with the ſheaths of the leaves, ſeveral from one root. Leaves linear, channelled, hairy with ſcattered hairs long in proportion to the plant. Spike ſolitary, terminating, awl-ſhaped.

5. Native of the iſlands in the South Seas within the Tropics [e].

6. Culms aſcending, leafy, having a ſheath to the ſecond or third joint, whence ſpring three or four one-ſpiked peduncles more than a foot long. The lower joint of theſe is almoſt triangular or elſe ſemicylindrical, and hollowed, but the upper one, which bears the ſpike, is exactly cylindrical, and is wrapped up about half way in the ſheath. Leaves ſhort, keeled, bearded at the edges. Spike very ſtiff, and in each joint of it two lateral alternate flowers. Outer glume of the calyx obliquely ovate, cartilaginous, quite ſmooth and even: inner glume equal, membranaceous, very thin, as is alſo the corolla.—Sent by Koenig from Tranquebar.

7. Culms compreſſed, leafy. Leaves even, naked, with compreſſed ſheaths. From the upper ſheaths of the culm comes out a peduncled and involucred bundle of ſpikes. Spikes in this involucre again peduncled, and having a partial ſheathed involucre at the baſe. Each ſpike compreſſed flat on one ſide. At each joint are two flowers, the calyxes of which are acute, awnleſs, undotted; each two-valved, but one oppoſite, with both valves cartilaginous, narrower, longer, and in a manner awned; the other lateral, with the inner valve membranaceous and together with the corolla concealed by the outer valve in the hollow of the rachis.—Tranchell found it in China [f]. Native both of the Eaſt and Weſt Indies.

8. Culm a foot high and more, ſtriated, alternately excavated at top. Flowering branches ſometimes ſeveral from one joint. Leaves involute, ſtiffiſh, two inches long, yelloviſh at the tip, the uppermoſt ſpathaceous. Sheaths wider than the leaves, ſomewhat grooved, bearded at the mouth. Spike ſolitary, three or four inches long. Rachis flexuoſe, jointed; one ſide convex, the other concave where the florets are, the whole ſet with a ſoft ſilky hairineſs, except the hollow ſide; each tooth two-flowered: one of the flowers ſeſſile, ſpreading, the other pedicelled, preſſed cloſe: ſometimes there are three to each tooth, and then the middle one is pedicelled. Glumes two-valved, ovate, two-flowered: valves unequal; outer flat, ciliate with long hairs, rolled in at the edge, acuminate, point bifid with the ſegments unequal; inner convex, keeled, hairy on the back and at the end, acute, entire. One corolla male, the other hermaphrodite: valves lanceolate, hyaline. The pedicelled flower is barren: valves lanceolate, unequal, ciliate, entire [g].

Native of Egypt. Perennial. A beautiful Graſs.

9. This is a ſlender graſs, a foot high. Culms ſeveral ſimple and branched; the latter having one leaf, the former none. Leaves ſhort, thin, ciliate at the edge above the ſheath with long, diſtinct, white hairs: ſheath truncate, with a pale-brown mouth, ciliate. Spikes two, linear, an inch and half long and a line wide, ſome hermaphrodite, others female: rachis linear, membranaceous, behind flat with three longitudinal ſtreaks, in front alternately and flexuoſely hollowed. In the hermaphrodite two-glumed florets, both valves are preſſed cloſe to the rachis and parallel to it, but not concealed one by the other: outer valves linear, blunt, ciliate at the back; inner of the ſame length, half-ovate, acute, boat-ſhaped, very much compreſſed, ſtriated, coloured, ciliate at the back, incloſing the corolla, which is hyaline and leſs than the calyx. Anthers black. Germ minute. Stigmas black-bearded. In the female florets, the calyx is one-valved, ovate, ſlightly bifid at the end, ciliate on the edge, oppoſite to the rachis, preſſed cloſe. Corolla none. Piſtil like thoſe of the others, but the ſtigmas ſeem to be longer. Native of Bengal, where it was obſerved by Koenig [h].

10. Native of the iſland of Tanna [i].

11. Native of the Eaſt Indies, in ſandy ſoils [k], and of the Cape of Good Hope [l].

12. This is a tall graſs, with a ſolid culm. Sheaths of the leaves grooved, dotted with raiſed dots, ending in a briſtle, hiſpid all over. Spikes ſolitary, lateral, a hand long or more [m].

Swartz thus deſcribes under the ſame name a Graſs which he found in Jamaica. Culm from two to ſix feet high, upright, ſubdivided, ſtriated, ſemicylindrical, ſheathed; branchlets upright. Leaves a foot long, broad-linear, ſpreading, even, cartilaginous-ferrate at the edge. Sheaths two or three inches in length, ſtriated, dotted, hiſpid-hirſute, rough-haired at the mouth: hairineſs thin, white, pungent. Spikes

[a] Cyrillo. [b] Smith. [c] Roth in Willdenow. [d] Deſfontaines. [e] Roxburgh. [f] Forſter.

[g] Retzius. [h] Vahl. [i] Retzius. [k] Forſter. [l] Linn. ſuppl. [m] Thunb. prodr. [n] Linn. ſuppl.

ſolitary,

ſolitary, two or three inches long, cylindrical, jointed, acuminate, even, green. Florets ſeſſile, alternate: rachis flexuoſe, with excavations for the florets, which form a round ſpike. The exterior flowers are male, the interior hermaphrodite, within the ſame calycine glumes. Glume two-valved, two-flowered: outer valve ovate, acute, preſſed cloſe to the ſpike; inner arched involving the hermaphrodite flower. Corolla of the male flower two-valved: valves ſmaller, white. The nectary conſiſts of two truncate petals at the baſe of the filaments. Anthers red, fertile; they are often barren, and then are yellow. Piſtil none. Hermaphrodite within the male, and not viſible unleſs that be removed. The corolla of the hermaphrodite is alſo two-valved; the valves whitiſh and fugacious. Anthers often barren. Germ roundiſh. Stigma villoſe, purple. After the male flower falls, the ſeed ripens within the rachis, and when ripe falls off, the ſpike breaking.

13. Culm cylindrical, full, leafleſs. Spike ſhorter than a finger, ſtiff, coming out in bundles from the upper ſheaths of the culm, and ſheathed themſelves. Florets placed in an alternate row, ſolitary. Calyx ovate, blunt, ſtreaked and dotted [c].—Native of Malabar, in ditches.

14. Culms angular, leafy; with ciliate ſheaths. All the calyxes very ſlightly pubeſcent; the lateral wider, ſcarioſe at the top, ciliate-prickly at the edge; the oppoſite a little lower, ſmaller, ſcarcely ciliate, empty. In this and in *compreſſa*, one calyx is lateral, the other oppoſite, in *corymboſa* and *lævis* they are all lateral [d].—Native of the Eaſt Indies.

15. This has altogether the appearance of an Andropogon. Culm half-round, jointed, leafy. Sheaths widening at top, and almoſt cowled over the upper joints. From each ſheath iſſues a filiform ſheath, the peduncle of which is concealed within the ſheath. Flowers ſeſſile, alternate, along the excavated rachis. Calyx two-valved obliquely lateral; the outer glume ſemicylindric awl-ſhaped, cartilaginous; the inner equal, very thin, white with blood-red ſtreaks. Outer glume of the corolla blood-red, the length of the inner calycine glume: inner glume cloven to the very baſe, ſo that there ſeems to be inner glumes, of a lanceolate form, half white and half red, very finely ciliate: at the baſe of this is a long twiſted awn. Bractæ next the flower linear, cartilaginous, ſlightly awned, ciliate-bearded on one ſide, alternate. Anthers and ſtigmas blood-red. If the bractæ be aſſigned to the calyx, and the inner petal be conſidered as double, then the calyx and corolla will be three-glumed, with unequal glumes, which is ſingular. Perhaps this graſs may be of a diſtinct genus; the habit certainly is different. Native of China, whence it was ſent by Bladh [e].

16. *Culms many, erect, ramous, filiform, ſmooth,* from two to ſix inches high. Leaves a little hairy on the inſide. Spike about an inch or an inch and half long. Flowers all hermaphrodite, imbricate on the excavated ſide of the rachis. Calyx one-flowered; valves equal, membranaceous-margined. Corolla two-valved, membranaceous, hairy.

Native of the Eaſt Indies, on old walls [f].—See the deſcription from the Supplement of the younger Linneus, under *Nardus indica*.

17. Roots capillary, numerous; whence ſpring ſeveral culms half a foot high, having three reddiſh knots at bottom. Root-leaves ſhort, very narrow: ſtem-leaves ſheathing the culm for an inch and half in length: thence erect and briſtle-ſhaped. Flowers ſolitary, or in pairs, one ſeſſile, the other peduncled; all in the alternate excavations of the rachis. Glume of the calyx ſolitary, very ſhort, red, ovate-acute. Corolla two-valved: valves ſmooth, nearly equal, oblong, keeled, acute; the outer embracing the inner, and terminated by an awn equal to the valve itſelf. Stamen one only: filament between the germ and the awned valve, villoſe at the baſe: anther oblong, four-grooved, blackiſh-purple, after fecundation deeply bifid. Germ turbinate. Styles two. Stigmas revolute, feathered. Seeds ſolitary, concealed within the valves. It is an annual graſs, very common about Madrid, and flowers in may. At the top of the ſtem there is always a ſolitary flower, which beyond the calycine glume bears another almoſt oppoſite to that and much ſhorter [g].

ROUCOU. See *Bixa*.

ROUGH BINDWEED. See *Smilax*.

ROUHAMON. See *Laſioſtoma*.

ROUPALA. See *Rupala*.

ROUREA. See *Robergia*.

ROUSSEA. (*So named by J. E. Smith, M. D. in memory of the celebrated* Jean Jacques Rouſſeau, *who wrote very elegant Letters on the ſubject of Botany, and cultivated and adorned that lovely ſcience with his laſt breath. Linneus, who frequently correſponded with him, had in his manuſcripts conſecrated a plant to his name: but the younger Linneus having, by miſtake, publiſhed that under the name of* Ruſſelia, *Dr. Smith gave this new, beautiful and very ſingular genus the name of* Rouſſea.

Smith, ic. ined. 1. 6.

Claſſ. 4. 1. Tetrandria Monogynia.

GENERIC CHARACTER.

CAL. *Perianth* four-cleft, ſmooth: *ſegments* tongue-ſhaped, acute, reflex.

COR. bell-ſhaped, wrinkled on the outſide, ſubpubeſcent, half-four-cleft: *ſegments* acute, revolute.

STAM. twice as long as the revolute corolla, and alternate with its ſegments. *Filaments* ſtraight, very wide, a little narrower at the top, ſmooth. *Anthers* ſmall, ſagittate, acute.

PIST. *Germ* ſuperior, quadrangularly pyramidal, ſmooth. *Style* the length of the ſtamens, permanent. *Stigma* ſimple, blunt, umbilicate-depreſſed, ſmooth.

PER. *Berry* quadrangularly pyramidal, one-celled, with a ſmooth hard bark.

SEEDS very numerous, ſmall, lens-ſhaped, neſtling.

ESSENTIAL CHARACTER.

Cal. four-leaved. *Cor.* one-petalled, bell-ſhaped, four-cleft, inferior. *Berry* quadrangular, many-ſeeded.

SPECIES.

1. Rouſſea ſimplex.

Smith, ic. ined. 1. 6. *Willd. ſpec.* 607.

DESCRIPTION, *&c.*

This is a ſmall ſhrub, climbing over trees or rocks, ſeemingly among moſs. Stem and branches thick, fleſhy, knobbed. Leaves oppoſite, petioled, obovate, acute or ſubacuminate, toothed, very ſmooth on both ſides, ſomewhat fleſhy. Stipules intrafoliaceous, membranaceous, acute. Flowers ſolitary, axillary, on ſhort peduncles, nodding, large, of a very fleſhy ſubſtance. Bractæ cluſtered, membranaceous, acute, like the ſtipules. Peduncles round, naked.—Found by Commerſon in the iſland of St. Mauritius; and communicated by Monſ. Thouin [h].

ROXBURGHIA. (*Named in honour of* William Roxburgh, *M. D. born in Scotland, and ſettled in the Eaſt Indies; author of a ſplendid work on the plants of the coaſt of Coromandel.*)

Roxb. corom. 1. *t.* 32.

Claſſ. 8. 1. Octandria Monogynia.

GENERIC CHARACTER.

CAL. inferior, four-leaved: *leaflets* lanceolate, membranaceous, ſtriated, coloured, revolute, immediately below the petals.

COR. *Petals* four, nearly erect, lanceolate, the lower half rather broader than the upper, along the inſide runs a deep, ſharp, ſlightly waved keel, forming on each ſide a deep groove or hollow; the four keels converge, and in ſome meaſure adhere together, thus bringing the ſide of the petals cloſe, and forming a tube: the upper part of the petals is narrow, bending out a little, and then their points bend in.

Nectary compoſed of four, lanceolate, yellow bodies, each ſeſſile on the apex of the keel of the petals, converging into one conical body.

STAM. *Filaments* none. *Anthers* eight, linear, lodged in the grooves formed by the keel of the petals, adhering their whole length, but their chief inſertion near the baſe.

[c] Retzius. [d] Idem. [e] Idem. [f] Roxburgh. [g] Cavanilles. [h] Smith.

tree, entire, of a lucid green, and continuing all the year. The flowers come out from the wings of the leaves round the branches, and are white. Fruit roundiſh, purple, ripening in the winter.

[Cultivated in 1731, by Mr. Miller. It flowers in ſeptember*.]

5. This riſes with a ſtrong woody ſtalk ſeven or eight feet high, covered with a gray bark, ſending out many ſmall branches alternately. Leaves about an inch long, and a quarter of an inch broad in the middle, covered with ſoft hairs. The flowers come out on ſhort pedunckles from the ſide of the branches; they are of a worn-out purple colour and ſmall. They appear in july, but are not followed by ſeeds in England.

[It appears in the ſeventh edition of the Dictionary in 1759: but according to the Kew catalogue it was introduced in 1767, by Mr. William Malcolm.

6. This was found at the Cape by Thunberg, and differs in the diſpoſition of the flowers from the other ſpecies

7. This alſo is very different from all the ſpecies hitherto known, in having narrow lanceolate leaves, ſharp at both ends, and ſomewhat hairy underneath. It is a native of the ſame country with all the reſt.]

PROPAGATION AND CULTURE.

Theſe plants are too tender to live through the winter in the open air in England, they muſt be removed therefore into the greenhouſe in autumn, and treated in the ſame way as Orange-trees. The firſt and fifth ſorts are difficult to propagate here, for the branches which are laid down ſeldom put out roots, and thoſe which do are two or three years before they make roots ſufficient to tranſplant, and their cuttings very rarely ſucceed. The beſt time to plant the cuttings is early in the ſpring. Plant them in ſmall pots filled with loam, and plunge them into a very moderate hot-bed; cover them down with hand-glaſſes, and refreſh them with a little water, every eighth or tenth day. If the cuttings ſhoot, inure them gradually to bear the open air, and when they are well rooted, plant each in a ſeparate ſmall pot, and afterwards treat them as the old plants.

If the plants put out any young ſhoots from the bottom, lay them carefully down whilſt young; ſlitting them, as is practiſed in laying Carnations. During warm weather water them frequently but gently; in cold weather ſparingly. When they are rooted, take them off, and treat them in the ſame manner as the cuttings.

The fourth ſort is very apt to ſend up ſuckers from the roots, and may be increaſed that way. When it does not, the branches may be laid down. The cuttings alſo ſucceed much more eaſily than in the others.

ROYENIA. See *Loeſelia.*

ROYOC. See *Morinda.*

RUBENTIA of Commerſon and Juſſieu, the ſame with *Elæodendrum* of Jacquin.]

RUBEOLA. See *Aſperula, Cruciaxella, Galium, Sherardia, Valantia.*

RUBIA. (*From the red colour of the root.*)

Lin. gen. n. 127. *Reich. n.* 134. *Schreb. n.* 164. *Tournef. t.* 38. *Juſſ.* 197.

Claſſ. 4. 1. Tetrandria Monogynia.

Nat. order of *Stellatæ. Rubiaceæ*, Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* very ſmall, four-toothed, ſuperior.

COR. one-petalled, bell-ſhaped, four-parted, without a tube.

STAM. *Filaments* four, awl-ſhaped, ſhorter than the corolla. *Anthers* ſimple.

PIST. *Germ* twin, inferior. *Style* filiform, bifid at top. *Stigmas* capitate.

PER. *Berries* two, united, ſmooth.

SEEDS ſolitary, roundiſh, umbilicate.

OBS. *The corolla is frequently five-cleft.*

ESSENTIAL CHARACTER.

Cor. one-petalled, bell-ſhaped. *Berries* two, one-ſeeded.

SPECIES.

1. Rubia tinctorum. *Dyer's Madder.*
Lin. ſpec. 158. *fuſſ.* 152. *Reich.* 1. 309. *Willd.* 603. *mant.* 330. *hort. cliff.* 35. *upſ.* 28. *mat. med.* 50. *Woodv. med. bot.* 190. *t.* 68. *Hall. helv. n.* 708. *Scop. carn. n.* 160. *Pollich pal. n.* 158. *Hoffm. germ.* 52. *Roth. germ.* 1. 63. 2. 177. *Allion. pedem. n.* 41. *Deſfont. atlant.* 133. *Lamarck, illuſtr. n.* 1385. *t.* 60. *f.* 1. *Sabb. hort.* 1. *t.* 77. *Blackw. t.* 26. *Berg. phyt.* 2. 181. *Plenck, ic.* 57. *Miller, monogr. & Dict. ic. Ger.* 961. 1. *emac.* 1118. 1. *Rati hiſt.* 480.
Rubia. *Trag.* 498. *Dod. pempt.* 352.
R. major. *Lob. ic.* 798. *Cluſ. hiſt.* 2. 177.
R. ſativa. *Fuchſ. hiſt.* 280. *Matth.* 920. *Bauh. hiſt.*
R. tinctorum ſativa. *Bauh. pin.* 333. *Tournef. inſt.* 114. *Mor. hiſt. ſ.* 9. *t.* 21. *f.* 1. *ord.* 1.
R. major ſativa, ſ. hortenſis. *Park. theat.* 274. *f.* 1.
Leaves annual, about ſix ovate-lanceolate ciliate, rugged on the upper ſurface, with little recurved prickles on the edge and keel, ſtem with prickles at the angles, clefts of the corolla commonly four.

[2. Rubia chilenſis. *Chili Madder.*
Lin. ſpec. ed. Willd. 604. *Mollin. chil.* 118.
Rubiaſtrum Cruciatæ folio & facie vulgo Relbun. *Feuill. peruv.* 85. *t.* 45.
Leaves annual in fours, pedunckles axillary ſolitary one-flowered, ſtem even.]

3. Rubia peregrina. *Wild Madder.*
Lin. ſpec. 158. *fuſſ.* 152. *Reich.* 1. 309. *Willd.* 604. *Huds. angl.* 65. *Cullum, 56. Smith, brit.* 181. *engl. bot.* 831.
R. anglica. *Huds. angl. ed.* 1. 54.
R. tinctorum. *Wither. arr. ed.* 3. 193.
R. ſylveſtris aſpera, quæ ſylveſtris Dioſcoridis. *Bauh. pin.* 33. *Rati hiſt.* 480. *ſyn.* 223. *ed.* 1. 317. *Petiv. brit. t.* 30. *f.* 3. *Mor. hiſt. ſ.* 9. *t.* 21. *f.* 2.
Leaves in fours or fives, elliptic, above ſhining even, flowers five-cleft.

[4. Rubia lucida. *Shining-leaved Madder.*
Lin. fuſſ. 152. *Reich.* 1. 310. *Willd.* 605.
Leaves perennial in fixes elliptic ſhining, ſtem even.

5. Rubia fruticoſa. *Prickly-leaved Madder.*
Lin. ſpec. ed. Willd. 605. *Jacqu. ic. rar.* 1. *t.* 25. *collect.* 1. 71. *Ait. kew.* 1. 147.
Leaves perennial elliptic prickly at the edge and keel, ſtem fruticoſent rough.

6. Rubia anguſtifolia. *Narrow-leaved Madder.*
Lin. fuſſ. 152. *Reich.* 1. 310. *Willd.* 605. *mant.* 39.
Leaves perennial linear rugged above.

7. Rubia cordifolia. *Heart-leaved Madder.*
Lin. fuſſ. 152. *Reich.* 310. *Willd.* 605. *mant.* 197. *Pallas itin.* 3. *app. n.* 68. *t.* L. *f.* 1. *Thunb. prodr.* 30.
R. cordata. *Thunb. jap.* 60.
Cruciata daurica ſcandens, ſmilacis folio aſpero, flore luteolo, fructu majori rubro. *Amm. ruth.* 19.
Akanni. *Kempf. amœn.* 5. 912.
Leaves perennial in fours cordate.]

DESCRIPTIONS, &c.

1. Dyer's Madder has a perennial root, and an annual ſtalk. The root is compoſed of many long, thick, ſucculent fibres, almoſt as large as a man's little finger; theſe are joined at the top in a head, like the roots of Aſparagus, and ſtrike very deep into the ground, being ſometimes more than three feet in length. From the upper part (or head of the root) come out many ſide roots, which extend juſt under the ſurface of the ground to a great diſtance, whereby it propagates very faſt; for theſe ſend up a great number of ſhoots, which, if carefully taken off in the ſpring, ſoon after they are above ground, become ſo many plants. Theſe roots are of a dark colour on their outſide, ſomewhat tranſparent, and have a yelloviſh red pith in the middle, which is tough and of a bitteriſh taſte; from the root ariſe many large, four-cornered, jointed ſtalks, which in good land will grow five or ſix feet long, and, if ſupported, ſometimes ſeven or eight; they are armed with ſhort herbaceous prickles, and at each joint are placed five or ſix ſpear-ſhaped leaves, about three inches

* Hort. kew.

inches long, and near one broad in the middle, drawing to a point at each end; their upper ſurfaces are ſmooth, but their midribs on the under ſide are armed with rough herbaceous ſpines; the leaves ſit cloſe to the branches in whorls. From the joints of the ſtalk come out the branches, which ſuſtain the flowers; they are placed by pairs oppoſite, each pair croſſing the other; theſe have a few ſmall leaves toward the bottom, which are by threes, and upward by pairs oppoſite; the branches are terminated by looſe branching ſpikes of yellow flowers, which are cut into four ſegments reſembling ſtars. Theſe appear in June, and are ſometimes ſucceeded by ſeeds which ſeldom ripen in England.

[Leaves four, five or ſix. Flowers four, five or ſix-cleft [2]. Native of the South of Europe, the Levant, and Africa.—Cultivated by Gerarde, in 1597 [3].]

It is well known that Madder is ſo eſſential to dyers and callico-printers, that neither buſineſs can be carried on without it. The conſumption of it is ſo great in England, that upon a moderate computation, more than one hundred and eighty thouſand pounds ſterling is annually paid for what is imported from Holland. This might be ſaved to the public, if a ſufficient quantity of Madder were planted in England, where it might be cultivated to greater advantage than in Holland, our lands being better adapted to the growth of this plant.

[The cultivation of Madder has been ſeveral times attempted, when our commerce with Holland has been interrupted, or the Dutch have raiſed the price of the commodity enormouſly. At the end of the 17th century, Madder was worth about ſix pounds the hundred weight. The quantity imported from Holland being ſix hundred and fourteen tons and an half; ſuppoſing that all together, ſome being better, ſome worſe, it was worth five pounds the hundred on an average; the ſum paid the Dutch for Madder was 61,450l. It was planted near Wiſbech, and they cured a great deal there; upon which the Dutch ſold theirs ſo low as forty ſhillings the hundred, by which means our planters were ſo diſcouraged as to lay their plantations by [4].

The dearneſs of Dutch Madder, induced Mr. Miller, in the year 1758, to publiſh a quarto pamphlet on the cultivation of this uſeful plant, with figures of it, and of the ſtoves, kilns, drying-houſes and mills, uſed by the Dutch in preparing the root; but I believe the culture was not carried to any great extent, and was ſoon dropped.

Since that time, the Society for the Encouragement of Arts, Manufactures and Commerce have taken up the Culture of Madder; and inform the public, in the firſt volume of their Tranſactions, publiſhed in 1783, that Madder having been raiſed to an extravagant price by the foreign growers and importers, on a ſuppoſition that it could not be brought to any degree of perfection in this kingdom, conſiderable premiums were given, to the amount of fifteen hundred pounds and upwards, beſides two gold medals, to encourage its growth here; and that the commodity produced in conſequence, was found as good at leaſt, if not better, than any imported. By theſe premiums, fixing the tithes at five ſhillings an acre, and continuing the rewards, foreign Madder was reduced to a reaſonable price, and may probably continue ſo, unleſs other cauſes ſhould operate to make it dearer; as the foreign growers are convinced that we can ſupply ourſelves with any quantity, and of the beſt kind, whenever, by an advance of the price, the profits are found ſufficient to engage the attention of our huſbandmen.

A ſudden fall however in the price, although it be advantageous to the manufacturer, is a great injury, if not ruin to the grower, who has been at conſiderable expenſe in raiſing and preparing it. Accordingly Mr. Young, in 1784, ſays:—it was with great regret I found, that the extraordinary fall in the price of Madder of cent per cent, had totally deſtroyed all the plantations, which were once ſo flouriſhing in the neighbourhood of Feverſham in Kent; and was exceedingly concerned to hear, that Mr. Crowe, who had gone greater lengths, and made more ſpirited exertions in that culture, than any other man in England, had ſuffered very deeply in his property, by that ruinous decline [5].

Mr. Young, in his tour through the Eaſt of England, made in the year 1770, gives a detailed account of the experiments of John Arbuthnot, Eſq. of Ravenſbury, on the ſubject of Madder, begun in the year 1765; by which it appears that a clear profit of ſeven guineas an acre was made by it, and that inſtead of exhauſting, it ameliorates and cleans the ſoil to a great degree. But if fourteen years after this time, Mr. Crowe was obliged to give up the culture of Madder, it is probable that Mr. Arbuthnot did not find it ſo profitable as it was at firſt, when Madder ſold for 4l. 10s. the hundred weight.

This plant, with others of the ſame natural order, appears to differ from other ſubſtances uſed for the purpoſe of dying, in having the property of tinging with a florid red colour, not only the milk, urine, &c. but even the bones of thoſe animals which have fed upon it; a circumſtance which was firſt noticed by Antonius Mizaldus, but not known in England till Mr. Belchier publiſhed an account in the Philoſophical Tranſactions of a pig and a cock, whoſe bones became red by eating Madder mixed with their food. Since that time various experiments have been made, from which it appears that the colouring-matter of Madder affects the bones in a very ſhort time, and that the hardeſt part of them firſt receives the red colour, which gradually extends from the outſide through the whole bony ſubſtance, ſo long as the animal continues to take the Madder; but if this root be alternately given and intermitted for a ſufficient length of time and at proper intervals, the bones are found to be coloured in a correſpondent number of concentric circles.

Madder is frequently mentioned by the Greek writers, who employed the roots with the ſame medicinal intentions for which they are now recommended by modern writers on the Materia Medica. They have a bitteriſh ſomewhat auſtere taſte, and a ſlight ſmell not of an agreeable kind. They impart to water a dark red tincture; to rectified ſpirits, and to diſtilled oils, a bright red; both the watery and ſpirituous tinctures taſte ſtrongly of the Madder.

By medicinal writers Madder has been conſidered as a deobſtruent, detergent and diuretic, and is chiefly uſed in the jaundice, dropſy and other diſeaſes ſuppoſed to proceed from viſceral obſtructions, particularly thoſe of the liver and kidneys. Some modern writers have recommended it as an emmenagogue, and in rickety affections. With regard to its diuretic quality, Dr. Cullen aſſerts, that in many trials, this is not conſtant. As a remedy for the jaundice, it has the authority of Sydenham, and it was formerly an ingredient in the *decoctum ad icteros* of the Edinburgh Pharmacopœia; but as it ſeemed more adapted to the *fæces albidæ* than to the diſeaſe itſelf, this decoction was expunged. That ſome French writers ſhould preſcribe Madder in a rickety ſtate of the bones, appears ſurpriſing; ſince brute animals, to which it was given, eſpecially the younger, were conſiderably emaciated and weakened by its effects. Its virtues as an emmenagogue reſt principally upon the authority of Dr. Home, who gave from a ſcruple to half a dram of the powder, or two ounces of the decoction, three or four times a day. But this medicine failed with Dr. Cullen; who alſo ſays, "I know of other practi-
"tioners in this country, who after ſeveral ineffectual
"trials made with it, have now entirely deſerted
"its uſe [6]."

2. Stems round, even, decumbent. Leaves in fours, ovate, rugged. Flowers white, ſolitary, peduncled, in the axils of the leaves. Berries roundiſh, red.—Native of Chili [7].

3. Root perennial, branched, penetrating deeply into the fiſſures of rocks; its outer bark red. Stems ſeveral, branched, diffuſed, four-cornered, the corners

[2] Linn. [3] Hort. kew. [4] Houghton's Collections, 2. 372. [5] Annals, vol. 2. 69. [6] Woodville. [7] Willdenow.

fet with prickles pointing backwards; not dying in the winter, but ſome of it remaining alive, and putting forth freſh ſhoots in the ſpring. Leaves lanceolate (thoſe which appear firſt in the ſpring rather elliptical, as repreſented in Petiver's figure,) ſomewhat waved at the edge, even and ſhining on the upper ſurface, prickly at the edges and along the midrib on the under ſide, from three to ſix in a whorl, but moſtly five. Flowers in dichotomous terminating panicles of a dirty yellow, always five-cleft, five-ſtamened, and without any calyx. This latter circumſtance is common to it with Rubia tinctorum. R. peregrina ſeldom produces more than one perfect ſeed; perhaps there are not more than two or three inſtances on any one plant in which both ſeeds attain perfection. The plant in climbing up the rocks and through the ſhrubs ſupports itſelf by means of the prickles on the angles of the ſtem, and under the margins and midribs of the leaves [a].

Native of England, among buſhes and on rocks; near Biddeford in Devonſhire, and common in hedges through great part of the county; and on St. Vincent's rocks near Briſtol, by Ray: in Dorſetſhire, hedges in Purbeck, and between Whitchurch and Milbourne St. Andrew's; yet found under Hod-hill, in the pariſh of Stour-pain near Blandford, as mentioned by Parkinſon, where Dr. Pulteney ſays he has ſeen it many times green and flouriſhing in the month of january; found alſo in Portland, by A. B. Lambert, Eſq.[f]: in Cornwall, by F. Borone: near Exmouth in Devonſhire, by Dr. Withering; in the Iſle of Wight, by Dr. Stokes; in a wood oppoſite St. Vincent's rocks, by Mr. Swayne; on Tunbridge rocks, by the Rev. Dr. Goodenough; at Chepſtow in Monmouthſhire, by Dr. Smith.

4. This is an evergreen plant, reſembling the preceding, but the leaves are rugged with recurved prickles on the edge only, not on the keel. Flowers panicled, pale, mucronate, five-cleft.

Native of Majorca [c]. Introduced in 1762, by Mr. James Gordon. It flowers in july [c].

5. Leaves five or ſix in a whorl. Flowers yellowiſh, axillary, on three-flowered peduncles [d].

Native of the Canary iſlands. Introduced 1779, by Mr. Francis Maſſon. It flowers in ſeptember [e].

6. Stems diffuſed, very rugged, four-cornered. Leaves four or ſix in a whorl, linear-acute, the keel and margin ciliate with little prickles, and rugged along the rib of the upper ſurface. Flowers yellow, flat, five-cleft [a].

Native of Minorca. Introduced in 1772, by Monſ. Richard. It flowers in july and auguſt [c].

7. This is a diffuſed ſcandent plant, quite ſmooth. Stem four-cornered, rugged with recurved prickles at the corners, and branched. Leaves commonly four in a whorl, ſometimes but ſeldom ſix, ovate, cordate, acute, with the edge turned back, the whole rugged with muricate dots, eſpecially along the edge and keel, ſpreading, ſhorter than the internodes: petioles four-cornered, with recurved prickles. Flowers axillary, panicled, white. Panicle very ſpreading, in whorls and ſubtrichotomous. Peduncles and pedicels capillary, four-cornered. Bractes ſubulate-lefaceous [f].

Native of the Cape of Good Hope, Siberia, China, Japan, where it is uſed in dying; in many parts of the Eaſt Indies and Africa.]

PROPAGATION AND CULTURE.

In all the Netherlands, there is no where better Madder cultivated, than in Schowen, one of the iſlands of Zealand, and the culture is performed in the following manner:

The land which is deſigned for Madder, if it is ſtrong and heavy, is ploughed twice in autumn, that the froſt in winter may mellow it and break the clods; then it is ploughed again in the ſpring, juſt before the time of planting the Madder; but if the ground is light, then it is ploughed twice in the ſpring; at the laſt ploughing it is divided into lands of three feet broad, with furrows between each land four or five inches deep. Madder requires a loamy ſubſtantial ſoil, not too ſtiff and heavy, nor over light and ſandy; for although it may thrive tolerably well in the latter, yet ſuch land cannot have a ſecond crop of Madder planted upon it in leſs than eight or ten years interval; but in Schowen, where the land is ſubſtantial, they need not ſtay longer than three or four years, in which interval the ground is ſown with Corn, or planted with any kinds of pulſe. It is granted, that the beſt land for producing Madder is in Schowen, where a gemet of land, which is three hundred ſquare rods of twelve feet each, will yield from one thouſand pounds to three thouſand pounds weight, according to the goodneſs of the land and the favourableneſs of the ſeaſons; but in light land, the quantity is from five hundred to a thouſand pounds weight.

The time for planting Madder begins towards the end of april, and continues all may, and ſometimes in very backward ſprings, there is ſome Madder planted the beginning of june. The young ſhoots from the ſides of the root are taken off from the mother plant, with as much root as poſſible; theſe are called kiemen, and are planted with an iron dibble in rows at one foot aſunder, and commonly four kiemen in a row.

The quantity of theſe ſlips (or kiemen) as is required to plant one gemet of land, are ſold at different prices, according to the price which Madder bears, or to the demand for the plants; they are often ſold from ſixteen to twenty guilders, and ſometimes they have been ſold for ten to eleven pounds Flemiſh, but the loweſt price is from fifteen guilders to three pounds Flemiſh.

The expenſe of planting out a gemet of land with ſlips (or kiemen) coſts for labour only, from ſixteen to twenty guilders, according as the land is heavy or light: there are generally employed ſix men to plant, two to rake the ground, theſe earn each a guilder a day; and five or ſix women or boys, called carpers or pluckers of the ſhoots or kiemen, theſe earn twelve Dutch pence a day, or two ſchillings.

The firſt year the Madder is planted, it is cuſtomary to plant Cabbages or Dwarf Kidney-beans, in the furrows between the beds, but there is always great care taken to keep the ground clear from weeds; this is generally contracted for at two pounds Flemiſh for each gemet of land.

In ſeptember or october, when the young Madder is cleaned for the laſt time that ſeaſon, the green haulm (or ſtalks) of the plants, is carefully ſpread down over the beds, without cutting any part off, and in november the Madder is covered over the haulm with three or four inches of earth.

This covering of the Madder, is performed either with the plough or with the ſpade; if it is done by the firſt, it coſts two guilders and a half, or three guilders in ſtrong land each gemet, and over and above this, one guilder and a half to level the tops of the beds, and make them ſmooth; but it is better performed with the ſpade, only it is more chargeable, for that coſts from eight to ten guilders each gemet, but at the ſame time the clods are broken, and the ſurface of the beds is made ſmooth and even.

The ſecond year in the beginning of april, which is about the time the kiemen or young ſhoots are beginning to come out, the earth on the top of the beds ſhould be ſcuffled over and raked to deſtroy the young weeds, and make the ſurface ſmooth and mellow, that the kiemen may ſhoot out the eaſier above ground; this labour coſts three ſhillings each gemet.

The ſecond ſummer there muſt be the ſame care taken to keep the Madder clean as in the firſt, and then nothing is planted in the furrows, or ſuffered to grow there; at the laſt time of cleaning the ground, in ſeptember or october, the green haulm is again ſpread down upon the beds, and in november the Madder is again covered with earth, in the ſame manner as the firſt year.

By this method of culture, one can ſee how neceſſary it is to plant the Madder in beds, for thereby it is much

[a] Swayne in Withering. Smith.
[b] Pulteney's plants of Dorſetſhire.
[c] Linn. ſyſt. [d] Hort. kew. [e] Willdenow.
[f] Hort. kew. [g] Linn. mant. [h] Hort. kew.
[i] Thunberg.

much eaſier covered with the earth of the furrows; and hereby the earth of the beds is every time heightened, whereby the Madder roots will be greatly lengthened, and the kiemen or young ſhoots will have longer necks, and by being thus deeply earthed, will put out more fibres and have much better roots, without which they will not grow; and it is of equal uſe to the mother plants; for by this method the roots will be longer; and in this conſiſts the goodneſs and beauty of the Madder, for thoſe which have but few main roots, are not ſo much eſteemed as thoſe which are well furniſhed with ſide roots called tengels; a Madder plant that has many of theſe roots, is called a well bearded Madder plant; therefore one muſt never cut off theſe ſide roots, for by ſo doing there will be a leſs crop of Madder, and but few kiemen or young ſhoots can be produced; beſides, by the loſs of moiſture, ſometimes the plants will droop and become weak; and there is great profit in having a large quantity of kiemen to draw in the ſpring, which are in plenty the ſecond and third years.

The Madder roots are ſeldom dug up the ſecond year, but generally after it has grown three ſummers, therefore the culture of the third year is the ſame as in the ſecond, during the ſpring and ſummer.

Before the firſt day of ſeptember, it is forbidden to dig up any Madder in this iſland; but on that day early in the morning, a beginning is made, and the perſon who carries the firſt cart load to the ſtove, has a premium of a golden rider, or three ducats.

The digging up the Madder of a gemet of land, coſts from thirty-ſix to one hundred guilders, according to the goodneſs of the crop, and the lightneſs or ſtiffneſs of the ground, but in light land it coſts from nine to ten pounds Flemiſh; the perſons who are adroit in this buſineſs, are generally paid five ſhillings Flemiſh per day.

The Madder produces flowers in the middle of ſummer, and ſometimes a few ſeeds, but they never ripen here; nor would they be of uſe to cultivate the plants, ſince it is ſo eaſily done by the kiemen.

Some years paſt they began to plant here the great wild Madder, which was called French Madder, but this was not eſteemed ſo good for uſe as the tame Madder, from which it differs much, ſo that was not continued. The more bitter of taſte the roots of the Madder are, when taken out of the ground before it is brought to the ſtove, the leſs it will loſe of its weight in drying, and is the better afterward for uſe.

When the Madder is dug out of the ground, it is carried to the ſtove, and there laid in heaps; in that which is called the cold ſtove, and ſeparated with hurdles made of wicker, and memorandums kept of each parcel, aſid to what countryman it belongs, that each may be dried in their turns, and prepared or manufactured, for which turn generally lots are caſt beforehand. The Madder thus carried to the ſtove is relzyn.

This relzyn is carried about ſix o'clock in the morning, into the tower or ſteeple, hoiſted in baſkets by ropes to the rooms, and divided or ſpread, where it remains till the next day, two or three o'clock in the morning, about twenty or twenty-one hours; then thoſe roots which have lain in the hotteſt places are removed to cooler, and thoſe in the cooler are removed to the hotter places nearer the oven. This is continued for four or five days, according as there has been more or leſs carried there; but it is always the goods of one perſon, that every one may have his own, and of as equal quality as poſſible, when it is delivered out.

When the Madder is ſufficiently dried in the tower, then it is threſhed on the threſhing-floor, which is made clean from dirt or filth, and then it is brought to the kiln, and there ſpread on a hair-cloth for about twenty hours, during which time the kiln is made more or leſs hot, according as the roots are more or leſs thick, or the weather being more or leſs cold.

From the kiln the Madder is moved to the pounding-houſe, and is there pounded on an oaken block made hollow, with ſix ſtampers plated at the bottom with iron bands; theſe ſtampers are kept in motion by a mill very much reſembling a griſt-mill, which is turned by three horſes; the preſence of the pounding-maſter is here always required, to ſtir the Madder continually with a ſhovel, to bring it under the ſtampers. When the Madder is thus properly pounded, it is ſifted over a tub till there is enough to fill a caſk: this firſt pounding, which chiefly conſiſts of the thinneſt and ſmalleſt roots, and the outſide huſks with ſome earth, which by drying and threſhing could not be ſeparated, is called mor mull.

What remains in the ſieve is put on the block again, and pounded a ſecond time, and when the pounding-maſter gueſſes a third part is pounded, then the Madder is taken out again and ſifted over another tub, and put into a ſeparate caſk, and this is called gor gemeens; that which remains in this ſecond operation, not enough pounded in the ſieve, is for the third time put on the block, and pounded till it is all reduced to powder, which is called kor kraps.

When the Madder is cleanſed from the dirt and mull, and is entirely pounded at once, then it is called oor onberooſde, ſo that this onberooſde actually conſiſts of the gemeens and kraps pounded together, and ſifted without ſeparating them from each other.

When there is two thirds of kraps, and one third gemeens, which was ſeparately prepared or manufactured, then they are called two and one, or marked 2.

The ſweepings of the ſtove, as alſo of the ground and beams being ſwept together is not loſt, but is put amongſt the mull, or ſold by itſelf.

The ſweepings of the mill, and every part of the pounding-place, is alſo gathered together, and put into a caſk; this is called den beer.

When the Madder is thus prepared and put into caſks, it is in Zealand examined by ſworn aſſayers and tried, if it is not faulty packed up; that is, whether in the preparing it is properly manufactured, or falſely packed up, and to ſee if every part of the caſk is filled with Madder of equal goodneſs and quality, not burned in the drying, or mixed with dirt; which the aſſayers by certain trials, and by weighing and waſhing of the Madder can know, if it is according to the ſtatutes of the country.

There are ſundry ſtatutes made and publiſhed by the ſtates of Zealand, concerning the preparing of Madder; as one of the 28th of july 1662, one on the 29th of ſeptember, and 31ſt of october 1671, another on the 23d of ſeptember 1699, and the laſt on the 28th of april 1735: by which ſtatutes, among other things, it is ſtrictly forbidden, That any perſon ſhall prepare kraps, in which there ſhall be more than two pounds of dirt in a hundred weight; nor above eight pounds in the like weight of onberooſde, or in gemeens more than twelve pounds in a hundred weight.

If the Madder upon trial is found good, the arms of the city or village, and the ſign of the ſtove where the Madder was prepared, is painted on the caſk with black paint. The trial of the Madder is in no place more exact, or more religiouſly obſerved, than in the city of Zirkzee; therefore the merchants in Germany, who know this, always prefer the Madder of that place to all others, and will not buy any which has not the arms of Zirkzee painted upon the caſks, if they are to be had.

We before mentioned the tower, the kiln, &c. where the Madder is dried and prepared for uſe.

The tower is the place where the Madder is firſt dried. This is heated by fifteen or ſixteen pipes or flues of brick-work, which run on each ſide under the floor, and are covered with low burnt tiles, ſome of which are looſe; ſo that by taking up theſe, the heat is moderated and conducted to any part of the tower, the perſon who has the care of drying the Madder pleaſes.

The tower has four or five lofts made of ſtrong laths; they are four or five feet above each other, upon which the Madder is laid; theſe are heated by an oven, which is placed in the room where the work people live, and is by them called the glory.

The kiln is in a room whoſe length is equal to the breadth

breadth of the ſtove, and is entirely arched over at the top; the oven by which the kiln is heated, is called the hog; this is built upon a ſtone wall, which riſes a foot or two above ground; and the ſmall arch by which the heat paſſes through every part, has ſeveral ſquare little holes in the brick-work, that the heat may come out; over theſe holes, on the top of the kiln, are laid wooden laths the whole length, and upon them a hair-cloth, on which the Madder is laid to dry, before it is carried to the pounding-place. In the Madder-ſtoves there is no other fuel uſed but Friezland turf, which gives an equal and moderate heat.

In the Madder-ſtoves, the people work more by night than day; firſt, becauſe at the time of the year when the Madder is brought into the ſtoves, the nights are much colder than the days; and ſecondly, that the maſter, who muſt be always attentive to his work, may not be interrupted by viſitors; and thirdly, becauſe they ſee leſs duſt; but principally, becauſe the Madder which is pounded in the night is of a much better colour than that which is pounded in the day.

In the Madder-ſtoves are always conſtant workmen, one who is the drier, who has the care of drying the Madder in the tower and the kiln; for the right performance of this, art and experience are required, the goodneſs of the Madder greatly depending on the right drying. This perſon is a ſort of foreman, and has the direction of all the workmen; his pay is five ſtivers, for every hundred weight of Madder which is prepared in the ſtove; he has one perſon under him for his aſſiſtant, to perform part of the laborious work, and to be always at hand; this man is paid eighteen or nineteen ſhillings per week Flemiſh, which is the conſtant wages.

The third perſon is the pounder, who is always preſent when the Madder is pounding, and with a particular ſhovel which is ſmall, and fitted to the cavity of the pounding-block, ſtirs the Madder from time to time, to bring it under the ſtampers; he is paid four ſtivers for every hundred weight of Madder.

The fourth is a driver, who with a team of three horſes, cauſes the mill to turn and pound the Madder; his pay for himſelf and the three horſes, from eight to nine ſtivers per hundred weight, according as he can bargain.

Beſides theſe four, there are five other aſſiſtants, who lay the Madder on and take it off; this is often performed by the wives and boys of the other workmen; theſe five have fifty ſtivers for every three thouſand pounds of Madder, which is prepared, ſo they have each ten ſtivers.

There are nineteen or twenty Madder-ſtoves in the iſland of Schowen, which, at an average, prepare in one crop, that laſts from ſeptember to february, ten thouſand weight of Madder each, which in the whole, amounts to two million pounds weight; and if we ſuppoſe, that the Madder is ſold at an average for four pounds Flemiſh per hundred weight, which is a moderate price, one may ſoon reckon what advantage the culture of this dyeing commodity produces to this one iſland.

The countrymen pay to the owners of the Madder-ſtoves, two guilders for preparing every hundred weight of mull, and for each hundred weight of hard Madder; that is, of kraps, gemeens, or onberoofde, three guilders, according as they will have them prepared.

The building of a Madder-ſtove quite new from the foundation, coſts in the whole about twenty-four hundred pounds Flemiſh, which is twelve hundred pounds ſterling.

The above is the method of cultivating Madder in Zealand, where the beſt Madder is now produced; to this I ſhall add, what I have obſerved of the growing of Madder in other parts of Holland, as alſo the experience I have had of the growth of Madder in England, with an account of the method of planting it here.

In the year 1727, I obſerved a great quantity of this plant cultivated in Holland, between Helvoetſluys and the Brill; and it being the firſt time I had ever ſeen any conſiderable parcel of it, I was tempted to make ſome enquiries about its culture, and take ſome minutes of it down upon the ſpot, which I ſhall here inſert, for the uſe of ſuch as may have curioſity to attempt the culture of it.

In autumn they plough the land, where they intend to plant Madder in the ſpring, and lay it in high ridges, that the froſt may mellow it: in march they plough it again, and at this ſeaſon they work it very deep, laying it up in ridges eighteen inches aſunder, and about a foot high; then about the beginning of april, when the Madder will begin to ſhoot out of the ground, they open the earth about their old roots, and take off all the ſide-ſhoots which extend themſelves horizontally, juſt under the ſurface of the ground, preſerving as much root to them as poſſible; theſe they tranſplant immediately upon the tops of the new ridges, at about a foot apart, obſerving always to do this when there are ſome ſhowers, becauſe then the plants will take root in a few days, and will require no water.

When the plants are growing, they carefully keep the ground hoed, to prevent the weeds from coming up between them; for if they are ſmothered by weeds, eſpecially when young, it will either deſtroy or weaken them ſo much, that they ſeldom do well after. In theſe ridges they let the plants remain two ſeaſons, during which time they keep the ground very clean; and at Michaelmas, when the tops of the plants are decayed, they take up the roots and dry them for ſale. This is what I could learn of their method of cultivating this plant, to which I will ſubjoin a few obſervations of my own, which I have ſince made upon the culture of Madder in England.

The land upon which I have found Madder thrive beſt, is a ſoft ſandy loam, and if it has been in tillage ſome years, it will be better than that which is freſh broken up. This ſhould have at leaſt a depth of two feet and a half, or three feet of good earth, and muſt be quite clear from Couch, or the roots of any bad weeds; for as the roots of Madder ſhould remain three years in the ground, ſo where there are any of thoſe weeds which ſpread and multiply at their roots, they will intermix with the Madder roots, and in three years will have taken ſuch poſſeſſion of the ground, as to greatly weaken the Madder, and render it very troubleſome to ſeparate when the Madder is taken up.

The ground ſhould be ploughed deep before winter, and laid in ridges to mellow; and if it is not too ſtrong, there will be no neceſſity for ploughing it again, till juſt before the time of planting the Madder, when the land ſhould be ploughed as deep as the beam of the plough will admit; and there ſhould be men following the plough in the furrows, which ſhould dig a full ſpit below the furrow, and turn it up on the top; by preparing the ground of this depth, the roots of the Madder will ſtrike down, and be of greater length, in which the goodneſs of the crop chiefly conſiſts. The land being thus prepared and made level, will be fit to receive the plants. The beſt time for planting Madder is about the middle or end of april, according as the ſeaſon is more or leſs forward, which muſt be determined by the young ſhoots; for when theſe are about two inches above ground, they are in the beſt ſtate for planting.

In the taking up of theſe ſhoots for planting, the ground ſhould be opened with a ſpade, that they may be ſeparated from the mother plants with as much root as poſſible; for if the roots are broken off, they will not ſucceed: theſe plants ſhould be drawn up no faſter than they are planted; for if they lie long above ground, they will ſhrink and their tops will wither, and then they often miſcarry; therefore if they are brought from a diſtant place, there ſhould be great care taken in the packing of them up for carriage; eſpecial regard ſhould be had not to pack them ſo cloſe, or in ſo great quantity, as to cauſe them to heat, for that will ſoon ſpoil them; but if they are a little withered by lying out of the ground, their roots ſhould be ſet upright in water for a few hours, which will ſtiffen and recover them again.

In the planting of Madder, there are ſome who make

make the rows but one foot aſunder, others one foot and a half, ſome two feet, and others who allow them three feet diſtance; I have made trial of the three laſt diſtances, and have found when the roots have been left three years in the ground, that three feet diſtance row from row is the beſt; but if it is taken up in two years, two feet aſunder may do very well; and the diſtance in the rows, plant from plant, ſhould be one foot, or a foot and a half.

If there is no danger of the ground being too wet in winter, the plants may be planted on the level ground; but if on the contrary, the ground ſhould be raiſed in ridges where each row of plants is to be ſet, that their roots may not reach the water in winter, for if they do, it will ſtop their downright growth; and this is the reaſon why the Dutch, who plant Madder in the Low Countries, raiſe their ridges ſo high as two or three feet; and in Zealand, where the ground is drier, they raiſe the beds four or five inches above the intervals, that the wet may drain off from the beds where the Madder is planted.

The method of planting is as follows: the ground being made ſmooth, a line is drawn acroſs it to mark out the rows, that they may be ſtraight, for the more convenient cleaning, and for the better digging or ploughing the ground between the rows; then with an iron-ſhod dibble, holes are made, at the diſtance which the plants are to ſtand from each other. The depth of the holes muſt be in proportion to the length of the roots of the plants, which muſt be planted the ſame depth they had been while they were upon the mother plants; for if any part of the root is left above ground, the ſun and winds will dry it, which will retard the growth of the plant; and ſhould any part of the green be buried in the ground, it will not be ſo well; though of the two, the latter will be leſs prejudicial, eſpecially if there is not too much of the green buried. When the plants are put into the holes, the earth ſhould be preſſed cloſe to them to ſecure them from being drawn out of the ground, for crows and rooks frequently draw the new plants out of the ground before they get new roots, where there is not this care taken: ſo that in two or three days, I have known half the plants on a large piece of land deſtroyed by theſe birds.

If there happen to be ſome ſhowers of rain fall in a day or two after the plants are planted, it will be of great ſervice to them, for they will preſently put out new roots, and become ſtrong; ſo that if dry weather ſhould afterwards happen, they will not be in ſo much danger of ſuffering thereby, as thoſe which are later planted. There are ſome who, from a covetous temper of making moſt uſe of the ground, plant a row of Dwarf Peas or Kidney Beans between the rows of Madder, and pretend that thereby the land is kept cleaner from weeds; but I am very certain the crop of Madder is injured thereby much more than the value of thoſe things which grow between the rows, as I have experienced; therefore I adviſe thoſe perſons who plant Madder, never to ſow or plant any thing between the rows, but to keep the Madder quite clean from weeds, or any other kind of vegetable.

In order to keep the ground thus clean, it ſhould be ſcuffled over with a Dutch hoe, as ſoon as the young weeds appear. When a man can perform a great deal of this work in a day, and if it is done in dry weather, the weeds will dry as faſt as they are cut down; whereas, when the weeds are left to grow in the ſpring, ſo as to get ſtrength, they are not ſo ſoon deſtroyed, and the expenſe of hoeing the ground then will be more than double; beſides, there will be danger of cutting down ſome of the weaker plants with the weeds, if the perſons employed to perform this work are not very careful; therefore it is much cheaper, as alſo better for the Madder, to begin this work early in the ſpring, and to repeat it as often as the weeds render it neceſſary; for by keeping the ground thus conſtantly clean, the Madder will thrive the better.

During the firſt ſummer, the only culture which the Madder requires, is that of keeping it clean in the manner before directed; and when the ſhoots or haulm of the plants decay in autumn, it ſhould be raked off the ground; then the intervals between the rows ſhould be either dug with a ſpade or ploughed with a hoeing plough, laying up the earth over the heads of the plants in a roundiſh ridge, which will be of great ſervice to the roots. The Dutch cover the haulm of their Madder with earth, leaving it to rot upon the ground; this perhaps may be neceſſary in their country to keep the froſt out of the ground; but as I have never found that the ſevereſt winters in England have injured the Madder roots, there is not the ſame neceſſity for that practice here.

The following ſpring, before the Madder begins to ſhoot, the ground ſhould be hoed and raked over ſmooth, that the young ſhoots may have no obſtruction; and if there ſhould be any young weeds appearing on the ground, it ſhould be firſt ſcuffled over to deſtroy the weeds, and then raked over ſmooth; after this, the ſame care muſt be taken in the following ſummer to keep the ground clean; and if it is performed by the hoe plough, the earth of the intervals ſhould be thrown up againſt the ſide of the ridges, which will earth up the roots, and greatly increaſe their ſtrength; but before the ground of one interval is ſo hoed, the haulm of the plants ſhould be turned over to the next adjoining interval; and if they are permitted ſo to lie for a fortnight or three weeks, and then turned back again on thoſe intervals which were hoed, obſerving firſt to ſcuffle the ground to deſtroy any young weeds which may have appeared ſince the ſtirring of the ground; then the alternate intervals ſhould be ploughed in like manner, turning the earth up againſt the oppoſite ſides of the roots: by this method the intervals will be alternately ploughed, and the plants earthed up, whereby the ground will be kept clean, and ſtirred, which will greatly promote the growth of the roots; and by this method the ſuperficial ſhoots will be ſubdued, and the principal roots greatly ſtrengthened. The following autumn the ground ſhould be cleared of the haulm and weeds, and the earth raiſed in ridges over the roots, as in the foregoing year.

The third ſpring the roots will furniſh a great ſupply of young plants; but before theſe appear, the ground ſhould be cleaned and raked ſmooth, that the ſhoots may have no obſtruction to their coming up; and when the young plants are fit to take off, it ſhould be performed with care, always taking off thoſe which are produced at the greateſt diſtance from the crown of the other plants, becauſe thoſe are what rob them moſt of their nouriſhment, and the wounds made by ſeparating them from the old roots are not near ſo hurtful as thoſe near the crown; for the ſtripping off too many of the ſhoots there will retard the growth of the plants.

The culture of the Madder in the third ſummer muſt be the ſame as the ſecond; but as the roots will then be much ſtronger, the earth ſhould be laid up a little higher to them at the times when the ground is cleaned; and if all the diſtant ſuperficial ſhoots, which come up in the intervals are hoed or ploughed off, it will be of ſervice to ſtrengthen the larger downright root; and as the haulm will now be very ſtrong and thick, the frequent turning it over from one interval to another will prevent its rotting; for if it lies long in the ſame poſition, the ſhoots which are near the ground, where there will be always more or leſs damp, and being covered with the upper ſhoots, the air will be excluded from them, which will cauſe them to rot, for the ſhoots of Madder are naturally diſpoſed to climb up any neighbouring ſupport; and in places where they have been ſupported, I have ſeen them more than ten feet high; but the expenſe of ſtaking the plants to ſupport their ſhoots would be much too great to be practiſed in general; therefore the other method of turning the haulm over from one interval to the other will be found of great uſe, for hereby it is kept from decaying, and by ſo doing the ſun is alternately admitted to each ſide of the roots, which is of more conſequence to the growth of the Madder than moſt people conceive; and from many repeated

trials

trials I have found, that where the haulm has decayed or rotted in ſummer, it has greatly retarded the growth of the roots. There have been ſome ignorant pretenders who have adviſed the cutting off the haulm in ſummer, in order to ſtrengthen the roots; but whoever practiſes this, will find to their coſt the abſurdity of this method; for I have fully tried this many years ago, and have always found that every other root, upon which this was practiſed, was at leaſt a third part ſmaller than the intermediate roots, whoſe haulm was left entire. The firſt occaſion of my making this experiment was, becauſe the plants had been ſet too near each other, and the ſeaſon proving moiſt had increaſed the number and ſtrength of the ſhoots, ſo that they were ſo thick, as that many of them began to rot; to prevent which, I cut off the ſhoots of every other plant to give room for ſpreading the others thinner, but ſoon after this was done, the plants produced a greater number of ſhoots than before, but they were weaker, and the effect it had upon the roots was as before related; ſince which time I have frequently repeated the experiment on a few roots, and have always found the effect the ſame.

As ſoon as the haulm of the Madder begins to decay in autumn, the roots may be taken up for uſe, becauſe then the roots have done growing for that ſeaſon, and will then be plumper and leſs liable to ſhrink than if they are dug up at another ſeaſon; for I have always found, that roots of every kind of plant, which are taken out of the ground during the time of their growing, are very apt to ſhrink, and loſe more than half their weight in a ſhort time; whereas, when they are taken up ſoon after their leaves decay, they will not ſoon after ſhrink much.

When the ſeaſon for digging up the Madder root is come, it ſhould be done in the following manner, viz. a deep trench ſhould be dug out at one ſide of the ground next to the firſt row of Madder to make a ſufficient opening to receive the earth, which muſt be laid therein in digging up the row of roots, ſo that it ſhould be at leaſt two feet broad, and two ſpits and two ſhovellings deep, and ſhould be made as cloſe as poſſible to the roots, being careful not to break or cut the roots in doing it; then the row of roots muſt be carefully dug up, turning the earth into the trench before-mentioned. In the doing of this there ſhould be to every perſon who digs, two or three perſons to take out the roots, that none may be loſt, and as much of the earth ſhould be ſhaken out of the roots as poſſible; and after the principal roots are taken up, there will be many of the long fibres remaining below; therefore, in order to get the roots as clean as poſſible, the whole ſpot of ground ſhould be dug of the ſame depth as the firſt trench, and the pickers muſt follow the diggers to get them all out to the bottom. As the digging of the land to this depth is neceſſary, in order to take up the roots with as little loſs as poſſible, it is a fine preparation for any ſucceeding crop; and I have always found that the ground where Madder has grown, produced better crops of all kinds than land of equal goodneſs, which had not the like culture.

After the roots are taken up, the ſooner they are carried to the place of drying, the finer will be their colour; for if they lie in heaps, they are apt to heat, which will diſcolour them; or if rain ſhould happen to wet them much, it will have the ſame effect, therefore no more roots ſhould be taken up than can be carried under ſhelter the ſame day.

The firſt place, in which the roots ſhould be laid to dry, muſt be open on the ſides to admit the air, but covered on the top to keep out the wet. If a building is to be erected new, ſuch as the tanners have for drying their ſkins will be as proper as any, for theſe have weather-boards from top to bottom at equal diſtances to keep out the driving rain, but the ſpaces between being open admit the air freely; and if, inſtead of plank floors or ſtages above each other, they are laid with hurdles or baſket-work, upon which the roots are laid to dry, the air will have freer paſſage to the under ſide of the roots, which will dry them more equally.

In this place they may remain four or five days, by which time the earth which adhered to the roots will be ſo dry as to eaſily rub off, which ſhould be done before the roots are removed to the cold ſtove, for the ſlower the roots are dried, the leſs they will ſhrink, and the better will be the colour of the Madder; and the cleaner the roots are from earth, the better the commodity will be for uſe when prepared.

After the roots have laid a ſufficient time in this place, they ſhould be removed into another building called the cold ſtove, in which there ſhould be conveniencies of flues paſſing through different parts of the floor and the ſide-walls; in this the roots ſhould be laid thin upon the floors, and turned from time to time as they dry, taking thoſe roots away, which are neareſt to the flues which convey the greateſt heat, placing them in a cooler part of the room, and removing ſuch of them as had been in that ſituation to the warmer, from whence the others are taken. The conſtant care in this particular will be of great ſervice to the quality of the Madder; for when this is properly conducted, the roots will be more equally dried, and the commodity, when manufactured, will be much fairer and better for uſe.

When the outſide of the roots has been ſufficiently dried in this cold ſtove, they ſhould be removed to the threſhing floor, which may be the ſame as in a common barn where Corn is threſhed. The floor of this ſhould be ſwept, and made as clean as poſſible; then the roots ſhould be threſhed to beat off their ſkins or outſide coverings; this is the part which is prepared ſeparately from the inner part of the root, and is called mull, which is ſold at a very low price, being the worſt ſort of Madder, ſo cannot be uſed where the permanency or beauty of the colours is regarded; theſe huſks are ſeparated from the roots, and pounded by themſelves, which are afterwards packed up in ſeparate caſks, and ſold by the title of mull. If this is well prepared, and not mixed with dirt, it may be ſold for about fifteen ſhillings per hundred weight, at the price which Madder now bears; and this, as is ſuppoſed, will defray the whole expenſe of drying the crop.

After the mull is ſeparated from the roots, they muſt be removed to the warmer ſtove, where they muſt be dried with care; for if the heat is too great, the roots will dry too faſt, whereby they will loſe much in weight, and the colour of the Madder will not be near ſo bright; to avoid which, the roots ſhould be frequently turned, while they remain in this ſtove, and the fires muſt be properly regulated. If ſome trials are made by fixing a good thermometer in the room, the neceſſary heat may be better aſcertained than can be done any other way; but this will require to be greater at ſome times than at others, according as the roots are more or leſs ſucculent, or the weather more or leſs cold or damp; but it will always be better to have the heat rather leſs than over much; for, though the roots may require a longer time to dry with a ſlow heat, yet the colour will be better.

When the roots are properly dried in this ſtove, they muſt be carried to the pounding-houſe, where they muſt be reduced to powder in the manner before related; but whether it is neceſſary to ſeparate the kraps from the gemeens, as is now practiſed by the Dutch, the conſumers of Madder will be better judges than myſelf.

There have been ſome objections of late mentioned to the introducing, or rather retrieving the culture of Madder in England, which it may be proper here to take notice of, leſt they ſhould have ſo much weight as to prevent many perſons from engaging in it. The firſt which has been generally ſtarted is, that the land in this country is not ſo well adapted for growing Madder as that in Holland: to which I can with truth affirm, that there are vaſt tracts of land here much better adapted for producing Madder than the beſt land in Zealand; and from the experience which I have had of its growth, will produce a greater crop.

Another objection which I have heard, was the labour in Holland being cheaper than in England. The Dutch will always underſell us, ſo conſequently will

maintain this branch of trade; but this is certainly a great miſtake: for though the labourers employed in cultivating Madder may not earn ſo great wages as is generally paid in England, ſure I am, that the difference between an expert Engliſh labourer and that of the beſt Dutchman, in the ploughing, hoeing, planting, &c. of Madder, is much greater than that of their pay; for I am ſure a good Engliſh gardener or ploughman will do more buſineſs, and perform it better, in four days, than the beſt workman in Holland can do in ſix. What I now ſay is greatly within compaſs, from my own knowledge; ſo that, ſuppoſing we were to proceed in the ſame manner now practiſed by the Dutch, this could be no objection to the cultivating of Madder; but we ſhould ſoon find ways of performing the moſt laborious part, at much leſs expenſe, by means of the hoeing plough, which may be uſed to great advantage in the cultivation of Madder, whereby the expence will be much leſſened; and, when once this is well eſtabliſhed in England, there can be no doubt but that great improvements will be made both in the culture and method of preparing the commodity for uſe.

There have been objections made againſt farther trials of growing Madder, becauſe ſome who have engaged in it have not ſucceded: but in anſwer to this, it muſt be obſerved, that their ill ſucceſs was owing to a want of ſkill. Some of them continued to plant repeated crops of Madder on the ſame ſpot of ground, till the roots became ſo ſmall, as ſcarce to pay the expenſe of digging up; and here it is proper to obſerve, that Madder ſhould not be planted on the ſame land, till after an interval of ſeven or eight years; during which interval the ground may be ſown with any ſort of grain, or kitchen vegetables, which it will produce to great advantage after Madder, becauſe the land will be wrought ſo deep. The Dutch always ſow grain upon their Madder ground in the intervals of four years, and have great crops from it; and they are obliged, from the ſcarcity of land fit for this purpoſe, to plant the ſame ground after an interval of four years; but, as we are not under the ſame neceſſity, it will be much better to ſtay eight years, for the roots of Madder are very ſimilar to thoſe of Aſparagus, and draw much the ſame nouriſhment from the ground; and it is well known that, when Aſparagus roots are dug up, which have been growing three years, if the ſame is planted with Aſparagus again in a few years, it will not thrive equal to that which is planted on ground upon which Aſparagus has not grown for ſeveral years; and this is always found to be the caſe even in kitchen-gardens near London, where, by the well working and frequent dunging the ground, it may be ſuppoſed changed in three or four years, more than the fields can poſſibly be in eight or ten.

Madder ſhould not be planted in very rich dunged land, for in ſuch there will be very large haulm, but the roots will not be in proportion; and, where there is much dung or ſea-coal aſhes, the Madder roots will be of a darker colour, as it will alſo where it is cultivated in the ſmoke of London, which is likewiſe the caſe with Liquorice; for that which grows in a ſandy loam at a diſtance from London, is always much brighter and clearer than that which grows in the rich lands in the neighbourhood of London.

In Zealand the Madder is principally cultivated by the kitchen-gardeners, who, in the change of their crops, do every fourth or fifth year plant the Madder upon the ſame ground again, in like manner as the gardeners in the neighbourhood of London plant Aſparagus for forcing in winter upon hot-beds. And as they have public kilns in Holland for drying of the Madder roots, ſo they know the expenſe of manufacturing the commodity for ſale, which renders the cultivation ſure and eaſy to them.

If the cultivation of Madder is carried on properly in England, it will employ a great number of hands from the time harveſt is over, till the ſpring of the year, which is generally a dead time for labourers, and hereby the pariſhes may be eaſed of the poor's rate, which is a conſideration worthy of public attention.

[Mr. Arbuthnot has ſhown by repeated experiments on Madder, that it may be cultivated profitably on ſoils not of extraordinary natural fertility: that good huſbandry, with rich manuring will be ſufficient to enſure a crop; conſequently that the Madder culture may be extended over moſt parts of the kingdom, except on poor, ſtoney or clayey ſoils: that the profit made by an application of the land during three years, is ſuperior to that of four: that the crop requires the ground to be well cleaned, on account of the great difficulty of extracting root-weeds from among the fibres of the plants, which conſequently would, in three years, get entire poſſeſſion of the ground: that the average profit of an acre amounts to above ſeven guineas, under the diſadvantages of firſt attempts and want of experience; if the ſoil had been naturally rich, ſuch as old Hop-grounds for inſtance, the profit would have been probably double: that the culture of this plant ameliorates and cleans the ſoil in a great degree, by the hand-hoeing, numerous horſe-hoeings, and extraordinary tillage the ground receives in taking up the roots: that rich manuring is of the greateſt importance: that great miſchief is done to the crops by drawing plants from them: that the roots bear exact proportion to the luxuriance of the branches and leaves.

Inſtead of ſpoiling the plantations of Madder by drawing; it is much better to leave ſuch a part of the crop, as will be wanting for a ſupply; taking up the plants for this purpoſe in the ſpring inſtead of the autumn. One acre of good Madder will yield plants enough for ten acres.

Old lay or new land is improper for this crop, on account of the wire-worm or ſod-worm: ſuch land ſhould be thrown into one round of crops before the Madder is planted.

The beſt manure is farm-yard dung. Top-dreſſings of all ſorts are too ſmall in quantity, however rich, to laſt with effect three years.

The land ſhould be ploughed about fourteen inches deep; the intervals between the rows repeatedly horſe-hoed with a ſhim, and then the plants earthed up by a double mould-board plough with expanding earth-boards: the rows alſo muſt be hand-hoed, as often as it is neceſſary.

The ſets may be planted in rows at eighteen inches or two feet diſtance, and a foot aſunder in the rows. The beſt diſtance will vary according to the goodneſs of the land. But in general the nearer the rows, the greater will be the crop; at leaſt as near as two feet equally diſtant. Single rows at four feet are not half ſo advantageous. Two rows on four feet are almoſt twice as beneficial as ſingle ones; but though two rows on a four-foot land amount in the whole to the ſame as equally diſtant at two feet, yet do they not near equal them in product; from which it ſhould ſeem that the plants ſhould be ſpread pretty equally over the land [e].

RUBIA. See *Asperula*, *Crucianella*, *Galium*, *Houſtonia*, *Ortegia*, *Pharnaceum*, *Sherardia*, *Valantia*.

RUBIOIDES. See *Opercularia*.]

RUBUS. (*From the redneſs of the twigs, or the juice of the fruit.*)

Lin. gen. n. 632. *Reich. n.* 688. *Schreb. n.* 864. *Tournef. t.* 385. *Juſſ.* 338. *Gærtn. t.* 73.

Claſſ. 12. 5. Icoſandria Polygynia.

Nat. order of *Senticoſæ*. *Roſaceæ*, Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* one-leafed, five-cleft: *ſegments* oblong, ſpreading, permanent.

COR. *Petals* five, roundiſh, the length of the calyx, from upright ſpreading.

STAM. *Filaments* numerous, ſhorter than the corolla, inſerted into the calyx. *Anthers* roundiſh, compreſſed.

PIST. *Germs* numerous. *Styles* ſmall, capillary, ſpringing from the ſide of the germ. *Stigmas* ſimple, permanent.

PER. Berry compounded of roundiſh *acini*, collected into a convex head, concave below: each one-celled.

[e] Young's Eaſtern tour, vol. 2. p. 263. to 328.

Seeds solitary, oblong. *Receptacle* of the pericarps conical.

Obs. *The acini are united into a compound berry, and are not separable without tearing them asunder, except in* R. saxatilis, *which has the acini distinct.* R. Chamæmorus *is dioecous.*

ESSENTIAL CHARACTER.

Cal. five-cleft. *Pet.* five. *Berry* composed of one-seeded acini.

SPECIES.

* *Frutescent.*

[1. Rubus rosæfolius. *Rose-leaved Bramble.*
Lin. spec. ed. Willd. 1080. *Smith, ic. ined.* 3. 60.
Leaves quinate-pinnate and ternate green on both sides, stem and petioles prickly, flowers solitary.

2. Rubus pinnatus. *Pinnate-leaved Bramble.*
Lin. spec. ed. Willd. 1081.
Leaves quinate-pinnate and ternate wrinkled smooth on both sides, stem petioles and peduncles prickly, raceme terminating.

3. Rubus australis. *South-sea Bramble.*
Lin. spec. ed. Wild. 1081. *Forst. prod. n.* 224.
Shrubby, dioecous, leaves ternate and quinate-pinnate, stem and petioles prickly, racemes axillary simple.]

4. Rubus idæus. *Raspberry.*
Lin. spec. 706. *fyst.* 475. *Reich.* 2. 532. *Willd.* 1081. *fl. lapp. n.* 204. *fuec. n.* 446. *bort. cliff.* 192. *upf.* 133. *mat. med.* 130. *Woodv. med. bot.* 375. *t.* 138. *Hudf. angl.* 220. *Wither. arr. ed.* 3. 468. *Smith, brit.* 541. *Lightf. fcot.* 263. *Sibth. oxon. n.* 459. *Abbot, bedf.* 111. *Fl. dan. t.* 788. *Hall. helv. n.* 1108. *Scop. carn. n.* 611. *Pollich pal. n.* 488. *Hoffm. germ.* 177. *Roth. germ.* 1. 219. 2. 562. *Neck. gallob.* 220. *Leers, herborn. n.* 386. *Krock. filef. n.* 785. *Villars dauph.* 3. 558. *Allion. pedem. n.* 1771. *Willd. arb.* 323. *Du Roi harbecc.* 2. 376. *Blackw. t.* 289. *Knorr, del.* 2. *t.* R. 1.
Framboifier. *Duham.* 2. 255. *f.* 260.
α. R. idæus. *Ger.* 1089. 1. *emac.* 1272. 2. *Park. parad.* 559. 1. *Matth.* 1010. *Clus. hift.* 1. 117. *Dod. pempt.* 743. 1.
R. idæus fpinofus. *Bauh. pin.* 479.—fructu rubro. *Bauh. hift.* 2. 59. 2. *Raii hift.* 1640. *fyn.* 467. *Red prickly Raspberry.*
β. Rubus idæus fructu albo. *Bauh. pin.* 479. *Raii hift.* 1640. *White prickly Raspberry.*
γ. Rubus glaber. *Smooth Raspberry.*
Mill. dict. n. 4.
R. idæus lævis. *Bauh. pin.* 479.
R. idæus non fpinofus. *Bauh. hift. Raii hift.* 1641. *n.* 4.
Leaves quinate-pinnate and ternate tomentose underneath, petioles channelled, stem prickly.

5. Rubus occidentalis. *Virginian Raspberry.*
Lin. spec. 706. *fyst.* 475. *Reich.* 2. 532. *Willd.* 1082. *arb.* 324. *Kalm, itin.* 2. 283. *engl. ed.* 1. 66. *Gron. virg.* 2. 78. *Tbunb. jap.* 216. *Dill. eltb.* 327. *t.* 287. *f.* 319. *Pluk. alm.* 325.
Leaves tern tomentose underneath, stem prickly, petioles round.

[6. Rubus triphyllus. *Three-leaved Bramble.*
Lin. fyst. 475. *Willd.* 1082. *Thunb. jap.* 215.
Leaves ternate tomentose underneath, leaflets ovate gashed toothed, branches petioles and peduncles villose and prickly.

7. Rubus tomentosus. *Downy Bramble.*
Lin. fyst. ed. Willd. 1083.
Leaves ternate obovate acute unequally toothed tomentose on both sides, the lateral ones somewhat gashed.]

8. Rubus hifpidus. *Briftly Bramble.*
Lin. spec. 706. *fyst.* 475. *Reich.* 2. 533. *Willd.* 1083. *Thunb. jap.* 216.
Leaves ternate naked, stems and petioles very hispid with stiffish prickles.

[9. Rubus parvifolius. *Small-leaved Bramble.*
Lin. spec. 707. *fyst.* 475. *Reich.* 2. 533. *Willd.* 1083. *Lour. cochinch.* 324. *ed. Willd.* 398.
R. moluccanus parvifolius. *Rumph. amb.* 5. 88. *t.* 47. *f.* 1.
Leaves ternate tomentose underneath, stem rough-haired, with recurved prickles on that and the petioles.

10. Rubus fanctus. *Paleftine Bramble.*
Lin. spec. ed. Willd. 1083. *Schreb. acc.* 15. *t.* 8.
R. creticus triphyllus, flore parvo. *Tournef. cor.* 43.
Leaves ternate and simple tomentose underneath, recurved prickles on the stem and petioles.

11. Rubus jamaicenfis. *Jamaica Bramble.*
Lin. fyst. 475. *Reich.* 2. 533. *Willd.* 1084. *mant.* 75. *Swartz, obf.* 205. *Brown. jam.* 242. *n.* 1. *Sloan. jam.* 2. 109. *t.* 213. *f.* 1. *Raii dendr.* 76.
Leaves quinate or ternate tomentose underneath, stem petioles and leaves pubescent with recurved prickles, panicles diffused.]

12. Rubus cæfius. *Dewberry Bramble.*
Lin. spec. 706. *fyst.* 475. *Reich.* 2. 534. *Willd.* 1084. *bort. cliff.* 192. *fl. fuec. n.* 445. *Hudf. angl.* 220. *Wither. arr. ed.* 3. 468. *Smith, brit.* 542. *Engl. bot. t.* 826. *Lightf. fcot.* 264. *Relh. cant. n.* 369. *Sibth. oxon. n.* 462. *Abbot, bedf.* 111. *Hall. helv. n.* 1110. *Scop. carn. n.* 612. *Pollich pal. n.* 489. *Hoffm. germ.* 177. *Roth. germ.* 1. 219. 2. 563. *Neck. gallob.* 219. *Krock. filef. n.* 786. *Villars, dauph.* 3. 558. *Allion. pedem. n.* 1772. *Willd. arb.* 325. *Du Roi harbecc.* 2. 375. *Thunb. jap.* 216.
R. repens, fructu cæfio. *Bauh. pin.* 479. *Ger. emac.* 1271.
R. minor. *Dod. pempt.* 742. 2.—fructu cæruleo. *Bauh. hift.* 2. 59. *Raii hift.* 1640. 2. *fyn.* 467.
R. minor, Chamærubus, f. Humirubus. *Park. theat.* 1013. *n.* 2. *t.* 1014. *f.* 2.
Leaves ternate hairy underneath, the lateral ones two-lobed, stem prickly prostrate glaucous.

[13. Rubus corylifolius. *Hazel-leaved Bramble.*
Smith, brit. 542. *engl. bot. t.* 827.
R. fruticofus major. *Wither. arr. ed.* 3. 469. 2. *Hull,* 111.
R. major fructu nigro. *Schmidel. ic. t.* 2.
R. floribus majoribus & præcocioribus. *Dill. in Raii fyn.* 467.
Leaves subquinate hairy underneath, the lateral ones sessile, prickles straightish, calyxes of the fruit bent back.]

14. Rubus fruticofus. *Common Bramble.*
Lin. spec. 707. *fyst.* 475. *Reich.* 2. 534. *Willd.* 1084. *bort. cliff.* 192. *fl. fuec. n.* 444. *Gærtn. fruct.* 1. 350. *Hudf. angl.* 220. *Wither. arr. ed.* 3. 469. *Smith, brit.* 543. *engl. bot. t.* 715. *Lightf. fcot.* 264. *Hull,* 111. *Relh. cant. n.* 370. *Sibth. oxon. n.* 461. *Abbot, bedf.* 112. *Hall. helv. n.* 1109. *Scop. carn. n.* 613. *Hoffm. germ.* 177. *Roth. germ.* 1. 220. 2. 564. *Pollich, pal. n.* 490. *Neck. gallob.* 229. *Krock. filef. n.* 787. *Villars, dauph.* 3. 559. *Allion. pedem. n.* 1773. *Desfont. atlant.* 401. *Lour. cochinch.* 325. *ed. Willd.* 398. *Gron. virg.* 163. *Willd. arb.* 326. *Du Roi harbecc.* 2. 372. *Knipb. cent.* 5. *n.* 77. *Mill. illuftr. t.* 45.
La Ronce. *Regnault bot. ic.*
α. Rubus. *Dod. pempt.* 742. 1. *Matth.* 1009. *Lob. ic.* 2. 211. 2. *obf.* 619. 1. *Fuchf. hift.* 152. *Trag.* 970. *Pauli dan. t.* 337. *Dalech. hift.* 119. *Camer. epit.* 751. *Ger.* 1089. 2. *emac.* 1272. 1. *Blackw. t.* 45.
R. vulgaris, f. R. fructu nigro. *Bauh. pin.* 479.—major. *Park. theat.* 1013.
R. major fructu nigro. *Bauh. hift.* 2. 59. 1. *Raii hift.* 1639. *fyn.* 467.
Black-fruited common Bramble.
β. R. fruticofus albus. *Ait. kew.* 2. 210.
R. vulgaris major, fructu albo. *Raii fyn.* 467. 2.
White-fruited common Bramble.
γ. R. fruticofus plenus. *Ait. kew.* 2. 210.
R. flore albo pleno. *Magnol bort.* 175.
Double-flowered Bramble.
δ. R. fruticofus inermis. *Ait. kew.* 2. 210.
Smooth Bramble.
Leaves subquinate-tomentose underneath, leaflets petioled, prickles hooked, stem angular, calyx bent back.

[15. Rubus villofus. *Hairy Bramble.*
Ait. kew. 2. 210. *Lin. spec. ed. Willd.* 1085.
Leaves quinate elliptic acuminate sharply serrate villose on both sides, stems and petioles prickly.

16. Rubus canadenſis. *Canadian Raſpberry.*
Lin. ſpec. 707. *Reich.* 2. 535. *Willd.* 1085.
Leaves digitate in tens, five and threes, ſtem unarmed.]
17. Rubus odoratus. *Flowering Raſpberry.*
Lin. ſpec. 707. *Reich.* 2. 535. *Willd.* 1085. *hort. cliff.* 192. *upſ.* 133. *Willd. arb.* 326. *Du Roi harbrec.* 2. 379. *Corn. canad.* 149. *t.* 150. *Dubam. arb.* 14. *Mill. fig.* 149. *t.* 223. *Curt. magaz.* 323. *Raii hiſt.* 1641.
Leaves ſimple palmate, ſtem unarmed many-leaved many-flowered.
[18. Rubus moluccanus.
Lin. ſpec. 707. *ſyſt.* 475. *Reich.* 2. 535. *Willd.* 1086. *Thunb. jap.* 219. *Lour. cochinch.* 324. *ed. Willd.* 397.
R. molucc. latifolius. *Rumph. amb.* 5. 88. *t.* 47. *f.* 2.
Leaves ſimple cordate ſublobed, ſtem prickly decumbent.
19. Rubus microphyllus.
Lin. ſuppl. 263. *ſpec. ed. Willd.* 1086.
R. palmatus. *Lin. ſyſt.* 475. *Thunb. jap.* 217.
Ki Itſigo. *Kæmpf. amæn.* 787.
Shrubby, prickly, ſmooth, leaves ſimple cordate ovate blunt ſublobate, peduncles ſolitary one-flowered.
20. Rubus inciſus.
Lin. ſyſt. 476. *Willd.* 1086. *Thunb. jap.* 217.
Leaves ſimple cordate gaſhed ſmooth, ſtem erect prickly.
21. Rubus japonicus.
Lin. ſyſt. 476. *Reich.* 2. 535. *Willd.* 1087. *mant.* 245. *ſuppl.* 263.
Shrubby, unarmed, very ſmooth, leaves ſimple cordate oblong acuminate doubly-ſerrate, peduncles ſolitary one-flowered.
22. Rubus corchorifolius.
Lin. ſuppl. 263. *ſpec. ed. Willd.* 1087.
R. villoſus. *Lin. ſyſt.* 475. *Thunb. jap.* 218.
Shrubby, prickly, tomentoſe, leaves ſimple oblong cordate ſerrate, peduncles ſolitary one-flowered.
23. Rubus elongatus.
Smith, ic. ined. 3. 62. *Willd. ſpec.* 1087.
Leaves ſimple cordate acuminate doubly crenate tomentoſe underneath, ſtem prickly, calyxes blunt.
24. Rubus pyrifolius.
Smith, ic. ined. 3. 61. *Willd. ſpec.* 1088.
Leaves ſimple oval acuminate ſerrate naked, ſtem prickly panicled, petals minute.
** *Herbaceous.*
25. Rubus pedatus.
Smith, ic. ined. 3. 63. *Willd. ſpec.* 1088.
Leaves pedate-quinate gaſhed, peduncles filiform bracted in the middle, calyxes ſmoothiſh.]
26. Rubus ſaxatilis. *Stone Bramble.*
Lin. ſpec. 708. *ſyſt.* 476. *Reich.* 2. 536. *Willd.* 1088. *fl. lapp. n.* 206. *ſuec. n.* 447. *Hudſ. angl.* 221. *Wither. arr. ed.* 3. 470. *Smith, brit.* 544. *Lightf. ſcot.* 265. *Fl. dan. t.* 134. *Jacqu. vind.* 245. *Hall. helv.* n. 1111. *Hoffm. germ.* 177. *Roth. germ.* 1. 220. 2. 565. *Scop. carn. n.* 614. *Krock. ſilef. n.* 788. *Villars, dauph.* 3. 559. *Allion. pedem. n.* 1774. *Pallas, itin.* 1. 72. *Willd. arb.* 327. *Ger.* 1090. 3. *emac.* 1273. 4.
R. alp. humilis. *Baub. hiſt.* 2. 61.
R. ſaxat. alpinus. *Cluſ. hiſt.* 1. 118. 1. *Park. theat.* 1014. 4.
Chamærubus ſaxatilis. *Baub. pin.* 480. *Raii hiſt.* 654. *ſyn.* 261.
Leaves ternate ſmoothiſh, runners creeping herbaceous, panicle few-flowered.
27. Rubus arcticus. *Dwarf crimſon Bramble.*
Lin. ſpec. 708. *ſyſt.* 476. *Reich.* 2. 536. *Willd.* 1088. *fl. lapp. n.* 207. *t.* 5. *f.* 2. *fl. ſuec. n.* 448. *hort. cliff.* 292. *mat. med.* 130. *Smith, brit.* 544. *Fl. dan. t.* 488. *Gmel. ſib.* 3. 179. *n.* 22. *Willd. arb.* 327. *Curt. magaz. t.* 132.
R. humilis flore purpureo. *Buxb. cent.* 5. 13. *t.* 26.
R. trifollus humilis non ſpinoſus, ſapore & odore fragariæ, fructu rubro polycocco. *Amm. ruth.* 185.
Leaves ternate ſmooth, ſtem unarmed one-flowered.
[28. Rubus trifidus.
Thunb. jap. 217. *Willd. ſpec.* 1089.
Leaves ſimple gaſh-trifid ſmooth, ſtem unarmed.
29. Rubus ſtellatus.
Smith, ic. ined. 3. 64. *Willd. ſpec.* 1089.
Leaves ſimple cordate three-lobed, wrinkle-veined, ſtem unarmed one-flowered erect, petals lanceolate.
30. Rubus geoides.
Smith, ic. ined. 1. 19. *Willd. ſpec.* 1089.
Leaves ſimple and ternate blunt ſerrate naked, the end-leaf very large.]
31. Rubus Chamæmorus. *Mountain Bramble,* or *Cloud-berry.*
Lin. ſpec. 708. *ſyſt.* 476. *Reich.* 2. 536. *Willd.* 1090. *fl. lapp. n.* 208. *t.* 5. *f.* 1. *ſuec. n.* 449. *hort. cliff.* 192. *mat. med.* 130. *Gunn. norv. n.* 6. *Fl. dan. t.* 1. *Hudſ. angl.* 221. *Wither. arr. ed.* 3. 471. *Smith, brit.* 545. *Lightf. ſcot.* 266. *t.* 13. *f.* 2. *Dickſ. hort. ſicc.* 2. 8. *Retz. obſ.* 1. 20.
R. paluſtris humilis. *Tournef. inſt.* 615.
Chamæmorus. *Ger.* 1090. Vaccinia 1368. *emac.* 1273. Vaccinia 1420. *Raii hiſt.* 653. *ſyn.* 260.
C. anglica. *Park. theat.* 1014. 7.
Morus norvagica. *Tillandſ. ic.* 159.
Chamærubus foliis Ribes—& fol. Ribes anglica. *Baub. pin.* 480. 2. 3.
Leaves ſimple lobed, ſtem unarmed one-flowered, calycine ſegments ovate.
32. Rubus Dalibarda. *Simple-leaved Bramble.*
Lin. ſpec. 708. *ſyſt.* 476. *Reich.* 2. 537. *Willd.* 1090. *Smith, ic. ined.* 1. 20.
Dalibarda repens. *Lin. ſpec. ed.* 1. 401.
Leaves ſimple cordate undividad crenate, ſcape leafleſs one-flowered.

DESCRIPTIONS, *&c.*

[1. Stem round, pubeſcent; prickles yelloviſh, recurved at the end. Leaflets commonly five, ſubſeſſile, ovate, acute, doubly ſerrate, ſomewhat hairy; the end one very large, elongated, petioled. Common petiole channelled, hairy, with ſmall hooked prickles. Stipules in pairs, linear, acute, very narrow. Peduncles ſolitary, oppoſite to the leaf, an inch long, ſpreading, hairy, one-flowered, without any bractes. Calyx deeply five-cleft: ſegments ovate, very much drawn out at the point, entire, pubeſcent on both ſides. Petals a little ſhorter than the calyx, roundiſh, clawed, ſeeming to be white. Filaments ſhorter by half than the petals. Fruit globular, compoſed of very numerous ſmooth acini, and ſeeming not to be very ſucculent.—Found in the iſland of Mauritius by Commerſon; and communicated by Thouin[h].

2. Branches villoſe, green, beſet with hooked prickles. Leaves ovate-lanceolate, wrinkled and veined, ſharply double-ſerrate. Raceme ſimple. Peduncles villoſe, very prickly. Calyxes villoſe, longer than the petals. It ſeems to be allied to the next ſpecies; but the flowers are hermaphrodite, and the raceme terminating.—Its native place is unknown[i].

3. Native of New Zealand[k].

4. Stems ſuffruticoſe, biennial, upright, round, aculeate-hiſpid, or thick ſet with ſmall prickles, two feet high: they produce fruit the ſecond year, after which they lie down. Leaflets rhomb-ovate, acute, marked with lines, unequally ſerrate, white underneath. Petioles pubeſcent, prickly. Peduncles hiſpid. Flowers in panicles. Calyx tomentoſe, acuminate. Petals ſmall, white, blunt, flat. Fruit red, grateful to the ſmell and taſte, deciduous, briſtly with the permanent ſtyles[l], placed upon a conical receptacle.

The Raſpberry, was anciently called Raſpis or Raſpis-berry, and in ſome countries Hind-berry; alſo Framboiſe, from the French.

Native of many parts of Europe in rocky mountains, moiſt ſituations, woods and hedges. With us it is plentiful in Wales, and ſome parts of Scotland. Mr. Curtis remarked it in Graſs-wood, near Kilnſay, Yorkſhire; Mr. Hutchinſon, near Biſhop's Aukland; Dr. Withering, about Edgbaſton-pool, and near Birmingham; Mr. Crowe and Dr. Smith, between Norwich and Thorpe; Mr. Woodward, near Berkhamſtead in Hertfordſhire; Dr. Sibthorp, at Stokenchurch and Mongewell, in Oxfordſhire; Profeſſor John Martyn, in the Peak of Derbyſhire; Dr. Deering, between

[h] Smith. [i] Willdenow. Smith. [k] Forſter.

Brockſtow

Brockſtow and Nuttal, in Nottinghamſhire; by Gerarde, near Harwood not far from Blackburne in Lancaſhire, and near Wiſterſom, where he went to ſchool, two miles from Nantwich in Cheſhire.

The Raſpberry flowers in may and june.

The fruit is grateful to moſt palates, as nature preſents it, but ſugar improves the flavour; accordingly it is much eſteemed when made into a ſweetmeat. The ripe fruit is fragrant, ſubacid and cooling, allays heat and thirſt, and promotes the natural excretions, in common with other ſummer fruits. A grateful ſyrup, prepared from the juice, is directed for officinal uſe, by the London Pharmacopœia. It diſſolves the tartar of the teeth, but for this purpoſe it is inferior to the Strawberry. The freſh leaves are the favourite food of kids [a].]

The varieties of the Raſpberry are, 1. The Red-fruited. 2. The White-fruited. 3. The twice-bearing; of which the firſt crop ripens in july, and the ſecond in october: thoſe of the latter ſeaſon having ſeldom much flavour. [The ſize of the fruit has alſo been much increaſed by culture, but perhaps at the expenſe of the flavour. Theſe are all accidental varieties, by the confeſſion of Mr. Miller himſelf;] but the Smooth Raſpberry he believes to be a diſtinct ſpecies; the leaves being trifoliate, larger than thoſe of the common ſort, woolly on their under ſide, the branches and ſtalks having no thorns. It produces few and ſmall fruit, which has occaſioned its being neglected.

5. The Virginian Raſpberry riſes with purpliſh ſtalks, a little higher than the common ſort. The leaves are of a lucid green on their upper ſide, but hoary on their under; their foot-ſtalks are taper; the fruit is of a deep black when ripe, has little flavour, and ripens late in autumn.

[Stem round, even, with recurved prickles, and covered with a bloom like a Plum. The petioles have alſo recurved prickles. Leaves ternate, with the middle leaflet pedicelled, ovate, gaſh-ſerrate, white-tomentoſe underneath. Raceme terminating. Fruit black. It varies alſo with a red fruit, more acid and pleaſant than our European Raſpberry. It differs chiefly from that, which it otherwiſe very much reſembles, in the leaves being commonly ternate, although the lateral leaflets often become two; the lateral leaflets being uſually angular; the prickles alternate, recurved, not ſcattered and in cluſters; the petioles alſo being prickly: but it is known at firſt ſight by the blue cloud or bloom on the ſtem [b].

Native of North America. It was cultivated in the botanic garden at Chelſea in 1696; and flowers in may and june [c].

6. *Stem ſuffruticoſe, ſmooth, prickly.* Branches weak, from flexuoſe-upright. Leaflets obovate, ſomewhat angular, with large teeth ending in a ſort of briſtle, ſmooth above, white-tomentoſe underneath. Flowers at the ends of the branchlets, in a ſort of panicle. Calyxes tomentoſe, hiſpid.

Native of Japan [d].

7. Branches ſmooth ſtriated beſet with ſcattered hooked prickles. Leaflets ſoft; the lateral leaflets obovate acute, unequally and groſsly toothed, the outer ſide ſublobate; the end leaflet obovate acute quite entire at the baſe. There are ſmall prickles on the petioles, the rib of the leaves, and the peduncles. Flowers white, in panicles at the end of the branches. Leaflets of the calyx tomentoſe, bent back. Petals obovate, twice as long as the calyx. It is very different from the common Bramble; nor does it agree with *R. occidentalis*, under which name it was ſent.—Native of Germany and Switzerland [e].

8. The ſtems have long procumbent woody ſhoots like thoſe of the Vine; theſe together with the petioles have ſtiff briſtles ſcattered over them. Leaflets gaſh-ſerrate, the middle one petioled. The peduncles alſo are hiſpid.

Native of Canada [f]. Cultivated by Mr. Miller in 1759. It flowers in auguſt.

9. Stems ſhrubby round tomentoſe, with abundance of reflex prickles. Leaves white underneath, veined. Calyxes tomentoſe, formed into a raceme.—Native of the Eaſt Indies [g].

Stems long, ſcandent, with many branches, and a few longiſh recurved prickles. Leaves roundiſh, ſerrate-gaſhed. Flowers purple, in a looſe terminating panicle. Berry roundiſh, red [h].—Native of the Eaſt Indies, China and Cochinchina.

10. Native of Paleſtine, Candia, &c.

11. This differs from *R. parviflius* in having the ſtem not hoary, but when young ſlightly pubeſcent only. Stem as in *R. fruticoſus*. Leaves ſmooth above, white underneath, gaſh-ſerrate [i].

It differs from the common Bramble (R. fruticoſus) in having the leaves gaſh-ſerrate, with the ribs prickly; the panicles terminating, diffuſed; the flowers and berries ſmall [k].—Native of Jamaica and the neighbouring iſlands.]

12. The Dewberry has weaker trailing ſtalks than the common Bramble. The leaflets are larger. The fruit is ſmaller, with few larger acini, and is of a deeper black colour.

[Stems proſtrate, round, rooting, pale green with a vivid glaucous tinge: though woody, they are only annual, or at moſt biennial. Leaflets gaſhed and ſerrate, downy (not hoary) beneath: the lateral leaflets ſeſſile, generally lobed on the outſide, of various forms. Stipules lanceolate. Petioles downy, prickly, obſcurely channelled above. Flowers few together, in terminating, downy, ſomewhat prickly panicles. Calyx ſilky, with long points, ſpreading. Petals waved and crumpled, white, rarely reddiſh. Fruit black with a bright blue tinge or bloom, compoſed of few large grains. Its flavour is agreeably acid, without the faint taſte of the common Blackberry.

Native of Europe, in dry ſhady ditches, woods and the borders of fields; flowering in june and july, and fruiting through auguſt and ſeptember, till froſts come on [l].

13. Stems biennial, roundiſh, red, not truly ſhrubby and perennial, much more brittle than the *fruticoſus*, ſo that it is rejected by thatchers, who uſe the other for binding their thatch; all the prickles are nearly ſtraight and not hooked. Leaves quinate or ternate: leaflets large, ſometimes exactly reſembling the leaves of a Hazel, unequally ſerrate and gaſhed, bright green above and ſmoothiſh, hairy but never hoary beneath; when the leaves are ternate, they are lobed on the outſide. Stipules, ſome ſetaceous others lanceolate. Petioles hairy, prickly. Panicle many-flowered. Calyx villoſe, ſpreading, in fruiting-time reflexed. Corolla white, earlier and larger than in the common Bramble. Fruit earlier, of a browner black, more gratefully acid than in the *fruticoſus*, and compoſed of rather fewer *acini* or grains [m].

Dillenius had remarked that there are two ſpecies of Bramble in our hedges, this with white, larger and earlier flowers, and another (fruticoſus) with reddiſh, ſmaller and later flowers. This difference has been ſince obſerved in Norfolk; and Mr. Woodward, who has marked the diſtinctions between them, ſuſpected this to be a variety of the *cæſius*; its larger ſize being owing only to its growing in open hedges, for in ditches it frequently throws out runners, which creep on the ground, and are not bigger than in the *cæſius*. Mr. Woodward's deſcription is given by Dr. Withering, who conſiders it as a variety of the *fruticoſus*. Dr. Smith has deſcribed and figured it as a diſtinct ſpecies, by the perſuaſion of Mr. Crowe, who has examined it carefully, and fully aſcertained it.

Profeſſor Hoffmann thinks that our *corylifolius* is the *fruticoſus* of his German Flora for 1800; and that the true *fruticoſus* is his *tomentoſus*. But the true *tomentoſus* (n. 7.) is very different from both ours.

R. corylifolius is equally common in our hedges with the *fruticoſus* [n].

14. Common Bramble has very long, trailing or rather arching, woody ſtems, of a purpliſh hue, as in

[a] Woodville and Withering. [b] Linn. ſpec. [c] Hort. kew. [d] Thunberg. [e] Willdenow. [f] Linn. ſpec. [g] Loureiro. [h] Linn. mant. [i] Swartz. [k] Smith. [l] Idem. [m] Engl. bot. [n] Linn. ſpec.

the preceding, but much more tough, with the angles more ſtrongly marked, and the prickles hooked. Leaves quinate, or ſometimes ternate; leaflets ſomewhat elliptical, doubly-ſerrate, acute, dark-green and ſhining above, white and downy beneath; but ſometimes the under ſide is merely hairy and of a paler green. All the leaflets are petioled; and the petioles are prickly. Stipules briſtle-ſhaped. Panicles many-flowered, ſubracemed, tomentoſe. Calyx ſhort, always reflexed both in flower and fruit, concave, tomentoſe. Petals pale purple, bluſh-coloured or pink; ſometimes white. Fruit of a dark violet colour, with a mawkiſh ſweet taſte, compoſed of very numerous acini or grains [b]. Gærtner deſcribes the fruit as a compound berry of an ovate-globular form, when ripe concave within and deciduous, compoſed of about fifty partial berries, which are ovate, ſucculent, very dark purple, perfectly ſmooth and ſhining; each incloſing one ſeed, which is ovate, narrowed above, compreſſed like a lens, netted and wrinkled, of a pale teſtaceous colour. The receptacle is ſhort, fungoſe, and conical.

The Bramble is found in almoſt every hedge and thicket, flowering in july and auguſt. The fruit ripens early in ſeptember. But Dr. Smith remarks, that the ſeaſon was ſo unfavourable in 1799, that ſcarcely any Blackberries were to be ſeen ripe in october. They are called in ſome countries *Bumblekites*; in others *Scald-berries*, from their ſuppoſed quality of giving ſcald-heads to children, who eat of them inordinately. The green twigs are of great uſe in dyeing woollen, ſilk and mohair black. Silk-worms will ſometimes feed upon the leaves, for want of thoſe of the Mulberry [c]. They are very aſtringent, and a decoction of them may be uſed in gargariſms.

The Bramble, ſo generally reprobated as a very troubleſome weed, may be uſeful in raiſing live hedges in a poor ſandy ſoil, in the ſhorteſt time, and at the leaſt expenſe. Several ſmall incloſures having been made in the pariſh of Cavenham in Suffolk, which is a blowing ſand, on each ſide of a narrow field-row, along which a large flock of ſheep was frequently driven; on one ſide of the road the bank was planted with Brambles mixed with the White-thorn, and a dead hedge was placed on the top, as is the uſual method in that country: the dead hedge was never renewed, and yet the fence in ten or eleven years was a tolerable one. The Bramble, which is a very faſt grower, not only defended the young quick from the ſheep, but likewiſe by twiſting itſelf through the dead hedge ſtrengthened it, and prevented its being broken down either by cattle or pilferers. On the other ſide of the road, the bank was planted at the ſame time with White-thorn only. The dead-hedge was renewed ſeveral times, and yet there was no probability that the White-thorn would ever make a fence. Mr. Le Blanc, who gives this account, improved upon the hint, by planting two rows upon a bank, the lower of Bramble only, the upper of White-thorn only. He tried this method in the years 1781 and 1782, and both fences in 1784 were more promiſing than he could have expected them to be if planted with White-thorn alone. He recommends this proceſs only in poor ſandy ſoils, where the growth of live-hedges is ſlow, where they are liable to the depredations of ſheep, and where, by reaſon of the looſeneſs of the ſoil, the ditch is no defence [d].

The ſweet Briar, or the Dog Roſe, will, either of them, aſſiſt in rearing and protecting the White-thorn, in making quick hedges.]

The varieties of the Bramble are—1. That with white fruit, which has the bark and leaves of a lighter green; and was found accidentally in a hedge not far from Oxford by Bobart. 2. The Bramble with a double flower, which is introduced into plantations of ſhrubs. 3. The ſmooth Bramble without thorns. 4. With cut leaves. 5. With variegated leaves.

[15. Native of North America. It flowers here in july [e].

16. Stem purpliſh. Leaflets lanceolate, naked on both ſides, very thin, ſharply ſerrate. Bractes lanceolate. Stipules linear, prickly.—Native of Canada, where it was found by Kalm [f].

17. Root perennial, creeping. Stems many, from four to ſeven feet high, about the ſize of a man's little finger, covered with a ſmooth bark of a light brown colour, and branching out a little towards the top. Leaves ſix inches long, and ſeven inches broad, cut into three, four or five angular lobes, ending in acute points, ſerrate, having ſeveral veins ariſing from the midrib, running upwards diverging towards the borders, deep green above, but light green and ſmooth beneath; on foot-ſtalks four inches long, coming out alternately. Flowers in looſe terminating bunches, each on a long peduncle. Petals large, roundiſh, of a light purple colour [g].

The fruit is rarely produced with us, but in North America, its native country, it is like the common Raſpberry, only not ſo pleaſant. It flowers from june to ſeptember. Cornutus, who firſt figured and deſcribed this plant, gave it the name of *odoratus*, on account of the fragrance of its foliage. Nurſery-men and gardeners have named it the *Flowering Raſpberry*, becauſe it is regarded in Europe merely for its flowers, which are ſhowy, and plentifully produced in ſucceſſion, during the whole ſummer [h]. It was cultivated by Mr. Miller in 1739 [i].

18. Stem fruteſcent, decumbent, among ſhrubs or trees ſcandent. Branches upright, hirſute, with minute recurved prickles. Leaves alternate, blunt, lobed or ſublobed, ſerrate, ſmooth and wrinkled above, veined and downy-aſh-coloured beneath. Petioles tomentoſe, prickly, the length of the leaf. Flowers ſcattered in the axils and terminating, ſolitary and racemed. Peduncles tomentoſe, prickly. Calyx tomentoſe on the outſide. Corolla ſcarcely longer than the calyx [k]. Flowers in panicles. Petals ſhorter than the calyx. Germs hirſute. Styles longer than the ſtamens. Leaves tomentoſe underneath [l].—Flowers white, in oblong racemes, with torn bractes. Corolla commonly ſix-petalled. Berry ſmall, roundiſh, red [m].

Native of Amboina, Java, Ceylon, Japan and Cochinchina.

19. Stem fruteſcent, upright, from two to three feet in height. Branches round, purple, flexuoſe, with frequent ſpreading prickles. Leaves ſeveral from each bud, palmate-trifid or quinqueſid, ſmooth on both ſides, villoſe-veined, ſpreading, an inch or more in length. The three lobes are commonly ſimple, but ſometimes divided again into three, lanceolate, acuminate, acutely and unequally ſerrate, the middle one longer than the others. Petioles capillary, beſet with recurved prickles the length of the leaves, unequal. Flowers from the buds among the leaves pedoncled, ſolitary. Calyx villoſe, with lanceolate ſegments. Corolla biggiſh, twice as long as the calyx, white. Fruit yellow, eſculent, ſapid [n].

It reſembles the *parvifolius*, but that is hoary with down, and has the leaves always ternate, white underneath. Stems very ſmooth, round, thinly ſet with prickles. Leaves ſmall, petioled, cordate, blunt, commonly three-lobed, ſerrate, unarmed. Petioles and peduncles alſo unarmed. Flowers ſmall, the ſize of Potentilla [o].

Native of Japan, between Miaco and Quana; flowering in april [p].

20. Stem fruteſcent, ſmooth, purple, beſet with ſcattered ſpreading prickles. Branches like the ſtem, with frequent prickles. Leaves ſeveral from a bud, cordate, ovate, rounded, ſeldom acute, ſublobed, ſerrate, having raiſed nerves, unarmed. Petioles ſmooth, having recurved prickles, ſpreading, the length of the leaves. Peduncles capillary, unarmed and prickly, ſmooth, the length of the petioles. Flowers axillary, peduncled, ſolitary. Calyx ſmooth without, white-tomentoſe within. It differs from *R. moluccanus* in having an upright ſtalk and ſmooth leaves:—from *R.*

[b] Smith. [c] Withering. [d] Young's Annals, vol. 2. p. 342. [e] Hort. kew. [f] Linn. ſpec. [g] Mill. ſig. [h] Curtis. [i] Hort. kew. [k] Thunberg. [l] Linn. ſyſt. [m] Loureiro. [n] Thunberg. [o] Linn. ſuppl. [p] Thunberg.

villosus (corchorifolius) in having the leaves smooth, unarmed, blunt, gashed, and both peduncles and petioles longer.—Native of Japan [s].

21. This is a low shrub, with an upright, even, angular stem, not much branched. Leaves alternate, petioled, ovate or ovate-oblong, even on both sides. Peduncle filiform, the length of the corolla. Flower the size of that of the Strawberry, with roundish white petals. Calyx small [r].—Native of Japan.

22. Stem and petioles, and sometimes under the leaves prickly. Stem, lower surface of the leaves, petioles, peduncles and calyxes hoary with nap. Petals scarcely longer than the calyx [t].

The leaves are beautifully plaited before they unfold. It differs from *R. bifpidus* in having simple, not ternate leaves, which are hairy: from *R. moluccanus* in having oblong-ovate acute leaves, and a shrubby upright stem.—Native of Japan, between Miaco and Jedo; flowering in april [u].

23. Stem shrubby, round, pubescent, with small prickles on it. Leaves alternate, doubly and acutely crenate, smooth above, white-tomentose beneath, veined. Petioles shorter than the leaves, roundish, pubescent, unarmed. Panicle terminating, elongated, tomentose, flexuose, alternately branched. Pedicels clustered or solitary, short, a little thickened at top, silky, upright. Bractes oblong, concave, pubescent on the outside, toothed at top, deciduous. Calyx half-five-cleft, with blunt segments ending in a little point, silky. Petals roundish, white. Fruit red.—Found in Java by Commerson.

24. Stem shrubby, subflexuose, round, slightly hirsute, with small recurved prickles. Leaves alternate, spreading, smooth, except that the veins are hirsute on both sides. Petioles short, hirsute. Stipules scarcely any. Panicle terminating, erect, somewhat like a thyrse, many-flowered, alternately branched, pubescent. Peduncles from the rudiments of the abortive flowers knobbed, subdivided. Pedicels round, scarcely thickened. Bractes oblong, multifid, pubescent, deciduous. Calyx deeply five-cleft, with the segments ovate, acuminate, the outer ones trifid at the top, tomentose on both sides. Petals four times shorter than the calyx, oval, blunt, toothed at the end. Fruit composed of few ovate grains.—Found in Java by Commerson [x].

25. Roots fibrous, from the joints of the stem, which is procumbent, round, unarmed and smooth. Leaves upright, ternate, with the side leaflets binate, thus seeming to be pedate. Leaflets shortly petioled, obovate, acutely crenate, veined, green on both sides, naked except at the veins which are somewhat hairy, the outer ones often obscurely lobed on one side. Common petioles very long, linear, channelled, smoothish, unarmed. Stipules in pairs, at the base of the petioles, roundish, concave, membranaceous, blunt. Flowers solitary, peduncled, upright, seemingly white. Peduncles filiform, the length of the petioles, subpubescent at top. Bractes in pairs, opposite, about the middle of the peduncle, blunt, smooth, small. Leaflets of the calyx oblong, reflex, sharpish, generally having a tooth or two on each side, veined, smooth or very slightly hairy, and not tomentose, as in most of the species. Petals the length of the calyx, obovate, spreading. This tender delicate plant, is distinguished from all the herbaceous species by its leaves. It was found by Mr. Archibald Menzies, in the western part of North America [y].

26. Stone Bramble has a fibrose root, with very long, prostrate, creeping runners, naked or leafy and barren. Stems upright, simple, a span high, somewhat angular, villose, leafy, unarmed. Leaves ternate, (the lower ones sometimes quinate,) pale-green, thin, doubly-serrate, acute, slightly hairy underneath, the lateral leaflets sessile. Mr. Woodward has remarked all the leaflets to be sessile, and also all on footstalks. Panicle terminating, few-flowered, pubescent. Petals white, lanceolate, upright [z]. Fruit of a most beautiful pink colour, when ripe, of an agreeable acid flavour, and composed of a few (three or four) large acini [a].

Native of several parts of Europe, particularly the northern parts; also of Russia. With us it is found in the north of England, in Scotland, Wales and Ireland; among stones in shady places on the sides of mountains. In Yorkshire, Cumberland, Westmoreland, Lancashire and Derbyshire. Woods about Settle and Ingleton. Helk's-wood and Mill-bank by Ingleton. Not far from the summit of Helsfelnab, near Kendal. In Dob bottom, near Burnley, Lancashire. Hills opposite Matlock bath in Derbyshire. At Dunkeld and Blair, and about Loch-Rannoch in Perthshire. Lyn y Cwn, near Snowdon. Common in mountain glens in Ireland, near the top [b]. It flowers in june.

In Scotland they call the fruit Roebuck-Berries. The Russians ferment them with honey, and extract a potent spirit from them [c].

27. Dwarf Crimson Bramble has a creeping root, but no runners. Stems from a hand to a span in height, upright, simple, angular. Leaves unequally serrate, commonly altogether smooth. Flowers solitary, peduncled, terminating, deep rose-coloured, with the petals sometimes jagged. Calyx hairy. Fruit purple, sweet and fragrant, very pleasant [d], according to Linneus, almost as large as a Mulberry.

Linneus has figured and minutely described this arctic Bramble in his elegant Flora Lapponica, out of gratitude, as he expresses himself, for the benefit he reaped from it in his Lapland journey; it having so frequently recruited his spirits, when almost sinking with hunger and fatigue, by the vinous nectar of its berries. He informs us, that the principal people in the province of Norland, make a syrup, a gelly, and a wine, from these berries, which they partly consume themselves, and partly send to their friends at Stockholm, as a dainty of the rarest and most delicious kind; and he adds, that of all the wild Swedish berries, this holds the first place [e].

Native of the North of Europe, Asia and America. It has lately been discovered by the Rev. Dr. Walker in the Isle of Mull.—Mr. Miller cultivated it in 1759. It flowers here in june and july [f].

28. Stem herbaceous, from flexuose-erect, round, almost simple, purple, smooth. Leaves petioled, cordate, roundish, trifid, smooth on both sides; lobes gashed, unequally serrate. Flowers from the same bud with the leaves, peduncled, solitary; peduncle simple, seldom bifid. Petioles and peduncles villose, a finger's length. Calyx white-tomentose. Fruit red, esculent, pleasant tasted.

Native of Japan, near Quana; flowering in april [g].

29. Root branched, fibrose. Stem simple, entirely herbaceous, short, leafy, round, pubescent. Leaves three or four on a stem, alternate, spreading, cordate at the base, three-lobed, acutely and unequally serrate, wrinkled, naked above, paler beneath, with the veins hairy. Petioles filiform, hairy, generally higher than the stem. Stipules in pairs, ovate, acute, membranaceous, naked. Flower on a short peduncle, terminating, solitary, almost erect, red, large in proportion to the plant. Calyx turbinate at the base, many-nerved, pubescent; with seven or eight linear, acuminate, very long, spreading segments. Petals as many, alternate with the segments of the calyx, a little longer, obovate-lanceolate, bluntish, spreading. Filaments much shorter than the calyx, curved inwards, continuing a long time. Anthers subcordate.

It is allied to *R. arcticus*, but the leaves are simple, and the flower almost sessile. It is distinguished from *R. Chamæmorus* by its appearance, but principally by the calycine segments being linear-lanceolate, not ovate. The calyx, together with the stamens of the year preceding, very frequently continues on the withered stem.

Mr. Archibald Menzies gathered it in the western part of North America [h]. The fruit is purple, as in *R. arcticus* [i].

[s] Thunberg. [r] Linn. mant. [t] Linn. fuppl.
[u] Thunberg. [x] Smith. [y] Idem. [z] Idem.
[a] Woodward, M. S. [b] Withering. [c] Lightfoot.
[d] Smith. [e] Curtis. [f] Hort. Kew.
[g] Smith. [h] Willdenow.

30. Stems herbaceous, very short, depressed. Leaves mostly ternate; leaflets irregularly serrate, very smooth on both sides, veined beneath, the end one very large, cordate, emarginate. Petioles subvillose. Flowers solitary, on short, very thick, pubescent peduncles. Petals roundish. It differs from *R. Dalibarda* in its ternate smooth leaves, serrate rather than crenate; in its short thick peduncles, not filiform and very long; and its roundish not lanceolate petals.

Found by Commerson in South America, at the Straits of Magellan [l].

31. The Mountain Bramble or Cloud-berry is a plant of an elegant appearance, with a creeping root; a simple stem, hardly a foot high, upright; mallow-like, but smooth and hardish leaves, petioled, cordate, five-lobed, plaited, wrinkled, unequally serrate. Flowers terminal, peduncled, white; male and female, the former with short abortive pistils, the latter with abortive stamens. Though the plants appear to be dioecous, yet Dr. Solander affirmed that the two sexes spring from one common root. The fame has been said of White Bryony. But the assertion has not been confirmed in either case. The calyx is hairy on the outside, inflexed, with the segments oval or elliptical. Berries of a tawny or dull orange-colour, composed of many acini, acid mucilaginous and not unpleasant [k].

Native of Sweden, Denmark, Siberia, Britain. On the highest mountains of the North of England, Scotland and Wales, in peat-bogs. In Yorkshire, Westmoreland, Cumberland, Lancashire. About Settle, Ingleton and Ingleborough; near Egleston: between Patterdale and Keswick, Cumberland: on Axedge near Buxton, Derbyshire: Barrowfield-wood; Cald-Kail-scrogs, near Kendal, in Westmoreland. Upon Ben-Lomond; and upon the mountains about Loch-Rannock in Perthshire, and many other places in Scotland. In Caernarvonshire and other counties of Wales.

From their exalted situation, they are called Cloud-berries; also Knot-berries or Knout-berries. The flowers appear in june, soon after the snow is dissolved, and the berries are scarcely well ripened in august, before the plant is again overwhelmed with its wintry covering. The snow preserves the fruit, and is used by the Laplanders to keep it through the winter; for they as well as the Scottish highlanders esteem it one of their most grateful and useful fruits, especially on account of its long duration. Its taste is moderately acid and mucilaginous, with something of the flavour of Tamarinds [l]. They are held to be an excellent antiscorbutic. The Norwegians pack them up in wooden vessels, and send them to Stockholm, where they are served up in deserts, or made into tarts. The Laplanders bruise and eat them with the milk of their Rein-deer [m].

32. Root creeping, fibrous. Runners prostrate, herbaceous. Leaves alternate, erect, obtuse, unequally crenate, veined, having a few scattered hairs above, but flaked beneath, resembling those of the Violet but firmer, sometimes red. Petioles hairy, longer than the leaves. Peduncles solitary, leafless filiform hairy one-flowered, the length of the petioles. Flowers hermaphrodite, white, small. Calyx five-parted, the segments lanceolate acute pubescent. Petals ovate-lanceolate, scarcely longer than the calyx. Filaments the length of the petals. Berry juiceless. Seeds five ovate sharpish, in the dried plant with a corrugated surface [n].

Linneus makes a quere whether the flowers are not male and female on the same plant: and Miller asserts it to be so. Linneus remarks that the habit of this species unites it with *Rubus*, especially with *R. Chamaemorus*; or else that both should be separated from this genus.

Kalm first brought it from Canada. It was formerly in the royal botanic garden at Kew, but perished, and was again introduced in 1788 from North America [o]. But Mr. Miller had cultivated it before, in 1768 [p].

Hill, in the 16th volume of his Vegetable System, t. 11. has given a figure of *R. Chamaemorus*, from Gerarde, for this species, and hence has affirmed that a very rare plant of Canada, is to be found in the northern mountains of England [q].]

[l] Smith. [k] Idem. [i] Idem. [m] Withering. [n] Smith. [o] Idem. [p] Hort. kew. [q] Curtis.

PROPAGATION AND CULTURE.

4. The Raspberry is generally propagated by suckers, though I should prefer such plants as are raised by layers, because they will be better rooted, and not so liable to send out suckers as the other, which generally produce such quantities of suckers from their roots, as to fill the ground in a year or two; and where they are not carefully taken off or thinned, will cause the fruit to be small, and in less quantities; especially when the plants are placed near each other, which is too often the case, for there are few persons who allow these plants sufficient room.

In preparing these plants, their fibres should be shortened; but the buds which are placed at a small distance from the stem of the plant, must not be cut off, because those produce the new shoots the following summer. These plants should be planted about two feet asunder in the rows, and four or five feet distance row from row; for if they are planted too close, their fruit is never so fair, nor will ripen so kindly, as when they have room for the air to pass between the rows.

The soil in which they thrive best, is a fresh strong loam, for in warm light ground they do not produce so great plenty of fruit, for they naturally grow in cold land and in shade; therefore when they are planted in a warm situation and a light soil, they do not succeed.

The season for dressing them is in october, at which time all the old wood that produced fruit the preceding summer, should be cut down below the surface of the ground, and the young shoots of the same year must be shortened to about two feet in length; then the spaces between the rows should be well dug, to encourage their roots; if you bury a very little rotten dung therein, it will make them shoot vigorously the summer following, and their fruit will be much fairer. During the summer season they should be kept clean from weeds, which, with the before-mentioned culture, is all the management they will require; but it is proper to make new plantations once in three or four years, because when the plants are suffered to remain long, they will produce few and small fruit.

14. The Brambles are easily increased by laying down their branches, which will put out roots at every joint very freely. They may be transplanted any time from september to march, and will grow in almost any soil or situation. [Thus the common Bramble may assist in making or strengthening a fence; and the varieties with double flowers and variegated leaves in ornamenting a plantation.

17. The Virginian Flowering Raspberry is extremely hardy, and easily propagated by suckers: the only care which it requires, is to keep it within proper bounds. Young plants produce the largest and finest flowers; on account of which, and the largeness and elegant form of its leaves, it has long had a place in our ornamental plantations.

27. The dwarf crimson or arctic Bramble grows readily and increases rapidly in bog-earth, on a north border; but rarely ripens its fruit in gardens [r].]

RUDBECKIA. (*So named by Linneus, from Olaus Rudbeck, father and son, professors of botany at Upsal; the former died in 1702, the latter in 1740.*)

Lin. gen. n. 980. *Reich. n.* 1061. *Schreb. n.* 1324. *Gaertn. t.* 172. *Juss.* 189. Obeliscotheca. *Vaill. act. gall.* 1720. *f.* 44. *Dill. elth.* 218.

Class. 19. 3. Syngenesia Polygamia Frustranea.

Nat. order of *Compositae Oppositifoliae. Corymbiferae*, Juss.

GENERIC CHARACTER.

CAL. *Common* with a double row of scales: *scales* flat, widish, curtailed, six in each row.

COR. *Compound* radiate: *Corollets* hermaphrodite, numerous, in a conical disk; *Females* about twelve, very long, in the ray.

Proper of the Hermaphrodite tubular-funnel-form, with a five-toothed border. *Female* ligulate, lanceolate, with two or three teeth, flat, pendulous.

[r] Smith. [r] Curtis.

STAM. in the Hermaphrodites: *Filaments* five, capillary, very ſhort. *Anther* cylindrical, tubular.

PIST. in the Hermaphrodites: *Germ* four-cornered. *Style* filiform, the length of the corollet. *Stigma* two-parted, revolute. In the Females: *Germ* very ſmall. *Style* none. *Stigma* none.

PER. none. *Calyx* unchanged.

SEEDS in the Hermaphrodites ſolitary, oblong; crowned with a membranaceous four-toothed rim: in the *Females* none.

REC. chaffy, conical, longer than the common calyx: *chaffs* the length of the ſeeds, erect, channelled-concave, deciduous.

ESSENTIAL CHARACTER.

Cal. with a double row of ſcales. *Crown* of the ſeed a four-toothed rim. *Recept.* chaffy, conical.

SPECIES.

1. Rudbeckia laciniata. *Broad jagged-leaved Rudbeckia.*
Lin. ſpec. 1279. *Reich.* 3. 887. *vir. cliff.* 88. *hort. cliff.* 430. *hort. upſ.* 269. *Gærtn. fruct.* 2. 435. *Retz. obſ.* 2. 26. *n.* 92. *Gron. virg.* 129. *Kniph. cent.* 4. *n.* 69. *Mor. hiſt.* 3. 22. *ſ.* 6. *t.* 6. *f.* 53. 54. (Chryſanthemum.)
Doronicum americanum. *Park. theat.* 322. *f.* 10.—laciniato folio. *Bauh. pin.* 516.
Aconitum helianthemum canadenſe. *Corn. canad.* 178. *t.* 179.
Leaves compound laciniate.

2. Rudbeckia digitata. *Narrow jagged-leaved Rudbeckia.*
Mill. dict. n. 6. *Ait. kew.* 3. 251.
Lower leaves compound, ſtem-leaves quinate and ternate, upper ones ſimple.

3. Rudbeckia triloba. *Three-lobed Rudbeckia.*
Lin. ſpec. 1280. *Reich.* 3. 887. *hort. upſ.* 269. *Gron. virg.* 130. *Pluk. phyt. t.* 22. *f.* 2. *Mor. hiſt.* 3. 19. *n.* 37. (Chryſanthemum.)
Leaves ſpatulate; the lower three-lobed, the upper undivided.

4. Rudbeckia hirta. *Hairy Rudbeckia.*
Lin. ſpec. 1280. *ſyſt.* 782. *Reich.* 3. 887. *Buttn. cunon.* 227. *Gron. virg.* 1. 181. 2. 131. *Mill. fig. t.* 224. *f.* 1. *Kniph. cent.* 2. *n.* 77. *Knorr. del.* 1. *t.* F. 1. *Dill. eltb.* 295. *t.* 218. *f.* 285. (Obeliſcotheca.) *Pluk. phyt. t.* 242. *f.* 2. *Mor. hiſt.* 3. 23. *Raii ſuppl.* 210. (Chryſanthemum.)
Leaves undivided ſpatulate-ovate triple-nerved ſerrate rough-haired, receptacle conical, chaffs lanceolate.

[5. Rudbeckia fulgida. *Bright Rudbeckia.*
Ait. kew. 3. 251.
Leaves oblong-lanceolate toothletted biſpid narrowed and ſubcordate at the baſe, receptacle hemiſpherical, chaffs lanceolate.]

6. Rudbeckia purpurea. *Purple Rudbeckia.*
Lin. ſpec. 1280. *ſyſt.* 782. *Reich.* 3. 888. *Gron. virg.* 130. *Curt. magaz. t.* 2. *Jungh. ic.* 1. *f.* 12. *Pluk. phyt. t.* 21. *f.* 1. *Cateſb. car.* 2. *t.* 59. (Chryſanthemum.) *Mor. hiſt.* 3. 42. *ſ.* 6. *t.* 9. *f.* 1. *ord.* 3. *Raii ſuppl.* 218. (Dracunculus.)
Leaves lanceolate-ovate alternate undivided, petals of the ray biſid.

7. Rudbeckia anguſtifolia. *Narrow ſimple-leaved Rudbeckia.*
Lin. ſpec. 1281. *Reich.* 3. 888. *Gron. virg.* 181. *Mill. fig.* 150. *t.* 224. *f.* 2. (Coreopſis.)
Leaves oppoſite linear quite entire.

DESCRIPTIONS, *&c.*

* 1. [Mr. Miller makes two ſpecies of this: *laciniata*, *n.* 4. and *quinata*, *n.* 5. which he thus deſcribes.] The root of the former is perennial, but the ſtalk is annual. The lower leaves are compoſed of five broad lobes, deeply cut into acute points, and ſome of them jagged almoſt to the midrib; the outer lobe is frequently cut into three deep ſegments. The ſtalks riſe ſeven or eight feet high, and divide at top into ſeveral branches; they are ſmooth, green, and have ſingle, oval heart-ſhaped leaves, ſome indented on their edges, others entire. Peduncles naked, terminated by a ſingle flower with yellow rays, like the Sun-flower, but ſmaller.—The latter is alſo perennial, and has ſmooth green ſtalks; but they riſe higher. The leaves have all five lobes, which are much narrower, end with ſharper points, and are very acutely indented on their ſides. The flowers are ſmaller and the petals narrower.—They are both natives of North America: [particularly Virginia and Canada. They flower here in july. Veſpaſian Robin (ſays Parkinſon) the French King's herbariſt at Paris, had this plant from Canada, gave Mr. Tradeſcant ſome roots, and he imparted thereof to me alſo. Parkinſon therefore cultivated it before 1640[a].

Retzius ſuppoſes the *laciniata*, *quinata* and *digitata* of Miller to be mere varieties. He deſcribes two, under the names of *digitata* and *quinata*. The firſt has the ſtem obſoletely tubercled and angular, with ruſt-coloured ſpots at the inſertions of the lower leaves. Leaves wider, ſerrate; the lower quinate, the upper ternate, with the lateral lobes biſid, and the end-one three-parted; the uppermoſt leaves are ovate, entire or ſlightly triſid. Ray two inches wide, twelve-leaved. Peduncles even, grooved.—The ſecond (quinata) has the ſtem round at the baſe, angular at top, not ſpotted. Lower leaves quinate or ternate, with the lobes laciniate, narrow, toothed: the upper ternate, ſimilar: the uppermoſt three-lobed or entire, lanceolate. Ray an inch and half wide, for the moſt part ten-leaved. Peduncles ſubvilloſe, grooved.

According to Gærtner, the ſeeds of the *laciniata* are columnar or inverſely pyramidal, four-cornered, very finely ſtreaked, of a yellow bay colour, crowned with a ſhort rim, quite entire, crenulate: the chaffs on the receptacle ſometimes coloured. In ſome of the ſpecies, as *R. hirta*, he remarks, that the rim on the ſeed almoſt vaniſhes, or is even quite wanting.]

2. This has a perennial root like the former. The leaves at bottom are compoſed of ſeven or nine lobes, ſome entire, others jagged to the midrib; they are of a dark green and ſmooth. The ſtalks riſe ſix feet high, and divide into many branches; they are of a purple or iron colour, and are very ſmooth. The ſtem-leaves, towards the bottom, are hand-ſhaped, and compoſed of five lobes; higher up they have but three lobes, and at top the leaves are ſingle. The flowers are ſmaller than thoſe of the preceding, but of the ſame ſhape and colour.

[Native of North America. Cultivated in 1759, by Mr. Miller. It flowers in auguſt and ſeptember[b].] Mr. Miller ſays that he had the ſeeds from Siberia, as well as North America.

3. This is a biennial plant. The lower leaves are divided into three lobes, but thoſe upon the ſtalks are undivided; they are hairy, and ſhaped like thoſe of the firſt ſort. The ſtalks branch out on their ſides, and are better furniſhed with leaves than the others. The flowers are very like thoſe of the firſt ſort, but ſmaller. It grows naturally in ſeveral parts of North America.

[According to Linneus, the ſtem is panicled and many-flowered.—The ſeed was ſent by Baniſter from Virginia, and was cultivated in the botanic garden at Oxford[c].]

4. The root of this will continue four or five years. The leaves are oblong, ovate and hairy. The ſtalks riſe a foot and half high, and have one or two leaves near the bottom. The peduncle is naked near a foot in length, and is terminated by one pretty large yellow flower, ſhaped like the Sun-flower. The florets of the ray are very ſtiff, and ſlightly indented at their points: the diſk is very prominent, and of a dark purple colour. The flowers will continue ſix weeks, and there is a ſucceſſion of them from the middle of july, till the froſt puts a ſtop to them.—Native of Virginia and ſeveral other parts of North America.

[Cultivated in 1732, by James Sherard, M.D. in his garden at Eltham in Kent.

5. Native of North America.[d] Introduced in 1760, by Meſſrs. Kennedy and Lee. It flowers in july and auguſt[e].]

6. This is a perennial plant like the fourth. The leaves are longer and broader, are ſmooth, and have three veins. The peduncles are taller, and have two

[a] Hort. kew. [b] Idem. [c] Bobart in hiſt. oxon. [d] Hort. kew.

or three narrow leaves on each, placed alternately. On the top is one flower, with long narrow, reflexed, peach-coloured florets in the ray: the diſk is very prominent, and of a dark purple colour. It flowers at the ſame time with the fourth, but the flowers are not of ſo long duration.

[It is eaſily diſtinguiſhed from the other ſpecies, by the long narrow purple pendulous florets of the ray.—It is a native of Carolina and Virginia; and was introduced before 1699, by the Rev. John Baniſter[7].]

7. Root perennial. Stalks four or five feet high. Leaves narrow, ſmooth, oppoſite. Florets in the ray of the flower yellow, long, twelve in number: diſk dark red. Scales of the calyx ſpreading and almoſt awl-ſhaped.

Native of Virginia. [Cultivated in 1758, by Mr. Miller. It flowers in auguſt and ſeptember[8].]

PROPAGATION AND CULTURE.

1. 2. Theſe do not produce ſeeds here, but are eaſily propagated by parting the roots. It is hardy, and loves a moiſt ſoil.

3. In warm ſummers this perfects its ſeeds in England. The plants will live through the winter in the open air, in mild ſeaſons, and may be increaſed by ſlips or heads; but the beſt way is to raiſe the plants from ſeeds: the ſecond year the ſeedling plants will flower, and produce ripe ſeeds.

4. The root of this will continue four or five years, but unleſs care be taken to ſhelter it in winter, it is ſometimes deſtroyed by cold and too much wet. It ſometimes produces good ſeeds in England, in a favourable ſeaſon; but it is generally propagated here by offsets or ſlips, unleſs ſeeds can be procured from America.

The beſt time to ſeparate the offsets is in the ſpring. The plants will live abroad in the open air through the winter, in a dry ſoil and warm ſituation; but it will always be prudent to ſhelter two or three plants under a common hot-bed frame to preſerve the ſpecies, for in ſevere winters they are often killed.

The ſame directions may ſerve for the fifth and ſixth ſorts, but they rarely produce ſeeds in England; nor do the plants put out heads, whereby they may be increaſed that way.

7. This, together with the firſt and ſecond ſorts, may be propagated in plenty by parting the roots in October, when the ſtalks begin to decay. They love a moiſt ſoil, and ſhould be allowed room; for if they are too near other plants, they rob them of their nouriſhment. They are proper furniture for large gardens or plantations.

[RUDBECKIA. See *Coreopſis* and *Zinnia*.

——— ———, *Houſt.* See *Conocarpus*.

——— ——— oppoſitifolia. See *Buphthalmum helianthoides*.

RUE. See *Ruta*.

—— Goat's. See *Galega*.

—— Meadow. See *Thalictrum*.

—— Wall. See *Aſplenium*.]

RUELLIA. (*So named by Plumier, in memory of Joannes Ruellius, phyſician at Paris; author of a treatiſe* De Natura Stirpium, Par. 1536. fol. *He died in* 1537.) *Lin. gen. n.* 784. *Reich. n.* 847. *Schreb. n.* 1050 *Gærtn. t.* 54. *Plum.* 2. *Dill. elth.* 248, 249. *Juſſ.* 103.

Claſſ. 14. 2. Didynamia Angioſpermia.

Nat. order of *Perſonatæ*. *Acanthi*, Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* one-leafed, five-parted, permanent: *ſegments* linear, acute, ſtraight, permanent.

COR. one-petalled, irregular, with a patulous inclined *neck*: *border* five-cleft, ſpreading, blunt; with the two upper ſegments more reflexed.

STAM. *Filaments* four, placed where the tube widens, approximating by pairs. *Anthers* ſcarcely longer than the tube.

PIST. *Germ* roundiſh. *Style* filiform, the length of the ſtamens. *Stigma* bifid, acute; the lower ſegment rolled in.

PER. *Capſule* round, acuminate both ways, two-celled, two-valved, opening elaſtically by the claws: *partition* contrary.

SEEDS a few, roundiſh, compreſſed.

OBS. *In ſome ſpecies there is the rudiment of a fifth ſtamen.*

ESSENTIAL CHARACTER.

Cal. five-parted. *Cor.* ſubcampanulate. *Stam.* approximating by pairs. *Capſ.* opening by elaſtic teeth.

SPECIES.

[1. Ruellia Blechum. *Hairy-leaved thick-ſpiked Ruellia.* *Swartz, obſ.* 243.

Leaves ovate ſerrate-toothed ſomewhat hirſute, ſpikes ovate, inner bractæ in pairs, flowers three together ſeſſile.

2. Ruellia Blechioides. *Smooth thick-ſpiked Ruellia.* *Swartz, prodr.* 93.

R. Blechium. *Lin. ſpec.* 884. *Reich.* 3. 189. *amoen. acad.* 5. 400. *Brown. jam.* 261. (Blechum.) *Sloan. jam.* 1. 173. *t.* 109. *f.* 1. (Brunella.)

Barleria pyramidata, flore cæruleo. *Plum. gen.* 31. *ic.* 42. *f.* 3.

Leaves oblong ſomewhat toothed ſmooth, ſpikes ovate, flowers longer than the bractes.

3. Ruellia anguſtifolia. *Narrow-leaved Ruellia.* *Swartz, prodr.* 93.

Leaves linear-lanceolate, ſpikes oblong, bractæ ovate hirſute.]

4. Ruellia ſtrepens. *Whorl-flowered Ruellia.* *Lin. ſyſt.* 575. *Reich.* 3. 190. *mant.* 422. *hort. upſ.* 178. *cliff.* 218. *Gron. virg.* 73. *Dill. elth.* 330. *t.* 249. *f.* 321. *Sabb. hort.* 2. *t.* 92. *Gærtn. fruct.* 1. 254.

Leaves petioled, peduncles three-flowered ſhort.

[5. Ruellia macrophylla. *Long-leaved Ruellia.* *Vahl, ſymb.* 2. 72. *t.* 39.

Leaves ovate-lanceolate acuminate quite entire, peduncles axillary elongated two-flowered.

6. Ruellia patula. *Spreading Ruellia.* *Lin. ſyſt.* 575. *Jacqu. miſc.* 2. 358. *icon. rar. t.* 41.

Shrubby villoſe, viſcid, leaves ovate quite entire, flowers axillary aggregate.

7. Ruellia pallida. *Pale-leaved Ruellia.* *Vahl, ſymb.* 2. 72.

R. ſtrepens, flore magno violaceo, foliis obtuſis. *Forſt. deſcr.* 114.

Leaves petioled ovate wave-crenate rugged at the edge, flowers axillary ſolitary ſeſſile.]

8. Ruellia clandeſtina. *Three-flowered Ruellia.* *Lin. ſpec.* 885. *Reich.* 3. 190. *hort. upſ.* 179. *cliff.* 308. *Gouan illuſtr.* 39. *Dill. elth.* 328. *t.* 248. *f.* 320.

Leaves petioled, peduncles long ſubdivided naked.

9. Ruellia paniculata. *Panicled Ruellia.* *Lin. ſpec.* 885. *Reich.* 3. 190. *hort. cliff.* 313. *Swartz, obſ.* 244. *Brown. jam.* 267. 1. *Sloan. jam.* 1. 158. *t.* 100. *f.* 2. *Raii ſuppl.* 389. (Speculum Veneris.)

Leaves almoſt entire, peduncles diebotomous divaricate panicled.

[10. Ruellia intruſa.

Vahl, ſymb. 1. 45. *Forſk. deſcr.* 113.

Leaves petioled ovate hairy, flowers in ſpikes directed all one way.]

11. Ruellia tuberoſa. *Tuberous-rooted Ruellia.* *Lin. ſpec.* 885. *Reich.* 3. 191. *Swartz, obſ.* 245. *Brown. jam.* 268. 2. *Dill. elth.* 328. *Plum. gen.* 12. *Sloan. jam.* 1. 149. *t.* 95. *f.* 1. *Raii ſuppl.* 370. (Gentianella.)

Leaves ovate crenate, peduncles one-flowered.

[12. Ruellia tentaculata.

Lin. ſpec. 886. *ſyſt.* 575. *Reich.* 3. 191. *amoen. acad.* 4. 320.

Euphraſia acinos. *Pluk. phyt. t.* 279. *f.* 7.

Leaves obovate, whorls ſurrounded with unarmed two-forked ſpines.

13. Ruellia ciliaris. *Ciliate-leaved Ruellia.* *Lin. ſyſt.* 575. *Reich.* 3. 191. *mant.* 89. *Lour. cochinch.* 381. *ed. Willd.* 462.

R. perſica. *Burm. ind.* 135. *t.* 42. *f.* 1.

Leaves toothed ciliate, flowers oppoſite.

14. Ruellia

[7] Hort. kew. [8] Idem.

14. Ruellia biflora. *Two-flowered Ruellia.*
Lin. ſpec. 886. *Reich.* 3. 191. *Dill. elth.* 331.
Flowers twin ſubſeſſile.
15. Ruellia criſpa. *Curled-leaved Ruellia.*
Lin. ſpec. 886. *fyſt.* 575. *Reich.* 3. 192. *Oſb. it.* 240. *ed. angl.* 1. 390. *Pet. gaz. t.* 73. *f.* 6?
Leaves ſubcrenate lanceolate-ovate, heads ovate leafy biſpid, ſtem creeping.
[16. Ruellia falciculata. *Aggregate-flowered Ruellia.*
Vahl, ſymb. 3. 82. *Retz. obſ.* 4. 28. *n.* 90.
Leaves petioled oblong toothed, petioles winged, flowers aggregate terminating and lateral.
17. Ruellia molliſſima. *Soft Ruellia.*
Vahl, ſymb. 3. 82.
Leaves petioled broad-lanceolate quite entire very ſoft, flowers in bundles.
18. Ruellia undulata. *Waved-leaved Ruellia.*
Vahl, ſymb. 3. 82.
Leaves petioled oblong waved, heads axillary ſeſſile, ſtem erect.
19. Ruellia involucrata. *Involucred Ruellia.*
Vahl, ſymb. 3. 83.
Leaves lanceolate quite entire ſmooth, heads terminating involucred hairy.
20. Ruellia repanda. *Repand-leaved Ruellia.*
Lin. ſpec. 886. *fyſt.* 575. *Reich.* 3. 192. *Burm. ind.* 1. 40. *f.* 2.
Prunella molucca. *Rumph. amb.* 6. 30. *t.* 13. *f.* B.
Leaves lanceolate bluntly toothed petioled, ſtem creeping.
21. Ruellia ringens. *Ringent-flowered Ruellia.*
Lin. ſpec. 886. *fyſt.* 575. *Reich.* 3. 192. *fl. zeyl. n.* 234. *Oſb. it.* 229. *ed. angl.* 1. 370.
Upudali. *Rheed. mal.* 10. 125. *t.* 64.
Leaves oblong quite entire, flowers ſolitary ſeſſile, ſtem procumbent.
22. Ruellia antipoda.
Lin. ſpec. 886. *fyſt.* 575. *Reich.* 3. 192. *mant.* 422. *fl. zeyl. n.* 235. *Leur. cochinch.* 380. *ed. Willd.* 462. *Pluk. mant. t.* 186. *f.* 2. (Gentianella.)
Cruſta ollæ. *Rumph. amb.* 5. 460. *t.* 170. *f.* 2.
Peetianga-pulpani. *Rheed. mal.* 9. 115. *t.* 59.
Leaves mucronate-ſerrate, ſtem creeping, flowers ſubſpiked terminating in fives or threes.
23. Ruellia repens. *Creeping Ruellia.*
Lin. fyſt. 576. *Reich.* 3. 193. *mant.* 89. *Burm. ind.* 135. *t.* 41. *f.* 1.
Leaves lanceolate acuminate quite entire, flowers ſeſſile, bractes petioled longer than the calyx, ſtem creeping.
24. Ruellia littoralis. *Maritime Ruellia.*
Lin. fyſt. 576. *ſuppl.* 289.
Shrubby, hoary, leaves wedge-form ſerrate retuſe ſmooth, flowers axillary ſolitary ſubſeſſile.
25. Ruellia longiflora. *Long-flowered Ruellia.*
Vahl, ſymb. 1. 45. *t.* 15.
Camellia longiflora. *Forſk. deſcr.* 126. *n.* 99.
Leaves ovate quite entire, flowers axillary ſolitary very long, ſtem ſhrubby.
26. Ruellia difformis.
Lin. fyſt. 576. *ſuppl.* 289.
Diffuſed, hirſute, leaves linear tooth-ſinuate entire, flowers in whorls axillary.
27. Ruellia barbata.
Vahl, ſymb. 3. 83.
Leaves lanceolate quite entire, flowers in whorls, calyxes acute, bractes oblong, ſtem upright.
28. Ruellia ſalicifolia.
Vahl, ſymb. 3. 84.
Leaves lanceolate quite entire, flowers in whorls, calyxes awned, bractes lanceolate, ſtem upright.
29. Ruellia balſamica.
Lin. fyſt. 576. *ſuppl.* 289.
Erect, ſmooth, leaves petioled lanceolate ſerrate, whorls ſeſſile.
30. Ruellia uliginoſa.
Lin. fyſt. 576. *ſuppl.* 290.
Diffuſed, hirſute, leaves ſeſſile oblong entire, ſpikes terminating four-cornered.
31. Ruellia hirta.
Vahl, ſymb. 3. 84. *t.* 67.
Rough-haired, leaves oblong petioled ſerrate, ſpikes terminating imbricate, ſtem creeping.
32. Ruellia piloſa.
Lin. fyſt. 576. *ſuppl.* 290.
Leaves oppoſite ovate entire ciliate, flowers terminating ſolitary.
33. Ruellia depreſſa.
Lin. fyſt. 576. *ſuppl.* 290.
Leaves oppoſite petioled obovate entire, ſtem cloſely depreſſed.
34. Ruellia cordifolia.
Vahl, ſymb. 3. 84.
Leaves cordate-ovate ſeſſile tomentoſe-hoary beneath, flowers ſubſpiked.
35. Ruellia fecunda.
Vahl, ſymb. 3. 84.
Leaves ſubcordate-ovate quite entire villoſe, racemes axillary directed one way.
36. Ruellia japonica.
Lin. fyſt. 576. *Thunb. jap.* 254.
Leaves elliptic, flowers in ſpikes, bractes oblong blunt.

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37. Ruellia guttata.
Vahl, ſymb. 2. 72. *Forſk. deſcr.* 114.
Leaves ovate-lanceolate rugged at the edge and waved, ſpikes terminating imbricate.
38. Ruellia imbricata.
Vahl, ſymb. 2. 73. *Forſk. deſcr.* 113.
R. dorſiflora. *Retz. obſ.* 6. 31. *n.* 55.
Leaves petioled ovate, wave-crenate the oppoſite one leſs, ſpikes imbricate directed one way.
39. Ruellia ariſtata.
Vahl, ſymb. 2. 73.
Leaves ovate hoary beneath, head terminating, calyxes and bractes nerved awned, ſtem ſhrubby.
40. Ruellia alopecuroidea.
Vahl, ecl. 2. 49.
Leaves ovate ſmooth obſcurely repand, ſpikes terminating hairy, ſtem creeping.
41. Ruellia reptans.
Forſt. prodr. n. 242.
Leaves petioled ovate blunt, bluntly ſerrate, peduncles terminating ſubſpiked.
42. Ruellia fragrans.
Forſt. prodr. n. 243.
Leaves ſeſſile oblong bluntly ſerrate, flowers axillary ſolitary ſeſſile.
43. Ruellia rupeſtris.
Swartz, prodr. 93.
Stemleſs, leaves petioled oblong crenate-waved, ſcapes erect many-flowered.

DESCRIPTIONS, *&c.*

The *Ruellia* are very nearly allied to the *Juſticia*, in their natural order, flowers, fruit and habit[a]. The caſe is the ſame in ſeveral other genera of the claſs Diandria: and in *Verbena* ſome ſpecies belong to this, and others to that claſs.

1. Stem herbaceous, a foot high, upright, branched, four-cornered, ſtriated, even. Branches ſpreading, oppoſite, axillary. Leaves petioled, oppoſite, ovate-lanceolate, acuminate, nerved. Spikes terminating, four-cornered, conical, an inch long. Bractes imbricate, or floral leaves cordate, acuminate, nerved, hirſute; at the baſe of which are two little lanceolate bractes, and within them three ſubſeſſile flowers, ſmaller, whitiſh-blue. Calyx five-leaved; leaflets awl-ſhaped, erect. Corolla funnel-form; tube narrower at the baſe, ſomewhat bell-ſhaped above the middle, gibbous behind; border three-cleft, ſegments equal, oblong, the two hinder ones more upright. Two of the filaments the length of the tube. Anthers awl-ſhaped, upright. Germ oblong, acuminate. Style the length of the tube. Capſule ſubpedicelled, ſurrounded by the calyx at the baſe, ovate. Seeds black. It is an annual plant, common in paſtures and buſhy places in Jamaica.

The deſcription of R. Blechum in Amoen. acad. ſeems rather to belong to the next ſpecies, which Linneus has probably confounded with this[b].

2. Stems proſtrate, dichotomous, even, ſlightly four-cornered. Leaves oppoſite, ovate, ſcarcely pubeſcent, quite entire, toothlets obſolete. Petioles ciliate. Spikes

[a] Swartz, obſ. 246. [b] Idem, ib.

looſe,

loose, four-cornered, made up of cordate floral leaves, with two short lanceolate bractes within each, and within these two sessile flowers, one without the other [c].

Browne says, that this plant is pretty frequent in most dry and shady places, among the lower hills in Jamaica; that it thrives best in a gravelly soil, but seldom rises above two feet and a half in height.—Introduced in 1780, by Monf. Thouin [d].

3. Native of the West Indies [e].]

4. Root fibrous, perennial. Stems about a foot high, four-cornered with two longitudinal furrows, one on each side; the joints are three or four inches asunder, and at each two oval leaves upon very short foot-stalks. Flowers axillary, two or three from the same point, sitting very close to the stalk, small, of a pale purple colour, and very fugacious; opening early, and gone by ten or eleven in the forenoon. Capsules short, taper, surrounded by the hairy segments of the calyx.

[Angles of the stem green. Leaves lanceolate-ovate, very bluntly serrate, much veined, remote at the base, and very slightly ciliate. Peduncles opposite, lateral. Bractes two, opposite, and two also under each lateral flower. Calyx five-parted, lanceolate. Corolla pale with a blueish palate. Filaments, of each side, connected at the base, by the mediation of a membrane [f].

It has the epithet *strepens* from the crashing sound which the leaves make, when handled, on account of their very dry nature [g].

Capsule oblong, acuminate at top, ventricose in the middle, rounded-four-cornered, lengthened out at the base into a compressed elastic claw, two-celled, two-valved: partition bifid, contrary, accompanied by the hooked, channelled, alternating retinacula of the seeds; which in each cell are three to five, rounded-cordate, rugged with very minute bristles pressed close to them, slightly convex on one side, flattish on the other, brown-ash-colour, sessile in the axils of the retinacula [h].

Native of Virginia and Carolina. Cultivated in 1726, by James Sherard, M.D. at Eltham. It flowers in july and auguſt [i].

5. Stem four-cornered, pubescent, seemingly herbaceous. Leaves about a span in length, running down a little along the petiole, having a few small hairs scattered over them on each side, paler beneath. Petioles pubescent, an inch and half long. Peduncles opposite, the length of the leaves, round, pubescent, bifid. Pedicels in pairs, half an inch long, one-flowered, having a lanceolate ciliate bracte at the base on each side longer than the pedicels, and two others at the base of each calyx, and of the same length with it. Calyx smooth, with the five segments lanceolate and nearly equal. Corolla smooth, narrowed at the base, widening gradually upwards: segments quite entire, the two upper ones rounded, the three lower a little shorter and ovate. Filaments the same length with the corolla; and the style longer.—Native of the island of Santa Marta [k].

6. Shrubby, the whole plant very fetid, insipid, and somewhat villose, as is also the calyx. Stem a foot high and more, round, viscid, upright, with decussated branches spreading at an acute angle, from the very bottom. Leaves rounded-ovate, blunt, opposite, petioled, thickish. Floral-leaves lanceolate and sharpish. Flowers subsessile, in threes or fives. Leaflets of the calyx awl-shaped and short. Corolla dirty flesh-colour; tube cylindrical, throat bell-shaped, border spreading very much, with roundish segments, the two upper ones a little less than the other three. The corolla emerges from the calyx in the evening, is fully expanded next morning, and falls before night. Anthers upright, acute and white. Style hairy. Stigma bifid, with the upper segment obsolete, but the lower protracted into a lip, and appearing with a magnifier to be rough-haired. Capsule wedge-shaped, acute, smooth, brown, compressed, thrice as long as the permanent calyx, two-celled, two-valved, with elastic claws. Seeds in each cell commonly six, orbicular, convex a little on one side, flatted on the other, shining. Native of the East Indies [l].

7. Stem obscurely four-cornered, with a groove in each side. Leaves an inch long, ovate-oblong, bluntish, pale green, smooth. Peduncles very short, opposite, one-flowered; having a lanceolate ciliate leaf, longer than the calyx, on each side at the base of the calyx. Tube of the corolla three times as long as the calyx, widening upwards. Flowers large, violet-coloured [m].]

8. Root perennial, composed of many fleshy fibres. The leaves and stalks lie close to the ground; the stalks are five or six inches in length; the leaves, placed by pairs at each joint, are two inches long, and an inch and quarter broad, on foot-stalks half an inch in length. Peduncles naked, dividing into two smaller ones, each sustaining one small purple fugacious flower; calyx cut into very narrow segments to the bottom. Capsule taper, about an inch long.

[Native of Barbadoes, where they call it *Snap-dragon*, from the bursting of the seed-vessels. It flowered first in the month of auguſt 1728, in Sherard's garden at Eltham; the following year in june and july [n].]

9. Root perennial. Stems four or five feet high, much diffused. Leaves oblong, oval, entire, oppolite, on short hairy foot-stalks. Flowers an the divisions of the stem, small, purple, of short duration.

[Stem suffrutescent, from two to three feet high, branched, often prostrate, four-cornered, smooth, but pubescent towards the top. Leaves oppolite, on short petioles, ovate-lanceolate, subserrate, nerved, somewhat hirsute or rugged; stem-leaves larger; branch-leaves often deciduous. Panicles formed of oppolite dichotomous branches divaricating very much; pedicels one-flowered; flowers biggish, blue. Capsule acuminate, surrounded by the calyx, two-celled, bursting by the claw. Seeds roundish, compressed, black. The whole herb is somewhat clammy with glands, and has an odour approaching to that of Camphor.

Native of Jamaica, in the southern parts, on dry hills and in hedges [o]. Cultivated by Mr. Miller in 1768.

Dr. Patrick Browne says, it is very common about Spanish Town, and in many other parts of the low lands; where it generally blows in the months of december and january; making a very beautiful appearance among the bushes, in that bleak season of the year. Hence they call it *Christmas Pride*. Being weakly, it seldom rises above a foot or two, if alone; but when supported, it runs frequently three or four feet, and bears a great number of flowers.

10. Stem herbaceous. Branches bluntly four-cornered, hairy, jointed; joints two inches long, thickened at the base. Leaves on short petioles, quite entire, acute, an inch in length. Spike terminating, two inches in length. Flowers solitary, alternate, or very rarely oppolite. Bractes two, bristle-shaped, at the base of the flower. Calycine segments lanceolate-awl-shaped, hairy. Corolla violet-coloured, pubescent on the outside [p].]

11. The roots are composed of many swelling fleshy tubers, which run deep into the ground, and are like those of the Day Lily (Hemerocallis,) but smaller. Stem four or five inches high, sending out two or three short side-branches. Leaves oppolite, some small and shaped like a spatula, others much larger; they have short foot-stalks, and are a little crenated on their edges. The flowers are produced on the side and at the end of the stalk; those on the side have two flowers upon each peduncle, which come out oppolite at each joint, but those at the top sustain three. The flowers have narrow tubes about an inch long, then spread out to a sort of bell-shape, and at the top are cut into five large blunt spreading segments; they are of a fine blue, but seldom last in beauty through the day. Capsule an inch and half long, taper.

[Tubers of the root oblong smooth. Stem herbaceous, undivided, upright, from six inches to a foot

[c] Linn. [d] Hort. kew. [e] Swartz. [f] Linn. mant. [g] Dillenius. [h] Gærtner. [i] Hort. kew. [k] Vahl. [l] Jacquin. [m] Vahl. [n] Dillenius. [o] Swartz. [p] Vahl.

in height, four-cornered, smooth, but pubescent at top. Leaves wedge-shaped at the base, ovate, nerved, smooth. Peduncles axillary, opposite, spreading, seldom simple, commonly three-parted, the length of the leaves, sometimes trichotomous. Flowers large, blue. Capsule oblong, acuminate. Seeds roundish, black [a].

This plant is very common in most parts of Jamaica, where it is called *Menow-weed*, *Spirit-weed*, and *Snap-Dragon*. It is seldom more than twelve or sixteen inches high. The roots are frequently used in fevers, among the negroes: when fresh, they have a little pungency, but when dry they are quite insipid [b].

Cultivated by Mr. Miller in 1759.

12. Native of the East Indies.

13. Stem pubescent. Leaves opposite, subsessile, lanceolate, having two or three teeth on each side, acuminate, ciliate. Flowers axillary, sessile. Calyx ciliate at the angles, with short teeth [c].

Stem herbaceous, annual, eight inches high, angular, grooved, branched, diffused, creeping. Leaves ovate, subpetioled. Flowers white-violet, solitary, on long peduncles. Capsule ovate, many-seeded. Burman's figure, though quoted by Linnæus, by no means agrees with his description, or with the plant of Cochinchina [d].—Native of the East Indies and Cochinchina.

14. Leaves much smaller than in the *strepens*, and not so hairy. Flowers smaller, and two only from each axil.—Native of Carolina [e]. Introduced in 1765, by Mr. John Cree [f].

15. Root woody, creeping. Stems a finger's length, quite simple, jointed, roundish. Leaves subpetioled, having hairs scattered over them, the edge turned back waved curled or crenate. Heads of flowers at the joints, lateral, solitary, imbricate with ovate acuminate hairy-rugged leaves, within which are the flowers, having a five-parted hirsute linear calyx, and a yellow corolla [g].

This plant is a suffrutex, and has the appearance of yellow Cock's-comb (Rhinanthus Crista galli.) It is rough and lies on the ground. It grows on open hills in China; and the Chinese name is *Patt-fa* [h].]

Mr. Miller says, that it grows naturally in both Indies; and that he received seeds of it from Carthagena in New Spain. [If it be his plant, he cultivated it in 1759.

16. Stems herbaceous, filiform, weak, decumbent, angular with decurrent lines, alternately branched, jointed; the joints rough-haired, jointed. Leaves opposite, remote, an inch long, one smaller than the other, hairy underneath, nerved, tender, remote, toothletted, acute. Petioles the length of the leaves, winged by the decurrent base of the leaf, wider above. Flowers from the upper axils and top of the branchlets, collected into a small fastigiate peduncled head. Bractes three at the base of each flower; the outer membranaceous, three-nerved, hairy, oblong, acute, three times as wide as the others; the second of the same length, coloured, nerved, netted, lanceolate; the third shorter and narrower. Calyx hairy; the segments coloured, membranaceous, netted, three-nerved, acute: the upper one linear-lanceolate, wider than the rest, the two lateral ones bristle-shaped, shorter: the two lower the same length with the upper one, but a little narrower. Corolla longer than the calyx, smooth; lower lip three-lobed, with the lobes rounded [i].

Found by Koenig, in woody places, near the hot baths of Trinquemala, in the island of Ceylon [k].

17. The whole plant villose and soft. Branches roundish. Leaves opposite, remote, pendulous, a hand or more in length, an inch in width, attenuated at the top, alternately veined, on ash-coloured petioles. Flowers collected into a peduncled bundle: peduncles opposite on the uppermost axils and at the ends of the branches. Bractes three, minute, awl-shaped, at the base of the calyx; which is cylindrical and hairy: the five segments are linear, acute, the two outer larger than the others.—Native of Madagascar. *Thouin.*

18. Stem herbaceous, smooth, four-cornered, with the corners blunt, and a wide deep groove on each side; the joints thicker and hairy-ciliate. Branches opposite, shorter than the stem. Leaves two inches long, and an inch and half wide, blunt, narrowed at the base, flat, veined, smooth, paler underneath. Petiole an inch long, margined above by the decurrent leaf, ciliate at the base. Flowers clustered in alternate heads. Outer bractes six, ciliate, ovate-lanceolate, bluntish; inner narrower, lanceolate. Calycine segments five, ciliate, awl-shaped; the two lower deeper and shorter. Corolla a little longer than the calyx and smooth.—Found in the East Indies by Koenig.

19. Stem upright, obscurely four-cornered by four decurrent lines, two of the sides wider and more convex; with short branches, some alternate others opposite. Leaves subsessile, opposite, a long span in length, an inch in width, drawn to a point at both ends, bluntish, flat, paler underneath, alternately nerved, smooth on both sides. Flowers imbricate, in a shortly peduncled head, the size of a hazel nut. Bractes four under each head, ovate, acute, hairy, ciliate, shorter than the head; three at the base of each flower, the length of the calyx, hairy; two on the sides, linear-lanceolate; the outer oblong, three times as wide as the others. Calycine segments five, unequal, linear, acute.—Found in the East Indies by Koenig [l].

20. Herb creeping. Stems herbaceous, filiform, jointed, even. Leaves opposite, blunt, smooth; spikes axillary, peduncled: flowers opposite: bractes linear, shorter: calyxes hairy-awned.—Native of Java [m].

21. Procumbent. Stems a span long, jointed. Leaves lanceolate, bluntish, smooth, with the edge a little repand, or so obscurely crenate that it seems to be entire, petioled. Bractes two, sessile, shorter than the calyx, the leaflets of which end in subvillose bristles [n].—Native of the East Indies, Ceylon and China.

22. This has the appearance of Veronica officinalis, but much smaller; or of Verbena nodiflora. Leaves oval, narrower at the base, sharply and deeply serrate, especially towards the end. Panicle or spike composed of opposite peduncled flowers, five together. Capsules awl-shaped, three times as long as the calyx [o]. Calyx four-cleft. Corolla four-lobed, unequal. Seeds many, oblong [p].

Stem herbaceous, annual, five inches high, round, creeping, with diffused branches. Leaves ovate-lanceolate, serrate, smooth, sessile. Flowers white-violet, on many-flowered peduncles. Calyx five-cleft, acute, erect, permanent. Corolla ringent, five-cleft. Capsule awl-shaped, long, round, many-seeded.

Rumphius describes his *Cruста ollæ major* with many-flowered, subterminating peduncles, like this; but figures it with solitary, axillary flowers, more like the *ciliaris* [q].

Native of the East Indies, China and Cochinchina.

23. Stems a hand high, herbaceous, creeping. Flowers lateral, solitary. Bractes in pairs, elliptic [r].—Native of the East Indies.

24. Shrubby, very much branched, depressed. Branches four cornered, jointed, whitish. Leaves in bundles on the runners, small, on short petioles, rigid, remotely serrate, somewhat fleshy, dotted, sprinkled with a hoary meal. Calyx five-cornered, tubular, five-cleft: the segments striated, acute, hoary. Corolla tubular: border bell-shaped, angular, veined, five-cleft: the segments unequal. The two large stamens have a toothlet at the base. Capsule linear-oblong, longer than the calyx.

Found by Koenig near Sadrass in the East Indies, on the coast; and very common where the lands are inundated in the rainy season [s].

25. Stem upright, somewhat rugged, with long hairs standing out, mixed with others that are very short, and stellate. Leaves very blunt, veinless, covered on both sides with stellate hairs, paler underneath, an inch long. Petioles shorter than the leaf, hairy. Flowers on a peduncle half an inch in length.

[a] Swartz. [b] Browne. [c] Linn. [d] Loureiro.
[e] Dillenius. [f] Hort. kew. [g] Linn. [h] Osbeck.
[i] Vahl. [k] Retz. [l] Vahl. [m] Linn. spec. [n] Linn. syst. and zeyl.
[o] Linn. zeyl. [p] Linn. mant. [q] Loureiro.
[r] Linn. mant. [s] Linné suppl.

At the baſe of the calyx are two petioled leaflets, very like the ſtem-leaves but ſmaller. Calyx bell-ſhaped, five-cleft: ſegments ovate, acute, within hoary and very ſoft. Tube of the corolla four inches long, villoſe at top: border bell-ſhaped, five-cleft, with equal, rounded ſegments. Filaments almoſt equal. Capſule oblong, ſharp at both ends.

This is very different from *Barleria longiflora* of Linneus's Supplement; for that has very ſoft leaves, without ſtellate hairs; ſmooth, netted, ſeſſile, ſcarioſe bractes [t].

26. Leaves lanceolate, narrow, entire, ſome ſerrate, others deeply toothed, with ſharp teeth.—Native of the Eaſt Indies [m].

27. Stem herbaceous, four-cornered, with the corners blunt, grooved on both ſides, having hairs ſcattered over them ſo ſmall as to be ſcarcely viſible; jointed, the joints thicker at top. Branches few, ſhort, alternate, of the ſame ſtructure with the ſtem. Leaves ſeſſile, two inches long or leſs, bluntiſh, a little narrowed at the baſe, of the ſame colour on both ſides, flat, ſpreading: the younger ones hairy, eſpecially at the edge. Flowers axillary, ſeſſile, three on each ſide. Bractes, one at the baſe; thoſe of the calyx oblong, narrowed at the baſe, blunt. Calyx tubular, five-cleft, on the outſide pubeſcent, aſh-coloured: ſegments linear-lanceolate, acute, equal. Upper lip of the corolla undivided, compreſſed, lanceolate, blunt: lower with long hairs ſcattered over the upper ſurface, trifid; the ſegments linear, blunt. Anthers two-awned at the baſe. Native of the Eaſt Indies.

28. Allied to the preceding; but differing in having the ſtem almoſt ſimple; the leaves longer, more attenuated at both ends, and not at the tip only, having lines reſembling hairs ſcattered over both ſides, pale green underneath, all nearly of the ſame length, and not ſmaller, oblong and blunt, on the branches. Bractes not leafy blunt, but linear-lanceolate acute, not attenuated at the baſe. Finally, the calyxes are ſmaller, and end in a briſtle, and have ſubciliate hairs at the edge only, not all over, permanent even to the falling of the fruit.—Native of the Eaſt Indies [n].

29. Stems four-cornered, jointed, fleſhy, coloured. Leaves ſpreading, lanceolate-oblong, very finely ſerrate, ſmooth, glutinous. Bractes quite entire, often ciliate. Four ſegments of the calyx lanceolate; the fifth upper one wider. Corolla ringent, yellow. Anthers blueiſh. Style rough-haired. Very common in rice fields in the Eaſt Indies, eſpecially when the harveſt is over. It has a ſtrong ſmell of turpentine.

30. This is a ſmall plant, flowering in january and february. Very common in Tranquebar, &c. in rice fields. Theſe two were found by Koenig [o].

31. Stem herbaceous, rough with white hairs, ſcarcely a ſpan high, branched, four-cornered. Branches oppoſite, quite ſimple, ſhorter than the ſtem. Leaves quite entire towards the baſe, but outwardly ſerrate, blunt. Spikes ſolitary at the ends of the branches, and oppoſite from the laſt axils, imbricate with bractes and flowers, an inch long, on ſhort peduncles. Bractes oblong, the length of the calyx. Segments of the calyx linear.—Native of the Eaſt Indies [p].

32. Native of the Cape of Good Hope.

33. Native alſo of the Cape, where theſe two were found by Thunberg. This is ſingular in having the ſtem preſſed cloſe to the ground [q].

34. Stem ſhrubby. Branches jointed; the upper ones ſubdichotomouſly branched, obſcurely four-cornered. Leaves quite entire, acute, greener above, nerved, appearing to be marked with paler lines reſembling hairs, when examined by a magnifier, underneath hoary. Flowers four or ſix in a ſhort terminating ſpike, oppoſite, diſtant, ſeldom in pairs, ſometimes the oppoſite one is wanting. Bracte linear, the length of the calyx. Tube of the corolla filiform, longer than the calyx.

Native of the Eaſt Indies, whence it was ſent with many other rare plants by Roetel.

35. Stem, branches, leaves and petioles pubeſcent. Leaves an inch long, blunt; the younger ones hoary, a little acuminate. Petioles ſpreading very much, a little ſhorter than the leaf. Racemes almoſt a ſpan long: pedicels ſhort, remote. Bractes briſtle-ſhaped, ſhorter than the pedicel. Calyxes rough-haired. Corollas ſmooth, yellow. Germ villoſe, hoary. It differs from the *intruſa* in having the corollas larger, in racemes, yellow, and the ſegments of the border roundiſh. Found in the Eaſt Indies by Koenig [r].

36. Stem herbaceous, four-cornered, brown, upright. Leaves ſubpetioled, bluntiſh, quite entire, veined, ſmooth, ſpreading, ſmall, the upper ones gradually leſs. Spikes ſeveral, terminating, alternate, ſmooth, a finger's length. Bractes entire, imbricate-ſpreading, the ſame length with the tube of the corolla. Corolla bell-ſhaped, yellow; the border equal.—Native of Japan [s].

37. Stem ſuffruticoſe. Branches four-cornered, hairy, eſpecially under the joints. Leaves an inch long or more, bluntiſh, ſharp at the baſe, veinleſs, having fewer hairs above. Petiole ſcarcely half an inch long, rough-haired. Spike peduncled, upright, an inch and half in length. Flowers alternate. Bractes three at the baſe of each flower, lanceolate, attenuated, ſomewhat rough-haired, ciliate, longer than the calyx, unequal; the outer a little wider and longer than the two others. Calycine ſegments awl-ſhaped, ſmoothiſh. Corolla ſmooth.—In Forſkahl's herbary there is another plant, which is ſmooth all over, with the petioles a little longer, and the leaves wider, in all other reſpects reſembling this.

38. Stem ſuffruticoſe. Branches weak, brachiate, four-cornered; corners ſharp reverſe-haired. Leaves an inch long, one half the ſize of its oppoſite, acuminate, veined, ſomewhat hairy. Petiole half an inch long, looſe, pubeſcent. Spikes from the end of the branches and branchlets, an inch or more in length, hairy. Floral leaves at the back of the ſpike, oblong, ſharpiſh, ſhorter at the baſe on one ſide, of the ſame conſiſtence with the leaves on the ſtem. Anterior bracte cordate, membranaceous, very hairy, netted-veined. Flowers three or four under each bracte. At the baſe of the calyx a ſmaller bracte, which is ovate, and of the ſame ſtructure with the outer one. Calycine ſegments hairy, unequal: the upper one ovate, membranaceous, netted, longer than the reſt, and five times as wide; the two lateral ones briſtle-ſhaped; the two lower ones a little wider and longer than the lateral ones. Corolla a little longer than the outer bracte [t].

According to Retzius, the flowers are white and nocturnal.

Native of Arabia Felix, the Eaſt Indies, and the Iſle of Bourbon [u]. *Koenig ſent it from Bengal* [x].

39. This is a little ſhrub, with the branches round at bottom, ſmooth, covered with an aſh-coloured ſmooth bark, villoſe at the end. Leaves petioled, half an inch long, blunt, quite entire, thickiſh, veinleſs, marked with lines above, having ſmall hairs preſſed to the ſurface ſcattered thinly over them, underneath more hairy, caneſcent. Head of flowers hemiſpherical, ſurrounded at the baſe by a few oblong leaflets. Bractes three, lanceolate, membranaceous nerved, ending in an awn, hairy-ciliate. Calycine ſegments membranaceous, terminated by an awn two lines long, nerved, hairy, ciliate, unequal: the upper one oblong, four times as wide as the others, netted; the two lateral ones awl-ſhaped, ſhorter by half; the two lower ones of the ſame length with the upper, linear-ſubulate. Corolla hairy on the outſide. Capſule ſmooth, oblong, acute, ſhorter than the calyx. Found in Arabia Felix by Forſkahl.

40. Stem herbaceous, ſlightly four-cornered, ſmoothiſh, branched. Leaves petioled, an inch or a little more in length, rather attenuated at the baſe, ſharpiſh, nerved, almoſt veinleſs. Spikes from the end of the branches, peduncled, ſcarcely an inch long, oblong, imbricate, the thickneſs of a ſwan's quill. Bractes two at the baſe of the calyx, awl-ſhaped.

[t] Vahl. [m] Linn. ſuppl. [n] Vahl. [o] Linn. ſuppl. [p] Vahl. [q] Linn. ſuppl. [r] Vahl. [s] Thunberg. [t] Vahl. [u] Idem. [x] Retz.

Calyx five-leaved: four of the leaflets awl-ſhaped; the fifth a little longer, linear-lanceolate awned, ſomewhat veined; all membranaceous, pale, with three deeper-coloured lines, and ciliate. Found in Montſerrat by Ryan[1].

41. Native of the iſland of Tahna.

42. Native of the iſland of Otaheite[2].

43. Native of Hiſpaniola[3]. By the note of interrogation, I ſuppoſe that Swartz doubts whether this be a Ruellia.]

PROPAGATION AND CULTURE.

Theſe plants are propagated by ſeeds, which muſt be ſown early in the ſpring in pots filled with light rich earth, and plunged into a moderate hot-bed; and when the plants come up, they muſt be tranſplanted each into a ſeparate ſmall pot filled with rich earth, and plunged into a hot-bed of tanner's bark, where they muſt be ſhaded from the ſun until they have taken new root; after which time they muſt have free air admitted to them every day in warm weather, and be conſtantly watered three or four times a week during the ſummer ſeaſon. If the plants thrive well, thoſe of the 8th and 11th ſorts will produce flowers the july following, and will perfect their ſeeds in auguſt; but the roots will continue, provided they are plunged into the bark-bed in the ſtove, and kept in a moderate temperature of heat.

The 4th ſort is not a plant of long continuance, ſeldom abiding longer than two years; but if it is treated in the ſame manner as the two other, it will ripen ſeeds the ſecond year, ſo may be propagated eaſily.

The 15th ſort does not ſo conſtantly produce ſeeds as the three others, and therefore is not ſo common in England at preſent. This requires the ſame treatment as the other ſorts.

If the ſeeds are permitted to ſcatter, as their pods diſcharge them with a violent ſpring into the neighbouring pots, the plants will come up without care, and may be tranſplanted into pots filled with freſh loamy earth, and plunged into the tan-bed.

[RUELLIA. See *Lindernia*.

——— coccinea. See *Barleria coccinea*.

RUIZIA. (*So named in honour of Don Hipolito Ruiz, author of* Quinologia, Madr. 1792. qu. *and* Floræ Peruvianæ & Chilenſis Prodromus. Madr. 1794, fol. & Romæ, 1797. qu.)

Lin. gen. Schreb. n. 1135. *Cavan. diſſ.* 3. 117. *t.* 36, 37. *Juſſ.* 275. Koenigia. *Commerſ.*

Claſſ. 16. 6. Monadelphia Polyandria.

Nat. order of *Columniferæ*. *Malvaceæ*, Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* double: *outer* three-leaved; *leaflets* ovate, concave, acute, deciduous; *inner* one-leafed, five-parted, permanent, ſegments lanceolate.

COR. *Petals* five, ſickle-ſhaped towards the right, rounded at the tip, entire, flat, ſpreading, faſtened to the pitcher of ſtamens.

STAM. *Filaments* many, (30—40) ſhorter than the corolla, united below into a pitcher ſurrounding the germ. *Anthers* oblong, incumbent.

PIST. *Germ* globular, ten-grooved. *Styles* ten, ſhort. *Stigmas* ſimple.

PER. *Capſules* ten, compreſſed, membranaceous, woody on the back, gibbous, one-celled, united into a globular, umbilicate whorl.

SEEDS two, roundiſh-three-ſided, acuminate.

OBS. *It is allied to* Aſſonia.

ESSENTIAL CHARACTER.

Calyx double: the exterior three-leaved: *Styles* ten: *Capſules* ten, one-celled, two-ſeeded, cloſely cohering.

SPECIES.

1. Ruizia cordata. *Heart-leaved Ruizia.*

R. foliis oblongo-acuminatis, ſinuato-crenatis incanis, ſubtus farinaceis. *Cavan. diſſ.* 3. *p.* 117. *t.* 36. *f.* 2.

With cordate-lanceolate ſpreading leaves.

[1] Vahl. [2] Forſter. [3] Swartz.

2. Ruizia lobata. *Lobated Ruizia.*

R. foliis cordatis crenatis 3—5—lobatis oblongis, lobo medio productiore acuminato. *Cavan. diſſ.* 3. *p.* 118. *t.* 36. *f.* 1.

With heart-ſhaped five-lobed crenated leaves.

3. Ruizia variabilis. *Variable Ruizia.*

R. foliis ramorum florentium palmatis, ſterilium digitatis. *Willden. ſp. pl.* 798. *Jacqu. hort. Schonbr.* 3. *p.* 24. *t.* 295.

R. palmata. *Cavan. diſſ.* 3. *p.* 119. *t.* 37. *f.* 1.

R. laciniata. *Cavan. diſſ.* 3. *p.* 119. *t.* 37. *f.* 2.

With palmate and digitate leaves.

DESCRIPTIONS, &c.

1. This is a branching ſhrub, growing in the Iſle of Bourbon, where it flowers in the month of march and april: the flowers are ſulphur-coloured and grow in umbel-like corymbs.

2. Native of the Iſle of Bourbon, flowering in january, february and march: it is a handſome ſhrub, five or ſix feet high, with a grey bark, ſpreading, and fragile boughs, which when grown very old almoſt equal the thickneſs of a man's thigh; the leaves grow chiefly on the extremities of the branches, and are ſmooth above, but whitiſh and mealy beneath: the flowers like thoſe of the former ſpecies.

3. This alſo is a native of Bourbon, and is a low ſpreading tree: the leaves are hoary on both ſides; the flowers borne in umbel-ſhaped corymbs with long foot-ſtalks: in other reſpects reſembling the former ſpecies.]

RUMEX (*of Pliny, &c.* (Λαπαθον. *Gr.*) *a rumpo aut. rupo; or rather from rumo, fugo.* Voſſius.)

Lin. gen. n. 451. *Reich. n.* 485. *Schreb. n.* 613. *Gærtn. t.* 119. *Juſſ.* 82. Lapathum & Acetoſa. *Tournef.* 287.

Claſſ. 6. 3. Hexandria Trigynia.

Nat. order of *Holoraceæ*. *Polygoneæ*, Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* three-leaved: *leaflets* obtuſe, reflex, permanent.

COR. *Petals* three, ovate, bigger than the calyx and like it, converging, permanent.

STAM. *Filaments* fix, capillary, very ſhort. *Anthers* erect, twin.

PIST. *Germ* turbinate-three-ſided. *Styles* three, capillary, reflexed, ſtanding out between the clefts of the converging petals. *Stigmas* large, laciniate.

PER. none. *Corolla* converging, three-ſided, incloſing the ſeed.

SEED ſingle, three-ſided.

OBS. R. digynus *excludes one third part of the number in all parts of the fructification except the ſtamens.*

The Acetoſæ *have the male and female flowers on ſeparate plants.*

R. ſpinoſus *has flowers of both ſexes on the ſame plant, with the female perianths hooked.*

R. alpinus *is polygamous.*

In ſome ſpecies a calloſe grain is faſtened externally to the valves of the petals.

ESSENTIAL CHARACTER.

Cal. three-leaved. *Pet.* three, converging. *Seed* one, three-ſided.

SPECIES.

* *Hermaphrodites, having the valves marked with a grain.*

1. Rumex Patientia. *Patience Dock* or *Rhubarb.*

Lin. ſpec. 476. *ſyſt.* 346. *Reich.* 2. 114. *Willd.* 2. 249. *Hoffm. germ.* 128. *Roth. germ.* 1. 160. 2. 420. *Allion. pedem. n.* 2029. *Blackw. t.* 489. *Plenck, ic.* 282. *Gærtn. fruct.* 2. 178.

Lapathum hortenſe folio oblongo. *Baub. pin.* 114.

L. ſativum. *Dod. pempt.* 648.—*ſ.* Patientia. *Park. theat.* 154. 1. *t.* 155. *f.* 1.

Hippolapathum ſativum. *Ger.* 313. *f.* 5. *emac.* 389. *f.* 3. *Rait hiſt.* 171.

Flowers hermaphrodite; valves quite entire, one of them graniferous, leaves ovate-lanceolate.

2. Rumex ſanguineus. *Bloody-veined Dock. Bloodwort.*

Lin. ſpec. 476. *ſyſt.* 346. *Reich.* 2. 115. *Willd.* 2. 250. *hort. cliff.* 138. *upſ.* 89. *mat. med.* 98. *Hudſ. angl.* 153. *Wither. arr. ed.* 3. 353. *Smith, brit.*

brit. 390. *Sibth. exon. n.* 353. *Hoffm. germ.* 128. *Roth. germ.* 1. 160. 2. 421. *Leers, herborn. n.* 274. *Gærtn. fruct.* 2. 179. *Krock. silef. n.* 564. *Blackw. t.* 492. *Pleneck,* 283.

Lapathum folio acuto rubente. *Baub. pin.* 115. *Raii hist.* 174. *syn.* 142. *Petiv. brit. t.* 2. *f.* 5. *Mor. hist.* 2. *s.* 5. *t.* 27. *f.* 6.

L. rubens. *Dod. pempt.* 650. 2. *Camer. epit.* 229.

L. sanguineum. *Munt. brit. t.* 113. *Baub. hist.* 2. 988. *Park. theat.* 1226. 10.

L. sativum sanguineum. *Ger. emac.* 390.

β. Rumex viridis. *Green-veined Dock.*

Sibth. exon. n. 353. β. *Smith, brit.* 390. 1. β.

R. acutus. *Curt. lond.* 3. 21. *defer. Wither. arr. ed.* 3. 354. *Wade Dubl.* 103. *Hudf.* 155. β.

L. viride. *Dill. in Raii syn.* 141.

Bloodleſs Dock. *Petiv. brit. t.* 2. *f.* 6.

Flowers hermaphrodite; valves quite entire oblong, one chiefly graniferous, leaves cordate-lanceolate.

[3. Rumex ſpathulatus. *Spatula-leaved Dock.*

Lin. ſpec. ed. Willd. 2. 250. *Thunb. prodr.* 67.

Leaves obovate obtuſe, valves graniferous.

4. Rumex verticillatus *Whorl-flowered Dock.*

Lin. ſpec. 476. *Reich.* 2. 115. *Willd.* 2. 250.

Lapathum aquaticum, &c. *Gron. virg.* 39.

Flowers hermaphrodite; valves quite entire, all graniferous; leaves lanceolate, ſheaths cylindrical.

5. Rumex Britannica. *Virginian Dock.*

Lin. ſpec. 476. *Reich.* 2. 115. *Willd.* 2. 250. *Cold. noveb.* 83. *Gron. virg.* 39. (Lapathum.)

Flowers hermaphrodite; valves quite entire, all graniferous; leaves lanceolate, ſheaths obſolete.]

6. Rumex criſpus. *Curled Dock.*

Lin. ſpec. 476. *ſyſt.* 346. *Reich.* 2. 115. *Willd.* 2. 251. *hort. cliff.* 138. *fl. lapp. n.* 129. *ſuec. n.* 314. *Hudſ. angl.* 153. *Wither. arr. ed.* 3. 353. *Smith, brit.* 391. *Lightf. ſcot.* 188. *Curt. lond.* 2. *t.* 20. *Relh. cant. n.* 281. *Sibth. oxon. n.* 352. *Abbot, bedf.* 81. *Gunn. norv. n.* 35. *Hoffm. germ.* 128. *Roth. germ.* 1. 160. 2. 421. *Pollich pal. n.* 356. *Krock. ſilef. n.* 563. *Neck. gallob.* 175. *Scop. carn. n.* 441. *Villars dauph.* 3. 267. *Gmel. ſib.* 3. 112. *Lour. cochinch.* 216. *ed. Willd.* 269.

Lapathum fol. criſpis, &c. *Hall. helv. n.* 1589.

L. folio acuto criſpo. *Baub. pin.* 115. *Raii hiſt.* 173. *ſyn.* 141. *Petiv. brit. t.* 2. *f.* 2.

L. longifolium criſpum. *Munt. brit. t.* 104. *phyt. t.* 190.

L. acutum criſpum. *Baub. hiſt.* 2. 988.

L. acutum minus. *Park. theat.* 1226. *n.* 2.

L. acuti varietas folio criſpo. *Ger. emac.* 387.

Hydrolapathum minus. *Ger.* 312. 4.

Flowers hermaphrodite; valves quite entire all graniferous; leaves lanceolate waved acute.

[7. Rumex perſicarioides. *Arſmart-leaved Dock.*

Lin. ſpec. 477. *Reich.* 2. 116. *Willd.* 2. 252.

Flowers hermaphrodite; valves toothed, awl-ſhaped at the tip, all graniferous; leaves lanceolate.]

8. Rumex ægyptius. *Egyptian Dock.*

Lin. ſpec. 477. *ſyſt.* 346. *Reich.* 2. 116. *Willd.* 2. 252. *hort. upſ.* 89. *Wach. ultr.* 391. *Till. piſ.* 43. *t.* 37. *f.* 1. (Lapathum.)

Flowers hermaphrodite; valves trifid-ſetaceous, one graniferous; leaves oblong.

[9. Rumex dentatus. *Dentated Dock.*

Lin. ſyſt. 346. *Reich.* 2. 116. *Willd.* 2. 253. *mant.* 226. *Dill. elth.* 191. *t.* 158. *f.* 191. (Lapathum.)

Flowers hermaphrodite; valves toothed, lanceolate at the tip, all graniferous; leaves lanceolate.]

10. Rumex acutus. *Sharp-leaved Dock.*

Lin. ſpec. 478. *ſyſt.* 346. *Reich.* 2. 117. *Willd.* 2. 253. *hort. cliff.* 138. *fl. ſuec. n.* 316. *mat. med.* 98. *Hudſ. angl.* 155. *Smith, brit.* 391. *engl. bot.* 724. *Curt. lond.* 3. 21. *quoad ſig. Relh. cant. n.* 283. *Pollich pal. n.* 357. *Neck. gallob.* 175. *Hall. helv. n.* 1591. *Scop. carn. n.* 443. (Lapathum.) *Knipb. cent.* 3. *n.* 78.

R. paludoſus. *Wither. arr. ed.* 3. 354. *Hull.* 77.

Lapathum folio acuto. *Baub. pin.* 115. 1. *Blackw. t.* 491. *Munt. brit. t.* 189.

L. acutum. *Raii hiſt.* 175. *ſyn.* 142. *Petiv. brit. t.* 2. *f.* 3.—*f.* Oxylapathum. *Baub. hiſt.* 2. 985. *Lob. ic.* 284.

Oxylapathum. *Fuchſ. hiſt.* 491.

β. Lapathum acutum minimum. *Baub. hiſt.* 2. 985. *Dill. in Raii ſyn.* 141. *Petiv. brit. t.* 2. *f.* 4.

Flowers hermaphrodite; valves oblong ſometwhat toothed, all graniferous; leaves cordate-oblong acuminate, racemes leafy.

11. Rumex obtuſifolius. *Blunt-leaved Dock.*

Lin. ſpec. 478. *Reich.* 2. 118. *Willd.* 2. 254. *Gærtn. fruct.* 2. 179. *Hudſ. angl.* 155. *Wither. arr. ed.* 3. 357. *Smith, brit.* 392. *Curt. lond.* 3. *t.* 22. 168. *Lightf. ſcot.* 189. *Relh. cant. n.* 284. *Sibth. exon. n.* 354. *Abbot, bedf.* 81. *Hoffm. germ.* 129. *Roth. germ.* 1. 161. 2. 423. *Pollich pal. n.* 358. *Leers, herborn. n.* 278. *Krock. ſilef. n.* 567. *Villars dauph.* 3. 268. *Gmel. ſib.* 3. 115. *n.* 91. *Hall. helv. n.* 1592. (Lapathum.) *Pleneck, ic.* 284.

Lapathum. *Camer. epit.* 228.

L. vulgare folio obtuſo. *Baub. hiſt.* 2. 985. 1. *Raii hiſt.* 173. *ſyn.* 141. *Petiv. brit. t.* 2. *f.* 9.

L. folio minus acuto. *Baub. pin.* 111. *Lob. ic.* 1. 285. 1. *Ger.* 312. 3. (quoad fig.) *emac.* 388. 3.

L. ſylveſtre vulgatius. *Park. theat.* 1225. 4.

Hippolapathum vulgare album, folio ſubrotundo. *Munt. brit.* 68. *phyt.* 187.

H. ſylveſtre. *Tabern.* 436.

Flowers hermaphrodite; valves toothed, one chiefly glaniferous; root-leaves cordate blunt, ſtem ſomewhat rugged.

12. Rumex pulcher. *Fiddle Dock.*

Lin. ſpec. 477. *ſyſt.* 347. *Reich.* 2. 118. *Willd.* 2. 254. *Hudſ. angl.* 153. *Wither. arr. ed.* 3. 356. *Smith, brit.* 393. *Lightf. ſcot.* 189. *Relh. cant. n.* 285. *Abbot, bedf.* 82. *Villars dauph.* 3. 269. *Allion. pedem. n.* 2034. *Desfont. atlant.* 319. *Hall. helv. n.* 1593. (Lapathum.) *Mor. hiſt.* 2. 580. *ſ.* 5. *t.* 27. *f.* 13. (Lapathum.)

Lapathum arvenſe ſubhirſutum, folio retuſo, caule longius brachiato. *Till. piſ.* 93. *t.* 37. *f.* 2. *Willich, illuſtr.* 5. *obſ.* 17.

L. pulchrum bononienſe ſinuatum. *Baub. hiſt.* 2. 988. 3. *Raii hiſt.* 174. *ſyn.* 142. *Petiv. brit. t.* 2. *f.* 10.

Flowers hermaphrodite; valves toothed, one chiefly graniferous, root-leaves viol-ſhaped, ſtem ſmooth divaricate.

13. Rumex maritimus. *Golden Dock.*

Lin. ſpec. 478. *ſyſt.* 346. *Reich.* 2. 117. *Willd.* 2. 253. *fl. ſuec. n.* 313. *Hudſ. angl.* 155. *Smith, brit.* 393. *engl. bot. t.* 725. *Hoffm. germ.* 129. *Roth. germ.* 1. 160. 2. 423. *Knipb. cent.* 7. *n.* 78.

R. aureus. *Wither. arr. ed.* 3. 356. *Abbot, bedf.* 81. *Hull.* 78.

Lapathum folio acuto, flore aureo. *Baub. pin.* 115. 4. *Raii hiſt.* 174. *ſyn.* 142. *Petiv. brit. t.* 2. *f.* 8.

L. anthoxanthum. *Baub. hiſt.* 2. 987.

Flowers hermaphrodite; valves deltoid-ſetaceous-toothed graniferous; leaves linear, whorls cluſtered.

14. Rumex paluſtris. *Yellow Marſh Dock.*

Smith, brit. 394.

R. maritimus β. *Hudſ. angl.* 155.

R. maritimus. *Wither. arr. ed.* 3. 356. *Curt. lond.* 3. *t.* 23. 163.

Lapathum aureum. *Dill. in Raii ſyn.* 142. *Petiv. brit. t.* 2. *f.* 7.

L. aquaticum luteolæ folio. *Boce. muſ. t.* 104.

Hydrolapathum minus. *Lob. ic.* 1. 286. 1. *Park. theat.* 1225. 8. *Ger. emac.* 389. 2.

Flowers hermaphrodite; valves lanceolate graniferous toothed at the baſe; leaves linear-lanceolate; whorls diſtant.

** *Hermaphrodites: having the valves deſtitute of a grain, or naked.*

15. Rumex aquaticus. *Water Dock.*

Lin. ſpec. 479. *Reich.* 2. 119. *Willd.* 2. 255. *fl. ſuec. n.* 315. *mat. med.* 98. *Smith, brit.* 394. *Lightf. ſcot.* 190. *Hoffm. germ.* 129. *Roth. germ.* 1. 161. 2. 425. *Pollich pal. n.* 359. *Krock. ſilef.*

ſilef. n. 568. *Villars dauph.* 3. 269. *Hall. helv. n.* 1588. (Lapathum.) *Blackw. t.* 490. *Plenck, ic.* 289.

R. Hydrolapathum. *Hudſ. angl.* 154. *Wither. arr. ed.* 3. 355. *Relh. cant. n.* 286. *Sibth. oxon. n.* 355. *Albet, bedf.* 82. *Woodv. med. bot.* 486. *t.* 178.

R. Britannica. *Hudſ. angl. ed.* 1. 135.

Lapathum maximum aquaticum, ſ. Hydrolapathum. *Baub. biſt.* 2. 986. *Raii. biſt.* 171. *ſyn.* 140. *Petiv. brit. t.* 2. *f.* 1.

L. aquaticum folio cubitali. *Baub. pin.* 116.

Hydrolapathum magnum. *Lob. ic.* 1. 285. *Ger. emac.* 389.

Hippolapathum. *Camer. epit.* 232. *Dalech. biſt.* 604.

Britannica antiquorum vera. *Munt. brit. t.* 1. *phyt.* 202.

Flowers hermaphrodite; valves ovate entire naked (obſoletely granifereus, Smith;) *leaves cordate-lanceolate acute.*

16. Rumex bucephalophorus. *Baſil-leaved Dock.*
Lin. ſpec. 479. *Reich.* 2. 119. *Willd.* 2. 255. *hort. upſ.* 90. *hort. cliff.* 139. *Gærtn. fruct.* 2. 180. *Deſfont. atlant.* 319. *Cavan. ic.* 31. *t.* 41. *f.* 1.

Acetoſa, ocymi folio, neapolitana. *Baub. pin.* 114. *Mor. biſt. ſ.* 5. *t.* 28. *f.* 14.

A. ocymi folio bucephalophorus. *Col. ecphr.* 1. 151. *t.* 150.

A. annua italica. *Munt. brit.* 189. *phyt. t.* 76.

Flowers hermaphrodite; valves toothed naked; pedicels flat reflexed increaſſated.

17. Rumex Lunaria. *Tree Sorrel.*
Lin. ſpec. 479. *ſyſt.* 347. *Reich.* 2. 119. *Willd.* 2. 256. *vir. cliff.* 32. *hort. cliff.* 139. *Pluk. phyt. t.* 252. *f.* 3.

A. Lunaria. *Mill. dict. n.* 6.

Lunaria magorum arabum. *Baub. biſt.* 2. 994?

Flowers hermaphrodite; valves even; leaves ſubcordate; ſtem arborous.

18. Rumex veſicarius. *Bladder Dock* or *Sorrel.*
Lin. ſpec. 479. *Reich.* 2. 120. *Willd.* 2. 256. *hort. cliff.* 130. *upſ.* 90.

Acetoſa americana, foliis longiſſimis pediculis donatis. *Baub. pin.* 114. *prodr.* 54. *Mor. biſt.* 2. 583. *ſ.* 5. *t.* 28. *f.* 7.

Flowers hermaphrodite geminate; all the valves very large membranaceous reflexed; leaves undivided.

19. Rumex roſeus. *Roſe Dock.*
Lin. ſpec. 480. *Reich.* 2. 120. *Willd.* 2. 256. *Deſfont. atlant.* 320.

Acetoſa roſea. *Mill. dict. n.* 7.

Flowers hermaphrodite diſtinct; the wing of one of the valves very large membranaceous netted, leaves gnawn.

[20. Rumex tingitanus. *Tangier Dock.*
Lin. ſpec. 479. *Reich.* 2. 120. *Willd.* 2. 257. *Deſfont. atlant.* 320.

Acetoſa dentata perennis. *Zanon. biſt.* 14.

A. veſicaria perennis repens fruteſcens folio deltoide ſinuato. *Mor. biſt.* 2. 583. *n.* 8. *ſ.* 5. *t.* 28. *f.* 8. *Raii biſt.* 179. 9.

A. veſ. ting. per. rep. foliis longis ſinuatis. *Zan. biſt.* 9. *t.* 6.

A. ægyptia, roſeo ſeminis involucro, folio lacero. *Shaw, aſſr.* 5. *t.* 5.

Flowers hermaphrodite diſtinct, valves cordate blunt quite entire, leaves haſtate-ovate.]

21. Rumex ſcutatus. *French Sorrel.*
Lin. ſpec. 480. *Reich.* 2. 120. *Willd.* 2. 257. *vir. cliff.* 32. *hort. cliff.* 138. *upſ.* 89. *mat. med.* 99. *Heſſm. germ.* 129. *Retb. germ.* 1. 161. 2. 426. *Pollich pal. n.* 360. *Krock. ſileſ. n.* 569. *Villars dauph.* 3. 270. *Allion. pedem. n.* 2036. *Deſfont. atlant.* 321. *Knipb. cent.* 8. *n.* 79. *Plenck, ic.* 285. *Hall. helv. n.* 1594. (Lapathum.)

Acetoſa ſcutata. *Mill. dict. n.* 3.

A. romana. *Blackw. t.* 306.—rotundifolia. *Munt. phyt. t.* 74. *brit.* 200.

A. hortenſis. *Pauli dan. t.* 154.—rotundifolia hort. *Baub. pin.* 114. *Mor. biſt.* 2. 583. *ſ.* 5. *t.* 28. *f.* 9. *Raii biſt.* 180. *Tournef. inſt.* 503.

Oxalis rotundifolia. *Ded. pempt.* 649.

O. rotunda. *Tabern. ic.* 439. *Dalech. biſt.* 605.

O. ſativa franca rotundifolia repens. *Lob. ic.* 492.

O. ſat. franca ſ. romana rotundif. *Park. theat.* 742. 2. *t.* 743. *f.* 2.

O. franca ſ. romana. *Ger.* 320. 4. *emac.* 397. 4.

O. folio rotundiore repens. *Baub. biſt.* 2. 991.

β. Acetoſa ſcutata repens. *Baub. pin.* 114. *prodr.* 55.

γ. Rumex glaucus. *Jacqu. collect.* 1. 64. *ic. rar.* 1. *t.* 67.

Flowers hermaphrodite; leaves cordate-haſtate; ſtem round.

[22. Rumex nervoſus. *Nerve-leaved Dock.*
Vahl ſymb. 1. 27. *Willd. ſpec.* 2. 257.

R. perſicarioides. *Forſk. deſcr.* 76. *n.* 41.

Flowers hermaphrodite; valves quite entire naked; leaves oblong three-nerved.]

23. Rumex digynus. *Mountain Dock* or *Sorrel.*
Lin. ſpec. 480. *ſyſt.* 347. *Reich.* 2. 121. *Willd.* 2. 258. *hort. cliff.* 138. *fl. lapp. n.* 132. *ſuec. n.* 317. *Huds. angl.* 156. *Wither. arr. ed.* 3. 357. *Smith, brit.* 395. *Lightf. ſcot.* 190. *Fl. dan. t.* 14. *Gunn. norv. n.* 36. *Krock. ſileſ. n.* 570. *Villars dauph.* 3. 271. *Allion. pedem. n.* 2037. *Gmel. ſib.* 3. 111. *n.* 89. *Jacqu. collect.* 2. 30. *Gærtn. fruct.* 2. 180. *Hall. helv. n.* 1595. (Lapathum.)

Acetoſa digyna. *Mill. dict. n.* 4.

A. rotundifolia alpina. *Baub. pin.* 55. *prodr.* 114. *Park. theat.* 745. 12. *Raii biſt.* 180. 12.

A. rotund. repens Eboracenſis, folio in medio deliquium patiente. *Mor. biſt.* 2. 583. *ſ.* 5. *t.* 36. *f. penult. Raii ſyn.* 143. *Petiv. brit. t.* 3. *f.* 4. *Pluk. phyt. t.* 252. *f.* 2.

A. britannica rotundifolia, fructu compreſſo. *Blair, obſ.* 67. *t.* 67.

Flowers hermaphrodite two-ſtyled; valves ovate entire.

[24. Rumex lanceolatus. *Lance-leaved Dock.*
Thunb. prodr. 67. *Willd. ſpec.* 2. 258.

Leaves lanceolate reflex margined, ſtem angular.]

**** With diclinous or male and female flowers ſeparate.*

25. Rumex alpinus. *Alpine Dock,* or *Monk's Rhubarb.*
Lin. ſpec. 480. *ſyſt.* 347. *Reich.* 2. 121. *Willd.* 2. 259. *mat. med.* 99. *Krock. ſileſ. n.* 571. *Villars dauph.* 3. 270. *Allion. pedem. n.* 2039. *Pallas it.* 195. *Monnier obſ.* 165. *Sauv. monſp.* 111. *Hall. helv. n.* 1587. *Zinn. gott.* 38. (Lapathum.) *Blackw. t.* 262. *Plenck, t.* 286.

Lapathum folio rotundo alpinum. *Baub. biſt.* 2. 987. *Raii biſt.* 171.

L. hortenſe rotundifolium ſive montanum. *Baub. pin.* 115.

L. rotundifolium. *Cluſ. biſt.* 2. 69.

Hippolapathum rotundif. *Ger.* 313. *f.* 6. *emac.* 389. 4.—vulgare. *Park. theat.* 154. 2.

Flowers barren hermaphrodite and female; valves quite entire naked; leaves cordate obtuſe wrinkled.

[26. Rumex ſpinoſus. *Prickly-ſeeded Dock.*
Lin. ſpec. 481. *ſyſt.* 347. *Reich.* 2. 122. *Willd.* 2. 259. *hort. cliff.* 139. *upſ.* 89. *Wulfen, obſ.* 16. *Murr. prodr.* 152. *Gærtn. fruct.* 2. 179.

Beta cretica ſemine aculeato. *Baub. pin.* 118. *prodr.* 57.—ſem. ſpinoſo. *Baub. biſt.* 2. 962.

Flowers androgynous, female calyxes one-leafed, outer valves reflexed and hooked.

27. Rumex tuberoſus. *Tuberous-rooted Dock.*
Lin. ſpec. 481. *ſyſt.* 348. *Reich.* 2. 122. *Willd.* 2. 259.

Acetoſa tuberoſa radice. *Baub. pin.* 114. *Raii biſt.* 178. 4.

Oxalis tuberoſa. *Ded. pempt.* 649.—tuberoſa radice. *Park. theat.* 744. 3.

Flowers dioecous; leaves lanceolate ſagittate, hooks ſpreading.

28. Rumex multifidus. *Multifid-leaved Dock* or *Sorrel.*
Lin. ſpec. 482. *Reich.* 2. 122. *Willd.* 2. 260.

Acetoſa minor erecta lobis multifidis. *Bocc. muſ.* 2. 164. *t.* 126.

Flowers dioecous; leaves haſtate, with the earlets palmate.

29. Rumex thyrſoides. *Thyrſe-like Dock* or *Sorrel.*
Deſfont. atlant. 321.

Flowers dioecous; panicle contracted in manner of a thyrſe; leaves haſtate.]

30. Rumex Acetoſa. *Common Sorrel.*
Lin. ſpec. 481. *Reich.* 2. 122. *Willd.* 2. 260. *vir. cliff.* 32. *hort. cliff.* 130. *upſ.* 89. *ſt. ſuec. n.* 318. *lapp. n.* 130. *mat. med.* 99. *Woodv. med. bot.* 193. *t.* 69. *Hudſ. angl.* 156. *Wither. arr. ed.* 3. 357. *Smith, brit.* 396. *engl. bot. t.* 127. *Lightf. ſcot.* 191. *Relh. cant. n.* 287. *Sibth. oxon. n.* 356. *Abbot, bedf.* 82. *Hoffm. germ.* 124. *Roth. germ.* 1. 162. 2. 426. *Pollich, pal. n.* 361. *Krock. ſilef. n.* 572. *Neck. gallob.* 174. *Villars dauph.* 3. 271. *Gmel. ſib.* 3. 111. *Blackw. t.* 230. *Knorr. del.* 2. *t.* A. 13. *Pleuck, ic. t.* 280.
Lapathum Acetoſa. *Scop. carn. n.* 438. *Hall. helv. n.* 1597. — acetoſum vulgare. *Raii ſyn.* 143. *Petiv. brit. t.* 3. *f.* 1.
Acetoſa pratenſis. *Baub. pin.* 14. *Mill. dict. n.* 1. *Mor. hiſt. ſ.* 5. *t.* 28. *f.* 1.
Acetoſa. *Brunf. herb.* 2. 68.
A. vulgaris. *Park. theat.* 742. *Raii hiſt.* 178.
Oxalis. *Dod. pempt.* 648. 4.
Oxalis vulgaris folio longo. *Baub. hiſt.* 2. 990. 1.
O. ſ. Acetoſa. *Matth.* 447. *Ger.* 319. 1. *emac.* 396. 1.
β. Acetoſa pratenſis flore albo. *Tournef. inſt.* 502.
γ. Oxalis criſpa. *Baub. hiſt.* 2. 990. *Tabern. ic.* 440. *Ger.* 320. *f.* 5.
δ. Acetoſa montana maxima. *Bauh. pin.* 114. *Scheuch. alp.* 129. *Baub. hiſt.* 2. 990. *Raii hiſt.* 178. *Dill. in Raii ſyn.* 143.
Lapathum. *Hall. helv. n.* 1598.
Flowers dioecous, valves graniferous, leaves oblong ſagittate.
31. Rumex Acetoſella. *Sheep's Sorrel.*
Lin. ſpec. 481. *Reich.* 2. 123. *Willd.* 260. *vir. cliff.* 32. *hort. cliff.* 139. *ſt. lapp. n.* 131. *ſuec. n.* 319. *Hudſ. angl.* 156. *Wither. arr. ed.* 3. 358. *Smith, brit.* 396. *Curt. lond.* 5. *t.* 29. *Relh. cant. n.* 288. *Sibth. oxon. n.* 357. *Abbot, bedf.* 82. *Hoffm. germ.* 130. *Roth. germ.* 1. 162. 2. 427. *Pollich pal. n.* 362. *Krock. ſilef. n.* 573. *Neck. gallob.* 174. *Villars dauph.* 3. 271. *Gmel. ſib.* 3. 110. *Gron. virg.* 153. *Knipb. cent.* 3. *n.* 77. *Knorr. del.* 2. *t.* A. 14. *Blackw. t.* 307. *Pleuck, ic.* 281.
A. Acetoſella. *Mill. dict. n.* 2.
Lapathum Acetoſella. *Scop. carn. n.* 439. *Hall. helv. n.* 1596.
L. acetoſum repens lanceolatum. *Raii ſyn.* 143. *Petiv. brit. t.* 3. *f.* 2, 4.
A. ſagittata alpina. *Zanon. hiſt. t.* 5.
A. arvenſis lanceolata. *Baub. pin.* 114. *Raii hiſt.* 180. *Mor. hiſt. ſ.* 5. *t.* 28. *f.* 11, 12.
A. minor lanceolata. *Park. theat.* 745. 13.—& anguſtifolia elatio. 745. 15. *t.* 744. *f.* 15.
Oxalis ſ. Acetoſa minor. *Matth.* 448.
O. minor. *Camer. epit.* 231.
O. parva auriculata repens. *Baub. hiſt.* 2. 992.
O. ovata. *Tabern. ic.* 440.
O. tenuifolia. *Ger.* 320. 3. *emac.* 397. 3.
β. Acetoſa lanceolata anguſtifolia repens. *Baub. pin.* 14. *prodr.* 55.
Oxalis minima repens 1. *Tabern. ic.* 441.
γ. Acetoſa arvenſis minima non lanceolata. *Bauh. pin.* 114.
Oxalis minima repens 2. *Tabern. ic.* 441.
δ. Acetoſa minor erecta, lobis multifidis. *Bocc. muſ.* 164. *t.* 26.
Flowers dioecous, valves grainleſs, leaves lanceolate-haſtate.
[32. Rumex aculeatus. *Prickly Dock,* or *Candia Sorrel.*
Lin. ſpec. 482. *Reich.* 2. 124. *Willd.* 2. 261.
A. cretica, femine aculeato. *Baub. pin.* 114. *prodr.* 55. *ic. Park. theat.* 743. *f.* 7. *Raii hiſt.* 181. 15.
Oxalis minor aculeata Candiæ. *Bauh. hiſt.* 2. 991.
Flowers dioecous; fruits reflexed, valves ciliate; leaves lanceolate petioled.
33. Rumex luxurians. *Luxuriant Dock,* or *Buckwheat-leaved Sorrel.*
Lin. ſyſt. 348. *Reich.* 2. 124. *Willd.* 2. 261. *ſuppl.* 212. *mant.* 64.
Acetoſa fagopyri folio. *Bocc. muſ.* 165. *t.* 126.
Flowers dioecous; outer valves awl-ſhaped, inner orbicular; leaves cordate-haſtate, ſtems angular diffuſed.
34. Rumex arifolius. *Halbert-leaved Dock.*
Lin. ſyſt. 347. *Willd.* 2. 262. *ſuppl.* 212. *Ait. kew.* 1. 427.
R. abyſſinicus. *Jacqu. hort.* 3. 48. *t.* 98.
Flowers dioecous; with the leaves petioled haſtate, with ſimple divaricate barbels, ſtem upright.
35. Rumex bipinnatus. *Bipinnate-leaved Dock.*
Lin. ſyſt. 348. *Willd.* 2. 262. *ſuppl.* 211.
Flowers dioecous, leaves bipinnate.
36. Rumex hoſtilis.
Lour. cochinch. 217. *ed. Willd.* 269.
Flowers dioecous, valves naked, ſtem prickly.]

DESCRIPTIONS, *&c.*

1. Patience Dock has a large root, dividing into many thick fibres, which run downwards; the bark is brown, but the inſide is yellow, with ſome reddiſh veins. Leaves broad, long, acute-pointed, on petioles of a reddiſh colour. Stems from four to ſix feet high, dividing towards the top into ſeveral ereſt branches, having a few narrow leaves on them, and terminated by ſpikes of large flowers, which appear in june.

[The ſeminal leaves are ſagittate, like the leaves of *R. Acetoſa* or Sorrel. The ſtem is grooved [a].

Valves of the calyx larger, ovate, netted-veined. Seed ovate-acuminate, very ſharply three-ſided, of a bay colour, and ſhining [b].

Gærtner conſiders what Linneus calls the corolla, as a part of the calyx. According to him therefore, the flowers in this genus have a ſix-leaved calyx, and no corolla. He remarks that the embryo, in this and all the ſpecies is *peripherical,* or placed by the ſide of the albumen.

Native of Italy, Heſſe and ſome other parts of Germany. It was cultivated by Gerarde in 1597 [c], the herb being formerly uſed in the kitchen, by the name of Patience; and alſo in medicine, as Monk's Rhubarb, which is the *R. alpinus.* It is now wholly neglected, and therefore ſeldom ſeen in gardens at preſent.

2. [Root fuſiform. Stem upright, branched, angular, leafy, ſmooth. All the leaves petioled, ſmooth, veined, ſomewhat curled about the edge: the root-leaves very large, cordate at the baſe. Racemes terminating, ſpreading, almoſt leafleſs; with the flowers in alternate bundles, pedicelled, nodding. Calyx quite entire. Petals oblong, quite entire, permanent, and conſtituting the valves which embrace the ſeed: one of them, and ſometimes all, becoming graniferous. Seed ſmall, ſharply three-ſided. The veins and petioles of the leaf abound in a blood-coloured juice [d].

According to Gærtner, the valves of the calyx (corolla) when ripe are ferruginous, ovate, quite entire, ſmall, all graniferous, or only two, or even but one; one grain however is conſtantly larger than the reſt, and reddiſh-brown. The ſeed is ſmall, brown, and ſhining. The embryo is lateral, but ſcarcely curved in a very ſlight degree.

Gerarde ſays it was ſown in his time for a pot-herb in moſt gardens.—It is ſaid by Linneus to be a native of Virginia; whence it migrated to England, and was firſt obſerved by Merret, in woody places about Hampſtead.

It has been ſince found by Mr. Hudſon about Maidſtone; by Dr. Sibthorp, on Headington-hill, near Oxford; by Dr. Smith, at Loweſtoft in Suffolk, and about Briſtol; near Harefield in Middleſex, by Mr. Blackſtone.

β. The green-veined Dock, ſo frequent in ſhady places, differs in no reſpect from the blood-wort, except in the colour of its veins.

Mr. Curtis and Dr. Withering have confounded this variety with the true *R. acutus* of Linneus.

3. Found at the Cape of Good Hope by Thunberg.

4. Leaves long, narrow, ſharp. Flowers heaped in whorls at the joints.—Native of Virginia [e].

[a] Linn. ſyſt. [b] Gærtner. [c] Hort. kew. [d] Smith. [e] Gronovius.

5. In

5. In the preceding the cylindrical membranaceous ſtipule ſheaths the ſtem half way between the joints: it is not ſo in this, but as in the European ſpecies. The pedicels in the former are thicker, in this capillary. That has the flowers more in a ſpike; this has them rather in a panicle. Gronovius's ſpecimen was not red either in the ſtem or ribs[a].

The root is black or yellow on the outſide and ſaffron-coloured within. Leaves long, wide, ſcarcely acuminate. All the calycine leaflets equal[b].—Native of Virginia.

6. Curled Dock has a fuſiform yellow root. Stem angular, grooved, ſmoothiſh. Leaves waved and curled about the edge: thoſe on the ſtem almoſt linear and ſubſeſſile. Racemes not very ſpreading, but cloſe and thick together, ſomewhat leafy towards the baſe. Valves of the fruit ovate, ſubcordate, netted-veined, entire, ſubrepand but not toothed, all graniferous: the grain or bead very large, ovate, gibbous, red. Seed larger than in the ſanguineus[i].

According to Dr. Stokes, the grains, or beads as he calls them, are one or three, rarely two. Dr. Withering adds, that they are pale when young, changing to blood-red and then to brown-red; and that the valves are large, brown-red when ripe.

Mr. Woodward remarks, that the curled Dock is the peſt of Clover fields in Norfolk. Mr. Curtis has ſeen ſome in which it formed nearly half the crop.

The freſh roots bruiſed and made into an ointment or decoction cure the itch. The ſeeds have been given with advantage in the dyſentery[k].

Native of Europe, Siberia, Cochinchina, &c. in almoſt every ſoil and ſituation; as in wet meadows, by the ſides of roads, and in cultivated ground, into which it is generally introduced with dung. It flowers from june to auguſt.

The yellow root, waved leaves, and large ſeed-coverings, diſtinguiſh this ſpecies[l].

7. This is an annual plant, a ſpan high, and very much branched. Leaves petioled, even, waved, entire. The valves of the flower have three long teeth on each ſide, all covered with large pale grains.

Native of Virginia[m]. Introduced in 1773, by Chevalier Murray[n].]

8. This alſo is an annual plant, about ten inches high, ſending out a few horizontal branches towards the bottom; the leaves are about two inches long, and half an inch broad at the wideſt part. The flowers grow in whorls round the ſtalks, are very ſmall, and the hair-like beards which adhere to the covering of the ſeed, being long, obſcure the flowers, ſo that they are ſcarcely viſible to the naked eye. It grows naturally in Egypt; [and was cultivated in 1739, by Mr. Miller[o].

9. Root annual. Stem almoſt upright, a ſpan high, roundiſh, branched at the baſe. Leaves petioled, oblique. Flowers cluſtered, lateral. Calyx ſpreading. The valves of the flower all have a white ovate grain, and on each ſide two lanceolate teeth at the edge, by no means longer than the valve or briſtle-ſhaped.

Native of Egypt[p]. Cultivated in 1732, by James Sherard, M. D. at Eltham[q].

10. Root perennial. Stem angular, grooved, ſmooth, rather flexuoſe. Leaves narrow, petioled, repand. Racemes from divaricate aſcending, elongated. Flowers half-whorled, numerous, cloſe, nodding; each whorl in general ſupported by a petioled ſpreading leaflet. Valves lanceolate-oblong, entire, but ſometimes toothed at the baſe, all loaded with a very large, gibbous, red grain. Seeds ſmall. Flowers male, female and hermaphrodite; ſome of the males having twelve ſtamens[r].

Stem upright, branched. Branches upright. Leaves ſmooth, veined and keeled underneath. Petioles ſtriated, half-embracing. Stipules membranaceous, within the petioles and without the peduncles. Valve ſerrate at the lower part, oblong, bluntiſh, one graniferous[s].

[a] Linn. ſpec. [b] Withering. [c] Hort. kew. [d] Gronov. and Colden. [e] Curtis. [f] Idem. [g] Hort. kew. [h] Smith. [i] Smith. [k] Lyons M.S. in Relh. cant. [l] Linn. ſpec. [m] Linn. mant.

Native of Europe, in woods, hedges, by road ſides, in watery places and marſhes.

Dr. Withering, in the ſecond edition of his Arrangement, ſuſpected his R. paludoſus to be a variety of R. criſpus; but in his third edition he rather ſuppoſed it to be R. acutus, grown to a more than ordinary ſize. The valves, he ſays, are entire, all of them beaded, but in its younger flowering ſtate, the bead appears only upon one or two of them. They have not the ſtrongly-veined texture of R. criſpus. In the ſmallneſs of the flowers, the diſtance of the whorls, and the poſition of the floral leaves it agrees with R. acutus.

β. This variety is more twiſted, the whorls are more frequent and denſer, the leaflets under the whorls ſhorter. It is common in moiſt places[t].

11. The root of the common broad-leaved or bluntleaved Dock runs deeply and ſtraightly into the earth, tapering, the thickneſs of the middle finger, on the outſide of a dirty brown colour, within yelloviſh: in young plants it is ſimple, in old ones divided into many branches. Stem three feet high, upright, branched to the bottom, round, ſmooth except towards the top, where it is ſlightly rugged, (with ſhort white tranſparent briſtles, *With.*) grooved, ſolid; jointed; the joints covered with obſolete withered ſtipules. Root-leaves very large, blunt, veiny underneath, the midrib often very red and downy. Stem-leaves ovate-lanceolate, pointed, ſomewhat waved, all petioled. Dr. Withering remarks, that the petioles are ſhorter than the breadth of the leaves. Racemes nearly upright, furniſhed with few leaves. Flowers in half-whorls, on capillary pedunces, ſprinkled near the top with white ſhining globules; and the pedicels ſurrounded near the baſe by an indiſtinct cartilaginous ring. Calyx-leaves boat-ſhaped, nearly as long as the petals; which are ovate, bluntiſh, ſpreading, membranous at the edges: theſe are permanent, cloſe and contain the ſeed. They are then called valves, are toothed on one edge, and one of them bears a granule. According to Dr. Smith, they are large, cordate, veined, and have awl-ſhaped teeth: the granule on the outer valve is chiefly conſpicuous, linear-oblong, and ſmall in proportion to the valves. The ſeed is larger than in the preceding ſpecies. Dr. Withering ſays, that the valves are not very evidently toothed, that the valve with the largeſt grain is outermoſt when the fruit-ſtalk bends downwards, and has the longeſt teeth; but that none of the teeth are equal in length to the diameter of the valve[u].

Native of Europe, in all ſorts of cultivated ground, among rubbiſh, in farm-yards, courts, by the ſides of ditches and paths: flowering in july and auguſt.

This Dock is ſubject to as little variety as any of the ſpecies; its broad root-leaves readily diſtinguiſh it, and theſe, though they may differ ſomewhat in ſize, vary little in ſhape: in general, the younger the plant, the more obtuſe are its radical leaves.

Of all our Engliſh Docks, this is one of the moſt common, and may be conſidered as a very pernicious weed, being very large and ſpreading, and refuſed by cattle in general[x].

Dr. Withering remarks, that fallow deer eat both this and the R. acutus with avidity, biting it cloſe to the root, ſo that it is very rare to ſee a Dock growing in a park. Dr. Stokes informs us, that the root of R. acutus is uſed by the dyers; and that it gives a great variety of ſhades, from ſtraw-colour to a pretty fine olive, and a good deep-green to cloths which have been previouſly blued. The roots of this and other ſpecies of Dock would probably anſwer the ſame purpoſe.]

Mr. Miller ſays, that the leaves were formerly much uſed for wrapping up butter; and that hence this ſpecies was commonly known by the name of Butter Dock.

12. [Stem almoſt procumbent, much branched. Branches alternate, elongated, bent back, angular, ſmooth, having a linear-lanceolate leaflet under each.

[t] Dillen. in Raii ſyn. [u] Curtis, Smith, Withering. [x] Curtis.

Root-

Root-leaves blunt, ſinuated in the middle on both ſides, ſo as to reſemble the body of a violin: ſtem-leaves ſmall, oblong, entire. Racemes leafy. Valves deltoid, toothed, netted-veined, one more evidently graniferous than the reſt[f].

Rumex divaricatus of Linneus, figured by Tilli, *t.* 3. *f.* 2. and found in Italy, is in all probability not different from this. Willich having obſerved, that the ſeeds of Tilli's plant, the firſt year, had leaves that were not ſinuated; but that the ſecond, they were panduriform or viol-ſhaped[g].

13. Root perennial, conſiſting of twiſted fibres, as in many water plants. Stem angular, grooved, ſubflexuoſe, ſomewhat rugged, often red. Leaves, linear, entire, bluntiſh, flat, not waved. Racemes leafy. Whorls cloſely cluſtered, of a golden colour. All the valves have an oblong granule, with about four briſtle-ſhaped teeth on each ſide, longer than the valve[h].

Mr. Woodward remarks, that the ſtems are very leafy; Dr. Withering, that the leaves are flat and ſmooth; the four teeth of the valves like the fingers ſpread out, and the whorls of flowers golden yellow, ſo cloſely crowded together as to aſſume the appearance of leafy ſpikes:—Ray, that the ſeeds are very ſmall, lighter-coloured than in the other ſpecies, and that the leaves are paler and narrower. In the Syſtema vegetabilium the root is ſaid to be red.

Native of ſeveral parts of Europe, in marſhes, eſpecially on the ſea coaſt: but ſometimes found far inland, as at Goldington in Bedfordſhire, by Mr. Abbot.

14. Root tapering, reddiſh brown on the outſide, bright red within. Stem from two to three feet high, branched, of a reddiſh colour, grooved and ſomewhat rugged. Root-leaves very large, on long foot-ſtalks, oblong-lanceolate, a little narrowed at the baſe, blueiſh green, flattiſh, but ſlightly waved and notched on the edge: the upper leaves linear-lanceolate, almoſt veinleſs above, uſually curved upwards. Flowers moſtly yellow, placed round the ſtem in numerous thick whorls[i], which are diſtinct or even remote, and have a leaf at the baſe of each. Valves lanceolate, three-toothed at the baſe on each ſide with ſetaceous teeth, and much ſhorter than in the preceding ſpecies. Diſtinguiſhed from the preceding by its more ſlender growth, diſtant whorls, leſs golden hue, and eſpecially by the ſhortneſs of the teeth in the valves[k].

The moſt ſtriking character of the Marſh Dock, when in flower or ſeed, is the number and narrowneſs of the leaves on its branches; when viewed more cloſely, we are ſtruck with the number and length of the teeth on the edges of the ſeed-valves, which valves are frequently though not always of a yelloviſh colour, and furniſhed with remarkably large and long grains: if any doubt remain reſpecting the ſpecies, the root on being cut acroſs exhibits a beautiful red colour equal to any carmine.

Its natural ſituation is a moiſt one; as on the edges of wet ditches and rivulets, but it is not unfrequent in paſtures or drier ground. In the former it will grow to the height of three or four feet, having root-leaves a foot long and three inches broad: in the latter it ſeldom grows more than a foot high, with root-leaves about ſix inches long, and one inch or ſomewhat more broad[l].

Common about London. Obſerved in Tothill-fields by Plukenet, and in St. George's-fields by Curtis. Mr. Pitchford found it by Acle dam, Norfolk, and it grows probably in many parts of England.

It flowers in july, auguſt and ſeptember, and is one of the ſpecies leaſt noxious to the farmer. The roots are ſaid to be frequently ſold for thoſe of R. acutus[m].

Mr. Curtis ſays that he remembers once to have ſeen the leaves with red veins like thoſe of the bloody Dock: but that is not uncommon in other ſpecies growing on a dry ſoil, when in their advanced ſtate.]

15. The great Water Dock has large roots which ſtrike deep in the mud, and ſend out leaves three feet long, and four inches broad in the middle. The ſtalks riſe four feet, when the plant grows in water, but in dry land not more than two: theſe have narrow leaves among the ſpikes of flowers to the top. The flowers ſtand upon ſlender peduncles which are reflexed; they are of an herbaceous colour, and appear in june, (rather july and auguſt.) The ſeeds ripen in autumn.

[Root thick. Stem five feet high, ſtraight, grooved, ſmooth. Leaves ſomewhat glaucous, lanceolate, acute; the lower ones cordate at the baſe. Whorls approximating. Pedicels capillary, thickening at the top, nodding. Valves large, veined, ſometimes but rarely toothed a little, all having a ſmall linear granule, frequently obſolete. Seed large[f].

Root white within, black without. Leaves even at the baſe, a little toothed and waved at the edge. Petioles ſemicylindrical, thoſe of the lower leaves ſometimes fifteen inches long. Peduncles encompaſſed a little below the middle with an indiſtinct ring, in half whorls, from the alternate ſides of the ſtem and branches, ſurrounded by a ſkinny ſheath. Valves very ſlightly toothed, eſpecially towards the baſe, the teeth becoming more and more evident as the ſeed ripens. Beads or granules greeniſh-white or purpliſh[g].

Native of Europe, in ditches, pools and on the banks of ſtreams.—Called *Candocks* in Walton's Angler.

Several of the Docks had formerly ſome repute in medicine. The leaves, which manifeſt conſiderable acidity, are ſaid to poſſeſs a laxative quality, and have therefore been uſed to obviate coſtiveneſs. R. Patientia is highly ſpoken of by Allioni as ſerving this purpoſe. The roots are ſtrongly aſtringent; and thoſe of the Water Dock have been much employed both externally and internally for the cure of ſcurvy, eſpecially when the gums are ſpongy and bleed. It is alſo recommended in various cutaneous eruptions, and in viſceral obſtructions. But many phyſicians ſtill think this root does not peculiarly differ from other aſtringents, and place no faith in the great virtues aſcribed to it by Muntingius and Sir John Hill[h].

It is regarded however by Dr. Withering as a medicine of conſiderable efficacy, both externally applied as a waſh for putrid ſpongy gums, and internally in ſome ſpecies of ſcurvy. In rheumatic pains, and chronical diſeaſes, owing to obſtructed viſcera, it is ſaid to be uſeful. The powdered root is ſaid by Chevalier Murray to be one of the beſt things for cleaning the teeth.]

15. This is a low annual plant, with ſlender ſtalks, branching at the bottom, and about four inches high, the lower part having ſmall ovate ſucculent leaves; the upper part has ſmall herbaceous flowers growing in whorls, without any leaves between them. The ſeeds are ſmall, with ſharply indented reflexed covers.

[Root conical, yellow, fibrous. Stems a foot high, upright, ſlender, ſmooth. Leaves alternate, ſmooth or very ſlightly pubeſcent, quite entire; the lower ones ovate and blunt, the upper ones narrow-lanceolate or linear. Stipules very thin, large, white, ſhining, acute. Flowers in ſpikes, three together, nodding; on compreſſed pedicels, thickening gradually from the baſe to the end. Calyx-leaves ovate, reflexed. Petals toothed, nearly equal to the calyx, red[i]. The peduncle becomes thick, compreſſed, recurved, and half-channelled, when the calyx is mature. Outer valves very ſmall, reflexed, preſſed cloſe to the peduncle: inner valves much larger, briſtle-toothed, and having a flattiſh reverſed gland at the baſe. Seed ſmall, bay, ſhining[k].]

Native of Spain and Italy on moiſt ſwampy ground. [Found by Cavanilles in dry places near Mentrida, and on the heights of San Bernardino near Madrid; flowering in june: By Desfontaines on mount Atlas, and in corn fields of Barbary.—Cultivated in 1683, by Mr. James Sutherland[l].]

17. The Sorrel-tree riſes with a woody ſtalk ten or twelve feet high, covered with a ſmooth brown bark, and ſending out many branches. Leaves ſmooth, roundiſh-heart-ſhaped, two inches long, and an inch

[f] Smith. [g] Haller. [h] Smith. [i] Curtis.
[k] Smith. [l] Curtis. [m] Idem.

[f] Smith. [g] Withering. [h] Woodville.
[i] Cavanilles and Desfontaines. [k] Gærtner.
[l] Hort. kew.

and half broad, alternate upon pretty long foot-ſtalks. The flowers come out in looſe panicles towards the end of the branches: they are of an herbaceous colour, and are ſometimes ſucceeded by triangular ſeeds with ſmooth covers; but the ſeeds rarely ripen in England.

The flowers are three-parted, not ſix-parted; and in a panicle oppoſite to a leaf [m].

Native of the Canary Iſlands. Cultivated here in 1698, by the Dutcheſs of Beaufort [n].]

18. This is an annual plant, with pretty thick ſucculent ſtalks a foot high, and dividing into many branches. Leaves round-heart-ſhaped, on very long foot-ſtalks. The flowers grow in looſe ſpikes at the end of the branches: they are herbaceous. The ſeeds have large inflated covers, with broad membranaceous borders.

[Native of Africa. Cultivated in 1656, by Mr. John Tradeſcant, junior [o].]

19. This is an annual plant, riſing a foot and half high, and dividing at top into ſeveral branches. Leaves arrow-pointed, about three inches long, the ſides of which are irregularly torn, as if they had been gnawed by inſects; they ſtand upon pretty long foot-ſtalks, and have ſmooth ſurfaces. The flowers are diſpoſed in looſe ſpikes; ſome of which have only male flowers, and others hermaphrodite. Some plants alſo have only male, and others hermaphrodite flowers. The ſeeds are incloſed in large inflated covers of a deep red colour, having membranaceous borders.

[Stem branched, ſtriated, erect, ſmooth. Leaves cordate, blunt, petioled, fleſhy, glaucous, with lucid ſpots ſcattered over them, often curled and gnawn at the edge. Stipules large, membranaceous, white, very thin. Flowers nodding, ſolitary or in pairs, panicled. Pedicels capillary. Inner valves very large, cordate, obtuſe, variegated with purple veins [p]: they are orbicular, an inch in diameter, netted, toothletted at the tip, and biſid at the baſe; which is not the caſe in R. tingitanus [q].

Native of Egypt and Barbary, in corn fields. Cultivated in 1739, by Mr. Miller [r].

20. Root perennial. Stems branched, ſtriated, procumbent. Leaves ſtiffiſh, haſtate, truncate at the baſe, unequally gnawn at the edge, often viol-ſhaped; on a petiole ſhorter by half than the leaf. Flowers in cluſtered whorls, nodding. Valves netted with purple veins [s].

Leaves ovate, acuminate, ſomewhat rugged, ſubhaſtate at the baſe and gnawn there, very rugged and generally unequal at the edge. Racemes long, with five or three flowers at each tooth of the raceme [t].

Native of Spain and Barbary: found in fields near the ſea ſhore of the latter by Deſfontaines; in the former by Aliſtroemer.—Cultivated in 1680, by Robert Moriſon, M. D. [u] to whom it was ſent from the neighbourhood of Algiers by Alexander Balam.

21. Root of French Sorrel hard, fibrous, perennial. Stem from a foot to eighteen inches in height, very ſlightly angular, glaucous, ſmooth, dividing into alternate ſpreading branches. Leaves cordate or haſtate, glaucous, ſmooth, ſoft, fleſhy, blunt, entire, an inch and half in length and breadth, on petioles two or three inches long, channelled within. Flowers in a ſort of whorls, forming all together ſpike-ſhaped racemes, nodding and coming out three or four together on capillary pedicels from a white ſheathlet. Valves ſubcordate, large, bright roſe-colour [x], entire, without any grains [y].

Native of Germany, Switzerland, Italy, the South of France and Barbary.—Cultivated here in 1633 [z].]

The round-leaved or French Sorrel is a more grateful acid than common Sorrel, and is therefore preferred for kitchen uſe, in ſoups, &c. for which it is much cultivated by the French.

[22. Stem ſuffruticoſe. Branches round, ſtriated: internodes brown at the top, an inch long. Leaves acute, quite entire, very ſmooth, thick, veinleſs, glaucous, an inch long and more, on petioles the length of the leaves; the upper ones lanceolate. Stipules membranaceous, ſheathing, truncate. Panicle terminating. Pedicels capillary, thickened under the flower, longer than the fruit. Calyx reflexed. Valves orbicular, ſmooth, quite entire, naked [a].

Mountain Sorrel has almoſt all the leaves radical, on long petioles, kidney-ſhaped, emarginate, repand, veined, pale green. Stem naked or nearly ſo, a ſpan high, panicled. Pedicels in bundles, capillary. Valves roundiſh or ovate, emarginate, quite entire, tinged with red, without any rudiments of granules [b]. Flower four-cleft, the calyx being two-cleft, and the corolla two-petalled. Stamens ſix. Styles two [c]. Stigmas pencilled [d].

When the calyx is mature, according to Gærtner, the four leaflets are unequal, free, reflex; two larger, rounded, erect, growing cloſe to the ſeed, form a wide membranaceous margin about it. Seed ovate-acuminate, compreſſed, with a longitudinal ridge along the middle on both ſides, and of a ruſty red colour. Albumen ſhorter than the embryo, mealy, two-parted. Embryo placed in the axis of the ſeed, dividing the albumen.

Gærtner would ſeparate this from the other ſpecies, and approves of Hill's having given it the diſtinct name of *Oxyria*, in the tenth volume of his Vegetable Syſtem.

Native of the mountains of Lapland, England, Wales, Scotland, Switzerland, Sileſia, Dauphiné, Piedmont, Siberia.—Obſerved by Lawſon and Ray in Weſtmoreland and Cumberland. In Longleſdale near Buckbarrow-well, and all along the rivulet, by Mr. John Fitz-Roberts, and Mr. John Watts, apothecary in London. Mr. Miller obſerved it growing in great plenty in Yorkſhire and Weſtmoreland: Mr. Baker on walls at Tortworth: Mr. Robſon, about Keſwick. Mr. Lhwyd found it on Snowdon above Llandberis, and on Cader-Idris above Lliny-cau lake. Mr. Lightfoot, on rocks by the ſides of rivulets which run down from the highland mountains of Scotland, and in the iſlands of Rum and Skye.

24. Found at the Cape of Good Hope by Thunberg.

25. Alpine Dock, vulgarly called Monk's Rhubarb, from its having been uſed formerly for the ſame purpoſes as the true Rhubarb, has a very large perennial or biennial root, three or four inches in thickneſs, branched, woody, yellow within, running horizontally. Stem thick, ſtriated, branched, jointed: at the joints, and at the baſe of the branches and petioles are very large, membranaceous, blunt, white, tender ſheaths. Leaves at bottom large like thoſe of Rhubarb, roundiſh or ovate, blunt, very wide, wrinkled, emarginate in form of a half moon next the petiole, which is very long, thick and channelled. Stem-leaves lanceolate; all are plaited along the edge. Flowers very abundant and cloſe in long panicles. Valves large, veined, entire; but ſometimes having a tooth or two [e]. Haller obſerved male and female flowers in the ſame panicle. Its round nervoſe leaves, cordate at the baſe; its thick low ſtems; and its polygamous flowers, are characters ſufficiently diſtinctive of this ſpecies. It has the air, ſtature and ſize of Rhubarb, with nearly the ſame qualities in a leſs degree: a double doſe at leaſt muſt be taken to produce the ſame effect [f].

Native of France, Switzerland, Sileſia, Piedmont, Siberia. It was cultivated here in 1597, as appears from Gerarde's herbal [g]. Myſelf and others, ſays Gerarde, have them (this and the Patience Dock) growing for our uſe in phyſick and ſurgery.

The root of Baſtard Rhubarb, (which is his name for Alpine Dock) purgeth after the ſame manner as the Rha of Barbary, but muſt be taken in greater quantity, as witneſſeth that famous learned phyſician now living, Mr. Dr. Bright, and others who have experimented the ſame.

26. Calyx of the male flowers has the leaflets ovate, blunt, not reflexed but ſpreading. Petals a little leſs

[m] Linn. ſpec. and ſyſt. [n] Hort. kew. [o] Idem.
[p] Deſfontaines. [q] Linn. ſpec. [r] Hort. kew.
[s] Deſfontaines. [t] Linn. ſpec. [u] Hort. kew.
[x] Deſfontaines and Pollich. [y] Kreocker.
[z] Hort. kew.

[a] Vahl. [b] Smith. [c] Linn. ſpec.
[d] Smith. [e] Kreocker and Haller. [f] Villars.
[g] Hort. kew.

than the calyx, one or two ſometimes wanting. The female flowers have the calyx preſſed cloſe to the germ; with leaflets keeled, acute, from upright ſpreading. The petals are much ſmaller than in the male flower. Stigmas very ſmall. Calyx and corolla both permanent and thickened to incloſe the ſeed. The calyx-leaves, when mature, have pungent ſpines[h]; whence the trivial name.

Female involucre ſuberoſe, one-leafed, pyramidal, excavated like a net, armed with three reflex pungent ſpines at the top. Seed ovate-acuminate, three-ſided above, rounded below, and having a wide umbilical ſcar at the baſe, yellow, ſhining. Albumen mealy, central. Embryo linear, white, circumferential, girting the whole albumen like a ring. Cotyledons very long, flat, incumbent. Radicle ſubcylindrical, ſhort, ſuperior[i].

It is an annual plant, native of the iſland of Candia or Crete. Cultivated in the Edinburgh garden in 1683[k].

27. This is ſo nearly allied to R. Acetoſa, that it ſeems as if it were a mule plant derived from that: but the leaves gape more behind with hooks, and the ſtipules are longer. The root reſembles altogether that of Spiræa Filipendula. Stem upright, ſimple[l].

Native of Italy. Cultivated in 1748, by Mr. Miller[m].

28. Native of the mountains of Calabria, Tuſcany and the Levant.

29. Stem ſimple, upright, ſtriated. Leaves curled and waved, often toothed about the edge; the lower ones petioled and blunt; the middle and upper ones embracing the ſtem. It is allied to R. Acetoſa; but differs in having an upright denſe thyrſe-like panicle, and the calycine valves twice as large, and of a bright roſe colour. Perhaps it may be a variety.

Native of Barbary, in uncultivated fields[n].

30. Root perennial, running deep into the earth. Stem moſtly ſimple, erect, round, deeply ſtriated, leafy, from one to two feet high. The radical and lower ſtem-leaves on long foot-ſtalks, with a membranous cylindrical ſheathing ſtipule embracing the ſtem and torn at the top; theſe leaves are arrow-ſhaped, blunt, entire or but little waved in their ſides, but at the baſe cut into two or three large ſharpiſh teeth pointing backwards, and not, as in ſome of the ſpecies, divaricated into a right angle with the outline of the leaf. Upper leaves ſeſſile, gradually more entire, embracing, acute, a little rolled back; thoſe at the top of the ſtem only ſlightly criſped at their baſe. A compound ſort of whorled ſpike or branched panicle terminates the ſtem; its branches alternate and nearly erect. The barren flowers are on a ſeparate plant from the fertile ones: calyx and corolla ſmall, nearly ſimilar in both. Stamens very ſhort, with large yellow anthers. Styles ſhort, with large crimſon bearded ſtigmas. Valves ovate entire graniferous[o].

The root of common Sorrel is aſtringent, like moſt of this genus. The whole herb is acid, with a degree of aſtringency, not unpleaſant or unwholeſome. Taken in conſiderable quantity, it is ſaid to be of important advantage, where a refrigerant and antiſcorbutic regimen is required: its effects will be the ſame as thoſe of Oxalis or Wood Sorrel, before recited.

The leaves are eaten in ſauces and ſalads. The Laplanders uſe them to turn their milk ſour. In France Sorrel is cultivated for the uſe of the table, being introduced in ſoups, ragouts, fricaſees, &c. In ſome parts of Ireland they eat the leaves plentifully with milk, alſo with fiſh, and other alcaleſcent food. The dried root gives out a beautiful red colour when boiled. All domeſtic cattle will eat the plant[p].

Sorrel is common in meadows and paſtures, through the greater part of Europe, in almoſt all ſoils and ſituations; flowering early in June.

β. Great Mountain Sorrel, which Haller conſiders as a ſpecies diſtinct from the common one, has according to him a woody round thick capillated root. Leaves flat, not waved; the lower ones petioled, bluntly ſagittate; the ſtem-leaves ſeſſile, embracing, about the petiole ſometimes not cut but ſtretched right out, ſometimes emarginate but not deeply: the edges flat, not wrinkled or plaited, with ſhort hooks. Sheaths truncate, white. Flowering-branches, as in the other, naked, branched. In a garden, it grows bigger, but preſerves its difference.

Native of the Alps; and found by Mr. Lhwyd near Harlech in Merionethſhire.

31. Sheep's Sorrel is leſs by half than the Common Sorrel. Root creeping, perennial. Leaves lanceolate; the lower haſtate, thoſe on the ſtem often entire. Racemes panicled. Flowers half-whorled. Valves ovate, entire, without any grains[q]. Dr. Withering remarks, that the lobes at the baſe of the leaves point upwards or horizontally, whereas in the preceding ſpecies they always point backwards: and that it is ſubject to ſome ſlight variations in the ſhape of the leaves, as repreſented in Ger. 321. 6 and 7. and Ger. emac. 398. 6.

Native of Europe, in dry, gravelly and ſandy paſtures, banks and fallows, gravel walks, where charcoal is burnt, &c. Haller obſerves, that it aſcends into the high Alps, and then becomes very ſmall.

32. This reſembles the preceding, but the leaves are attenuated at the baſe, without hooks. The inner valves of the female flowers are ciliate with very ſmall prickles.

Native of the iſland of Crete or Candia, and of Spain[r].

33. This has a tuberous root like that of S. Filipendula. Stems (in a garden) from a foot to eighteen inches in height, proſtrate, copious, branched, five-cornered, ſtriated. Leaves longer than thoſe of R. Acetoſa; of the ſame form with thoſe of the common Arum, extremely acid, purpliſh about the edge, and waved, but ſcarcely crenulate. It differs from R. ſcutatus, in having the ſtem angular, not round; and the leaves cordate-haſtate, not lanceolate-ſagittate[s].

The ſtem is very much branched, a foot high, angular, even, diffuſed. Leaves alternate, petioled, acuminate. Bractes intrafoliaceous, ferruginous. Panicle very large, divaricating, decompounded of alternate racemes. Pedicels capillaceous, the length of the fruit.—Native of the Cape[t].

Willdenow thinks it probable that R. ſpinoſus of Thunberg's prodromus may belong to this ſpecies.

Native of the mountains about Bologna.

34. Stems round ſiſtular very ſmooth glaucous little branched. Leaves on long petioles triangular cordate at the baſe and ſubhaſtate ſerrulate acute ſeven-nerved veined very ſmooth. Stipules ſheathing lanceolate ſmooth oppoſite to a leaf membranaceous. Panicles terminating. Seeds with cordate very ſmooth naked entire valves, with the calyx reflexed. Cultivated in the open ground it becomes near a fathom in height, with leaves of the ſame ſize as in R. alpinus; but in a pot it is contracted and ſhrubby[u].

Native of Africa. James Bruce, Eſq. Introduced in 1775[v].

Dr. Smith remarks, that R. arifolius of Linneus's Supplement is more certainly a native of the Alps than of Abyſſinia. He found it on Mount Cenis, in the paſtures ſurrounding the lake, below the remarkable white limeſtone rocks, before the poſt-houſe[w].

35. Root perennial. Stems a ſpan high, aſcending, even. Leaves cordate, bipinnatifid, with the ſegments diſtinct almoſt to the midrib, each pinnate or dichotomous. Stipules membranaceous diaphanous white. Raceme terminating compound, with the racemelets ſimple. Calyx blunt.—Native of Morocco[x].

36. Stems three feet high, upright, round. Leaves lanceolate, quite entire, flat, ſpreading. Flowers in ſpikes: all the valves naked, quite entire, ſmooth, unarmed.—Native of Cochinchina[y].]

PROPAGATION AND CULTURE.

All the Docks riſe eaſily from ſeeds, and if introduced into a garden, will become troubleſome weeds,

[h] Willich. [i] Gærtner. [k] Hort. kew.
[l] Linn. ſpec. and ſyſt. [m] Hort. kew. [n] Deſfontaines.
[o] Smith. [p] Withering and Woodville.
[q] Smith. [r] Linn. ſpec. [s] Linn. mant.
[t] Linn. ſuppl. [u] Idem. [v] Hort. kew.
[w] Travels, 3. 136. [x] Linn. ſuppl. [y] Loureiro.

if

if their ſeeds be permitted to ſcatter; therefore few perſons care to propagate any of them, except for their uſe in medicine or the kitchen. The ſeeds ſhould be ſown in autumn ſoon after they are ripe. When the plants come up, thin them and keep them clean. They all delight in a moiſt rich ſoil.

16. 18. 19. Grow freely from ſeed, ſown in a bed of light earth in the ſpring, where the plants are deſigned to remain. Thin them and keep them clean.

17. The tree Sorrel is eaſily propagated by cuttings, planted during any of the ſummer months in a bed of loamy earth, and ſhaded from the ſun until they have taken root. Then take them up, and plant them in pots filled with kitchen-garden earth, placing them in the ſhade till they have taken new root; after which move them to a ſheltered ſituation, with other hardy green-houſe plants till autumn, when they muſt be removed into the green-houſe, and treated in the ſame way as other plants which only want protection from froſt.

30. Common or Meadow Sorrel is commonly cultivated in gardens, and though ſmall in the field, yet in a garden will produce fair large leaves. Sow it early in the ſpring in a ſhady moiſt border; and if the plants be afterwards removed into another ſhady border, at the diſtance of four or ſix inches ſquare, they will produce larger leaves, and continue longer.

21. Round-leaved or French Sorrel is a great runner at the root, by which means it is eaſily propagated. The roots ſhould be planted at the diſtance of two feet ſquare at leaſt. It will agree better with an open ſituation than the common ſort. If the flower-ſtems and rambling branches be cut off in the beginning of july, the roots will ſoon put out new leaves, which will be tender and much better for kitchen uſe than the older leaves; ſo that by cutting down the ſhoots of ſome plants at different times, there will always be a ſupply of young leaves.

23. As this ſort grows naturally in ſhady moiſt places, it muſt be planted on a north border in a moiſt ſoil.

25. Alpine Sorrel is full as hardy as the common ſort. The leaves having as pleaſant an acid taſte as that, being larger and more ſucculent, are better than that for kitchen uſe. This may be increaſed by ſeeds, or by parting the roots. The plants ought to be at leaſt a foot diſtant from each other, eſpecially in good ground.

[*Deſtruction of Docks.*

Mr. Curtis affirms it to be a falſe notion, that whilſt any part of a Dock-root remains, the plant will grow again; that the uſe of the Docking-iron therefore is not neceſſary, but that frequent mowing muſt certainly deſtroys it, and frequent ſpudding would probably have the ſame effect; though unleſs it be done carefully and at ſtated periods, little good is to be expected.

I do not deny that frequent mowing and ſpudding may in the end deſtroy Docks; at leaſt it will prevent one great evil, by keeping them from ſeeding. But I am certain that pulling up the young plants by hand after a ground rain, and uſing the docking-iron for old plants, or ſuch as having been mowed or ſpudded will not come up by hand, is a remedy far more effectual; and I believe upon the whole not more expenſive.

It has been mentioned before, that fallow deer keep down Docks, by biting them cloſe to the root. Mr. Marſhall mentions an inſtance of a bed of Docks being deſtroyed by ſwine or by mowing. The fact was, a large patch of Docks, as thick as they could grow upon the ground, was liable to the bite of ſwine, ſome of which will feed on Docks with avidity: what they left was repeatedly mown off, perhaps twice or thrice in a ſummer, for a ſucceſſion of years. At length they vaniſhed as by a charm, and were ſucceeded by a thick ſward of the finer graſſes.

Mr. Marſhall obſerves upon this with his uſual judgement, that perhaps neither the ſwine nor the ſcythe could in ſtrictneſs be ſaid to have killed theſe Docks; for they evidently died of old age. No vegetable is everlaſting; and the age or natural life of perennial herbs has not been attended to. We may however take it for granted, that all plants which propagate their ſpecies by ſeed alone, may be ſubdued by perſevering to prevent their ſeeding. All that we want to know from experience is their ſeveral ages, in order that we may calculate the difference between the expenſe of heading them from time to time, and that of deſtroying them at once by eradication[b].

Mr. Marſhall farther obſerves, that Docks mature their ſeeds quickly and in great abundance, but having no wings to ſcatter them at a diſtance, they fall at the foot of the plant. This renders a creeping root unneceſſary. Nature's chief care ſeems to have been to eſtabliſh the parent plant firmly in the ſoil, and to guard againſt its deſtruction. To this end it is furniſhed with a very ſtrong tap-root; which, if divided below the crown, ſends forth ſapling ſhoots from the part left in the ground, and this from almoſt any depth, provided it have head-room and the ſoil be looſe. The upper part too, if cut a few inches deep, will ſurvive the amputation. Even when inverted by the plough it will recoil, and find its way to the ſurface again.

Hence land much infeſted with Docks ſhould be gone over with the drawing or docking iron ſome time before the plough be put into it, that the tops may be removed, and the rootlets left in the ground may have time to rot before the land be ploughed. With this precaution, and with a perſon to follow the plough with a ſpadelet to grub up the bottoms, and diſengage the tops of ſuch as may have eſcaped the previous weeding, the *roots* of Docks may with great certainty be extirpated.

The *ſeeds* of Docks are to be deſtroyed by the plough, the harrow and the roller; but the intervals between the ploughings ſhould be ſhort, for if they once get themſelves eſtabliſhed in the ſoil, it is, without a favourable ſeaſon, out of the power of tillage to extirpate them.

Docks are ſometimes ſown upon the land with corn, and very frequently with clover. From corn and pulſe the ſeed may be ſeparated by the ſcreen, and ſtill more effectually by the ſieve. But from clover ſeed, the ſeeds of Docks cannot be eaſily ſeparated, being nearly of the ſame ſize and weight. Singular caution therefore ought to be had in purchaſing this ſeed. And the growers of clover ought to be aſſiduous in weeding their ſeed clover from this pernicious weed. To ſuffer a Dock which has ripened its ſeed to be thraſhed with ſeed clover, is a crime, which ought, among farmers, to be deemed unpardonable[c]. I always pull out by hand all the young plants of Dock from crops of Clover, the firſt year, and if neceſſary the ſecond year. It is eaſily done, and at no great expenſe, by women and children, after a day's rain or a heavy ſhower.

RUMEX. See *Begonia.*

RUMPHIA. (*So named by Linnæus, in honour of George Everhard Rumphius, M. D. conſul at Amboina; author of* Herbarium Amboinenſe, 1750, &c. *fol. Died* 1706, *aged* 69.)

Lin. gen. Reich. n. 51. *Schreb. n.* 64. *Juſſ.* 370.
Rumpfia. *Lin. gen. ed.* 6. *n.* 47.
Claſſ. 3. 1. Triandria Monogynia.
Nat. order of *Terebintaceæ*, Juſſ. *Dubii*, Linn.
An *Sapindis*, affinior. Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* one-leafed, trifid, erect, flat.
COR. *Petals* three, oblong, obtuſe, equal.
STAM. *Filaments* three, awl-ſhaped, the length of the corolla. *Anthers* ſmall.
PIST. *Germ* roundiſh. *Style* awl-ſhaped, the length of the ſtamens. *Stigma* three-cornered.
PER. *Drupe* coriaceous, turbinate, three-grooved.
SEED. *Nut* ovate, entire, three-celled.

ESSENTIAL CHARACTER.

Cal. three-cleft. *Pet.* three. *Drupe* three-celled.

[b] Rural economy of Yorkſhire, 2. 12).
[c] Idem, vol. 1. 366 to 369.

SPECIES.

1. Rumphia amboinenſis.
Lin. ſpec. 49. *Reich.* 1. 92. *Willd.* 1. 187.
Myxa pyriformis, oſſiculo triſpermo. *Raii hiſt.* 1556.
Tsjem-Tani. *Rheede mal.* 4. 25. *t.* 11.

DESCRIPTION, *&c.*

This is a lofty tree, with an aſh-coloured bark. Leaves alternate, petioled cordate acute toothletted rugged. Racemes axillary.

Native of the Eaſt Indies [d].

RUPALA. (*If it be derived from ῥοπαλον a club, as one may ſuppoſe from the ſhape of the unexpanded flower, then Schreber's name is right.*)
Vahl, ſymb. 3. 20. *Willd. ſpec.* 1. 536. Roupala. *Aubl. t.* 32. *Lamarck, encycl. t.* 55. *Juſſ.* 79. Rhopala. *Lin. gen. Schreb. n.* 144.
Claſſ. 4. 1. Tetrandria Monogynia.
Nat. order of *Contortæ*. *Proteæ*, Juſſ.

GENERIC CHARACTER.

CAL. none.
COR. *Petals* four, oblong, narrow at the baſe, blunt, concave above, convex beneath, deciduous.
STAM. *Filaments* four, very ſhort, inſerted into the petals. *Anthers* oblong, obtuſe, when the flower is cloſed concealed in the cavity of the petal, when the corolla is expanded, erect.
PIST. *Germ* roundiſh, furrounded at the baſe with glands. *Style* filiform. *Stigma* ſubovate.
PER. one-celled.
SEED one.

ESSENTIAL CHARACTER.

Cal. none. *Pet.* four, cohering at the baſe. *Stam.* inſerted into the middle of the petals. *Peric.* one-celled, one-ſeeded.

SPECIES.

1. Rupala montana.
Willd. ſpec. 1. 536. *Vahl. ſymb.* 3. 20.
Roupala montana. *Aubl. guian.* 1. 83. *t.* 32. *Lamarck encycl. t.* 55.
Leaves ovate petioled.
2. Rupala ſeſſilifolia.
Willd. ſpec. 1. 537.
Roupala ſeſſilifolia. *Richard. act. ſoc. hiſt. nat. par.* 1. 106.
Leaves cuneate-oblong ſeſſile.

DESCRIPTIONS, *&c.*

1. Branches round, ſmooth, with a brown bark, ſcarred from the fall of the leaves and peduncles, tubercled, leafleſs: the younger ones leafy and flowering, from the end of the branches of the preceding year, often in pairs, with an aſh-coloured bark. Leaves alternate, four or five inches long or leſs, elliptic, attenuated to both ends, nerved and veined, quite entire, ſmooth on both ſides, ſhining above, pale beneath. Petioles convex beneath, flatiſh above. Stipules none. Buds ſmall often in pairs, axillary, oblong, ferruginous-tomentoſe, the rudiments of peduncles. Racemes from the laſt axils, ſolitary or in pairs, peduncled, three or four inches long, villoſe, having ferruginous villoſe hairs at the baſe, as alſo the axils of the pedicels; which are alternate and two together. Flowers ſmall, aſh-coloured at the baſe, as are alſo the pedicels, ſmooth above, club-ſhaped before they expand. Bractes none. Tube of the corolla filiform: ſegments or petals linear, ſpreading, widening a little outwards. Filaments in the middle of the tube. Anthers linear, the length of the corolla. Germ ſuperior, oblong, attenuated, villoſe.—Native of Cayenne [e].
2. Native of Cayenne.

RUPPIA. (*So named by Linneus, in memory of Henry Bernhard Ruppius, a German phyſician, author of* Flora Jenenſis, 1718 *and* 1726, *oct.—augmented and corrected by Haller*, 1745. *oct.*)
Lin. gen. n. 175. *Reich. n.* 187. *Schreb. n.* 235 *and p.* 821. *Gærtn. t.* 84. *Juſſ.* 19. Buccaferrea. *Mich. t.* 35.
Claſſ. 4. 3. Tetrandria Tetragynia.
Nat. order of *Inundatæ*. *Naiades*, Juſſ.

[d] Willdenow. [e] Vahl.

GENERIC CHARACTER.

CAL. *Spathe* beſides the ſheaths of the leaves ſcarcely any.
Spadix ſubulate, quite ſimple, ſtraight, when the fruit ripens curved inwards, fenced in a double row by the fructifications.
Perianth none.
COR. none.
STAM. *Filaments* none. *Anthers* four, ſeſſile, equal, roundiſh, ſubdidymous.
PIST. *Germs* four or five, ſubovate, converging. *Style* none. *Stigmas* blunt.
PER. none. The ſeeds are placed each on its peculiar filiform pedicel, the length of the fruit.
SEEDS four or five, ovate, oblique, terminated by a flat orbicular ſtigma.
OBS. Buccaferrea, Mich. *is diſtinguiſhed from this, and referred to* Monoecia Polyandria, *by* Candida in Act. acad. Neap. *and* Petagna in Inſtit. Botan. 5. 1826. S.
According to Micheli and Dillenius, the male parts are far removed from the females, and thoſe are placed in diſtinct filiform ſpadixes. Gærtn.

ESSENTIAL CHARACTER.

Cal. none. *Cor.* none. *Seeds* four, pedicelled.

SPECIES.

1. Ruppia maritima. *Sea Ruppia* or *Taſſel Pondweed.*
Lin. ſpec. 184. *ſyſt.* 169. *Reich.* 1. 359. *Willd.* 1. 717. *hort. cliff.* 436. *fl. ſuec. n.* 154. *Gærtn. fruct.* 2. 23. *Hudſ. angl.* 77. *Wither. arr. ed.* 3. 215. *Smith, brit.* 198. *engl. bot. t.* 136. *Lightf. ſcot.* 124. *t.* 8. *f.* 1. *Fl. dan. t.* 364. *Roth. germ.* 1. 75. 2. 208. *Hoffm. germ.* 59. *Krock. ſileſ. n.* 264. *Allion. pedem. n.* 2109. *Guett. ſtamp.* 2. 416. *Pallas, it.* 1. 431.
Buccaferrea maritima, foliis acutiſſimis. *Mich. gen.* 72. *t.* 35.
Potamogiton maritimum puſillum alterum. *Raii hiſt.* 190. *n.* 10. *Pluk. phyt. t.* 248. *f.* 4.
P. marit. graminei longioribus foliis, fructu fere umbellato. *Raii ſyn.* 134. *t.* 6. *f.* 1. *Petiv. brit. t.* 6. *f.* 1.
Gramen marit. fluitans cornutum. *Baub. pin.* 3. *prodr.* 7. *n.* 17. *Reliq. Rudb.* 21. *f.* 1.
Gr. aquæ innatans cum utriculis, ſ. Fœniculacea marina. *Baub. hiſt.* 3. 784.
Fucus ferulaceus. *Lob. ic.* 2. 255. 2. *obſ.* 653. *t. Ger. emac.* 1573. 7.
F. folliculaceus fœniculi folio longiore. *Baub. pin.* 365. 6.
Muſcus marinus ferulaceus. *Park. theat.* 1289. *f.* 5.

DESCRIPTION, *&c.*

This plant, when not in fruit, very much reſembles Potamogeton pectinatum or marinum, but the leaves are ſcarcely diſtich, rather alternate, very long and ſlender, pointed. The ſtipules alſo are not produced at the end, acute and bifid, but retuſe. The ſtems are filiform, and very much branched. About four flowers on a ſpike, or from one to four, though commonly two, one terminating and one ſeſſile. The ſpike emerges from the water, and therefore the peduncle or flower-ſtalk is of very different lengths, according to the depth of the water. Dr. Goodenough has remarked that it is convoluted or ſpiral, as that of Vallíſneria is deſcribed to be, and relaxes or contracts as the depth of the water increaſes or diminiſhes. Anthers ſeſſile, burſting at top into two hemiſpheres. Germs ovate, after impregnation each elevated on its proper pedicel. Stamens, germs and ſeeds four in each flower [f].

Gærtner thus deſcribes the fruit. Nuts four or more, aggregate, peduncled, ovate-acuminate, corticate: rind coriaceous-membranaceous, very thin: ſhell cruſtaceous, black, one-celled, valveleſs. Seed ovate-globular, often ſlightly acuminate, pale.—Linneus marks this plant as annual, Hudſon as perennial.

Native of ſeveral parts of Europe in ſalt-water ditches. In Britain not uncommon. Ray obſerved it

[f] Smith, Withering, Robſon.

between

between Malden and Goldhanger in Eſſex. Dillenius in the Iſle of Shepey. Mr. Woodward near Yarmouth. Mr. Robſon near the mouth of the Tees. Mr. Stackhouſe in Cornwall. Mr. Lightfoot at Glen-Elg in Inverneſsſhire. It flowers in july.

RUPPIA. See *Zoſtera*.

RUPTURE-WORT. See *Herniaria*.]

RUSCUS (*or* Ruſcum, *a prickly ſhrub, mentioned by Varro, Columella and Virgil. Derivation unknown: unleſs it be from* ruſſus, *as ſome conjecture, from the colour of the fruit.*)

Lin. gen. n. 1139. *Reich. n.* 1246. *Schreb. n.* 1559. *Tournef. t.* 15. *Dill. elth.* 250. 251. *Juſſ.* 42. *Gærtn. t.* 16.

Claſſ. 22. 14. Dioecia Syngeneſia.

Nat. order of *Sarmentaceæ. Aſparagi*, Juſſ.

GENER.C CHARACTER.

* *Male.*

CAL. *Perianth* ſix-leaved, from erect-ſpreading: *leaflets* ovate, convex, with the lateral margin reflexed.

COR. *Petals* none, unleſs the alternate calyx-leaves be called ſo.

Nectary central, ovate, the ſize of the calyx, inflated, erect, coloured, perforated at the top.

STAM. *Filaments* none. *Anthers* three, ſpreading, placed on the top of the nectary itſelf, united at the baſe.

* *Female.*

CAL. *Perianth* as in the male.

COR. *Petals* as in the male.

Nectary as in the male.

PIST. *Germ* oblong-ovate, concealed within the nectary. *Style* cylindric, the length of the nectary. *Stigma* obtuſe, prominent beyond the mouth of the nectary.

PER. *Berry* globular, three-celled.

SEEDS two, globular.

OBS. *There is a ſpecies with hermaphrodite flowers, in which the calyx is globular with the mouth ſix-cleft only.*

R. racemoſus *has hermaphrodite flowers. In thoſe, and the genera allied to them* (Smilax, Rajania, Tamus, &c.) *all the ſeeds ſeldom arrive at maturity; but one only growing large ſhooks its brethren.*

This genus has great affinity to Aſparagus *and* Medeola. *Juſſ.*

ESSENTIAL CHARACTER.

Cal. ſix-leaved. *Cor.* none. *Nect.* central, ovate perforated at the top.

FEM. *Style* one. *Berry* three-celled. *Seeds* two.

SPECIES.

1. Ruſcus aculeatus. *Prickly Butcher's-broom.*
Lin. ſpec. 1474. *Fl. ſuec.* 896. *Reich.* 4. 284. *hort. cliff.* 463. *uſ.* 300. *mat. med.* 218. *Woodv. med. bot. ſuppl.* 68. *t.* 237. *Hudſ. angl.* 437. *Wither. arr. ed.* 3. 68. *Reih. cant. n.* 735. *Sibth. oxon. n.* 62. *Hall. helv. n.* 1238. *Scop. carn. n.* 1230. *Villars dauph.* 3. 274. *Allion. pedem. n.* 2117. *Haſſelqu. it.* 492. *Desfont. atlant.* 373. *Bulliard herb. t.* 243. *Mill. illuſtr. Berg. phyt.* 2. 35. *Blackw. t.* 155. (*fem.*) *Sabb. hort.* 1. *t.* 8. *Knipho. cent.* 1. *n.* 77. (*male*) *Regnault, bot.* (*le Houx freſon.*)
Ruſcus. *Baub. pin.* 470. *Baub. hiſt.* 1. 579. *Trag.* 919. *Lonic.* 1. 78. 2. *Camer. epit.* 935. *Matth.* 1214. *Lob. obſ.* 362. 1. *ic.* 1. 637. 2. *Tabern. ic.* 863. *Dalech. hiſt.* 243. *Raii hiſt.* 664. *ſyn.* 262. *Park. theat.* 253. *Mor. hiſt. ſ.* 13. *t.* 5. *f.* 1.
R. ſ. Bruſcus. *Ger.* 759. *emac.* 907.
R. myrtifolius aculeatus. *Tournef. inſt.* 79. *Shaw afr. n.* 518. *Duham. arb.* 2. 236. *t.* 57.
Ruſcum. *Ded. pempt.* 744.
β. Ruſcus rotundifolius. *Barrel. ic.* 517.
R. vulgaris folio ampliore. *Dill. elth.* 333. 334. *t.* 251. *f.* 324.
Leaves ovate mucronate-pungent, above floriferous naked, branches ſtiff.

2. Ruſcus Hypophyllum. *Broad-leaved Butcher's-broom.*
Lin. ſpec. 1474. *Reich.* 4. 284. *hort. cliff.* 465. *uſ.* 300. *Fabr. helmſt.* 39. *Desfont. atlant.* 374.
R. latifolius fructu ſolio innaſcente. *Tournef. inſt.* 79. *Shaw afr. n.* 517.

Laurus alexandrina. *Lob. adv. part. alt.* 509. *Baub. hiſt. Raii hiſt.* 663. 2.
L. A. fructu ſolio inſidente. *Baub. pin.* 305. *Mor. hiſt. ſ.* 13. *t.* 5. *f.* 3. *Blackw. t.* 194.
L. A. Chamædaphne. *Col. ecphr.* 1. 364. *t.* 165. *f.* 1.
L. A. genuina. *Park. theat.* 700. 1. & Chamædaphne vera Dioſcoridis. 700. 2.
L. A. altera. *Matth.* 841. *Tabern. ic.* 862. *Dalech. hiſt.* 208. *Barrel. ic.* 250.
L. A. vera. *Cluſ. hiſt.* 278. *Raii hiſt.* 663. 3.
β. Ruſcus latifolius, fructu ex medio foliorum extra pendente. *Dill. elth.* 333. *t.* 251. *f.* 323.
Leaves floriferous underneath naked.

3. Ruſcus Hypogloſſum. *Double-leaved Butcher's-broom.*
Lin. ſpec. 1474. *Reich.* 4. 285. *hort. cliff.* 466. *uſ.* 300. *mat. med.* 218. *Scop. carn. n.* 1231. *Allion. pedem. n.* 2118. *Sabb. hort. t.* 9. *Desfont. atlant.* 374. *Kniph. cent.* 1. *n.* 78. (male.)
R. anguſtifolius, fructu folio innaſcente. *Tournef. inſt.* 79.
Hypogloſſum. *Lob. adv.* 284. *ic.* 638. *Blackw. t.* 128. *Barrel. ic.* 250.
H. Dioſcoridis & Laurotaxa Plinii. *Col. ecphr.* 1. 166.
Hippogloſſum. *Ded. pempt.* 745. *Matth.* 1195.
H. mas & femina. *Ger.* 761.
H. ſ. Biſlingua. *Park. theat.* 702.
Laurus alexandrina fructu pediculo inſidente. *Baub. pin.* 304. *Raii hiſt.* 663. 1. *Mor. hiſt. ſ.* 13. *t.* 5. *f.* 2.
Radix idæa Dioſcoridis. *Col. phyt.* 63.
Uvularia. *Brunf.* 3. 96 & 97.
Bonifacia ſ. Biſlingua. *Baub. hiſt.* 1. 575.
Leaves floriferous underneath beneath the leaflet.

4. Ruſcus androgynus. *Climbing Butcher's broom.*
Lin. ſpec. 1474. *Reich.* 4. 285. *hort. cliff.* 464.
R. latifolius e foliorum ſinu florifer & baccifer. *Dill. elth.* 332. *t.* 250. *f.* 322.
Laurus alexandrina palmenſis baccis e crenis foliorum prodeuntibus. *Pet. muſ. n.* 258.
Leaves floriferous at the edge.

5. Ruſcus racemoſus. *Alexandrian Laurel.*
Lin. ſpec. 1474. *Fl. ſuec.* 896. *Reich.* 4. 285. *hort. cliff.* 496. *Gouan monſp.* 511. *Du Roi harbecc.* 2. 381. *Sabb. hort.* 1. *t.* 10. *Fabric. helmſt.* 39.
R. anguſtifolius, fructu ſummis ramulis innaſcente. *Tournef. inſt.* 79. *Mich. pif.* 82. *Duham. arb.* 4.
Laurus alexandrina anguſtifolia ramoſa fructu ad extremum ramoſo. *Mor. hiſt.* 3. 541. *ſ.* 13. *t.* 5. *f.* 14.
L. A. fructu e ſummitate caulium prodeunte. *Herm. lugdb.* 679. *t.* 681. *Raii hiſt.* 663. 4.
Raceme terminating hermaphrodite.

DESCRIPTIONS, *&c.*

1. [Roots thick, white, twining about each other, putting out frequent fibres like thoſe of Aſparagus, oblique, ſtriking deep in the ground. Stem ſuffruticoſe, tough, ſtiff, green, round, ſtriated, from eighteen inches to three feet in height, ſending out from the ſides many ſhort branches; having many leaves on them, nearly of the ſame ſhape and ſize with thoſe of Myrtle, but very ſtiff, and ending in ſharp prickly points: they are alternate, about half an inch long, and one-third of an inch broad near the baſe, ovate, quite entire, ſeſſile. From the middle of the leaf above comes out a ſingle flower, on a very ſhort pedicel, it is ſmall and yelloviſh green or purpliſh; when it firſt appears, it is the ſize and ſhape of a ſmall pin's head; when expanded compoſed of three outer widiſh calyx-leaves, and three inner narrower like rays, ending in a narrow point. The three laſt ſome conſider as petals; and Mr. Stackhouſe found a male flower fallen from the plant, which had only three leaves correſponding with thoſe of the calyx. Mr. Woodward remarks, that the flower does not properly grow out of the leaf, but on a pedicel from the boſom of the leaf, which is immerſed beneath the outer coat, whence it may with eaſe be diſſected. The female flowers are ſucceeded by berries, which are red, bigger than thoſe of Aſparagus and almoſt as large as ſome Cherries, of a ſweetiſh taſte; having two large orange-coloured

 ſeeds

ſeeds in each, gibbous on one ſide, flat on the other, and extremely hard. The flowers come out in march and april, and the ſeeds ripen in winter[g].]

The green ſhoots are cut, bound into bundles and ſold to the butchers for ſweeping their blocks, whence its common name in Engliſh.

[It is very frequently made into beſoms in Italy. The huckſters there alſo place the boughs round their bacon and cheeſe to defend them from the mice[h]. From Virgil's account of the Ruſcus, it ſeems as if it was uſed in Italy to tie up the vines. But the ſecond ſort was more adapted to that purpoſe. Or perhaps it was Miller's flexuoſus, obſerved in Italy by Micheli; which is five feet high with very pliant branches.]

The young ſhoots in the ſpring are ſometimes gathered and eaten by the poor like thoſe of Aſparagus; and the branches with the ripe fruit on them were formerly ſtuck up in ſand, with the ſtalks of male Peony, and wild Iris or Gladwyn, full of their ripe ſeeds, which all together made a ſhow in rooms during winter. Planted under trees or ſhrubs the Ruſcus will ſpread into large clumps, and as it retains the leaves all winter, will have a good effect.

[The root has a bitteriſh taſte, and was formerly much recommended as an aperient and diuretic in dropſies, urinary obſtructions and nephritic caſes. Dioſcorides ſpeaks highly of its deobſtruent and diuretic powers, under the name of μυρσινη αγρια; Riverius relates a caſe of dropſy ſucceſsfully treated by a decoction of the roots. Bauhin and others give ſtrong caſes of its effects in dropſy; but at preſent this plant is very rarely, if ever, employed in medicine[i]. It may however hereafter take its turn with Hemlock, Foxglove, Mezereum, &c.

Native of Europe, but not in the northern parts. It is ſaid that it will not bear the winters of Sweden. Native alſo of Aſia and Africa. In England it is not uncommon in woods, thickets and hedges. Mr. Ray remarked it at Black Notley in Eſſex, where he lived. Bobart, in the woods of Berkſhire and Oxfordſhire. Mr. Crowe, in Hethel woods near Norwich. Mr. Woodward, near Loweſtoft, in Suffolk. Dr. Withering, in the New Foreſt, near Stony Croſs. Mr. Ray, at Angleſey Abbey in Cambridgeſhire. Dr. Sibthorp, between Caverſham and Maple Durham in Oxfordſhire. Blackſtone, in Perry wood, near Feverſham in Kent. In Ray's ſynopſis it is ſaid to be common on heaths about Woolwich. Mr. Blackſtone has it in his catalogue of plants about Hareſield in Middleſex. It has been found on Hampſtead heath by Gerarde. I have obſerved it in Norwood, Surry. Butcher's Broom does not ſeem to have been found in Scotland, or in the very northern counties of England. It is known by the names of Knee-holly, Knee-holm or Knee-hulver, pricking or wild Myrtle, and prickly Pettigree. In French it is called le Houx freſon, petit Houx, Buis piquant, and Fragon piquant.

β. Dillenius has figured two ſingle leaves, which are larger than in the common ſort, and ſeem to be a variety only of that.

Mr. Fairbairne, gardener to the company of Apothecaries at Chelſea, preſented to the Linnean Society, in 1796, a living ſpecimen of a Ruſcus, which though long cultivated there, had been overlooked as a variety of the aculeatus. It has this ſpecific character given by the Preſident: leaves elliptic acute at both ends mucronate-pungent above floriferous naked, branches looſe. From this laſt circumſtance Dr. Smith named it *Ruſcus laxus*[k].]

2. The roots of this have large knotty heads, with long thick fibres like thoſe of the preceding ſort; from which ariſe many tough limber ſtalks near two feet high. Leaves ſtiff, ovate-oblong ending in points, more than two inches long and almoſt one broad, placed alternately. Flowers produced on the under ſurface of the leaves near the middle, ſitting cloſe to the midrib; they are ſmall and herbaceous. The female flowers are ſucceeded by ſmall red berries about the ſize of thoſe of Juniper.

[Stems ſuffruticoſe, green, ſimple, very ſlightly ſtriated. Leaves perennial, coriaceous, ſhining, quite entire; the lower ones in whorls. Petioles very ſhort, accompanied by an acute ſcale at the baſe. Flowers glomerate, from the middle and generally from the lower ſurface of the leaves. Pedicels filiform, unequal, one-flowered. Calycine ſegments linear, white, reflexed. Stamens ſix: filaments united into a cylinder. The female has ſix barren ſtamens. Berry red, ſhining, pendulous. Seed commonly one, horny, white, round; with two others that are abortive[l].

Native of Italy and Africa. It flowers in may and june; and was cultivated in 1683, by Mr. James Sutherland[m].

Parkinſon, who makes two of this, ſays that he had one by means of Dr. Flud, and the other from his good friend Maſter John Tradeſcant.

β. Dillenius figures and deſcribes a plant which he regards as intermediate between this and the next ſpecies.]

3. Root like the preceding. Stems about ten inches high. Leaves lanceolate, about three inches long, and one inch broad in the middle, drawing to a point at both ends, and having ſeveral longitudinal veins running from the foot-ſtalk to the point: they are moſtly alternate, but ſometimes oppoſite. On the middle of the upper ſurface comes forth a ſmall leaf of the ſame ſhape; and at the ſame point, from the boſom of the ſmall leaves, come out the flowers, which are of a pale yellow colour. The berries are almoſt as large as thoſe of the firſt ſort; they are red and ripen in winter.

[According to Scopoli, the ſtem is a cubit in height, ſimple, grooved, of the ſame colour with the leaf. Leaves oblong, nerved; the lower in whorls; the upper alternate. Flowers two or three, from a ſcaly neſt. Peduncles longer than the flowers, but ſhorter than the fruit, covered by a lanceolate leaflet. Berry red, ovate. Seeds one or two, bony, hemiſpherical.

Deſfontaines regards it as a variety of the preceding, differing only in having narrower leaves, and the flowers emerging from the middle of the leaf under a leaflet.

Native of Italy, Iſtria, Hungary, Africa about Algiers.—It flowers in april and may; and was cultivated by Gerarde in 1597[n].]

4. This ſends out pliant ſtalks which riſe ſeven or eight feet high, and have ſeveral ſhort branches proceeding from their ſides. Leaves ſtiff, about two inches long, and one inch broad towards their baſe, where they are rounded to the foot-ſtalk, but they end in acute points; many longitudinal veins run from the foot-ſtalk to the point. The flowers are produced in cluſters on the edges of the leaves, and are white. Berries yelloviſh red, not ſo large as thoſe of the firſt ſort.

[Stems two or three cubits in length, green, the ſize of a finger or more at bottom, from the middle upwards the ſize of a ſtraw, whence, at the diſtance of about two inches from each other, ſpring branches from a hand to a ſpan in length, having ſix, ſeven or eight leaves on them, placed alternately, except in the terminating branch, whereon they are oppoſite: the leaves are evergreen, ſmooth and even, ſhining, contracted towards the baſe, and pointed at the end, marked with ſlender parallel veins: all together having the appearance of a pinnate leaf. Some of theſe leaves are entire; others, eſpecially the upper ones, in their wider part have a ſinus, next to which from the lower part of the leaf, in the month of may, ſpring greeniſh globules in a ball, which in five or ſix weeks expand into ſo many flowers, larger than in the other ſpecies, divided down to the baſe into ſix equal ſegments, naked, on very ſhort pedicels, pale at firſt, but turning yellower as they advance. Berry round, firſt green, then yelloviſh, and finally red. Seed large, globular, horny.

This differs from the other ſpecies in having androgynous flowers divided into ſix equal ſegments to the

[g] Ray hiſt. Withering. [h] Idem. [i] Woodville. [k] Linn. tranſ. 3. 334.

[l] Deſfontaines. [m] Hort. kew. [n] Idem.

bottom,

bottom, but falling off in one piece, and arising from the edge, and not the diſc of the leaf[a].

Native of the Canary Iſlands. Cultivated in 1713, in the Royal Garden at Hampton Court. It flowers moſt part of the ſummer [b].]

5. Roots like thoſe of the other ſpecies. Stalks ſlender and much more pliable: they riſe about four feet high, and ſend out many ſide branches. Leaves oblong, acute-pointed, about two inches long, and one-third of an inch broad, rounded at the baſe, ſmooth, of a lucid green, placed alternately, and ſeſſile. Flowers in long bunches at the end of the branches, of an herbaceous yellow colour. Berries like thoſe of the firſt ſort, but ſmaller; ripening in winter: [—ſuperior, globular, fleſhy, ſmooth, red, with a round coriaceous white diſk at the baſe, three-celled. In each cell one ſeed, but frequently one only in the whole berry, ovate-globular, obſcurely angular, at the top ſlightly acuminate, and marked with a lateral umbilicus near the tip, below blunt, pale yellow or the colour of honey. The umbilicus of the ſeed is inſerted into a ſmall ſcar in the upper part of the partitions. It frequently happens that one ſeed only ripens, and then the berry becomes one-celled. Haller has given an inſtance of this in hort. goetting. Sometimes the berry is two-celled: but the natural number of cells is three, and that is the moſt common. The embryo of the ſeed is one-lobed, nearly cylindric, but with one end more turgid and exterior; the other attenuated, ſlightly compreſſed and interior: it ſcarcely exceeds one-third of the albumen in length, and is placed in the lower part of it, oppoſite to the umbilicus [c].

Native of Portugal, (Linneus and Miller ſay, the Iſlands of the Archipelago.) It was cultivated in 1739, in the botanic garden at Cheſſea [d]. Mr. Ray ſays (1686) that he ſaw it in the Royal Garden at Paris. Could it be above half a century in travelling from Paris to England?]

The Alexandrian Bay, (or Alexandrian Laurel, as it is now generally called) is ſuppoſed to be the plant, with which the ancients crowned their victors. The ſtalks, being very pliable, might eaſily anſwer this purpoſe; and the leaves having a great reſemblance to thoſe which are repreſented on the ancient buſts.

[The ſame ſtory was told of the ſecond ſpecies, before this was ſo well known [e]. But there is no foundation for the opinion that either of them graced the heads of ancient heroes. See *Laurus nobilis*.

The Alexandrian Laurel is a beautiful elegant ſhrub, and ſhould appear in the front of all ornamental plantations.]

Mr. Miller has three other ſpecies:—

1. *Ruſcus triſoliatus*, n. 5. with ovate-acuminate leaves placed by threes, and flowers on their upper ſides. This he ſays, is a native of Zante, and ſome other Greek iſlands. The ſtalks are about two feet high, ſlender, pliable, with leaves about two inches long and an inch broad rounded at both ends, terminating in acute points, having ſeveral longitudinal diverging veins running from the footſtalk to the point, and placed by threes round the ſtalk. The flowers grow on the under ſide of the leaves, faſtened to the midrib; they are naked, and have pretty long footſtalks, and their ſegments are very narrow. There is little doubt of this being a variety of the ſecond ſpecies. Mr. Miller contradicts himſelf in the ſpecific character and the deſcription.

2. Ruſcus flexuoſus, n. 6. with ovate-acuminate leaves, bearing flowers on their upper ſides, and flexible ſtalks.—R. latifolius major fructu folio innaſcente, of Micheli.

It is a native of Italy, where it was diſcovered by Micheli. The roots are much longer than thoſe of the firſt ſort; the ſtalks riſe near five feet high, are very pliant, and ſend out ſeveral ſide branches their whole length. The leaves are ſtiff, an inch long, and half an inch broad. The flowers are produced on the upper ſurface of the leaves ſitting cloſe to the midrib, ſmall and herbaceous. The berries are ſmaller than thoſe of the firſt ſort, and of a pale red when ripe. This can be nothing more than a variety of R. aculeatus. May it not be the R. laxus of Dr. Smith?

3. Ruſcus fruteſcens, n. 8. with a ſhrubby branching ſtalk, lanceolate ſtiff leaves, and flowers growing upon foot-ſtalks terminating the branches.—R. latifolius fruteſcens, floribus racemoſis rubris. *Houſt. MSS.*

This was diſcovered by Dr. Houſtoun at Carthagena in New Spain. It riſes with ſhrubby ſtalks eight or ten feet high, and dividing into many branches. Leaves three inches long, and one inch broad in the middle, ending in acute points: ſome are in whorls, others oppoſite. The flowers are produced in looſe bunches at the end of the branches, on ſlender foot-ſtalks; they are ſmall, of a red colour, and ſhaped like thoſe of the firſt ſort.

PROPAGATION AND CULTURE.

1. 2. 3. 5. All theſe ſorts being very hardy, and thriving in almoſt any ſoil or ſituation, are very proper for planting round the verges of cloſe woods, or under large trees in wilderneſs quarters; and as they are always green, they make a good appearance in winter, after the deciduous trees have caſt their leaves. They are eaſily increaſed by parting their roots in autumn; but when this is performed, if they are divided into ſmall parts, it will weaken them ſo much, that they will make little figure, until they have had two or three years growth. They may alſo be propagated by the ſeeds, but this being a very tedious method, is ſeldom practiſed.

4. This being tender muſt be planted in pots filled with freſh earth, and in winter removed into the green-houſe; but it ſhould be placed where it may have free air in mild weather, for it only requires to be ſcreened from froſt, and in ſummer muſt be ſet abroad with other hardy green-houſe plants. With this management the plants will ſend forth ſtems ſix or eight feet high, furniſhed with leaves from bottom to top, and in june will be cloſely ſet with flowers upon their edges, which make a very beautiful and odd appearance, and render it worthy of a place in every good collection of plants. This is alſo propagated by parting the roots as the former, which ſhould not be done very often; becauſe, if the roots are not permitted to remain ſome time to get ſtrength, they will produce but weak ſhoots, and very few flowers; and in the ſtrength of their ſhoots and number of flowers, the greateſt beauty of theſe plants conſiſt. This ſort may alſo be propagated from ſeeds; but theſe commonly lie in the ground a year before the plants come up, ſo ſhould be ſown in pots filled with freſh earth, and placed under a hot-bed frame in winter, to ſcreen the ſeeds from the froſt, and the following ſpring the plants will appear.

[RUSH. See *Juncus*.

——, Flowering. See *Butomus*.

——, Sweet. See *Acorus* and *Andropogon*.

RUSSELIA. (*So named by Jacquin, in honour of Alexander Ruſſel, M.D. F.R.S. born in Scotland; died* 1768. *Author of the* Natural Hiſtory of Aleppo, *Lond.* 1756. *—Second edition, reviſed, &c. by his brother Patrick Ruſſel, M.D. F.R.S.* 1794. *Patrick publiſhed a fine work on Serpents collected on the coaſt of Coromandel, Lond.* 1796. *fol.*)

Lin. gen. Schreb. n. 1041. *Jacqu. amer.* 178. *Juſſ.* 118.

Claſſ. 14. 2. Didynamia Angioſpermia.

Nat. order of *Perſonatæ*. *Scrophulariæ*, Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* five-leaved, permanent: *leaflets* ovate, concave, acuminate, ſmall, erect.

COR. one-petalled. *Tube* cylindric, compreſſed a little, erect, very long, internally under the lower lip hairy. *Border* two-lipped: *upper lip* roundiſh, flat, emarginate, ſpreading, with the tip reflexed: *lower lip* trifid; *ſegments* oblong, obtuſe, flat, ſpreading very much, a little longer than the upper.

STAM. *Filaments* four, filiform, erect, a little ſhorter than the tube; two of them longer. *Anthers* ovate.

PIST. *Germ* ovate. *Style* filiform, erect, the length of the ſhorter ſtamens. *Stigma* globular.

PER.

[a] Dillenius. [b] Hort. kew. [c] Gærtner. [d] Hort. kew. [e] Mor. hiſt. 3. 541.

PER. *Capſule* roundiſh, pointed by part of the ſtyle which is permanent, one-celled, two-valved, the length of the calyx.

SEEDS numerous, very ſmall.

ESSENTIAL CHARACTER.

Cal. five-leaved, ſetaceous at the end. *Cor.* tube very long, hairy at the throat: border two-lipped; lower lip trifid. *Capſ.* acuminate, one-celled, two-valved, many-ſeeded.

SPECIES.

1. Ruſſelia ſarmentoſa.
Jacqu. amer. 178. *pict.* 171.

DESCRIPTION, *&c.*

Stems ſhrubby, four-cornered, wandlike, ſmooth, very long and weak, numerous, ſupported on neighbouring ſhrubs three or four feet in height, and then bending down again. Leaves ovate, ſerrate, acute, ſomewhat hirſute on the upper ſurface and at the edge, ſmooth on the under ſurface, on very ſhort petioles, oppoſite, an inch long, and placed at two or three inches diſtance from each other. Peduncles axillary, oppoſite, three-flowered or two-flowered, only half the length of the leaves, in the direction of the ſtem: the pedicels reflexed after the flowers fall. At the baſe of each pedicel a lanceolate bracte. Flowers handſome, of a fine red colour, but without ſcent, almoſt an inch over.

Found by Jacquin about Havana, in cloſe woods and coppices[t].

Juſſieu remarks that the fruit requires more accurate examination.

RUSSELIA. *Linn. ſuppl.* See *Vahlia.*]

RUTA. (*Adopted by the Romans from the Greek* Ρυτη. Varro: *which is from ρυω, ſervo, being reputed a great preſerver of health.* Voſſius. Ρυτη *ſeems to have been the more ancient name, particularly in Peloponneſus; and* Πηγανον *the more modern. The latter is from* πηγνυω, *conſtringo.* Plutarch, &c.)

Lin. gen. n. 523. *Reich. n.* 563. *Schreb. n.* 725. *Tournef. t.* 133. *Juſſ.* 297. *Gærtn. t.* 111.

Pſeudo-Ruta. *Mich.* 19.

Claſs. 10. 1. Decandria Monogynia.

Nat. order of *Multiſiliquæ. Rutaceæ*, Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* five-parted, ſhort, permanent.

COR. *Petals* five, ſpreading, ſubovate, concave; with narrow claws.

STAM. *Filaments* ten, awl-ſhaped, ſpreading, the length of the corolla, widiſh at the baſe. *Anthers* erect, very ſhort.

PIST. *Germ* gibbous, inſcribed with a croſs, ſurrounded at the baſe by ten honey dots; raiſed on a *receptacle* punctured with ten honey pores. *Style* erect, awl-ſhaped. *Stigma* ſimple.

PER. *Capſule* gibbous, five-lobed, half-five-cleft, five-celled, opening into five parts between the tips.

SEEDS very many, rugged reniform-angular.

OBS. R. graveolens, *in all the flowers, except the primary one, loſes a fifth part of the number in in every part of the fructification; and has the petals ciliate at the baſe.*

ESSENTIAL CHARACTER.

Cal. five-parted. *Pet.* concave. *Recept.* ſurrounded by ten honey dots. *Capſ.* lobed.

SPECIES.

1. Ruta graveolens. *Common Rue.*
Lin. ſpec. 548. *ſyſt.* 397. *Reich.* 2. 265. *Willd.* 542. *hort. cliff.* 145. *upſ.* 102. *mat. med.* 113. *Woodv. med. bot.* 108. *t.* 37. *Gærtn. fruct.* 2. 138. *Willd. arb.* 330. *Hall. helv. n.* 1103. *Scop. carn. n.* 477. *Kroch. ſilef. n.* 621. *Villars, dauph.* 3. 584. *Allion. pedem. n.* 1024. *Ludw. eſt. t.* 20. *Blackw. t.* 7. *Knipb. cent.* 3. *n.* 79. *Plenck, ic.* 332.
R. ſylveſtris major. *Baub. pin.* 336. *Park. theat.* 133. 3. *Raii hiſt.* 874. 3. *Mor. hiſt.* 2. 507. *ſ.* 5. *t.* 14. *f.* 3. *Tournef. inſt.* 257. *Duham. arb.* 2. 61. *Garid.* 416.
R. montana. *Ger.* 1071. 4. *emac.* 1255. 4.
β. Ruta hortenſis. *Mill. dict. n.* 1.
R. hort. latifolia. *Baub. pin.* 336.
R. hortenſis. *Ger.* 1070. 1. *emac.* 1255. 1.
R. hort. major. *Park. theat.* 133. 1.
R. ſativa vel hortenſis. *Baub. hiſt.* 3. 197. *Raii hiſt.* 874. 1.
R. graveolens hortenſis. *Dod. pempt.* 119.
γ. R. hort. latif. arbuſculæ ſimilis. *Boerh. lugdb.* 1. 260.
R. africana maxima. *Swert. hort.* 24.
Leaves ſuperdecompound, leaflets oblong, the end one obovate, petals quite entire.

2. Ruta montana. *Mountain Rue.*
Lin. ſpec. ed. Willd. 543. *Ait. kew.* 2. 57. *Lœfl. it.* 140. *Cluſ. hiſt.* 2. 136. *Park. theat.* 134. *Villars dauph.* 3. 582. *Hall. helv. n.* 1004.
R. legitima. *Jacqu. collect.* 1. 74. *ic. rar.* 1. *t.* 76. *Allion. pedem. n.* 1023.
R. tenuifolia. *Desfont. atlant.* 336.
R. ſylveſtris. *Mill. dict. n.* 3.—minor. *Baub. pin.* 336. *Camer. epit.* 495. *Tabern. ic.* 134. *Baub. hiſt.* 3. 200. *Raii hiſt.* 874. 4. *Mor. hiſt. ſ.* 5. *t.* 14. *f.* 4. *Tournef. inſt.* 257. *Lob. ic.* 2. 54. *Dalech. hiſt.* 973.
R. ſylv. minima. *Dod. pempt.* 120. *Ger.* 1071. 3. *emac.* 1255. 3.
R. ſylv. tenuifolia. *Matth.* 541.
R. montana legitima. *Cluſ. hiſt.* 2. 136.
Leaves ſuperdecompound, all the leaflets linear, petals quite entire.

3. Ruta chalepenſis. *African Rue.*
Lin. ſyſt. 397. *Reich.* 2. 265. *Willd.* 543. *mant.* 69. *Villars dauph.* 3. 583. *Leur. cochinch.* 269. *ed. Willd.* 330.
α. R. chalep. latifolia, florum petalis villis ſcatentibus. *Tournef. inſt.* 257.
Broad-leaved African Rue.
β. R. chalep. tenuifolia, florum petalis villis ſcatentibus. *Mor. hiſt.* 2. 508. *ſ.* 5. *t.* 35. *f.* 8.
Narrow-leaved African Rue.
Leaves ſuperdecompound oblong, the end one obovate, petels ciliate-toothed.

[4. Ruta pinnata. *Wing-leaved Rue.*
Lin. ſuppl. 232. *ſyſt.* 397. *ſpec. ed. Willd.* 544. *Ait. kew.* 2. 58.
Leaves pinnate, leaflets lanceolate attenuated at the baſe, ſerrate-crenate; petals quite entire.]

5. Ruta patavina. *Three-leaved Rue.*
Lin. ſpec. 549. *ſyſt.* 398. *Reich.* 2. 266. *Willd.* 544.
Pſeudo-Ruta patavina trifolia, floribus luteis umbellatis. *Mich. gen.* 22. *t.* 19.
Leaves ternate ſeſſile linear quite entire attenuated at the baſe.

6. Ruta linifolia. *Flax-leaved Rue.*
Lin. ſpec. 549. *ſyſt.* 398. *Reich.* 2. 266. *Willd.* 544. *hort. cliff.* 146. *Desfont. atlant.* 336.
R. ſylveſtris linifolia hiſpanica. *Becc. muſ.* 2. 82. *t.* 73. *Barrel. ic.* 1186.
β. Ruta montana, foliis integris ſubrotundis. *Buxb. cent.* 2. 30. *t.* 28. *f.* 2.
Leaves ſimple lanceolate ſmooth, filaments ciliate, ſtem ſimple herbaceous.

[7. Ruta fruticuloſa. *Shrubby Rue.*
Lin. ſpec. ed. Willd. 545. *Billard. ſyr.* 1. 13. *t.* 4.
R. orientalis linariæ foliis, flore parvo. *Tournef. cor.* 19. *Buxb. cent.* 2. 30. *t.* 28. *f.* 1.
Leaves ſimple linear ſpatulate pubeſcent, filaments woolly, ſtem branched ſhrubby.

DESCRIPTIONS, *&c.*

1. Root woody, branched. Stems fruteſcent, covered with a rugged, gray, ſtriated bark, eighteen inches high and more. Branches, eſpecially the young ones, ſmooth and pale green. Leaves glaucous, pulpy, dotted, divided like the umbellate plants, doubly pinnate, or more properly what Linneus calls ſuperdecompound. Leaflets obovate, ſeſſile; the lower ones ſmalleſt; the end one commonly trifid with the middle lobe much larger than the reſt. Flowers in a branching corymb on ſubdivided peduncles. Haller calls it a ſemiumbelled raceme; and Linneus a panicle, the firſt branches of which are two-parted, with the reſt of the flowers alternate. The flower that firſt opens, and

[t] Jacquin.

and is below the others on a very ſhort pedicel, has a five-parted perianth, and a five-petalled corolla, with ten ſtamens; this Linnæus calls the primary flower, and takes the character of the claſs from it. The other flowers have a four-parted perianth, and a four-petalled corolla, with eight ſtamens. In all the calyx is ſmall; the petals concave or boat-ſhaped, ſpreading out wide from each other almoſt horizontally, and of a yellow colour with a tinge of green in the middle; the ſtamens alternately merged in the hollow of each petal and ſpreading ſtraight out in the middle between them. Germ very large dark green.

Gærtner thus deſcribes the fruit. It is a ſubglobular capſule, with the ſurface ſcrobicular dotted, the upper half dividing into five lobes in the primary flower, and into four lobes in the reſt, within divided into as many cells, and opening into as many parts between the lobes. Receptacles five or four, ovate, fleſhy, excavated, faſtened to each internal angle of the cells. Seeds about ſix in each cell, oblong, angular-reniform, rugged with very minute wrinkles, aſh-coloured.

Native of the South of Europe, and flowering from june to ſeptember. It appears from Turner, our oldeſt botanical writer, that it was cultivated in England in 1562[a]. But its medical qualities having been rated ſo high, there can be little doubt of our having had Rue in our gardens ſome centuries earlier.

Rue was anciently alſo named in Engliſh *Herb Grace* or *Herb of Grace*; if I am not miſtaken, it is to this day called *Ave-Grace* in Suſſex, in alluſion doubtleſs to *Ave Maria gratiâ plena*: and it is remarkable that Mary in hebrew ſignifies bitter. Warburton ſays that Rue had its name *Herb of Grace* from its having been uſed in exorciſms. But although this plant be celebrated as a cure for almoſt every diſeaſe, as a counterpoiſon, and as good againſt the peſtilence, yet I do not find this excellence of it recorded. When Ophelia, in Shakſpeare's Hamlet, ſays to the Queen—"there's Rue for *you*, and here's ſome for *me*: we may call it Herb of Grace o' ſundays:"—the fair moraliſt has no reference to this plant being uſed in exorciſms performed in churches on ſundays; but means only, that the queen may with peculiar propriety, on ſundays, when ſhe ſolicits pardon for that crime which ſhe has ſo much occaſion to rue and repent of, call her Rue *herb of grace*. It was indeed the common name for Rue in Shakſpeare's time: and Greene, in his Quip *for an upſtart Courtier*, has this paſſage:—"ſome of them ſmiled and ſaid, *Rue* was called *Herbegrace*, which though they ſcorned in their youth, they might wear in their age, and that it was never too late to ſay *miſerere*[b]."

The Gardener in Richard II. ſays of the Queen:

"Here did ſhe drop a tear; here in this place,
"I'll ſet a bank of Rue, ſour *herb of grace*:
"Rue even for ruth, here ſhortly ſhall be ſeen,
"In the remembrance of a weeping queen."

Here the gardener plays upon the name, and might miſlead an etymologiſt who knew no better. He might with more truth have called Rue bitter than ſour; and he whimſically enough makes it take the place of Roſemary; which was the emblem of *remembrance*, as Rue was of *grace*. Thus Perdita, in the Winter's Tale—

——"Reverend ſirs,
"For you there's Roſemary and Rue; theſe keep
"Seeming and ſavour all the winter long:
"Grace and remembrance be to you both."

They are both evergreens, retaining their appearance and taſte during the whole year, and therefore are proper emblems of remembrance and grace.

Rue ſeems to have been uſed formerly in noſegays; for the Clown in All's well that ends well, having ſaid of the Counteſs, "ſhe was the ſweet-marjoram of the ſalad, or rather the herb of grace." Laſeu replies, "they are not ſalad-herbs, you knave, they are noſe-herbs." Upon which the Clown, in character, remarks; "I am no great Nebuchadnezzar, ſir, I have not much ſkill in graſs:" thus punning upon the name of Grace, as the Gardener did upon the other name of Rue.

Rue was much uſed by the ancients. Hippocrates commends it as a reſolvent and diuretic, and attributes to it the power of reſiſting contagion and poiſons; which is now very little credited, though ſo highly extolled by Boerhaave. It is doubtleſs a powerful ſtimulant, and may be conſidered, like other medicines of the fetid kind, as having attenuating, deobſtruent and antiſpaſmodic powers: and as peculiarly adapted to phlegmatic habits, or weak and hyſterical conſtitutions, ſuffering from retarded or obſtructed ſecretions. *Ruta* is directed by the London College in the form of an extract, and it is alſo an ingredient in *Pilvis e myrrha compoſitus*. By ſome it is employed in the way of tea[c].

β. The deſcription given above is chiefly from the wild plant. The garden ſhrub differs little from this except in ſize. In hot climates it is ſaid to become a tree.]

Mr. Miller diſtinguiſhes two garden ſpecies: the firſt, which he calls Ruta hortenſis, riſing to the height of five or ſix feet. The ſecond, Ruta altera, is only three or four feet high, and has narrower leaves. The flowers grow in longer and looſer bunches. The ſeed-veſſel is ſmaller. This being hardier than the firſt, has almoſt ſupplanted it in the gardens about London.

2. The lower leaves are compoſed of ſeveral parts, which are joined to the midrib in the ſame manner as other branching winged leaves, and have linear leaflets ſtanding without order. Stalks from two to three feet high, branching out from the bottom, and garniſhed with leaves divided into five parts, and thoſe at the top into three, which are as ſmall and narrow as the bottom leaves; they are of a gray colour, but not ſo fetid as thoſe of the preceding. The flowers grow at the end of the branches in looſe ſpikes, which are generally reflexed. The petals are yellow. The ſeed-veſſels are ſmall, and filled with angular black ſeeds.

[It is now generally agreed that this which Mr. Miller diſtinguiſhed under the name of R. ſylveſtris, is a diſtinct ſpecies. Haller ſays it is very different; having a branched ſtem, two feet high, the leaves much more finely divided, with the laſt ſegments linear and very ſharp.

According to Villars, the leaves are decompoſed, and the leaflets *cylindric*, very narrow, a little reſembling thoſe of *Seſeli gloriosum*. Stem ſtraight and ſimple; the flowers though alternate, are turned to one ſide, and borne on branches which ſpring nearly from the ſame point, ſo that they appear to be in an umbel. The petals are entire, a little concave, with the border membranous and entire.

It differs, ſays Desfontaines, from R. graveolens, in having the leaves multifariouſly decompounded, with the leaflets very narrow and linear. The plant is corroſive, and has a very ſtrong ſmell.

Native of the South of Europe, and Barbary. It flowers in auguſt and ſeptember; and was cultivated by Mr. Miller in 1739[d].

3. This is very like R. graveolens, and is its offſpring. The firſt flowers are five-cleft, and the others four-cleft, as in that. The petals are concave with a waved margin, as in R. graveolens; but the ſtem is loftier. The petals are ciliate at the edge[e].

Leaves thick, blunt, ſingly winged or ternate. Petals hollowed like the bowl of a ſpoon, with great flatted hairs like the eye-laſhes round them. They ſmell inſupportably ſtrong. It ſeems only to be a variety of R. graveolens[f].

Stem three feet high, upright, round, very much branched. Leaves ſuperdecompound, oblong-ovate, ſmalliſh, cinereous, ſmooth, ſtrong-ſmelling. Flowers in a terminating panicle. Segments of the calyx four, acute, ſpreading. Petals four, ovate, concave, ciliate, yellow. Pores of the nectary ten. Stamens eight. Capſule four-lobed, rugged, four-celled[g].

[a] Hort. kew.
[b] Malone and Henley in Steevens's Shakſpeare.
[c] Woodville. [d] Hort. kew. [e] Linn. mant. [f] Villars. [g] Loureiro.

β. This variety differs in having the claws of the petals longer, and the lobes of the capſule approximating, not diſtant[a].]

Mr. Miller deſcribes R. chalepenſis as having ſtrong ſhrubby ſtalks about three feet high, dividing into many branches; leaves larger than thoſe of the common ſort, with a ſtronger odour; the flowers diſpoſed almoſt in form of an umbel at the end of the branches, having five concave yellow petals whoſe borders are ſet with fine hairs, and ten ſtamens of equal length with the petals; the ſeed-veſſels much larger than thoſe of the common ſort.

[Native of Africa: of Arabia, according to Linneus; of Dauphiné, according to Villars, of Aleppo and the Cape of Good Hope, according to Miller, cultivated in China and Cochinchina, according to Loureiro. In 1722, it was cultivated in the botanic garden at Chelſea. It flowers from june to ſeptember[a].

Linneus having obſerved that the Rue moves one of its ſtamens every day to the piſtil, Dr. Smith examined this ſpecies, which differs very little from the common Rue, and found many of the ſtamens in the poſition which he deſcribes, holding their anthers over the ſtigma; while thoſe which had not yet come to the ſtigma were lying back upon the petals, as well as thoſe which, having already performed their office, had returned to their original ſituation. Trying with a quill to ſtimulate the ſtamens, he found them all quite devoid of irritability: they are ſtout, ſtrong, conical bodies, and cannot, without breaking, be forced out of the poſition in which they happen to be. The ſame *phænomenon* has been obſerved in ſeveral other flowers; but it is no where more ſtriking, or more eaſily examined than in the Rue. Hence Dr. Smith concludes, that theſe plants are endued with a kind of ſpontaneous motion[b]. This is not a very philoſophical concluſion. To a ſimilar effect we are taught to aſſign the ſame cauſe: and becauſe we cannot excite the irritability, it does not therefore follow that the ſubject is not irritable.

4. Stem as in the other ſpecies. Leaves pinnate, compoſed of three pairs with an odd leaflet: the lateral leaflets oppoſite, linear, entire or crenulate, dotted; the odd leaflet ſubovate, ſerrate[c].—Native of the Canary Iſlands by Maſſon. Introduced in 1780. It flowers in march[a].]

5. The ſtalk riſes ſingly from the root, is about a foot high, and herbaceous. Leaves alternate, narrow. The ſtalk branches at the top in form of an umbel, ſuſtaining many yellow flowers, compoſed of five entire plane petals, having no hairs on their borders. It ſeems to be a plant of ſhort duration.

[This ſpecies was firſt diſcovered by Micheli near Arqua, not far from Padua. He conſidered it as a diſtinct genus, becauſe it has five flat naked petals. It was cultivated by Mr. Miller in 1768.]

6. This riſes with ſeveral ſingle ſtalks from the root near a foot and half high. Leaves three quarters of an inch long, and one eighth of an inch broad, of a yelloviſh green colour, alternate, ſeſſile; at their baſe one or two very ſmall, but of the ſame ſhape and colour. Flowers in ſmall cluſters at the end of the ſtalks: petals five, oblong, yellow. Stamens ten, equal in length to the petals, terminated by awl-ſhaped anthers.

[The lateral branches of the panicle, bifid, three-flowered, with the middle flower ſeſſile. Petals five, ſeſſile, entire, ovate. Filaments hairy at the baſe, cloſely confining the receptacle pricked with melliferous pores. The pericarp has raiſed dots[a].

Stems herbaceous, ſmooth, round, upright, often many from the ſame head, ſimple or ſcarcely branched. Leaves ſcattered, ſmooth, quite entire, ſpatuled-lanceolate, blunt, thickiſh, running down the petiole: the lower ones ſmaller. Flowers in terminating corymbs. Bractes linear-lanceolate, leafy. Calyx five-toothed. Petals entire, concave, ovate, blunt. Filaments ciliate at the baſe. Germ ſurrounded by five villoſe tubercles[b].

[a] Linn. mant. [b] Hort. kew.
[a] Philoſ. tranſ. vol. 78. for 1788. p. 162. [c] Linn. ſuppl.
[a] Hort. kew. [a] Linn. ſpec. [a] Deſfontaines.

Native of Spain, and Tunis. Cultivated by Mr. Miller in 1759.

β. Buxbaum's plant is not different from that which grows in Spain[a].

7. Stem a ſpan high, moſt branched at bottom: branches hairy, round. Leaves alternate, entire, ſeſſile; the upper ones ſmaller. Calyx very ſmall, hairy, with blunt teeth. Petals entire, ſeſſile, ſlightly concave, yelloviſh. Filament widening and lanuginous at the baſe, ſhorter than the petals. Anthers four-grooved. Germ five-lobed, hairy. Style club-ſhaped, twice as long as the ſtamens. Capſule hairy, retuſe, hollow-dotted. The fructification is very ſeldom four-parted[a].

The flowers are as ſmall again as in the preceding ſpecies, and the petals are more clawed.—Native of Media, and of Syria near Damaſcus[a].]

PROPAGATION AND CULTURE.

All theſe plants may be propagated either by ſowing their ſeeds, or by planting ſlips or cuttings; both of which may be done in the ſpring. The manner of propagating them from cuttings being the ſame as for Lavender, Stœchas, and other hardy aromatic plants, need not be here repeated; and if they are propagated by ſeeds, there needs no farther care but to dig a bed of freſh earth in the ſpring, making it level; then to ſow the ſeed thereon, and rake the ground ſmooth; after which, keep the beds clear from weeds until the plants are come up about two inches high, when they ſhould be tranſplanted out into freſh beds, where they may remain for uſe.

The Aleppo Rue, and the wild Rue are tenderer than the common ſort, ſo require ſhelter in winter; but the Aleppo Rue will endure our ordinary winters very well in the open air, eſpecially if it be planted on a dry ſoil.

All the ſorts of Rue will live much longer, and are leſs liable to be injured by froſt in winter, when they grow in a poor, dry, rubbiſhy ſoil, than in good ground; for in rich moiſt land the plants grow very vigorouſly in ſummer, and are ſo replete with moiſture, that a ſmall froſt will kill their tender ſhoots; whereas in poor dry ground, or when they grow upon old walls, their growth will not be great, but their ſhoots will be hard and compact, and thus more able to reſiſt the cold.

The firſt ſort was formerly uſed to plant for edgings on the ſides of borders; but it was by no means proper for this uſe, for the plants ſhoot ſo vigorouſly, that there is no keeping them within the bounds of an edging; beſides when they are kept cloſely sheered, they appear to be very ragged and ſtumpy, and their roots ſpread ſo far as to exhauſt the goodneſs of the ſoil, ſo that the other plants are deprived of their nouriſhment, which has cauſed it to be wholly neglected for this purpoſe; ſo that at preſent it is chiefly cultivated for medicinal uſe, or to furniſh the balconies for the citizens in the ſpring, eſpecially that with a variegated leaf.

5. This is propagated by ſeeds, ſown in autumn, ſoon after they are ripe. The plants will come up the following ſpring. Whereas when the ſeeds are ſown in the ſpring, the plants ſeldom riſe the ſame year. On poor ground or among rubbiſh, in a warm ſituation, it will live in the open air without covering; but in rich ground it is frequently killed in winter.

6. This alſo will live through the winter in the open air, on a poor dry ſoil, and will perfect ſeeds the ſecond year; but as it is of ſhort duration, young plants ſhould be raiſed annually, to keep up a ſucceſſion.

RUTA. See *Peganum* and *Thalictrum*.

——— canina. See *Scrophularia*.

——— muraria. See *Acroſtichum*, *Aſplenium*, *Oſmunda*, *Pteris*.

RUYSCHIA. (*So named by Jacquin, in memory of Frider. Ruyſch, profeſſor of anatomy and botany at Amſterdam.*)

Lin. gen. Schreb. n. 363. *Jacqu. amer.* 75. *Juſſ.* 428. Souroubea. *Aubl. t.* 97. *Juſſ.* 428.

Claſſ. 5. 1. Pentandria Monogynia.

[a] Willdenow. [a] Billardiere. [a] Willdenow.

GENERIC

GENERIC CHARACTER.

CAL. *Perianth* five-leaved, permanent: *leaflets* roundiſh, concave, blunt, converging, imbricate, augmented at the baſe by a three-leaved involucre: one leaflet bent down, difform.

COR. *Petals* five, ovate, flattiſh, blunt, reflexed, three times as long as the calyx.

STAM. *Filaments* five, awl-ſhaped, flat, patulous, ſhorter than the petals. *Anthers* oblong, incumbent.

PIST. *Germ* ovate-roundiſh. *Style* none. *Stigma* quadrangular, cruciform, flat.

PER. *Berry* four-celled?

SEEDS many.

OBS. *Stigma five-rayed. Pericarp five-celled.* Aubl. —*two-celled, many-ſeeded.* Swartz.

ESSENTIAL CHARACTER.

Cal. five-leaved. *Cor.* five-petalled, reflexed. *Style* none. *Berry?* many-ſeeded.

SPECIES.

1. Ruyſchia cluſiæfolia.
Lin. ſpec. ed. Willd. 1. 1116. *Swartz, prodr.* 50. *deſcr.* 1. 502. *Jacqu. amer.* 75. *t.* 51. *f.* 2. *hiſt.* *t.* 76.
Leaves obovate obtuſe veinleſs.

2. Ruyſchia Surubea.
Lin. ſpec. ed. Willd. 1. 1116. *Swartz, prodr.* 50. *deſcr.* 1. 504.
Souroubea guianenſis. *Aubl. guian.* 1. 244. *t.* 97.
Logania pentacrina. *Scop. introd. gen.* 1076. *Gmel. ſyſt.* 422.
Leaves obovate obtuſe mucronate veined.

DESCRIPTIONS, *&c.*

1. This is a paraſitical underſhrub, with round ſmooth branches. Leaves alternate, entire, without nerves or veins, thick, ſhining, very ſmooth, pale green, three or four inches long, on ſhort plano-convex petioles. Racemes at the ends of the branches, ſimple, a foot long, nearly upright, many-flowered; the common peduncle round, thick, ſomewhat ſucculent, ſmooth; flowers ſcattered, alternate, ſmall, on pedicels three lines in length. Calyx-leaves ovate, ſmooth, incumbent: under the calyx two oppoſite leaflets, preſſed to it, ſmall, ovate, between which is a ſeſſile, obovate, acute, thick, deflexed, concavo-convex bracte, bigger than the lateral leaflets, dotted with red. Petals purple, deciduous. Filaments five, (or according to Jacquin ſix or ſeven) the length of the petals, into which they are inſerted at the baſe; they are widiſh, upright, purple. Style none, or very ſhort and thick. Stigma plano-convex, four or five-rayed. The fruit appears to be a berry; and as far as can be judged from the upright germ, two-celled and many-ſeeded[e].

Native of Martinico, in the vaſt moiſt woods, flowering in april[e].

2. Stem ſarmentoſe, round; with long, divaricate, flexile, declining, round, fragile branches. Leaves alternate, acuminate at the baſe, emarginate at the top, mucronate in the middle with a minute toothlet; ſmooth on both ſides, thickiſh, fleſhy; on ſhort round petioles channelled above. Racemes terminating, ſimple, long, many-flowered. Flowers alternate, ſomewhat remote from each other, large; on round fleſhy pedicels, an inch in length. Calyx-leaves five, (according to Aublet, five or ſix,) roundiſh, concave: two lateral leaflets at the baſe of the calyx oppoſite, longer than the calyx, lanceolate, blunt, concave, diverging, bent down, red; the third above cylindric-club-ſhaped, tubular, ſcarlet. Petals oblong, deciduous, yellow. Filaments yellow, wider at the baſe. Anthers brown. Germ oval, five-cornered. Style ſcarcely any. Stigma fleſhy, flat, five-rayed.

Native of the woods in Guiana, by the banks of the river Gallion. Found there by Aublet[e].

RUYSCHIANA. *Boerh.* and *Miller.* See *Dracocephalum.*

RYANIA. (*So named by Vahl, in honour of John Ryan, M.D. F.R.S. who collected plants at Santa Cruz, Montſerrat, &c.*)
Vahl, ed. 1. *t.* 9.
Claſſ. 13. 1. Polyandria Monogynia.

[e] Swartz. [f] Jacquin. [g] Swartz.

GENERIC CHARACTER.

CAL. *Perianth* inferior, permanent, five-leaved: *leaflets* lanceolate, attenuated, ſpreading, very finely nerved, coloured.

COR. none.—*Nectary* between the germ and ſtamens, pitcher-ſhaped, very villoſe, the height of the germ.

STAM. *Filaments* numerous, (ſixty) in a double row, a little ſhorter than the calyx, awl-ſhaped, having a few hairs ſcattered at the baſe, in other parts ſmooth. *Anthers* erect, awl-ſhaped, three times ſhorter than the filaments, toruloſe, mucronate, ſmooth, after the pollen is diſcharged waved about the edge.

PIST. *Germ* ovate, very villoſe. *Style* ſmooth, the length of the ſtamens. *Stigmas* four, convex.

PER. *Berry* ſuberous, elliptic-ſpheroid, brown, ſcrobiculate.—*Receptacles* five, formed out of the ſides of the berry, ſuberous, oblong, attenuated both ways, having minute tubercles ſcattered over them in tranſverſe rows.

SEEDS abundant, ovate-ſubglobular, having a few minute hairs ſcattered over them, brown, arilled. *Aril* incomplete, covering the baſe and belly of the ſeed, membranaceous, three-winged, the wings doubled.

ESSENTIAL CHARACTER.

Cal. five-leaved, permanent, coloured. *Cor.* none. *Stigmas* four. *Berry* ſuberous, one-celled, many-ſeeded.

SPECIES.

Ryania ſpecioſa.
Vahl, ed. 1. 51. *t.* 9. *Willd. ſpec.* 1. 1164.

DESCRIPTION, *&c.*

This is a tree with handſome flowers, and round aſh-coloured boughs, covered with a very fine nap towards the end. Leaves alternate, a ſpan long, elliptic, (or oblong) acuminate, ſmooth on both ſides, obliquely nerved, quite entire: the midrib underneath mealy; the nerves raiſed, and between theſe very fine, frequent, ſimple, tranſverſe veins. Petiole very ſhort, channelled above. Stipules awl-ſhaped, hoary, a little longer than the petiole, deciduous. Peduncles axillary, very ſhort, ſolitary or ſometimes two together, and then one is abortive, one-flowered. Calycine leaflets an inch and half long. Berry double the ſize of a Walnut. Seeds a little bigger than Coriander.

It ſeems to be allied to Lactia; but differs in having the calyx permanent; in the nectary; in having the anthers awl-ſhaped not round; four ſtigmas; the berries ſubglobular, not ſcored with lines or having a cartilaginous membrane within; finally in the ſeeds not being angular. The leaves reſemble very much thoſe of Caraipa longifolia of Aublet; but the fruit is totally different. It was found in the Iſland of Trinidad by Ryan, to whom the genus is conſecrated[f].

RYE. See *Secale.*

RYE-GRASS. See *Hordeum* and *Lolium.*

S.

SAAMOUNA. See *Æſculus Pavia.*

SABDARIFFA. See *Hibiſcus.*

SABICEA. See *Schwenkfeldia.*]

SABINA. See *Juniperus.*

SACCHARUM (*of Pliny. In Greek* σακχαρ, *or* σακχαρι; *from the Arabic* ſacchar, *or* zuchar. *Voſſius: or rather from the Indian* Shukur.)
Lin. gen. n. 73. *Reich. n.* 79. *Schreb. n.* 104. *Gærtn. t.* 82. *Juſſ.* 30.
Claſſ. 3. 2. Triandria Digynia.
Nat. order of *Gramina, Gramineæ* or *Graſſes.*

[f] Vahl

GENERIC CHARACTER.

CAL. *Glume* two-valved, one-flowered: *valves* oblong-lanceolate, acuminate, erect, concave, equal, awnleſs, ſurrounded with a long lanugo at the baſe.

COR. two-valved, ſhorter, ſharpiſh, very tender. *Neƈtary* two-leaved, very ſmall.

STAM. *Filaments* three, capillary, the length of the corolla. *Authers* ſomewhat oblong.

PIST. *Germ* oblong. *Styles* two, feathered. *Stigmas* plumoſe.

PER. none. *Corolla* inveſts the ſeed.

SEED ſingle, oblong.

OBS. *In* Saccharum *the wool is without the calyx; in* Arundo *it is within it.*

ESSENTIAL CHARACTER.

Cal. two-valved, involucred with a long lanugo. *Cor.* two-valved.

SPECIES.

[1. Saccharum Teneriffæ. *Teneriffe Sugar-cane.*
Lin. ſyſt. 103. *Willd.* 1. 320. *ſuppl.* 106.
Leaves awl ſhaped flat, flowers panicled awnleſs, hairy involucre none, calyx very villoſe.

2. Saccharum ſpontaneum. *Wild Sugar-cane.*
Lin. ſyſt. ed. 13. 88. 14. 103. *Reich.* 1. 147. *Willd.* 1. 321. *mant.* 183. *ſuppl.* 106. *Gærtn. fruƈt.* 2. 11. *Lour. cochinch.* 52. *ed. Willd.* 65.
S. biflorum. *Forſk. deſcr.* 16. *n.* 50.
Kerpa. *Rheed. mal.* 12. 85. *t.* 46.
Leaves convolute; panicle effuſed, ſpikes capillary ſimple, flowers remote involucred geminate, one of them pedunculed.

3. Saccharum japonicum. *Japan Sugar-cane.*
Lin. ſpec. ed. Willd. 321. *Lin. tranſ.* 2. 328.
S. polydaƈtylon. *Thunb. jap.* 42. (excl. ſynon.)
Fuku vulgo Tſikuſits. *Kæmpf. amæn.* 5. 899.
Boo vulgo Obanna. *Kæmpf. amæn.* 5. 899.
Racemes in bundles; petals ciliate, the outer ones awned.]

4. Saccharum officinarum. *Common Sugar-cane.*
Lin. ſpec. 79. *Reich.* 1. 147. *Willd.* 1. 321. *hort. cliff.* 26. *mat. med.* 46. *Woodv. med. bot.* 535. *t.* 196. *Brown. jam.* 129. *Lour. cochinch.* 52. *ed. Willd.* 66. *Plenck, ic.* 40.
Arundo ſaccharifera. *Baub. pin.* 18. *theat.* 293. *Sloan. jam.* 1. 108. *t.* 66. *Rumph. amb.* 5. 186. *t.* 74. *f.* 1. *Piſo, braſ. l.* 4. *c.* 1. *Maregr.* 82. *Monti prodr.* 33. *Regnault, bot.*
A ſaccharina. *Baub. hiſt.* 2. 531. *Ger.* 35. *emac.* 38. *Raii hiſt.* 1278. *Hernand.* 109.
Harundo ſaccharifera. *Park. theat.* 1210. 5.
Calamus ſaccharatus. *Munting. cult.* 284.
Canna mellea. *Ceſalp.* 182.
Flowers panicled, leaves flat.

[5. Saccharum polyſtachyon. *Many-ſpiked Sugar-cane.*
Lin. ſpec. ed. Willd. 322. *Swartz, prodr.* 21. *deſcr.* 127.
Flowers panicled, ſpikes ſiliform very long faſtigiate, florets rather remote.

6. Saccharum arundinaceum. *Reedy Sugar-cane.*
Lin. ſpec. ed. Willd. 322. *Retz. obſ.* 4. 14. *n.* 34.
Panicles cluſtered with the pedunƈles divided, florets two together one ſeſſile the other pedicelled, corollas three-valved polygamous.

7. Saccharum benghalenſe. *Bengal Sugar-cane.*
Lin. ſpec. ed. Willd. 322. *Retz. obſ.* 5. 16.
Panicles cluſtered with the pedunƈles divided, florets two together one ſeſſile the other pedicelled, corollas two-valved hermaphrodite.

8. Saccharum repens. *Creeping Sugar-cane.*
Lin. ſpec. ed. Willd. 322.
Panicle patulous, florets two together ſeſſile awned, leaves flat, ſheaths hairy.

9. Saccharum Ravennæ. *Italian Sugar-cane.*
Lin. ſyſt. 103. *Reich.* 1. 147. *Willd.* 322. *Deſfont. atlant.* 53.
Andropogon Ravennæ. *Lin. ſpec.* 1481.
Arundo calycibus uniflori extus lanuginoſis. *Ger. prov.* 105. *n.* 4.
A. farƈta alpium Ravennæ. *Zanon. hiſt.* 1. 64. *t.* 24. *Mor. hiſt.* 3. 221. *ſ.* 8. *t.* 8. *f.* 32. *Segu. ver.* 1. 361.
Gramen arundinaceum ramoſum plumoſum album. *Baub. pin.* 7. *prodr.* 14. *theat.* 95. *Schreuch. gram.* 136. *t.* 3. *f.* 7. *a, b.*
Panicle looſe with the rachis woolly, flowers awned.

10. Saccharum cylindricum. *Cylindric Sugar-cane.*
Lin. ſpec. ed. Willd. 323. *Lamarck, encycl.* 1. 588. *t.* 40. *f.* 2. *Deſfont. atlant.* 54.
S. Koenigii. *Retz. ob.* 5. 16. *n.* 28.
S. diandrum Koenig. *Dryand. in Lin. tranſ.* 2. 217.
Lagurus cylindricus. *Lin. ſpec.* 120. *ſyſt.* 123. *Reich.* 1. 226. *Ger. prov.* 104.
Imperata arundinacea. *Cyrill. ic. rar.* 2. *t.* 11.
Arundo epigeios. *Forſk. deſcr.* 23. *n.* 82.
Gramen pratenſe alopecurum, ſericea panicula. *Barr. ic.* 11.
Gr. alop. ſpica longa tomentoſa candicante. *Baub. hiſt.* 2. 474. *Monti prodr.* 59. *t.* 88.
Gr. alop. maritima repens, ſpica longiore. *Mor. hiſt. ſ.* 8. *t.* 4. *f.* 4.
Gr. tomentoſum alopecuros. *Dalech. hiſt.* 450.
Gr. tom. ſpicatum. *Baub. pin.* 4. *Tourn. inſt.* 518.
Gr. tom. creticum ſpicatum, ſpica purpurea. *Schreuch. gram.* 57.
Panicle ſpiked cylindric, pedunƈles one-flowered, flowers awnleſs two-ſtamened, leaves flat, joints bearded.

11. Saccharum Thunbergii. *Thunberg's Sugar-cane.*
Lin. ſpec. ed. Willd. 323. *Retz. obſ.* 5. 17.
Panicle ſpiked cylindric, pedunƈles one-flowered, flowers awnleſs two-ſtamened, leaves convolute, joints ſmooth.

DESCRIPTIONS, *&c.*

1. This graſs is a foot high and more. Culm jointed, with the joints approximating leafed. Leaves ſhort, ſtraight, very ſmooth. Panicle of a middling ſize, like that of *Holcus lanatus*. Calycine valves ovate, ferruginous, hirſute, with white ſpreading hairs. Anthers yellow. It differs from the other ſpecies in having the calyx hirſute, whereas in the others it is naked. It has not the involucre of the floſcules, which in the others conſiſts of long ſtraight villoſe hairs. The glumes of this are ovate, and not ſubulate as in the next ſpecies.

Native of the iſland of Teneriffe; where it was found by Maſſon [a].

2. Culm twelve feet high, but not at all arboreſcent, the thickneſs of a gooſe quill, even, covered by the ſheaths of the leaves, hollow. Leaves two feet long, convolute at the ſides, even, of the breadth common in graſs. Panicle large, ſimple, conſiſting of capillary, very ſimple and long ſpikes, nearly erect; in which the florets are at the teeth of the rachis, within a white wool longer than they, in pairs; one ſeſſile, the other pedunciled ſurrounded by its proper wool. Corolla one-valved.

Native of Malabar, in watery places; obſerved by Koenig [b]. In the Society Iſles. Loureiro ſays it is frequent in Cochinchina in marſhes and wet places; that it creeps at the root, and thus diſſuſes itſelf far and wide, eſpecially near rivers.

Gærtner ſays, that he could not diſcover the one-valved corolla, which Linneus attributes to it, in his ſpecimens.

3. Culm fruteſcent, round, ſmooth, ſimple, a fathom in height. Leaves linear-enſiform, gradually drawing to a point at the end, ſerrate, ſmooth, ſtriated; the midrib thick, keeled, entire. Flowers panicled: panicle patulous, thinly and little branched; but the racemes capillary, flexuoſe, ſmooth, very long, even a ſpan in length. Pedicels in pairs alternately, recurved, one-flowered, ſmooth, one a line in length, the other ſhorter by half. Calyx ſmooth: glumes equal, acute. One valve of the corolla concealed within one of the glumes of the calyx, awnleſs; the other awned: the awn a little twiſted, twice as long as the calyx. Down at the outer baſe of the calyx, hairy, upright, unequal, white, a little longer than the calyx.—Native of Japan; flowering in july.

There is a variety of this, which is only three feet high; with a ſimple ſpreading panicle, conſiſting of long ſimple racemes in bundles, wandlike or ſubfaſtigiate, angular, ſmooth, a ſpan long. Valves of the

[a] Linn. ſuppl. [b] Linn. mant. and ſuppl.

corolla

corolla equal, very thin, ciliate, one of them awned: the awn on the longer pedicelled floret ſhorter, on the ſhorter-pedicelled floret twice as long as the calyx, twiſted, always from the tip of the corolla. All the florets have both ſtamens and piſtils, and therefore there is no polygamy in this ſpecies.

Native of Japan: that in water near the ſhore oppoſite to Nagaſaki, flowering in july; this about Nagaſaki, flowering in ſeptember *.]

4. The root of the Sugar-cane is jointed, like that of other ſorts of Cane or Reed. From this ariſe four, five, or more ſhoots, proportionable to the age or ſtrength of the root, eight or ten feet high, according to the goodneſs of the ground. In ſome moiſt rich ſoils, Canes have been meaſured near twenty feet long; but theſe are not near ſo good as thoſe of middling growth; abounding in juice, but having little of the eſſential ſalt. The Canes are jointed, and theſe joints are more or leſs diſtant, in proportion to the ſoil. A leaf is placed at each joint, and the baſe of it embraces the ſtalk to the next joint above its inſertion, before it expands; from hence to the point it is three or four feet in length, according to the vigour of the plant; there is a deep whitiſh furrow or hollowed midrib, which is broad and prominent, on the under ſide; the edges are thin and armed with ſmall ſharp teeth, which are ſcarcely to be diſcerned by the naked eye, but will cut the ſkin of a tender hand, if it be drawn along it. The flowers are produced in panicles at the top of the ſtalks; they are from two to three feet long, and are compoſed of many ſpikes nine or ten inches in length, which are again ſubdivided into ſmaller ſpikes; theſe have long down incloſing the flowers, ſo as to hide them from ſight. The ſeed is oblong-pointed, and ripens in the valves of the flower.

[Loureiro thus deſcribes the Sugar-cane of Cochinchina.—Culm ten feet high, ſimple, round, ſolid, juicy, thick, jointed, perennial. Leaves lanceolate-linear, flat, rough, ſtriated, acuminate, embracing, four feet long, and three inches wide. Flowers terminating, in a large, diffuſed panicle, compoſed of long, ſimple ſpikes, with a long down or lanugo, or rather very long, flexuoſe, very fine hairs, inſtead of a calyx, there being none in this ſpecies.

He mentions three remarkable varieties, differing in the culm, not in the flower. 1. *White Sugar-cane*; with the culm long, white, of a middling ſize, very ſweet, the knots diſtant. — 2. *Red Sugar-cane*; with the culm ſhort, thicker, red, very juicy, the knots approximate. —3. *Elephantine Sugar-cane*; with the culm very thick, red, long, leſs ſweet, the knots approximate.

Sir George Staunton deſcribes the Sugar-cane of China, as being longer jointed than that of the Weſt Indies, with an equal diameter; the internodes of the former being generally ſix inches in length, whereas thoſe of the latter ſeldom exceed four. Doubtleſs in a plant ſo extenſively cultivated as the Sugar-cane, the varieties muſt be numerous.

The French have introduced into their Weſt Indian iſlands plants from the Eaſt Indies, and thence they have been introduced into ſome of the Engliſh iſlands. Sir John Laforey planted them in Antigua, and proved their ſuperiority over the old Canes of the Weſt Indies. He gives this account of theſe, and the Canes from Otaheite.—One brought from the iſland of Bourbon, reported by the French to be the growth of the coaſt of Malabar. Another from Batavia. A third from the iſland of Otaheite. The two firſt are much alike, both in appearance and growth: but the laſt is much larger than the common Sugar-cane of the Weſt Indies, the joints of ſome plants meaſuring eight or nine inches in length, and ſix in circumference. The colour of the canes, and of the leaves is alſo different. They are ripe enough to grind at the age of ten months, and are ſaid to make the fineſt Sugar. They appear to ſtand dry weather better; and are not liable to be attacked by that deſtructive inſect called the *borer*.—The Batavian Canes are a deep purple on the outſide; they grow ſhort-jointed, and ſmall in circumference: but bunch exceedingly, and vegetate ſo quick, that they ſpring up in one-third of the time that common canes do *.

Native both of the Eaſt and Weſt Indies, China, Cochinchina, Africa, and the iſlands of the South Sea.

It has been aſſerted that the Sugar-cane is not indigenous of America; but that it migrated through the Europeans from Sicily and Spain to Madeira and the Canary iſlands; and afterwards to the Weſt Indian iſlands and to Mexico, Peru and Brazils. On the diſcovery of the weſtern hemiſphere however the Sugar-cane was found on the continent, and in ſome of the iſlands; but the art of making Sugar, it is ſaid, never was practiſed by the native inhabitants of the iſlands or South America. Of this there may be ſome doubt with reſpect to Mexico.

Thus far is certain, that before the diſcovery of the Weſt Indies in 1492, by the Spaniards; before the diſcovery of the Eaſt Indies by the Portugueze in 1497; and before the diſcovery of the Brazils by the ſame nation in 1500; abundance of Sugar was made in the iſlands of Sicily, Crete, Rhodes and Cyprus. The Sugar-cane is ſuppoſed to have been brought to theſe iſlands originally from India by the Saracens; and thence tranſplanted into ſome parts of Italy; and to Spain from Africa, by the Moors. In Spain the Sugar-cane was firſt planted in Valencia, and afterwards in Granada and Murcia. Sugar was formerly produced in great quantity in theſe ſouthern provinces, and ſome is ſtill made in the two latter.

From Valencia the cultivation and manufacture of Sugar were carried by the Spaniards to the Canary iſlands in the 15th century: but prior to this period, the Portugueze, in 1420, carried the cane, and the manufacture from Sicily to Madeira. Hence the culture of the Sugar-cane, and the art of making Sugar, were extended to the Weſt Indian iſlands and the Brazils. The Canary iſlands were conquered by the Spaniards between 1400 and 1495.

But the Sugar-cane itſelf was found growing near the mouth of the Miſſiſippi, when Europeans firſt went to that part of America. Father Hennepin, who was there in 1680, ſays that the banks of that river were full of Canes, from thirty leagues below Maroa down to the ſea.

Francis Ximenes, Hernandes and Piſo all affirm that the Sugar-cane grows ſpontaneouſly near the Rio della Plata.

Jean de Lery, who went to Rio Janeiro in Brazil in 1556, ſays he found every where near that river a great quantity of Sugar-canes.

According to Labat, the firſt French ſettlers in St. Chriſtopher, Martinique and Guadaloupe found Sugar-canes wild in different parts of thoſe iſlands.

America therefore poſſeſſed the plant, but had not found out the art of cultivating it, and manufacturing it into Sugar, except in Mexico and Peru.

In 1506, according to Antonio Herrera, the Cane was carried from the Canaries to the iſland of Hiſpaniola or St. Domingo, by Aguillon or Aquilon, an inhabitant of la Vega. Bachiller Velloſa and Pedro Atiença were the firſt who extracted Sugar from them; and they yielded ſo well, that in a ſhort time there were on the iſland forty water and horſe mills. But in the iſland of St. Thomas under the line, on the coaſt of Africa, Sugar was made much earlier than in the Weſt Indies. It was diſcovered in 1405, and Dapper ſays that the Portugueze had ſixty-one ſugar works there, before the Dutch deſtroyed them in the year 1610.

The ſame nation firſt eſtabliſhed ſugar works in the Brazils in 1580. The Dutch had acquired ſeven of the fourteen captainſhips there, but being diſpoſſeſſed of them; the remainder, about ſix or ſeven hundred in number, in 1655 carried the art of planting the Cane and making Sugar in a proper manner to the Weſt Indies.

Sugar indeed was made at Barbadoes in 1643, by the Engliſh. But when Ligon arrived there in 1647, they were but bare Muſcovadoes; ſo moiſt and full of melaſſes, and ſo ill cured, as to be hardly worth ſending

* Thunberg.

* Edward's hiſt. pref. Moſeley, p. 23.

to England. In 1650, when he left the iſland, they were much improved, but not ſo good as thoſe of Brazil.

The Engliſh made Sugar in the iſland of St. Chriſtopher in 1643, and the French ſoon after. In 1648, the latter made it at Guadaloupe. The Engliſh did not make it in Jamaica till 1664. On the reduction of the iſland by them in 1656, the Spaniards had only three ſmall plantations on it[a].

Our Gerarde ſays; "Myſelfe did plant ſome ſhootes "thereof in my garden, and ſome in Flaunders did "the like: but the coldnes of our Clymate made an "end of mine, and I think the Flemmings will have "the like profit of their labour." This was in 1597, when we had no ſtoves for exotic plants in Europe.

Though the Weſt Indies now chiefly ſupplies Europe with Sugar, yet it was firſt brought to it from Arabia and the Eaſt Indies, or rather from the latter through the former. Dioſcorides, Pliny, Galen and Paulus Ægineta all deſcribe it as white like ſalt, brittle between the teeth, and ſweet like honey. This ſubſtance has been commonly taken for the *Tabaxir*, which has been noticed under *Arundo Bambos*, but that was not ſweet; and there is little doubt of its being cryſtallized Sugar.

There have ever been, ſince our knowledge of the Eaſt, two ſorts of Sugar made there; raw or muſcovado Sugar, and Sugar-candy; the firſt uſed only for culinary purpoſes, the ſecond for every other purpoſe of diet, luxury and exportation. The former is, and we have reaſon to ſuppoſe ever has been made in Bengal and other diſtricts of the Eaſt Indies: but China and Cochinchina ſeem to be the only countries in the Eaſt where the bright tranſparent Sugar-candy is made in perfection. It is exported from China to every part of India, even where abundance of Sugar is made: and Du Halde ſays, that it conſtitutes a great trade to Japan[a]. Father Loureiro informs us that Sugar is cultivated to a much greater extent in Cochinchina than in China; and that cryſtallized Sugar is exported from that country in great quantities. He thus deſcribes the method of making it. The raw Sugar being purified, by putting it into conical earthen veſſels, with a thin ſtratum of moiſt clay on the top, and diſcharging the impurities through a ſmall hole in the bottom; this whitened, or as we call it, clayed Sugar is diſſolved in water over a fire, and boiled to the conſiſtence of a thick ſyrup; it is then expoſed in a cool place during the night, with ſome ſlender rods cut from the Indian reed ſpread over it; the ſyrup, as it is condenſed by the nocturnal cold, adheres to theſe rods, and is formed into beautiful cryſtals.

None of the Eaſtern nations much eſteem any other Sugar than this, which probably has its name from two Indian words *Shukur* and *Khand*, both ſignifying Sugar in general. They uſe it in tea, coffee and all other beverages: and this may account for the art of refining this article into loaf-ſugar having been little practiſed in the Eaſt. The manufacture of loaf-ſugar is ſaid to be the diſcovery of a Venetian at the end of the 15th or beginning of the 16th century. It was firſt practiſed in England in 1544.

The Venetians, before the year 1148, imported conſiderable quantities of Sugar from India by the Red Sea, and alſo from Egypt. Sugar was likewiſe made before that time in Sicily. With the produce of this iſland, and the Sugar imported from India and Egypt, the Venetians carried on a great traffic, and ſupplied all the markets of Europe with this commodity. Indeed the Venetian hiſtory informs us, that even prior to 991, the Venetians, then forcing their commerce with the Saracens into Syria and Egypt, brought back thence in return, not only Rice, Dates, Sena, Caſſia, Flax, &c. but alſo Sugar[a].

Sugar, when firſt introduced, was uſed only medicinally. Pliny leaves no room for doubt on this point. Even in Arabia, in Avicenna's time, though Sugar was an article of commerce from the Eaſt, there is no record of its being uſed for dietetic or culinary purpoſes, for ſeveral centuries afterwards.

[a] Moſeley, 14 to 40. [a] Ib. 61 to 66. [a] Ib. 67 to 71.

Sugar was employed originally to render unpleaſant and nauſeating medicines grateful to the ſick: and in pharmacy, in ſyrups, electuaries, confections and conſerves.

Actuarius was the firſt phyſician who ſubſtituted Sugar for Honey in medicinal compoſitions. Dr. Moſeley ſuppoſes him to have written in the year 1000; but others place him three centuries later.

Dioſcorides, who is the firſt that mentions Sugar by name, is alſo the firſt who ſpeaks of its medicinal qualities.

Galen recommends it among the articles to be uſed for the regimen of the ſick in fevers. And Paulus Ægineta adviſes a piece of the Indian ſalt, which in appearance reſembles common ſalt, but in ſweetneſs, honey; to be kept in the mouth to moiſten it in fevers.

The Arabians recommend Sugar for the ſame purpoſe, for aſſuaging thirſt and opening the bowels.

Among the moderns Simon Pauli, Theophilus Garencieres, Dr. Thomas Willis, and Mr. Ray, condemned the uſe of Sugar, as injurious to the lungs, as having contributed to the increaſe of conſumption and ſcurvy in England.

Others, as Baptiſta Porta, Pomet, Lemery, Geoffroy, Boerhaave, were much in favour of Sugar, and particularly Dr. Frederick Slare, whoſe unqualified praiſes of it may be oppoſed to the no leſs unqualified cenſures of Garencieres and his followers. No man has been more laviſh in the praiſes of Sugar as a dietetic than Dr. Benjamin Moſeley[b].

As a medicine, Sugar cannot be conſidered as poſſeſſing much power. Dr. Cullen claſſes it with the attenuants; and Bergius ſtates it to be ſaponaceous, edulcorant, relaxing, pectoral, vulnerary, antiſeptic, nutritive. In catarrhal affections both this and Honey are frequently employed: it has been advantageouſly uſed in calculous complaints; and from its known power in preſerving animal and vegetable ſubſtances from putrefaction, it has been given with a view to its antiſeptic effects. Sugar-candy or Barley-ſugar, by diſſolving ſlowly in the mouth, are well ſuited to relieve tickling coughs and hoarſeneſs. The uſe of Sugar in various medicinal compoſitions is too obvious to require being particularly pointed out[c].

Two centuries have ſcarcely elapſed, ſince it can be properly ſaid, that Sugar has become an ingredient in the popular diet of Europe. There are now very few perſons, who do not mix more or leſs of it in their daily food; excepting the poor remote inhabitants of the interior and northern parts.

When Sugar was firſt introduced into England, it is difficult to aſcertain: though it was in uſe in 1466, yet it was chiefly confined to feaſts and to medicine, until it was brought from the Brazils, about 1580, to Portugal, and imported from thence.

The quantity conſumed in England has always kept increaſing; though the whole conſumption for near a century ſubſequent to this period was inconſiderable.

The importation in 1700 amounted to 481,425 hundred weight, or 48,142 hogſheads, at ten hundred weight each. The price then was 32s. the hundred weight.

The average importation into England and Scotland for 1787, 1788, 1789, and 1790, amounted annually to 1,952,262 hundred weight.

The annual exportation during this period was 296,996 hundred weight, which leaves the annual conſumption in England and Scotland 1,655,266 hundred weight, or 118,233 hogſheads, of fourteen hundred weight each. Thus we find 185,389,792 pounds of Sugar are annually conſumed in England and Scotland. But the latter does not conſume more than 12,000 hogſheads: the conſumption therefore of England only is 166,573,344 pounds. Now taking the population of England at eight millions, each individual, at an average, has about twenty pounds of Sugar in the year. Ireland conſumes annually 20,000 hogſheads[d].

[b] Treatiſe on Sugar, part 3. [c] Woodville.
[d] Moſeley, 154.

The Sugar in common uſe, is prepared from the expreſſed juice of the cane, boiled with quick lime, or common vegetable alkali, to imbibe the ſuperfluous acid. The boiling is repeated in ſmaller and ſmaller veſſels, during which it is often neceſſary to ſcum the impurities, and employ additional alkali; when the juice acquires a due conſiſtence, it is ſuffered to cool in a proper veſſel, and the ſaccharine matter concretes into a cryſtallized maſs. This, after being ſeparated from the melaſſes, is ſold under the name of brown or moiſt Sugar. This may be purified in conical moulds, by ſpreading on the upper broad ſurface ſome moiſt clay, which gradually transfuſes its moiſture through the maſs of Sugar, and carries with it a conſiderable part of the remaining treacly matter: it is then called clayed Sugar. Loaf Sugar is prepared in this country from the other Sugar boiled in water; lime water and bullock's blood or eggs, commonly both, being added to it, in order to clarify it, by incorporating with the oily and mucilaginous parts, and forming a ſcum, which is carefully taken off. After ſufficient clarification it is ſtrained through a woollen cloth, and boiled again until it becomes of a proper conſiſtence; it is then poured into a refrigeratory, and when duly cooled, into conical clay moulds, perforated at the apex, which is placed downwards; at firſt this aperture is ſtopped up, but as the Sugar concretes it is opened, in order that the ſyrup or melaſſes may drain off. By this draining, the cone of Sugar ſhrinks at the baſe below the edges of the mould, which, to render the loaf ſtill whiter, is filled up with moiſt clay cloſely applied to the baſe of the Sugar-cone: laſtly, the cone is placed upon its baſe, taken out of the mould, wrapped in paper, and dried or baked in a cloſe oven [a].

Sugar is manifeſtly a neutral ſaline ſubſtance, conſiſting of a peculiar acid, united to a ſmall quantity of alkali and much oily matter. It cryſtallizes in hexaedral truncate priſms: and affords by diſtillation an acid phlegm, with a few drops of empyreumatic oil; the reſidue is a ſpongy light coal, which contains a ſmall quantity of vegetable alkali.

Diſſolved in water it undergoes fermentation, and acquires firſt a vinous, then an acetous flavour. The vinous liquor diſtilled yields a ſtrong ardent ſpirit, commonly known under the name of Rum.

Bergman ſeparated the acid of Sugar, and exhibited it in a cryſtalline form. But this acid is found in a variety of other ſubſtances, not only vegetable, as gums, reſins, galls, ſtarch, ſalt of ſorrel, lemon juice, ſpirit of wine, &c. but animal; Berthollet having obtained from wool more than half its weight of this acid.

Sugar, or the ſaccharine matter, may be extracted from moſt vegetables, particularly the maple, the birch, beet, parſnep, grapes, &c. but the Sugar-cane affords it in larger quantities, and more readily than any other [b].

5. Height from three to four feet. Culm round, jointed, ſmooth. Leaves widiſh, keeled, linear, acute, entire, ſmooth: ſheaths ſmooth, except at the neck, which is hairy. Panicle terminating. Spikes near a foot long, faſtigiate, looſiſh, in a ſort of whorl: rachis filiform, ſlightly flexuoſe. Spikelets on very ſhort pedicels, remote, moſtly directed one way, ſmall. Calycine valves flattiſh, narrower than the corolla, but longer and more tender, pellucid; the outer a little longer than the inner. Down or lanugo three times as long as the valves, whitiſh and ſhining, inſerted at the baſe into the ſides of the valves, in bundles. Valves of the corolla equal, ovate, acute, one convex the other flat, yellowiſh, ſmooth.—It very much reſembles S. polydactylon of Thunberg; (S. japonicum) but that is diſtinct from this, in having the ſpikes in bundles, the glumes of the corolla ciliate, the outer ones awned.

Native of the Iſland of St. Chriſtopher; where it was found by Maſſon [c].

6. Culms as high as ten feet, thick, half void, leafy. Leaves wide, in whorls, approximating to the ſtem. Panicle two feet long, contracted, with a four-cornered rachis. Peduncles in whorls, three-ſided, jointed. Of the two florets which grow together, the ſeſſile one is hermaphrodite, and that which is pedicelled is often male. Calyx-glumes equal, with the wool three times as long as they. Corolla moſt frequently three-valved; the valves hyaline, leſs than the calyx; one longer, acuminate. Nectary, two or three very tender hyaline ſcalelets. The male flowers have frequently only two ſtamens. Styles bearded, blackiſh.

Native of the Eaſt Indies, whence it was ſent by Koenig. It is cultivated by hedges and on the banks of pools near Tranquebar. The Tamules call it *Pee-Carumbo*, or Devil's Sugar. The entire culms are often uſed for the lower covering of roofs, but they are a harbour for ſerpents, lizards, and other vermin. *Koenig* [d].

7. This is ſo like to *S. arundinaceum*, that it might very eaſily be taken for the ſame; but it differs in having the corollas two-valved, all the florets hermaphrodite, and the ſtigmas of a yellowiſh brown colour.

Native of Bengal, whence it was ſent by Koenig [e].

8. Culm a foot high, ſimple, aſcending. Leaves ſmooth, ſhort. Whitiſh hairs at the edge of the ſheath. Panicle the ſize of that in *Holcus lanatus*: branches covered with white ſcattered hairs. Florets fenced with white ſhining villoſe hairs. Calyx ſmooth. Corolla awned.—Native of Guinea [f].

9. Culm the thickneſs of the finger or thumb, upright, ſmooth. Leaves ſmooth, as large as thoſe of Arundo Donax, ſerrate, with the midrib white. Flowers very numerous, in a long looſe panicle, which is ſilky, ſilvery and much branched. Calyx-glumes narrow, nearly equal, villoſe on the outſide, with ſilvery hairs longer than the flowers. One glume of the corolla longer than the other, with a ſhort briſtle-ſhaped awn. It is a very beautiful plant; and the Arabs make tobacco-pipes of the ſtraw [g].

Native of Italy, Provence, and Mount Atlas, on the banks of ſtreams.

10. Roots long, ſlender, twiſted, white. Culm often branched at the baſe. Leaves glaucous, ſmooth, hard, convolute. Spike cylindrical, ſilky, long, denſe, branched. Calyx ſurrounded with numerous, long, ſnowy briſtles. Corolla very ſhort. Anthers and ſtyles violet-coloured. *It keeps together driving ſands* [h].

Culm ſlender, from a foot to a foot and half in height, with white, erect, bearded hairs at the joints. Root-leaves many, flat: ſtem-leaves few, ſheathing. The whole panicle appears quite white with wool, three times as long as the florets. Stamens two, with yellow anthers. Stigmas villoſe, brown.

Koenig ſent this ſpecies under the name of S. diandrum, and Thunberg from Japan, by the name of S. ſpicatum [i]: but it is not S. ſpicatum of Linneus.

Native of the South of France, Italy, Sicily, Candia, Smyrna, Barbary, and the Eaſt Indies.

11. This is a very tall Graſs; with the panicle more contracted and twice as long as in the preceding, with the wool rather yellowiſh. Joints of the culm quite naked. Leaves rigid. Flowers twice as big. Corolla only half the ſize of the calyx, thin, of a very ſhining white colour.

Native of the Eaſt Indies: gathered by Thunberg [k].]

PROPAGATION AND CULTURE.

The Sugar Cane is preſerved by way of curioſity in ſeveral gardens in England, but being too tender to thrive here, unleſs it is preſerved in a warm ſtove, it cannot be brought to any great perfection. I have ſeen ſome of the plants growing which were ſeven or eight feet high, and at the bottom as large as a common walking cane, but they have not produced their panicles of flowers here.

It is here propagated by ſlips taken from the ſides of the older plants; thoſe which grow near the root and

[a] Woodville. [b] Meſeley, 108 to 125. [c] Swartz. [d] Retz. [e] Idem. [f] Willdenow. [g] Deſfontaines. [h] Idem. [i] Retzius. [k] Idem.

have

have fibres to them, will moſt certainly grow; ſo that when the ſhoots are produced at ſome diſtance from the ground, the earth ſhould be raiſed about them, that they may put out fibres before they are ſeparated from the mother plant. Theſe ſlips ſhould be planted in pots filled with rich kitchen-garden earth, and plunged into a moderate hot-bed of tanners bark, being careful to ſhade them from the ſun until they have taken new root, after which they muſt be treated in the ſame way as other tender plants from the ſame countries. They muſt be conſtantly kept plunged in the tan-bed in the ſtove; and as their roots increaſe in ſize, the plants ſhould from time to time be ſhifted into larger pots; but this muſt be done with caution, for if they are over-potted they will not thrive: they will require to have water frequently in warm weather, but it muſt not be given them in too great plenty, eſpecially in cold weather. As the leaves of the plants decay, they ſhould be cleared from about the ſtalks; for if theſe are left to dry upon them, it will greatly retard their growth. The ſtove in which this plant is placed, ſhould be kept in winter to the ſame temperature of heat as for the Pine-apple, and in hot weather there ſhould be plenty of free air admitted to the plants, otherwiſe they will not thrive.

I ſhall here ſubjoin ſome account of the method of propagating and cultivating the Sugar Cane in America, with ſome obſervations and experiments which have been made by a few curious perſons in the Britiſh Iſlands, and ſhall propoſe ſome farther trials to be there made, in the culture and management of this uſeful plant, which are founded upon the experience I have had in the culture of ſome plants which are ſimilar in their growth with the Sugar Cane.

The land which is moſt proper for the growth of Sugar Canes, is ſuch as has a ſufficient depth of ſoil, and is not too moiſt and ſtrong, but rather light and eaſy to work; for although ſtrong moiſt ground will produce much taller and bigger Canes than the other, yet the quantity of Sugar will be much leſs, not near ſo good, and will require a greater quantity of fuel, and a longer time to boil, before the Sugar can be made; which is alſo the caſe with all freſh land, where there has not been any Canes growing before; therefore many of the moſt expert planters burn their land when it is firſt cleared for planting of Canes, to abate its fertility; but if when land is firſt cleared of the wood, and the roots of bad weeds, it is ſown with Indigo, which ſuch freſh ground will produce much better than the old, or ſuch as has been long cultivated, there may be two or three crops of this taken, which will prepare the land for the Sugar Canes, without being at the trouble of burning it; but the growing of Indigo has been ſo little practiſed in the Britiſh Iſlands of America for many years paſt, as to be eſteemed unworthy the notice of a Sugar planter; whereas if they would ſometimes change their crops to other ſpecies, they would ſoon find an advantage in the growth, not only of their Canes, but alſo of their other crops: however, the uſual practice is to continue the Canes always upon the ſame land as long as it will produce them, without changing the ſpecies, or allowing the ground a fallow to reſt and recover itſelf. By this method there are ſome plantations ſo much exhauſted, as that the crop of Sugar will ſcarce defray the expenſe of culture.

Another thing ſhould always be obſerved in the planting of freſh land with Canes, which is to allow them more room than is generally done; for as the ground is ſtrong, ſo there will be a greater number of ſhoots come out from each plant, and not having room to ſpread at bottom, they will draw each other up to a great height, and be full of watery juice, the ſun and external air being excluded from the Canes by the multiplicity of leaves, which are both abſolutely neceſſary to ripen and prepare the ſalts during the growth of the Canes.

If the ground is proper for the Sugar Canes, and they are planted at a good diſtance from each other, and the land is carefully managed, the ſame plantation may be continued about twenty years without replanting, and produce good crops the whole time; whereas in the common method, they are generally replanted in ſix or ſeven years, and in ſome poor land they are continued but two or three.

The Canes are in thoſe warm countries propagated by cuttings or joints, of proper lengths; theſe are from fifteen to twenty inches long, in proportion to the nearneſs of their joints or eyes. Theſe cuttings are generally taken from the tops of the Canes, juſt below the leaves; but if they were choſen from the lower part of the Canes, where they are leſs ſucculent and better ripened, they would not produce ſo luxuriant ſhoots, and their juice would be leſs crude, and contain a greater quantity of ſalts, which will be obtained by leſs boiling than thoſe Canes in the cloſe manner they are commonly planted; this is well known to the judicious to be the caſe, in moſt kinds of vegetables; and it is by thus carefully propagating all kinds of eſculent plants, either in the choice of the beſt ſeeds or cuttings, that moſt of the kinds have been ſo greatly improved of late years.

The diſtance which the Canes are uſually allowed in planting, is from three to four feet, row from row, and the hills are about two feet aſunder in the rows; in each of theſe hills they plant from four to ſeven or eight cuttings, which is a very great fault, and is the cauſe of moſt of their blights ſo much complained of lately; for if all theſe grow, which is often the caſe, they rob each other of their nouriſhment; and if a dry ſeaſon happens before they have acquired ſtrength, they are very ſoon ſtinted in their growth, and are then attacked by inſects, which ſpread and multiply ſo greatly, as to cover a whole plantation in a little time: when this happens, the Canes are ſeldom good after, ſo that it will be the better way to root them entirely up when they are ſo greatly injured, for they very rarely recover this diſorder; for although the inſects are not the cauſe of the diſeaſe, yet they confirm it, and cauſe it to ſpread.

Therefore, if inſtead of planting ſo many, there was but one good cutting planted in each hill, or to prevent miſcarriage, two at moſt; and if both ſucceeded, the weakeſt were drawn out ſoon after they had taken root, it would be found of great ſervice to prevent theſe blights; and although the number of Canes will not be near ſo great from the ſame ſpace of ground, yet the quantity of Sugar will be full as much, and will require little more than a fourth part of fuel to boil it.

I have been aſſured by two of the moſt ſenſible and judicious planters of Sugar in America, that they have made ſome experiments of the horſe-hoeing culture for their Canes, which anſwered much beyond their expectations; one of thoſe gentlemen told me, he planted one acre in the middle of a large piece of Canes, in rows at five feet aſunder, and the hills were two feet and a half diſtant, and but one cutting to each hill. The ground between the rows was from time to time ſtirred with the horſe plough, to deſtroy the weeds and earth the plants; with this culture the Canes were double the ſize of thoſe in the ſame piece, which were cultivated in the uſual way; and when the Canes were cut, thoſe which had been thus planted and managed were ground and boiled ſeparately; the produce of Sugar was full as great as the beſt acre in the ſame piece, and the expenſe of boiling was little more than a ſixth part of the other, and he ſold the Sugar for ſix ſhillings per hundred weight more than he could get for the other.

The time for planting the Canes is always in the rainy ſeaſons, and the ſooner they are planted after the rains have begun to fall, the more time they will have to get ſtrength before the dry weather ſets in; for when they have put out good roots, and are well eſtabliſhed in the ground, they will not be ſo liable to ſuffer by the drought, as thoſe which have but newly taken root.

The ſeaſon being come for planting, the ground ſhould be marked out by a line, that the rows of Canes may be ſtraight, and at equal diſtances; but firſt it will be proper to divide the piece into lands of ſixty or ſeventy feet broad, leaving intervals between each of about fifteen feet; theſe will be found of great uſe

when the Canes are cut, for roads in which the carriages may paſs to carry off the Canes to the mill; for where there is not ſuch proviſion made, the carriages are obliged to paſs over the heads of the Canes to their no ſmall prejudice: beſides, by theſe intervals, the ſun and air will have freer paſſage between the Canes, whereby they will be better ripened, and their juice will be fuller of ſalts; therefore when the Canes are ground, they will not require ſo much fuel to boil their juice. The middle of theſe intervals may be planted with Yams, Potatoes, or other eſculent plants, which may be taken off before the Canes are cut, that the paſſages may be clear for the carriages; but a path ſhould be left on the ſides of each land, for the more convenient riding or walking of the overſeer of the plantation, to view and obſerve how the labour is performed.

The common method now practiſed in planting of the Canes is, to make a trench with a hoe, which is performed by hand; into this one negro drops the number of cuttings intended for planting, at the diſtance the hills are deſigned; theſe are by other negroes placed in their proper poſition, then the earth is drawn about the hills with a hoe, all this is performed by hand; but if the right uſe of ploughs was well known in thoſe countries; the work might be much better performed, and for leſs than half the expenſe; if inſtead of making a trench with a hoe, a deep furrow were made with a plough, and the cuttings properly laid therein, the ground would be deeper ſtirred, and there would be more depth for placing the Canes.

If the ground is to be afterwards kept clean with the horſe hoe, the rows of Canes ſhould be planted five feet aſunder, that there may be room for the horſe and plough to paſs between them; and the diſtance of the hills from each other ſhould be two feet and a half, and but one Cane ſhould be permitted to remain in each hill. After the Canes are planted and have made ſome ſhoots, the ſooner the horſe plough is uſed the better will the Canes thrive, and the ground will be eaſier kept clean from weeds; for if theſe are torn up when they are young, they will preſently die; whereas when they are ſuffered to grow large before they are diſturbed, they are with great difficulty deſtroyed.

As the growth of the Canes is promoted according to the cleanneſs of the ground, ſo there cannot be too much care taken to keep the Canes perfectly clear of weeds; and the beginning of this work ſoon will render it leſs troubleſome, and it may be performed at a leſs expenſe, than when it is neglected for ſome time. When this is performed with a plough, the earth in the interval ſhould be thrown up to the rows of Canes, firſt on one ſide of the row, *being careful not to diſturb the roots of the Canes*, as alſo not to bury their new ſhoots; and in the ſecond operation, the earth ſhould be turned over to the other ſide of the rows, with the ſame care as before. By this turning and ſtirring of the land, it will be rendered looſer, and the earthing of the plants will greatly ſtrengthen them; ſo that from each hill there will be as many ſhoots produced as can be well nouriſhed, and the ſun and air will have free ingreſs among the rows, which will be of the greateſt ſervice to the Canes.

When the Canes are from ſeven to ten feet high, and of a proportionable ſize, the ſkin ſmooth, dry, and brittle, if they are heavy, their pith gray, or inclinable to brown, the juice ſweet and glutinous, they are eſteemed in perfection.

The time for cutting the Canes is uſually after they have grown ſix months; but there ſhould not be a fixed period for this, for in ſome ſeaſons and in different ſoils, there will be more than a month's difference in their maturity; and thoſe who have made the experiments of cutting their Canes before they were ripe, and letting others ſtand till after they were ripe, have found the Sugar made from the latter, was much finer than that of the former, though the quantity was not quite ſo great; however, it will always be beſt to let them ſtand till they are in perfection before they are cut, but not longer.

They have alſo found thoſe Canes which are cut towards the end of the dry ſeaſons, before the rains begin to fall, have produced better Sugar than thoſe which are cut in the rainy ſeaſons, when they are more replete with watery juice, and there has been much leſs expenſe of fuel to boil it, which is a material article in large plantations; therefore the better the Canes are nouriſhed in their growth, and the more ſun and air is permitted to paſs between the rows, the leſs expenſe will be incurred in boiling and preparing the Sugar.

[The manner of preparing the ſtiff ſoils in the Weſt Indian iſlands for Sugar, is to burn the traſh and weeds upon it, as ſoon as the Canes are cut down; the aſhes being a proper manure; and the beſt compoſt for ſuch land is aſhes, ſand and rotten cane-traſh. This land ſhould always be hoe-ploughed, and after continuing about a month in this ſtate, it ſhould be *holed*. The cane-holes ſhould not be very deep, ſo as to bring up the ſtiff clay. It is better to hoe-plough the bottoms of the cane-holes, juſt before throwing in the manure; and if they are not planted ſoon after, the manure ſhould be covered with a little mould, taken from the ſides of the banks. The plants muſt be laid dry, and not more than two inches below the ſurface, unleſs you are forced to plant in dry weather, which ſeldom happens.

The Cane rattoons better in ſtiff than in light ſoil. Coffee, Cocoa and Plantains thrive very well in it.

In light ſoils, ſuch as ſand, gravel and all poor dry moulds, with lime-ſtone or rock of any kind under it; the traſh and weeds ſhould be dug into the ground at the time of holing. No ploughing is neceſſary, but labour is beſt beſtowed in preparing and carrying on good rich manure, without which theſe light ſoils will never make a proper return to the planter.

The manure muſt be laid on heaps to ferment and rot, and if it is not arrived at a ſufficient ſtate of putrefaction at the time of planting, it may be diſtributed to the young plants, when they are a foot or eighteen inches above the ground. This work ſhould be done in rainy weather, that the ſalts may the ſooner penetrate to the roots of the young Canes.

In theſe ſoils you muſt plant either very early or very late. If you plant in may or june, which is termed ſpring-planting, and the weather proves favourable, the plants may be fit to cut in april or may following. But where ſituation, dry weather, a late crop, want of ſtrength in ſlaves or cattle, &c. prevent this early planting; the month of december will be the beſt time—or even early in january. In light ſoils you can hardly make your cane-holes too deep, and the buſineſs of planting may ſucceed immediately to that of holing.

Cotton, Indian Corn and moſt of the roots flouriſh beſt in theſe light ſoils.

In both ſoils, when the plants are about ſix inches high, they ſhould be weeded with the hand, and no weeds ſhould be ſuffered at any time to cover the ground, ſo as to retard the growth of the Cane. Perhaps in a very dry ſeaſon, low weeds may be of ſervice, by keeping the ground moiſt, and preventing the ſcorching ſun from penetrating to the roots of the Canes.

At every weeding, a ſmall portion of the banks is to be pulled down with the hoe, and ſpread round the young plants; but this ſhould be done ſparingly, that part of the banks may remain, to be drawn round the rattoons.

In twelve months from the time of planting, or as ſoon as the arrows have dropped, it is proper to go through them, to ſtrip off the exuberant leaves and traſh, in order to admit the ſun and air, and ripen the Canes more expeditiouſly. This is particularly neceſſary in rich or level lands.

In all deep gray ſoils, rich black and chocolate-coloured mould, manure is not ſo neceſſary, and in theſe happy ſituations crops will be produced almoſt without rule.

It is the general practice to plant cloſer in poor than in rich land: but this is an erroneous method founded probably on a notion that two Canes muſt always be better than one; without conſidering that

one good ſtrong plant will yield more Sugar than half a dozen ſmall ones. One healthy plant is ſufficient for a hole of four feet ſquare. In rich flat land, this thin method of planting is alſo very proper; for, were this ſort of ſoil to be planted cloſe, the Canes when grown up would exclude the rays of the ſun, and want that free circulation of air, ſo neceſſary to prevent diſeaſes in the Cane, as well as for the neceſſary concoction of its juices.

All expoſed ſituations indeed, where the Canes are apt to lodge, ſhould be planted cloſe; and two, or even three plants may be put in a hole of the above dimenſions; that the Canes may the better reſiſt the violence of the wind, and ſupport one another.

The great peſts of the Sugar-cane are the Cane-ants, and the blaſt ſuppoſed to be occaſioned by minute inſects which accompany them. Rats alſo are very deſtructive to it, and Knot-graſs is the moſt pernicious weed. It is thought by ſome that rich oily manures, or a thick dreſſing of marl, is the beſt cure for the ants. But many Sugar-plantations have been totally abandoned, ſuch are the ravages of theſe inſects; and the beſt courſe to purſue in this calamity, is to adopt the culture of cotton, where the ſituation is not too wet or cold. Blaſts that come without the ants may in the beginning be ſtopped by burning the parts affected; by waſhing the young plants with ſalt-water or weak lime-water; and a good ſeaſon, that is heavy ſhowers, will ſometimes put a ſtop to it. When it returns, the Canes ſhould be planted thinner, to give them a free circulation of air: the quincunx mode of planting may in this caſe be adopted with advantage. And if the leaves affected are ſtripped off, and the diſeaſed ſtems cut down, and burnt to windward; and the roots covered with good freſh mould; this with ſalt or lime water, may prove a cure for the *greaſy fly* and *yellow fly*; as well as for thoſe deſtructive worms called the *borer* and the *grub*[p].

The planters endeavour to get all their Canes off the ground before the end of april: becauſe heavy ſhowers frequently fall the end of may, when ſome ground ſhould be holed for a ſpring plant, which ſhould be put in before the end of june. The young Canes muſt alſo be weeded in theſe two months, and the produce ſhould be carted before the roads are broke up by the heavy rains. In july, auguſt and ſeptember old dung ſhould be carried out, and new prepared: and weeding continued.

In auguſt and the two following months is the proper ſeaſon for holing ſtiff land. September and october are generally rainy months; and the proper time for throwing rotten dung on the holed land. The land ſhould be planted in november and the beginning of december[q].

It is near half a century ſince Mr. Miller recommended the uſe of the plough in the culture of the Sugar-cane. Mr. Long afterwards, in 1774, earneſtly exhorted his countrymen to profit by experiments that had been made with the plough in Jamaica. Some pieces were ploughed at an eſtate in the pariſh of Clarendon, and left to lie for ſome time before they were holed by the negroes, who found it uncommonly eaſy to work. Before ploughing it was ſpread over with manure; and the Canes planted upon it turned out near three hogſheads of fine Sugar on an acre, which was one hogſhead more than it had been uſed to yield from the common method of culture. It was found that one plough turned up as much ground in a day as a hundred negroes could with their hoes, and in a much better manner. One benefit among others from the uſe of the plough is, that it makes the bottom of the furrows even, ſo that the rain water never lodges, but either ſoaks in, or runs clear and gradually off; whereas the ground dug with hoes retains the water ſome time, which checks the growth of the Canes, makes them ſhort-jointed, and in conſequence leſs yielding, nor do they bear the dry weather ſo well. The plough is of ſignal uſe in ſtiff or heavy clay land; the turning up of which with hoes is a moſt laborious tedious taſk, and has injured multitudes of negroes; who can ſcarcely get through it, except in very favourable open weather, which does not always happen at the holeing ſeaſon. In planting in the furrow after the plough, children will ſerve as well as grown negroes. The Canes uſed for this purpoſe, may be cut ſhort, three or four eyes in each junk, and one row laid in each furrow; thus with the greateſt expedition a furrow will no ſooner be cut than planted, and the whole covered in at the next return of the plough: after the planting is finiſhed, the able negroes may cover the ridges well, raiſing them higheſt towards the middle; rake the looſe earth out of the trenches; and cut croſs drains where neceſſary; all which will be an eaſy taſk, after the ſurface has been well broke and opened. Even they who preſer holeing, will find their advantage in firſt turning it up with the plough; for the negroes will be able to finiſh the work in half the time. In this caſe the land need not be cut ſo deep as when it is intended to plant in the furrow: in either caſe, one or two ploughings at moſt will be ſufficient, unleſs the land is extremely foul. More ground can be turned up and planted in one day by this method, than can be holed and planted in the uſual way in three, and with a tenth leſs number of able negroes; for as the young boys and girls, or what is commonly called the graſs-gang, may, with the ſlighteſt inſtruction, cut and lay the junks in the furrow; and a few of the abler hands will ſerve to cut and ſupply them with the Cane plants; the remainder of the able field hands may be occupied about other neceſſary work, of which there is always ſufficient on a large plantation.

Some may object, that the plough will not leave a due ſpace between the Canes: but this is a miſtaken opinion; for a ſingle line of plants, in every furrow, will not ſhoot up too thick, the ground will be all over ſmooth and even, and the wind will have a free courſe from whatever quarter it may blow; beſides, the many trenches will contribute to an open ventilation, whereas in the ordinary method of planting with the hoe, and leaving high banks, the Canes, eſpecially when young, are deprived of a very neceſſary refreſhment. In hot dry weather they are ſcorched and blighted by the reflection of the ſun-beams, which is very great from the high mounds on each ſide of them; and in time of heavy rains they are buried in a kind of wet ditch, which cannot fail of retarding their vegetation by chilling the ſtool or root. With the plough, rightly managed, that diſagreeable operation of ſupplying Canes is, in a great meaſure, prevented; for if the ſeaſon prove wet, the Canes are ſafe from being chilled by water; and if dry, their ſtools being well covered in, are at a ſufficient depth beneath the ſurface to retain their moiſture for a long time. It has been obſerved, that in ploughed ground the plants come up much ſtronger than in hoed land; this may be accounted for, not only by the more effectual looſening of the ſoil, but by giving a free vent to all noxious water; for although Canes cannot flouriſh without a good ſupply of water, yet too much of it, lodging in puddles about the roots, is greatly prejudicial, and deſtroys many acres of Canes.

It is not eaſy to calculate the work of a plough in Sugar-grounds, on account of the great variety of ſoil: but in moderate land, neither very ſtiff nor very light, it will work twenty-four acres a week; and it is certain, that at ſix hours a day, it will perform what would require the labour of ſix hundred negroes, employed during the ſame ſpace eight hours in a day. The plough therefore both ſaves the labour of many negroes, and enables the planter to cultivate many acres more than he could otherwiſe do; beſides that the Canes ſo planted yield more Sugar, and of a ſuperior quality. Stronger inducements there cannot be for planters to break through the force of prejudice and cuſtom, and bring this method of culture into uſe, wherever their land is not ſo ſteep as to render it impracticable: and even

[p] Extracted from a pamphlet, entitled Letters to a young Planter, &c. written by an old Planter on the Iſland of Grenada. Lond. 1785. oct. See alſo, an Eſſay upon Planterſhip, by Samuel Martin, Eſq. of Antigua; reprinted in Young's Annals, vol. 18. p. 236, &c.

[q] Idem.

even where the plough cannot be uſed, terraces might be formed, after the manner of the Chineſe[1].

Dr. Stokes, who communicated the above, to be reprinted in Mr. Young's Annals, adds:—"in imitating Britain, they (the Planters in the Weſt Indies) will, I truſt, at length diſcover that their own intereſts and thoſe of humanity are the ſame[2]."

Saccharum paniceum. See *Perotis polyſtachya*.

——— ſpicatum. See *Perotis latifolia*.

SACRED HERB. See *Ocimum ſanctum*.

SÆLANTHUS. See *Ciſſus*.

SAFFLOWER. See *Carthamus*.]

SAFFRON. See *Crocus*.

[———, Baſtard. See *Carthamus*.

———, Meadow. See *Colchicum*.]

SAGE. See *Salvia*.

[—— of Jeruſalem. See *Phlomis*.

——, Wood. See *Teucrium*.

SAGINA. (*From σαγηνη, which is from σαγω, onero. This genus is ſo named, either becauſe it comes plentifully in lands that have been dunged; or becauſe, wherever it is found, it grows abundantly.*)

Lin. gen. n. 176. *Reich. n.* 188. *Schreb. n.* 236 *Gærtn. t.* 129. *Juſſ.* 300. Alſinella. *Dill. gen.* 6.

Claſſ. 4. 3. Tetrandria Tetragynia.

Nat. order of *Caryophylleï* or *Caryophylleæ*.

GENERIC CHARACTER.

CAL. *Perianth* four-leaved: *leaflets* ovate, concave, ſpreading very much, permanent.

COR. *Petals* four, ovate, obtuſe, ſhorter than the calyx, ſpreading.

STAM. *Filaments* four, capillary. *Anthers* roundiſh.

PIST. *Germ* ſubglobular. *Styles* four, awl-ſhaped, recurved, pubeſcent. *Stigmas* ſimple.

PER. *Capſule* ovate, ſtraight, one-celled, four-valved.

SEEDS numerous, very ſmall, faſtened to the receptacle.

OBS. S. procumbens *varies with petalous and apetalous flowers.*

S. apetala *never has any petals.*

S. erecta *has calyx-leaves lanceolate, acuminate.*

S. virginica *differs in ſeveral marks from its congeners.*

ESSENTIAL CHARACTER.

Cal. four-leaved. *Pet.* four. *Capſ.* one-celled, four-valved, many-ſeeded.

SPECIES.

1. Sagina cerastoides. *Tetrandrous Pearl-wort.*
Smith in Linn. tranſ. 2. 343. *Willd. ſpec.* 1. 718. *Engl. bot. t.* 166. *Dickſ. hort. ſicc.* 10. 4. *Dryandr. cat.* 3. 244. *Wither. arr. ed.* 3. 216.
Ceraſtium tetrandrum. *Curt. lond.* 6. *t.* 31. *Smith, brit.* 498.
Stem diffuſed dichotomous, leaves ſpatulate and obovate recurved, fruiting peduncles reflexed.
2. Sagina procumbens. *Procumbent Pearl wort.*
Lin. ſpec. 185. *juſſ.* 169. *Reich.* 1. 359. *Willd.* 1. 718. *fl. lapp. n.* 157. *ſuec. n.* 155. *Hudſ. angl.* 73. *Wither. arr. ed.* 3. 215. *Smith, brit.* 199. *engl. bot. t.* 880. *Curt. lond.* 3. *t.* 12. *Relh. cant. n.* 143. *Sibth. oxon. n.* 210. *Ard. ſpec.* 2. 23. *t.* 8. *f.* 2. *Gærtn. fruct.* 2. 225. *Thunb. jap.* 80. *Gmel. ſib.* 4. 159. *Jacqu. vind.* 26. *Neck. gallob.* 96. *Pollich, pal. n.* 178. *Roth. germ.* 1. 71. 2. 200. *Hoffm. germ.* 59. *Scop. carn. n.* 183. *Krock. ſilef. n.* 265. *Villars, dauph.* 3. 654. *Allion. pedem. n.* 868. *Guett. ſtamp.* 2. 277. *Knipb. cent.* 10. *n.* 75. *Berg. phyt.* 2. 81.
Alſine tetraſtemon, foliis lanceolatis connatis. *Hall. helv. n.* 861. *Pluk. phyt. t.* 74. *f.* 1. *Segu. veron.* 421. *t.* 5. *f.* 3. *Lind. hort. alſat. t.* 8.
A. minima flore fugaci. *Tournef. inſt.* 243. *paris. Raii hiſt.* 3. 501.
Alſinella muſcoſo flore repens. *Dill. giſſ.* 81. *Raii ſyn.* 345. *Petiv. brit. t.* 59. *f.* 10.
Caryophyllus minimus muſcoſus. *Park. theat.* 1340. 6.
β. S. graminea puſilla, foliis brevioribus, craſſioribus & ſucculentioribus. *Raii ſyn.* 345. 4.
Stems procumbent ſmooth, petals very ſhort.

3. Sagina apetala. *Annual ſmall-flowered Pearl-wort.*
Lin. ſyſt. 169. *Reich.* 1. 360. *Willd.* 1. 719. *mant.* 559. *Wither. arr. ed.* 3. 216. *Smith, brit.* 199. *Engl. bot. t.* 881. *Curt. lond* 5. *t.* 14. *Sibth. oxon. n.* 211. *Abbot, beſd.* 39. *Dickſ hort. ſicc.* 3. 6. *Ard. ſpec.* 2. 22. *t.* 8. *f.* 1. *Hoffm. germ.* 59. *Villars, dauph.* 3. 655. *Allion. pedem. n.* 870.
Saxifraga anglica alſinefolia annua. *Plot, oxf c.* 6. §. 9. *t.* 9. *f.* 7. *Pluk phyt. t.* 74. *f.* 2. *Raii ſyn.* 345. 3. *Petiv. brit. t.* 59. *f.* 11.
Stems almoſt upright ſubſecent, petals obſolete.
4. Sagina erecta. *Upright Pearl-wort.*
Lin. ſpec. 185. *juſſ.* 169. *Reich.* 1. 360. *Willd.* 1. 719. *Hudſ. angl.* 73. *Wither. arr. ed.* 3. 216. *Smith, brit.* 200. *engl. bot. t.* 609. *Curt. lond.* 2. *t.* 12. *Relh. cant. n.* 144. *Sibth. oxon. n.* 212. *Abbot, beſd.* 40. *Dickſ. hort. ſicc.* 6. 6. *Dryand. cat.* 3. 244. *Hoffm. germ.* 59. *Roth. germ.* 1. 72. 2. 201. *Pollich, pal. n.* 179. *Krock. ſilef. n.* 266. *Allion. pedem. n.* 869. *Ger. prov.* 402. *n.* 1. *Guett. ſtamp.* 2. 276. *Berg. phyt.* 2. 83.
Moenchia quaternella. *Ehrh. beitr.* 2. 177.
Alſine verna glabra. *Magn. monſp.* 14. *Vaill. par.* 6. *t.* 3. *f.* 2.
Alſinella foliis caryophylleis. *Dill. giſſ.* 47. *Raii ſyn.* 344. *t* 15. *f.* 4. *Petiv. brit t.* 59. *f.* 9.
Stem upright one or two-flowered, calyx-leaves acute, petals entire.
5. Sagina virginica. *Virginian Pearl-wort.*
Lin. ſpec. 185. *Reich.* 1. 360. *Willd.* 1. 719.
Saginæ affinis planta minima, floribus albis. *Clayt. muſ.* 649.
Stem upright, flowers oppoſite.

DESCRIPTIONS, *&c.*

1. Root fibrous, branched, annual. Herb bright green, many-ſtemmed, branched, hirſute, ſomewhat viſcid. Stems diffuſed, leafy, dichotomous, ſcarcely panicled. Leaves ciliate-oblong; the upper ones ovate. Peduncles generally three times as long as the calyx, erect, bent back when the flowering is over, but becoming erect as the ſeed ripens. Calyx-leaves hirſute, acuminate, four; two of them interior, narrower, with a membranous margin. Petals four, ſhorter than the calyx, obcordate, white. Stamens four, ſometimes but ſeldom five. Capſule cylindric, a little longer than the calyx, burſting at the top with eight blunt teeth. Seeds ſomewhat rugged on the outſide. The flowers expand only in bright weather. In the wild plant they are always four-cleft and four-ſtamened: in cultivated luxuriant plants they are ſometimes five-cleft and five-ſtamened[1].

Native of Scotland, on ſandy ſhores and rocks, on walls and in rubbiſhy places, flowering in may and june. Dr. Smith firſt obſerved it on walls about Edinburgh, as well as on the Calton hill and Arthur's ſeat, in 1782, and communicated it to Dr. Hope. It has ſince been found by Mr. Dickſon on Inch Keith and Inch Combe in the Frith of Forth, and alſo on the beach below Preſton Pans.

Mr. Curtis inſiſts that this plant in ſtructure and habit is a Ceraſtium, and Dr. Smith, who at firſt conſidered it as a Sagina, from the number of parts in the fructification, has ſince ſubſcribed to Mr. Curtis's opinion. Having been noticed too late for me to inſert it under Ceraſtium, I have thought it better to introduce it here, than to omit it entirely.

2. Trailing Pearl-wort has a fibrous root, according to ſome annual, according to others perennial; Mr. Curtis ſays it is generally annual, but in ſhady places often perennial. Stems numerous, in ſhady moiſt places procumbent, rooting; in dry ſituations upright, two or three inches in length, round, ſmooth, jointed, branched and proliferous. Leaves half an inch long, connate, linear, mucronate, ſmooth, deep green; root-leaves in tufts. Peduncles axillary, ſolitary, longer than the leaves, one-flowered, nodding before the flowers open. Calyx ſpreading; leaflets obtuſe. Petals very ſmall, twice or thrice ſhorter than the calyx, entire, white, ſpreading; often imperfect[2]. Capſule

[1] Hiſt. of Jamaica, vol. 1. p. 448—452.
[2] Vol. 18. p. 148 to 157.

[1] Smith.
[2] Curtis and Smith.

ſurrounded

ſurrounded with the permanent calyx, ovate, thin, one-celled, four-valved, opening beyond the middle. Receptacle columnar, free, hiſpid, a little longer than half the capſule. Seeds more than fifty, nearly kidney-ſhaped, ſmooth, ferruginous [x].

Villars ſays that he has often ſeen this plant without any petals, with a five-leaved calyx, ten ſtamens, and five piſtils, thus approaching to Spergula. The calyx and other parts of the flower appear in this caſe to increaſe at the expenſe of the corolla; the latter however is often wanting without an augmentation of the other parts.

Mr. Curtis remarks, that few plants aſſume a greater variety of appearance than this, but that in all ſituations the ſingular appearance of the ſeed-veſſels, placed on the calyx, like a cup on a faucer, will eaſily diſtinguiſh it.

Native of moſt parts of Europe, Siberia and Japan, in barren paſtures, on walls, &c. Being fond of a ſandy and gravelly ſoil, it is a troubleſome little weed in garden walks and paved courts, where it flowers and ſeeds during the whole ſummer [y].

3. Annual Pearl-wort has a root certainly and conſtantly annual, ſmall and fibrous. Stems ſeveral, nearly upright, or if they ſpread never taking root, from one to three inches or more in height, round, filiform, jointed, clothed with ſhort ſcattered hairs. Leaves oppoſite, linear-ſubulate, ſhort, mucronate, frequently hairy, and always fringed at the baſe. Peduncles ſlender, at firſt nodding but afterwards upright, often but not always hairy. Petals white, frequently emarginate, very minute, and often altogether wanting. Capſule one-celled: valves larger than the leaves of the calyx. Seeds generally marked with a black line on their outer edge, but this is not abſolutely invariable [z].

Linneus was not well acquainted with the differences between this ſpecies and the preceding, with which he certainly confounded Spergula ſubulata [a].

Mr. Ray conſidered this as diſtinct from the *procumbens*; and informs us, that it differs from it not only in the colour of its ſtalks and leaves, which are of a browner hue, but that it has an annual root, and that it does not put forth roots at the joints, as the *procumbens* does.

Linneus at firſt conſidered this as a variety of that, but afterwards, convinced by Arduini, he adopted it in his ſecond Mantiſſa as a ſpecies. Mr. Hudſon continued it as a variety.

The diſtinction of an annual and perennial root, though it cannot perhaps be admitted in all caſes as a ſpecific character, muſt be allowed to have conſiderable weight. The *apetala* is as regular an annual as the *Draba verna*, while the *procumbens* continues green through the winter. The preceding is always procumbent; and when it grows, as it commonly does, in moiſt ſituations, it mats and ſpreads on the ground. The ſtalks of the *apetala*, when the plant is young, ſpread on the ground; but as it advances to maturity they riſe up, and if ſeveral grow together, become quite erect. Where the plants grow ſingly, and in a dry ſituation, they neither acquire the ſame height, nor the ſame degree of uprightneſs. Sometimes it is found on moiſt ſhady walls, but taller and more branched than common; but whether the plants be ſmall or large, their ſtalks and leaves are hairy; whereas in the *procumbens* they are perfectly ſmooth: the hairs are viſible to the naked eye, and when magnified, have no little globules at their extremities, as in thoſe of *Spergula ſaginoides*, which comes very near in its appearance to Pearl-wort. The *apetala* is a ſmaller plant than the *procumbens*, and much finer in its ſtalks: its leaves are alſo ſhorter by almoſt one half, and leſs ſucculent.

From its latin trivial name, one ſhould be led to ſuppoſe, that it is perfectly apetalous; accordingly both Linneus and Arduini deſcribe it as ſuch: it is however generally found with petals, but ſo minute, as almoſt to require a magnifier to render them viſible.

Mr. Ray does not appear to have an idea of its being a common plant, for he mentions the particular ſpots where it was to be found: but it is ſcarcely leſs frequent than the preceding, in more dry, barren and open places; on walls, in gravel walks, where it is a troubleſome weed, and on barren heaths; flowering in may and june. There is perhaps ſcarcely any plant that is quicker in ripening its ſeeds [b].

Beſides England, it is native of France, Italy and Germany.

4. Upright Pearl-wort has an annual, ſimple, fibrous root. The whole herb is ſmooth and glaucous. Stems two or three inches high, upright, ſtraight, round, purpliſh, jointed, very few, but ſometimes more numerous and divaricated. Leaves oppoſite, linear-lanceolate, acute; the lower ones ſeſſile, rigid, grooved: thoſe on the ſtem connate, often bent back, broader and more pointed. Peduncles ſolitary, very long, frequently purpliſh, one or two on a ſtalk. Calyx-leaves lanceolate, acute, with a membranous edge. Petals white, about as long as, or a little ſhorter than the calyx, undivided. Germ ovate. Stigmas almoſt ſeſſile, villoſe. Capſule cylindric, undivided, opening with eight or ten teeth, one-celled; containing many rugged kidney-ſhaped ſeeds, of an orange-brown colour [c].

This is a little plant of conſiderable neatneſs and elegance in its ſtructure, much ſtronger than either of the two preceding; growing frequently on dry gravelly paſtures and heaths among graſs, flowering in april and may [d].

The calyx never opens far, ſo that the corolla is not ſuffered fully to expand. If the ſeaſon proves dry, the ſtalk is generally ſimple; but if the ground be moiſt, it throws out many ſtalks, which firſt ſpread on the earth, and afterwards become upright [e].

The fruit, ſays Dr. Smith, as Mr. Curtis has admirably obſerved, is altogether that of Ceraſtium, but its entire petals, and the number of parts in the flower, by no means agree with that genus; nor does the habit correſpond either with Ceraſtium or the other Saginas. It may perhaps form a diſtinct genus.

Mr. Curtis was at a loſs, whether to conſider this little plant as a new genus, or to arrange it with *Sagina*: for though it agrees with *Sagina* in having a calyx and corolla each of four leaves, together with four ſtamens and as many piſtils, yet in its ſeed-veſſels it greatly reſembles a *Ceraſtium*; while the whole plant, in its habit and glaucous appearance, approaches nearly to *Stellaria holoſtea*. As there are few genera however, where the ſpecies do not vary conſiderably in the parts of fructification, he thinks it moſt eligible to continue it a *Sagina*; eſpecially as it retains thoſe characters, which obviouſly diſtinguiſh it from any of the decandrous plants.

To this determination I heartily ſubſcribe, notwithſtanding Ehrhart has made it a new genus by the name of *Moenchia*; and, as Dr. Smith thinks, perhaps not unjuſtly.

5. Stem filiform, a finger's length. Leaves oppoſite, awl-ſhaped, remote, very ſmall. One flower terminating, and ſome oppoſite, each on its proper peduncle. Calyx four-parted, upright. Petals four, oblong. Stamens four, the length of the calyx. Germ conical, the length of the calyx. No ſtyle. Stigma blunt. Capſule pyramidal, beaked, one-celled. Seeds numerous. Perhaps it may be of a genus peculiar to itſelf.

Native of Virginia, where Clayton found it among moſs on the brink of ſprings [f].

Here is another doubt concerning the genus of a ſpecies of *Sagina*. The firſt ſpecies is removed to *Ceraſtium*. The fourth and fifth are thought worthy of making each a diſtinct genus. Thus we may have almoſt as many genera as ſpecies; ſcarcely any two ſpecies agreeing in their habit, and in all the parts of their fructification.

The ſeveral ſpecies may eaſily be increaſed by their ſeed, which they ſhed abundantly.

SAGINA. See *Stellaria*.

SAGITTA. See *Sagittaria*.

SAGITTÆ SIMILIS. See *Pontederia*.]

[x] Gaertner. [y] Curtis. [z] Curtis, Smith. [a] Smith. [b] Curtis. [c] Smith, Curtis. [d] Engl. bot. [e] Curtis. [f] Linn. ſpec.

SAGITTARIA. (*From the form of the leaves resembling the head of an arrow.*)

Lin. gen. n. 1067. *Reich. n.* 1164. *Schreb. n.* 1441. *Gærtn. t.* 84. *Juſſ.* 46. Sagitta. *Dill. gen.* 4. *Vaill. act. gall.* 1719.

Claſſ. 21. 7. Monoecia Polyandria.

Nat. order of *Tripetaloideæ*. *Junci*, Juſſ.

GENERIC CHARACTER.

* *Male Flowers* many.

CAL. *Perianth* three-leaved: *leaflets* ovate, concave, permanent.

COR. *Petals* three, roundiſh, blunt, flat, ſpreading, three times as large as the calyx.

STAM. *Filaments* numerous (often twenty-four) awl-ſhaped, collected into a head. *Anthers* erect, the length of the calyx.

* *Female Flowers* fewer, below the males.

CAL. *Perianth* as in the male.

COR. *Petals* three, as in the male.

PIST. *Germs* numerous, compreſſed, collected into a head, gibbous outwards, ending in very ſhort *Styles*. *Stigmas* acute, permanent.

PER. none. *Receptacle* globular, collecting the ſeeds into a globe.

SEEDS numerous, oblong, compreſſed, girt longitudinally with a membranaceous margin, which is wide, gibbous on one ſide, acuminate at both ends.

ESSENTIAL CHARACTER.

Cal. three-leaved. *Cor.* three-petalled.

MALE. *Filaments* commonly twenty-four.

FEM. *Piſt.* many. *Seeds* many, naked.

SPECIES.

1. Sagittaria ſagittifolia. *Common Arrow-head.*
Lin. ſpec. 1410. *ſyſt.* 856. *Reich.* 4. 155. *Fl. lapp. n.* 344. *ſuec. n.* 869. *Gærtn. fruct.* 2. 21. *Hudſ. angl.* 420. *Wither. arr. ed.* 3. 512. *Engl. bot. t.* 84. *Relh. cant. n.* 710. *Sibth. oxon. n.* 509. *Fl. dan. t.* 172. *Pollich pal. n.* 907. *Roth. germ.* 1. 406. 2. 480. *Neck. gallob.* 388. *Villars dauph.* 3. 756. *Allion. pedem. n.* 863. *Roemer ſ. europ.* 57. *ic. Gmel. ſib.* 4. 207. *Gron. virg.* 116. *Thunb. jap.* 242. *Leur. cochinch.* 570. *ed. Willd.* 698.
Sagitta. *Camer. epit.* 874.—minor. *Dod. pempt.* 588. 2. *Matth.* 1139. *Bauh. hiſt.* 789. *Raii hiſt.* 618. *ſyn.* 258. 1. *Pet. brit. t.* 43. *f.* 11.
S. foliis acuminatis. *Hall. helv. n.* 1185.
S. major. *Scop. carn. n.* 1181.
S. aquatica minor latifolia. *Bauh. pin.* 194. 2.
S. minor latifolia. *Park. theat.* 1247. 2.
Sagittaria minor. *Lob. obſ.* 161. 2. *ic.* 1. 302. 1. *Ger.* 336. 2. *emac.* 416. 2.
β. Sagitta aquatica minor anguſtifolia. *Bauh. pin.* 194. 3.
γ. S. aquatica major. *Bauh. pin.* 194. 1. *Ger.* 336. 1. *emac.* 416. 1.
S. major. *Dod. pempt.* 588. 1. *Matth.* 1138. *Petiv. brit. t.* 43. *f.* 10.
δ. S. aquatica foliis variis. *Loeſ. pruſſ.* 234. *t.* 74.
S. minor. *Mill. dict. n.* 2.
Gramen bulboſum aquaticum. *Bauh. prodr.* 4.
ε. S. aquat. omnium minima. *Pluk. alm.* 326. *Raii ſyn.* 258. *Petiv. brit. t.* 43. *f.* 12.
Sagittaria minor anguſtifolia. *Ger.* 337.
S. parviſolia. *Sibth. oxon. n.* 509. β. *Withering var.* 2.
Leaves arrow-ſhaped acute.

[2. Sagittaria obtuſifolia. *Blunt-leaved Arrow-head.*
Lin. ſpec. 1410. *Reich.* 4. 155. *Pluk. phyt. t.* 200. *f.* 7.
S. obtuſa. *Thunb. jap.* 242.
Culitamara. *Rheed. mal.* 11. 93. *t.* 45.
Leaves arrow-ſhaped obtuſe, ſtem branched.

3. Sagittaria lanciſolia. *Lance-leaved Arrow-head.*
Lin. ſpec. 1411. *ſyſt.* 856. *Reich.* 4. 156. *Amoen.* 5. 409. *Jacqu. amer.* 248. *pict.* 121. *Brown. jam.* 345. *Plum. ſpec.* 7. *ic.* 116. *f.* 1.
Leaves lanceolate-ovate.

4. Sagittaria acutifolia. *Sharp-leaved Arrow-head.*
Lin. ſyſt. 856. *ſuppl.* 419.
Leaves awl-ſhaped.

5. Sagittaria trifolia. *Three-leaved Arrow-head.*
Lin. ſpec. 1410. *Reich.* 4. 156. *Pet. gaz.* 29. *t.* 19. *f.* 5.
Leaves ternate.

DESCRIPTIONS, *&c.*

1. Root perennial, conſiſting of a tuber fixed deeply in the mud. Stem and petioles triangular, very ſpongy, by which they are ſupported in the water in conſequence of the air generated within them: they diſcharge a white milky juice, an uncommon circumſtance in aquatic plants [a].] The petioles are in length proportioned to the depth of the water in which the plant grows, and are ſometimes almoſt a yard long. [Leaves all from the root: the firſt, which are always under water, long and linear: the ſucceeding leaves, which riſe above the water, are arrow-ſhaped, very entire, ſmooth, with parallel ribs, and a net-work of veins. Flowers three in each whorl, each having a ſmall oval-lanceolate bracte at the baſe of the pedicel, embracing the ſtem. One or two of the lower whorls have female, the reſt male flowers. The pedicels of the latter are an inch long; of the former about half an inch, and ſtronger. Calyx of one leaf with three diviſions [b]. Corolla white, with a purpliſh tinge at the claws of the petals, ſoon falling off [c]; but there is a ſucceſſion of the flowers through the months of july and auguſt [d]. Stamens three, according to Gærtner, who conſiders what Linnæus calls the ſeeds as utricular capſules, before maturity lenticular-compreſſed, but afterwards membranaceous-bracted, ſubſemilunar, terminated by a very ſhort recurved ſtyle, one-celled, not opening, of a pale ſtraw-colour. Common receptacle globular, naked, covered with ſmall dots: proper receptacle, a ſhort filiform cord ſtretched from the baſe of the capſule within the cell, ſupporting the ſeed; which is ovate-oblong, having a longitudinal ſtreak on each ſide from the navel, thus appearing as if it were doubled; it is covered with very minute dots, and is ruſeſcent.

Dr. Stokes remarks, that the flowers which are called male, have from one to five piſtils, and that there are none with ſtamens only. Dr. Smith ſays, that he has obſerved three or four piſtils in ſome of the male flowers; but whether they ever ripen is uncertain. They ſhould therefore rather be called imperfect hermaphrodites.

The young plant with linear leaves is well figured in Flora danica: not ſo, in Petiver, *t.* 43. *f.* 9. Roemer's figure is copied from Engliſh Botany. The two figures of the great and ſmall Arrow-head in Ger. emac. and Parkinſon are from Dodonæus. The leaſt Arrow-head of Gerarde is omitted by both theſe, but copied by Petiver.

Native of Europe, Siberia, China, Cochinchina, Japan and Virginia in pools, ditches and ſlow ſtreams; of which it is one of the moſt beautiful ornaments throughout England.

The bulb or tuber, which fixes itſelf in the ſolid earth below the mud, conſtitutes a conſiderable part of the food among the Chineſe, and upon that account they cultivate it [e]. The roots are larger there; in the Eaſt Indies, where they are alſo eaten; and in America. In Europe they are neglected, being probably acrid and cauſtic.

Arrow-head varies much in ſize, and has leaves of different forms; hence ſeveral varieties, and pretended ſpecies of old authors [m]. Loeſelius's variety (δ of Linnæus) is imaginary; for Arrow-head has always both ſagittate and linear leaves: Mr. Miller however (n. 2.) is tempted to conſider it as a different ſpecies.] With reſpect to Plukenet's leaſt Arrow-head, he is willing to impute the ſmallneſs of the leaves, and the ſhortneſs of the petioles and peduncles to ſituation; it being covered only at high water, which may ſtint its growth, and give it the peculiar appearance which it puts on.

[2. This differs from the preceding in having the anterior part of the leaves twice as wide as in that.—Native of Aſia [n].

[a] Engl. bot.
[b] Engl. bot
[c] Stokes in With.
[d] Withering.
[e] Kæmpf.
[m] Engl. bot.
[n] Linn. ſpec.

3. Leaves acuminate both ways, quite entire, ſhining, coriaceous, on round and very long petioles. Spikes of flowers a foot or two longer than the leaves. Of theſe there are four partial ones; the middle longer than the three outer. Peduncles one-flowered, three together. Flowers twice as large as thoſe of the common ſort; with a reddiſh calyx, white petals, and yellow anthers. Fruit depreſſed [a].

The ſtem grows very luxuriant in general, and riſes frequently to the height of two or three feet above the foliage. The branches of the lower whorls ſeldom exceed three in number, and are commonly ſubdivided in the ſame manner themſelves; but thoſe of the higher orders conſiſt chiefly of five long ſimple flower-ſtalks, and thoſe about the top of three only. The flowers that grow about the extremities of the ſtem and branches are generally male, and ſtand on longer peduncles than the female flowers, which commonly occupy the lower part of the main and lateral flower-ſpikes. Both the ſtalk and branches are ſmooth and roundiſh [b].

Native of Jamaica and Cuba in ſtagnant waters.

4. This has the ſtature of the common ſort. Leaves ſheathing at the baſe, convex outwards, ſharp at the edge, gradually attenuated into a compreſſed cuſp without any widened leaf. Flowers reſembling thoſe of the firſt ſort. Stamens many. Fruit a very cloſe globe of acute ſeeds.—Native of Surinam, in water [c].

5. Native of China.

SAGITTARIA. See *Aliſma*.

SAGO-TREE. See *Cycas*.

SAGONA. See *Hydrolea*.

SAINT ANDREW'S CROSS. See *Aſcyrum*.

SAINT BARNABY'S THISTLE. See *Centaurea*.

SAINT FOIN. See *Hedyſarum Onobrychis*.

SAINT JOHN'S BREAD. See *Ceratonia*.

——— ——— WORT. See *Hypericum*.

SAINT PETER'S WORT. See *Hypericum quadrangulum*.

SAJOR. See *Plukenetia*.

SALACIA. (*The goddeſs of the ſea.* Dea quam putabant ſalum ciere. *Feſtus.—The retiring of the ſurge from the ſhore.* Venilia unda quæ ad littus venit; ſalacia quæ ad ſalum redit. *Varro.*)

Lin. gen. Reich. n. 1105. *Schreb. n.* 1380. *Juſſ.* 424.

Claſſ. 20. 2. Gynandria Triandria.

GENERIC CHARACTER.

CAL. *Perianth* one-leafed, five-parted, very ſhort, ſpreading: *ſegments* ovate, acute, permanent.

COR. *Petals* five, roundiſh, ſeſſile.

STAM. *Filaments* none. *Anthers* three, twin, divaricate at the baſe, placed on the apex of the germ.

PIST. *Germ* roundiſh, larger than the calyx. *Style* very ſhort, between the anthers. *Stigma* ſimple.

PER. *Berry* one-celled, three-ſeeded.

SEEDS roundiſh, even.

OBS. *By the character, this genus is near allied to* Stilago, *but it is of a different habit.* Stilago *is referred to* Antideſma.—*Juſſieu thinks that* Salacia *may poſſibly be dioecous.*

ESSENTIAL CHARACTER.

Monogynous or one-ſtyled. *Cal.* five-parted. *Cor.* five-petalled. *Anthers* placed on the apex of the germ.

SPECIES.

1. Salacia chinenſis.
Lin. ſyſt. 820. *Reich.* 4. 44. *mant.* 293.
Stem ſhrubby, leaves quite entire alternate, flowers ſeveral axillary.

2. Salacia cochinchinenſis.
Lour. cochinch. 526. *ed. Willd.* 642.
Stem ſhrubby, leaves ſubſerrate oppoſite, flowers heaped axillary.

DESCRIPTIONS, *&c.*

1. Branches angular, even, divaricating very much, thickiſh at the baſe. Leaves petioled, remote, oval, like thoſe of the Plum, ſharpiſh, even. Flowers many from each germ, on one-flowered peduncles ſhorter than the petiole.—Native of China [c].

[a] Jacquin. [b] Browne. [c] Linn. ſuppl. [c] Linn. mant.

2. Stem almoſt upright, ſix feet high, with many twiſted branches. Leaves ovate, ſubacuminate, ſmooth, petioled. Flowers of a reddiſh yellow colour, ſmall. Berry roundiſh, unequal, reddiſh, middle-ſized, eatable. Calyx inferior, coloured. Petals concave, ſpreading, longer than the calyx. Filaments none. Anthers roundiſh, two-lobed, diſtant. Germ round-flatted. Style none. *Stigma* a very ſmall point.—Native of Cochinchina, among buſhes [a].

SALICARIA. See *Lythrum*.

SALICORNIA. (*From* Sal, *ſalt, and* Cornu, *a horn.*)

Lin. gen. n. 10. *Reich. n* 10. *Schreb. n.* 14. *Tournef. t.* 485. *Juſſ.* 86. *Gærtn. t.* 127.

Claſſ. 1. 1. Monandria Monogynia.

Nat. order of *Holoraceæ. Atriplices*, Juſſ.

GENERIC CHARACTER.

CAL. four-cornered, truncate, ventricoſe, permanent.

COR. none.

STAM. *Filaments* one, (or two) ſimple, longer than the calyx. *Anther* one, oblong, twin, erect.

PIST. *Germ* ovate-oblong. *Style* ſimple, under the ſtamen. *Stigma* bifid.

PER. none. *Calyx* ventricoſe, inflated.

SEED ſingle.

OBS. *I ſaw long ſince one ſtamen in a cultivated plant of the annual ſpecies: others afterwards obſerved two filaments. In another ſpecies from Virginia, of which I had a living ſpecimen lately under view, the calyx was an ovate ſcale, concave like a ſnail's ſhell, and upright; it had certainly two ſtamens, and a ſuperior piſtil.* Syſt. veg. p. 51. *Forſter and Moebring both reckon two ſtamens in Salicornia herbacea. Buſſier only one.*

ESSENTIAL CHARACTER.

Cal. ventricoſe, entire. *Pet.* none. *Stam.* one or two. *Seed* one covered by the calyx.

SPECIES.

1. Salicornia herbacea. *Herbaceous Marſh Samphire* or *jointed Glaſſwort.*
Lin. ſpec. 5. *ſyſt.* 52. *Reich.* 1. 8. *Willd.* 1. 23. *hort. cliff.* 490. *fl. ſuec. n.* 1. *mat. med.* 36. *Woodv. med. bot.* 387. *Wither. arr. ed.* 3. 4. *Smith, brit.* 2. *Relh. ſuppl.* 2. 1. *Fl. dan. t.* 303. *Scop. carn. n.* 1. *Jacqu. vind. p.* 1. *Grim. in nov. act. nat. cur.* 3. *app.* 252. & 5. *app.* 120. *Roth. germ.* 1. 1. 2. 1. *Hoffm. germ.* 1. *Krock. ſileſ. n.* 1. *Allion. pedem. n.* 1893. *Ger. prov.* 328. 1. *D'Aſſo arag. n.* 1. *Gmel. ſib.* 3. 8. *Pallas, it.* 1. *app. n.* 89. *Deſfont. atlant.* 3. *Blackw. t.* 598. *Plenck, ic. t.* 8. *Lamarck, illuſtr. n.* 33. *t.* 4. *f.* 8.

S. fruticoſa. *Mill. dict. n.* 1.

S. annua. Afzel. Mſs. 1. *Baſt. opuſc.* 2. 105. *t.* 10. *Engl. bot. t.* 415. *Sauv. monſp.* 7.

S. europæa *α*. *Hudſ. angl.* 1.

Salicornia. *Dod. pempt.* 82. 1. *Raii ſyn.* 136. *Petiv. brit. t.* 9. *f.* 3.

S. geniculata annua. *Tournef. cor.* 51.

S. f. Kali geniculatum. *Ger. emac.* 535. 1. *Park. theat.* 280. 4.—vermiculatum. *Lob. adv.* 170. 2.

Kali. *Matth.* 465. *Camer. epit.* 247.

K. geniculatum. *Barrel. ic.* 192.—ſ. Salicornia. *Baub. biſ.* 3. 705. 2. *n.* 1, 2, 3.—majus. *Baub. pin. Mor. biſ. ſ.* 5. *t.* 33. *f.* 8. *Raii biſt.* 211.

β. Salicornia erecta, foliis brevibus, cupreſſiformis. *Dill. in Raii ſyn.* 137. *n.* 5.

S. biennis. *Afzel. Mſs.* 2.

S. europæa *β*. *Hudſ. angl.* 1.

Woody jointed Glaſſwort. *Petiv. brit. t.* 9. *f.* 4.

γ. S. myoſuroides procumbens, furculis longiſſimis. *Dill. in Raii ſyn.* 137. *n.* 3.

S. europæa *δ*. *Hudſ. angl.* 1.

δ. S. ramoſior procumbens, foliis brevibus purpuraſcentibus. *Dill. in Raii ſyn.* 137. *n.* 4.

S. europæa *ε*. *Hudſ. angl.* 1.

ε. Kali geniculatum majus ſempervirens humilius. *Schola bot.* 37. *Dill. in herb. Sherard. Smith, brit.* 2.

[a] Loureiro.

Joints compreſſed emarginate, internodes obconical, ſpikes peduncled attenuated towards the top.

[2. Salicornia perennans. *Perennial jointed Glaſſwort.*
Lin. ſpec. ed. Willd. 1. 24.
S. herbacea β. *Pallas itin.* 1. *app. n.* 89. *t.* D. *f.* 1.
Herbaceous, patulous, joints compreſſed at the top emarginate-biſid, ſpikes axillary in threes peduncled, ſcales acute, root perennial.]

3. Salicornia fruticoſa. *Shrubby Marſh Sampire or jointed Glaſſwort.*
Lin. ſpec. 5. *ſyſt.* 52. *Reich.* 1. 9. *Willd.* 1. 24. *Smith, brit.* 3. *Aſzel. Mſs.* 3. *Ger. prov.* 328. *n.* 2. *Gmel. ſib.* 3. 8. *t.* 1. *f.* 1? *Desfont. atlant.* 2. *Lamarck, illuſtr. n.* 34. *t.* 4. *f.* 2.
S. europæa γ. *Hudſ. angl.* 1.
S. perennis. *Mill. dict. n.* 2.
S. geniculata ſempervirens. *Tournef. cor.* 51. *t.* 485.
S. ſempervirens. *Sauv. monſp.* 7.
Kali geniculatum majus. *Bauh. pin.* 289. *Raii hiſt.* 211. 1.
K. genic. perenne fruticoſius procumbens. *Raii ſyn.* 136.
Kali. *Cæſar. epit.* 246.
Joints round entire, internodes equal, ſpikes ſubſeſſile, cylindrical obtuſe.

[4. Salicornia ſtrobilacea.
Lin. ſyſt. Gmel. 15. *n.* 7. *Willd.* 25. *Pallas, it.* 1. 481. *t.* B. *f.* 1, 2. *Gærtn. fruct.* 2. 210.
S. arborescens ſine geniculis. *Buxb. cent.* 1. 6. *t.* 10. *f.* 2.
Stem proſtrate ſhrubby, joints truncate alternately ſpike-bearing, ſpikes naked very ſhort oppoſite.

5. Salicornia virginica. *Virginian jointed Glaſſwort.*
Lin. ſpec. 5. *ſyſt.* 52. *Reich.* 1. 9. *Willd.* 1. 25.
Herbaceous erect, branches quite ſimple.

6. Salicornia arabica. *Arabian jointed Glaſſwort.*
Lin. ſpec. 5. *ſyſt. ed.* 13. 51. *ed.* 14. 53. *Reich.* 1. 9. *Willd.* 1. 25. *ſuppl.* 81. *Pallas, it.* 1. *app. n.* 92. *t.* D. *f.* 3. *Desfont. atlant.* 3.
S. perfoliata. *Forſk. arab.* 3. *n.* 4?
Kali geniculatum alterum vel minus. *Bauh. pin.* 289. *Mor. hiſt.* 2. 610. *ſ.* 5. *t.* 33. *f.* 7. *Raii hiſt.* 211.
Joints obtuſe thickened at the baſe, ſpikes ovate.

7. Salicornia foliata. *Leafy jointed Glaſſwort.*
Lin. ſyſt. 53. *Willd.* 1. 25. *ſuppl.* 81. *Pallas, it.* 1. *app. n.* 93. *t.* F.
Leaves linear alternate embracing and decurrent.

8. Salicornia amplexicaulis. *Claſping-leaved jointed Glaſſwort.*
Lin. ſpec. ed. Willd. 1. 26. *Vahl, ſymb.* 2. 1.
Leaves cordate embracing.

9. Salicornia caſpica. *Caſpian jointed Glaſſwort.*
Lin. ſpec. 5. *Reich.* 1. 9. *Willd.* 1. 26. *Lepech. it.* 1. 254. *Pallas it.* 1. *app. n.* 90. *t.* D. *f.* 2.
Kali arborescens, tamariſci facie. *Buxb. cent.* 1. *t.* 11. *f.* 1.
Joints cylindric, ſpikes filiform.

DESCRIPTIONS, &c.

1. Root fibrous, ſmall, annual or biennial. Stem for the moſt part upright, ſubdivided at the baſe, branched at top: branches oppoſite, ſimple, upright, very ſucculent, leafleſs, jointed; joints flatted, widening at the end, emarginate. Spikes oppoſite, with one at the end larger than the reſt, peduncled, round, gradually attenuated towards the top, ſharpiſh, jointed. Flowers oppoſite, near together, moſtly three on each ſide in the clefts of the joint.

The variety β has a more branching ſtem, with longer and thicker ſpikes:—γ a diffuſed ſtem, with very long ſpikes:—δ a very branching ſtem, with ſmall purpliſh ſpikes:—ε a very branching ſtem, firmer than in the others, with ſhort green ſpikes[1].

The young plants are herbaceous, the older ones ſuffruteſcent, or ſomewhat woody at bottom; in this ſtate they have been ſometimes miſtaken for the next ſpecies[2]: that however is diſtinct, and a native of England as well as this; which may be known from it by its herbaceous ſtem being much ſhorter and more branched, but eſpecially by the marks given in the ſpecific characters.

[1] Smith. [2] Withering.

This plant is common on the coaſt of Europe, Aſia, Africa and America, where the ſhore is flat and oozy: and flowers with us in auguſt and ſeptember. The three firſt varieties were found by Mr. Stone-ſtreet, in a little ſalt-marſh on the eaſt ſide of Pool in Dorſetſhire: the laſt was alſo gathered by the ſame gentleman, but in what place is not mentioned.

The whole plant has a ſaltiſh taſte, and is greedily devoured by cattle. Steeped in ſalted vinegar, the tender ſhoots are made into a pickle, which is taken for the true Sampire, or *Crithmum maritimum*; which ſee. Hence its name of *Marſh Sampire*.

2. Native of Siberia, by the Jaik in drier marſhes.

3. Root woody, perennial. Stem ſuffruticoſe, aſcending, very much branched; branches and branchlets oppoſite and leſs fleſhy. All the internodes almoſt cylindric. Spikes commonly ſeſſile, altogether cylindric, blunt, many-flowered, with very ſhort joints[*].

Native of Europe and Africa, in the ſame ſituation. In England Sir Hans Sloane found it near the Iſle of Shepey; Dillenius in greater plenty in the Iſle of Grain; Mr. Yalden on the ſhore all the way from Weymouth turnpike to Rhodipole.

Theſe plants are burnt, and from the aſhes a foſſile alkali is obtained, which is in great requeſt for making ſoap and glaſs. Hence their names of *Glaſſwort* and *Saltwort*. It is chiefly made on the coaſt of the Mediterranean, where it is called Soda[a]. The Tuniſians collect theſe and other ſea plants, and when they are almoſt dry, burn them in a pit made for the purpoſe. The French merchants purchaſe the ſalt, and ſend it to Marſeilles for making ſoap[b].

Linnæus ſays, that they have no plant more adapted to the making of Soda; but though the quantity of foſſil alkali which it yields is very conſiderable, a great portion of it is mixed with the muriatic acid, and therefore it contains much common ſalt[c]. Many other plants are uſed for this purpoſe, but of theſe ſee under the article SALSOLA.

4. Native of the Caſpian ſea.

5. Branches oppoſite, undivided, terminated by a long jointed ſpike. It is diſtinct from the firſt ſpecies, which is alſo found in Virginia. S. virginica, obſerved by Scholler in ſalts in Germany, is only a variety of that[d].

6. This is a ſhrub, with alternate divided branches. Leaves fleſhy, blunt, covering the branchlets, opening on one ſide alternately.

Native of Arabia[e], and Barbary: obſerved by Rauwolff about Tripoli. This is burnt for Kelp or Soda.—Cultivated in 1758, by Mr. Miller[f].

7. This is a ſhrub, with alternate almoſt ſimple branches. Leaves fleſhy.—Native of Siberia, where it was found by Gmelin[g].

8. Stem decumbent, fruteſcent at the baſe, a hand or little more in height, very much branched: branches from all the axils of the leaves, alternate, ſpreading very much, an inch and half long, two together very near each other. Leaves ſmall, alternate, blunti ſh, beneath convex, above flatti ſh; on the younger branches imbricate. On the ſhores of a lake near Bardo in the kingdom of Tunis[h].

9. In muddy places by the Caſpian ſea, and in Media[i].

Forſter has a ſpecies (prodr. n. 489.) found in New Zealand, which he has named *Salicornia auſtralis*.

SALISBURIA. (*So named, by Dr. Smith, in honour of Richard Anthony Salisbury, Eſq. F.R.S. and F.L.S.*)
Lin. tranſ. 3. 330.
Claſſ. 21. 8. Monoecia Polyandria.

GENERIC CHARACTER.

* *Male* Flowers.
CAL. *Ament* naked, filiform.
COR. none.
STAM. *Filaments* many. *Anthers* incumbent, deltoid: cells connected only at the top.

* *Female* Flowers ſolitary.
CAL. *Perianth* four-cleft, permanent.

[*] Smith.
[a] Woodville.
[b] Hort. kew.
[c] Withering.
[d] Linn. ſyſt. & Willd.
[e] Linn. ſuppl.
[f] Pallas.
[g] Desfont. inſer.
[h] Linn. ſuppl.
[i] Vahl.

Cor.

COR. none.
PIST.
PER. *Drupe* ſuperior, globular.
SEED. *Nut* triangular: *nucleus* oval, narrowed at the baſe.

ESSENTIAL CHARACTER.

MALE. Ament. *Anthers* incumbent, deltoid.
FEMALE. Solitary. *Cal.* four-cleft. *Drupe*, with a triangular ſtyle.

SPECIES.

1. Saliſburia adiantifolia.
Smith in Lin. tranſ. 3. 330.
Ginkgo biloba. *Lin. mant.* 313. *Diſſ. noſtr.*

DESCRIPTION, &c.

This large and not inelegant tree is cultivated in China and Japan. It has been long (upwards of forty years) admired for its handſome fan-ſhaped leaves, cloven about half way from their ſummit; but they can by no means be termed two-lobed, that denomination requiring that the ſegments ſhould be rounded. Theſe leaves are alſo irregularly notched like thoſe of the *Zamiæ*, thickened at the margin, ſmooth, ſtriated on each ſide with numerous parallel nerves.

The fruit is a pale-brown drupe, of a globular form; the fleſh or pulp hard and thick; the ſhell is thin, bony, oval, triangular, ſmooth, ſharp at the top and one-celled; the ſeed or kernel ſolitary, filling the ſhell, having two coats brown and membranous, one adhering to the ſhell, the other to the ſeed; albumen greeniſh-white, of the ſame form with the ſeed, like that of the almond; embryo yellow, inſerted into the baſe of the albumen, ſtraight, dicotyledonous. The fruit is not produced till the tree arrives at a conſiderable age.

This genus ſhould be placed in the Linnean ſyſtem between *Quercus* and *Juglans*. In that of Monſ. de Juſſieu it belongs to the fifth order of his fifteenth claſs (Coniferæ) after *Taxus*; though it is not very nearly allied to any genus whatever.

Dr. Smith has preferred *adiantifolia* for the ſpecific name, becauſe *biloba* is not correct, and *adiantifolia* has not only been uſed long ago by Kæmpfer and Thunberg, but is peculiarly appoſite in this caſe, Mr. Saliſbury preferring ſuch comparative ſpecific names to all others.

The generic name of *Ginkgo*, being equally uncouth and barbarous, was retained by Linnæus in an appendix, only till the flowers ſhould be diſcovered, and the plant referred to its proper place in the ſyſtem [h].

For the reſt ſee GINKGO.]

SALIX. (*A ſaliendo; from the quickneſs of its growth.*—*Gr.* Ἰτέα, παρὰ τὸ ταχὺ; *on the ſame account.*)
Lin. gen. n. 1098. *Reich. n.* 1201. *Schreb. n.* 1493. *Tournef. t.* 364. *Juſſ.* 408. *Gærtn. t.* 90. *Hoffm.* 17.
Claſs 22. 2. Dioecia Diandria.
Nat. order of *Amentaceæ*.

GENERIC CHARACTER.

* *Male.*

CAL. *Ament* oblong, imbricate every way, (conſtructed of an involucre from the bud,) conſiſting of *Scales* one-flowered, oblong, flat, ſpreading.
COR. *Petals* none.
Nectary a gland cylindric, very ſmall, truncate, melliferous, in the centre of the flower.
STAM. *Filaments* two, ſtraight, filiform, longer than the calyx. *Anthers* twin, four-celled.

* *Female.*

CAL. *Ament* and *Scales* as in the male.
COR. none.
PIST. *Germ* ovate, attenuated into a *Style* ſcarcely diſtinct, a little longer than the ſcales of the calyx. *Stigmas* two, bifid, erect.
PER. *Capſule* ovate-ſubulate, one-celled, two-valved: *valves* revolute.
SEEDS numerous, ovate, very ſmall, crowned with a ſimple hirſute *pappus* or down.
OBS. *In ſome ſpecies, the male flowers have three or five ſtamens of unequal length; three have them monadelphous, another as in the claſs Syngeneſia.*
S. hermaphroditica *is the only ſpecies known to us which has hermaphrodite two-ſtamened flowers.*
S. purpurea *and* Helix *have only one ſtamen to the flowers.*

ESSENTIAL CHARACTER.

Cal. Ament compoſed of ſcales. *Cor.* none.
MALE. *Nectary* a melliferous gland.
FEM. *Style* bifid. *Capſ.* one-celled, two-valved. *Seeds* downy.

SPECIES.

* *Leaves ſmooth ſerrate.*

[1. Salix hermaphroditica. *Hermaphrodite Willow.*
Lin. ſpec. 1442. *Reich.* 4. 222. *fl. ſuec. n.* 878. *lapp. n.* 370.*
Leaves ſerrate ſmooth, flowers hermaphrodite two-ſtamened.]

2. Salix triandra. *Long-leaved three-ſtamened Willow.*
Lin. ſpec. 1442. *Reich.* 4. 223. *Hoffm. ſal.* 1. 45. *t.* 9. 10. & *t.* 23. *f.* 2. *Hudſ. angl.* 425. *Wither. arr. ed.* 3. 45. *Curt. lond.* 6. *t.* 72. *Smith in Linn. tranſ.* 6. 118. *Sibth. oxon. n.* 45. *Hall. helv. n.* 1637. *Scop. carn. n.* 1214. *Neck. gallob.* 394. *Leers, herborn. n.* 745. *Pollich pal. n.* 916. *Gmel. ſib.* 1. 155. *t.* 34. *f.* 3. *Pallas, roſſ.* 1. 78. *Du Roi barbecc.* 2. 384. *Gouan, illuſtr.* 76. *Villars dauph.* 3. 762.
S. folio amygdalino utrinque aurito, corticem abjiciens. *Raii hiſt.* 1421. 6. *ſyn.* 448.
Three-ſtamened, leaves linear-oblong ſerrate ſmooth, germs pedicelled.

3. Salix pentandra. *Bay-leaved Willow.*
Lin. ſpec. 1442. *Reich.* 4. 223. *hort. cliff.* 454. *fl. ſuec. n.* 879. *lapp. n.* 370. *t.* 8. *f.* 3. *Hudſ. angl.* 426. *Wither. arr. ed.* 3. 46. *Lightf. ſcot.* 595. *Smith in Linn. tranſ.* 6. 120. *Hall. helv. n.* 1639. *Villars dauph.* 3. 764.
S. folio laureo ſeu lato glabro odorato. *Raii hiſt.* 1420. 5. *ſyn.* 449.
Five-ſtamened, leaves elliptic-lanceolate, crenulate ſmooth, germs ſmooth ſubſeſſile.

[4. Salix phylicifolia. *Tea-leaved Willow.*
Lin. ſpec. 1442. *Reich.* 4. 223. *fl. lapp. n.* 351. *t.* 8. *f.* d. *ſuec. n.* 880. *Smith in Linn. tranſ.* 6. 123.
Leaves lanceolate wave-crenate ſmooth glaucous underneath, ſtipules ſublunate.

5. Salix nigricans. *Dark broad-leaved Willow.*
Smith in Linn. tranſ. 6. 120.
S. philicifolia β. *Lin. ſpec.* 1442. *fl. lapp. n.* 350. *t.* 8. *f.* c.
Leaves elliptic-lanceolate crenate ſmooth glaucous underneath, germs pedicelled lanceolate acuminate ſilky.

6. Salix laurina. *Shining dark-green Willow.*
Smith in Linn. tranſ. 6. 122.
Leaves elliptic acute toothlet-ſerrate ſmoothiſh glaucous underneath, germs pedicelled lanceolate ſilky.

7. Salix petiolaris. *Dark long-leaved Willow.*
Smith in Linn. tranſ. 6. 122.
Leaves lanceolate ſerrate ſmooth glaucous underneath, germs pedicelled ovate ſilky. ſtigmas ſeſſile two-lobed.

8. Salix japonica. *Japan Willow.*
Lin. ſyſt. 879. *Thunb. jap.* 24. *Kæmpf. amoen.* 5. 908.
Leaves ſerrate ſmooth lanceolate glaucous underneath, the younger ones villoſe.

9. Salix vitellina. *Yellow Willow.*
Lin. ſpec. 1442. *Reich.* 4. 224. *hort. upſ.* 295: *Hoffm. ſal.* 1. 57. *t.* 11. *f.* 1. 8. *t.* 12. *f.* 2. 3. 9. *t.* 24. *f.* 1. *fol. Hudſ. angl.* 426. *Wither. arr. ed.* 3. 47. *Sibth. oxon. n.* 46. *Neck. gallob.* 394. *Du Roi barbecc.* 2. 393. *Pallas roſſ.* 1. 76. *Leers herborn. n.* 747. *Allion. pedem. n.* 1960. *Hall. helv. n.* 1635. β. *Villars dauph.* 3. 762. *Cord. in Diſc. l. c.* 137.
S. ſativa lutea, folio crenato. *Bauh. pin.* 473.
S. tenuifolia dentata. *Munting. ic.* 12.
S. lutea tenuior. ſativa vimínea. *Bauh. hiſt.* 1. 214. *Raii hiſt.* 1421. *n.* 7.
Salicis alterum genus. *Fuchſ. hiſt.* 335.

[h] Smith in Linn. tranſ.

Leaves

Leaves ſerrate ovate-lanceolate acute ſmooth above, ſerratures cartilogineus.

10. Salix amygdalina. *Broad-leaved three-ſtamened Willow.*
Lin. ſpec. 1443. *Reich.* 4. 224. *fl. lapp. n.* 348? *ſuec. n.* 881. *Hudſ. angl.* 426. *Wither. arr. ed.* 3. 47. *Lightf. ſcot.* 596. *Relh. cant. n.* 715. *Smith in Linn. tranſ.* 6. 119. *Du Roi barbecc.* 2. 395. *Leers herborn. n.* 748? *Pollich pal. n.* 917? *Villars dauph.* 3. 763. *Holl. helv. n.* 1636?
S. folio auriculato ſplendente flexilis. *Raii hiſt.* 1420. 4. *ſyn.* 448. *cant.* 144. 4.
Three-ſtamened, leaves ovate oblique ſerrate ſmooth, germs pedicelled, ſtipules very large.

[11. Salix haſtata. *Halbert-leaved Willow.*
Lin. ſpec. 1443. *Reich.* 4. 225. *fl. lapp. n.* 354. *t.* 8. *f. g. ſuec. n.* 882. *Hall. helv. n.* 1654. *Leers herborn. n.* 749. *Gmel. ſib.* 1. 156. *n.* 10. *Pallas reiſ.* 1. 84. *Villars dauph.* 3. 774. *Allion. pedem. n.* 1562.
S. latifolia non hirſuta. *Baub. hiſt.* 1. 216.
Leaves ſerrate ſmooth ſubovate acute ſeſſile, ſtipules ſubcordate.

12. Salix ægyptiaca. *Egyptian Willow.*
Lin. ſpec. 1444. *ſyſt.* 879. *Reich.* 4. 225. *amoen.* 4. 295. *Deſfont. atlant.* 361. *Poiret. itin.* 2. 26.
S. nitida. *Gmel. it.* 3. 282. *t.* 18. *Retz. obſ.* 3. 43. *n.* 93.
S. ſyriaca, folio oleagineo argenteo. *Baub. pin.* 274.
Calaf ſ. Ban. *Alp. ægypt.* 61. *t.* 62.
Biedmuſk. *Brun. it.* 191. *t.* 72.
Leaves ſubſerrate lanceolate-ovate naked veined, petioles ſimple without ſtipules.

13. Salix fragilis. *Crack Willow.*
Lin. ſpec. 1443. *Reich.* 4. 225. *fl. lapp. n.* 349. *t.* 8. *f.* 6. *fl. ſuec. n.* 883. *Hudſ. angl.* 426. *Wither. arr. ed.* 3. 47. *Lightf. ſcot.* 597. *Relh. cant. n.* 716. *Sibth. oxon. n.* 47. *Hunt. Evel. ſylva.* 1. 245. 2. 238. *Woodv. med. bot.* 542. *t.* 198. *Du Roi barbecc.* 2. 395. *Leers herborn. n.* 750. *Pollich pal. n.* 918. *Villars dauph.* 3. 761. *Baub. pin.* 474. *prodr.* 159. *Park. theat.* 1431?
S. folio lato ſplendente fragilis. *Raii cant.* 143. *hiſt.* 1420.
S. fol. longo latoque ſplendente fragilis. *Raii ſyn.* 448. 8.
Leaves ſerrate ſmooth ovate-lanceolate, petioles toothglandular.

14. Salix babylonica. *Weeping Willow.*
Lin. ſpec. 1443. *Reich.* 4. 226. *hort. cliff.* 454. *Gron. orient.* 307. *Du Roi barbecc.* 2. 397. *Medic. in obſ. ſoc. econ. Lutr.* 1774. *p.* 287. *Gouan illuſtr* 77. *Gmel. it.* 3. 309. *t.* 34. *f.* 2. *Lour. cochinch.* 609. *ed. Willd.* 747. *Pallas reiſ.* 1. 78.
S. orientalis, flagellis deorſum pulchre pendentibus. *Tournef. cor.* 41. *Duham. arb.* 20.
S. arabica foliis atriplicis. *Baub. pin.* 475. *Raii hiſt.* 1424.
S. humilis arab. fol. atripl. *Park. theat.* 1433. 7.
Garb arabum. *Rauw. itin.* 183. *Dalech. app.* 30.
Leaves ſerrate ſmooth linear-lanceolate, branches pendulous.

15. Salix purpurea. *Bitter purple Willow.*
Lin. ſpec. 1444. *ſyſt.* 879. *Reich.* 4. 226. *fl. ſuec. n.* 884. *Hudſ. angl.* 427. *Smith in Linn. tranſ.* 6. 113. *Teeſd. in Linn. tranſ.* 5. 71. *Pollich pal. n.* 919.
S. monandra. *Hoffm. ſal.* 1. 18. *t.* 1. *f.* 1, 2. *t.* 5. *f.* 1. *t.* 23. *f.* 1. *Wither. arr. ed.* 3. 45. *Curt. lond.* 6. *t.* 71. *Sibth. oxon. n.* 48.
S. humilior, foliis anguſtis ſubcerulcis, ex adverſo binis. *Raii cant.* 144. *n.* 5. *hiſt.* 1421. *n.* 9. *ſyn.* 448.
One-ſtamened, leaves obovate-lanceolate ſerrate ſmooth, ſtigmas very ſhort ovate ſubſeſſile.

16. Salix Helix. *Roſe Willow.*
Lin. ſpec. 1444. *Reich.* 4. 226. *Hudſ. angl.* 427. *Smith in Linn. tranſ.* 6. 114. *Teeſd. in Linn. tranſ.* 5. 71. *Hall. helv. n.* 1640. *Deſfont. atlant.* 362. *Dalech. hiſt.* 277. *f.* 2.

Salicis racemi ſ. nucamenta, roſæ & capitula ſquamata. *Baub. hiſt.* 1. 2. 213.
One-ſtamened, leaves lanceolate acuminate ſerrulate ſmooth, ſtyle elongated filiform, ſtigmas linear.

17. Salix ſiſſa. *Basket Oſier.*
Hoffm. ſal. 1. 61. *t.* 13. 14. *Smith in Linn. tranſ.* 6. 115.
Monadelphous, leaves lanceolate acute ſomewhat toothletted ſmooth glaucous underneath.

18. Salix rubra. *Green Oſier.*
Hudſ. angl. 428. *Wither. arr. ed.* 3. 49. *Smith in Linn. tranſ.* 6. 116.
S. vireſcens. *Villars dauph.* 3. 785. *t.* 51. *f.* 30.
S. minime fragilis, foliis longiſſimis utrinque viridibus non ſerratis. *Relh ſyn.* 449. *n.* 14.
S. nervii folio utrinque virente. *Vaill. par.* 175. *ed. Mart.* 2. 227.
S. rubra minime fragilis folio longo anguſto. *Baub. hiſt.* 1. 215. *Raii hiſt.* 1421. *n.* 8.
Monadelphous, leaves linear-lanceolate elongated acute toothletted ſmooth, of the ſame colour on both ſides.

19. Salix Crowcana. *Broad-leaved monadelphous Willow. Smith in Linn. tranſ.* 6. 117.
Monadelphous, leaves elliptic ſubſerrate very ſmooth, glaucous underneath.

20. Salix myrſinites. *Whortle-leaved Willow.*
Lin. ſpec. 1445. *Reich.* 4. 227. *fl. lapp. n.* 353. *t.* 8. *f.* 8. & *t.* 7. *f.* 6. *ſuec. n.* 885. *Hoffm. ſal.* 1. 71. *t.* 17. 18. *Gunn. norv. n.* 595. *Gouan illuſtr.* 76. *Leers, herborn. n.* 753. *Hall. helv. n.* 1645.—*ſec. Hoffm.* 1647. *Villars dauph.* 3. 769. *t.* 50. *f.* 12.
S. retuſa. *Dickſ. in Linn. tranſ.* 2. 288. *Wither. arr. ed.* 3. 48.
S. alpina pumila myrſinites. *Ponted. comp.* 149.
S. alp. foliis anguſtioribus ſplendentibus ſerratis. *Scheuch. alp.* 340.
Leaves ſerrate ſmooth ovate veined.

21. Salix arbuſcula.
Lin. ſpec. 1445. *ſyſt.* 879. *Reich.* 4. 227. *fl. lapp. n.* 360. *f.* m. *ſuec. n.* 886. *Gmel. ſib.* 1. 166. *Pallas reiſ.* 1. 80. 83. *Gouan. illuſtr.* 76. *Jacqu. auſtr.* 5. *t.* 428. *Hall. helv. n.* 1647. *Retz. obſ.* 6. 34. *Villars dauph.* 3. 771.
Leaves ſubſerrate ſmooth ſubdiaphanous glaucous underneath, ſtem ſuffruticoſe.

22. Salix herbacea. *Herbaceous Willow.*
Lin. ſpec. 1445. *ſyſt.* 879. *Reich.* 4. 228. *fl. lapp. n.* 355. *t.* 7. *f.* 3. 8. *f.* 4. 9. & *t.* 8. *f.* 4. *ſuec. n.* 887. *Hoffm. ſal.* 1. 74. *t.* 20. *f.* 1, 2, 3, 4. *Hudſ. angl.* 417. *Wither. arr. ed.* 3. 48. *Lightf. ſcot.* 600. *Gunn. norv.* 51. *n.* 3. *Fl. dan. t.* 117. *Jacqu. vind.* 296. *Gouan illuſtr.* 77. *Pallas it.* 3. 33. *reiſ.* 1. 85. *Hall. helv. n.* 1649. *Villars dauph.* 3. 773. *Allion. pedem. n.* 1967.
S. ſaxatilis minima. *Baub. pin.* 474. *prodr.* 159.
S. alpina min. lucida repens Alni rotundo folio. *Bocc. muſ.* 2. 19.—item, S. alp. Alni rot. folio repens. *Ey. t.* 1. *f.* ult. *Raii hiſt. ſuppl.* 12. *ſyn.* 448. 7.
Leaves ſerrate ſmooth orbicular.

23. Salix retuſa. *Blunt-leaved Willow.*
Lin. ſpec. 1445. *Reich.* 4. 228. *Holl. helv. n.* 1648. *Gouan. illuſtr.* 76. *Villars dauph.* 3. 772. *Pallas reiſ.* 1. 85.
S. alpina anguſtifolia repens non incana. *Baub. pin.* 474. *prodr.* 159.
S. alp. ſerpylli folio lucido. *Bocc. muſ.* 2. 18. *t.* 1.
S. puſilla humilis. *Camer. epit.* 104.
Leaves ſubſerrate ſmooth obovate very blunt.

24. Salix decipiens.
Hoffm. ſal. 2. 9. *t.* 31.
Leaves ſerrate ſmooth lanceolate petioled, the lower ones ſmaller obovate reflex.

25. Salix arbutifolia. *Arbutus-leaved Willow.*
Pallas reiſ. 1. 79.
S. pumila folio ovali baſi ſerrato. *Gmel. ſib.* 1. 160. *t.* 35. *f.* 2?
Leaves obovate acute ſerrate ſmooth.

26. Salix divaricata. *Straddling-branched Willow.*
Pallas reiſ. 1. 80.
Leaves ovate-lanceolate wave-ſerrate ſmooth, branches divaricate.

27. Salix rhamnifolia. *Buckthorn-leaved Willow.*
Pallas roſſ. 1. 84. *Gmel. ſib.* 1. 159. *n.* 13. *t.* 35. *f.* 1. A.
Leaves ovate obtuſe ſerrate ſmooth glaucous underneath.

28. Salix berberifolia. *Barberry-leaved Willow.*
Pallas roſſ. 1. 84. *t.* 82. *itin.* 3. *app.* 759. *n.* 134. *t.* Kk. *f.* 7. *Gmel. ſib.* 1. 191. *t.* 35. *f.* 3.
Leaves ſeſſile ovate tooth-ſerrate veined ſhining.

** *Leaves ſmooth quite entire.*

29. Salix reticulata. *Round-leaved* or *Net-work Willow.*
Lin. ſpec. 1446. *ſyſt.* 879. *Reich.* 4. 229. *fl. lapp. n.* 359. *t.* 7. *f.* 1. *b. f.* 2. *g. t.* 8. *f.* 6. fol. *ſuec. n.* 888. *Hoffm. ſal. vol.* 2. *p.* 3. *t.* 25. 26. 27. *Hudſ. angl.* 428. *Wither arr. ed.* 3. 49. *Lightf. ſcot.* 601. *Fl. dan. t.* 212. *Gunn. norv.* 51. *n.* 110. *Hall. helv. n.* 1650. *Villars dauph.* 3. 779. *Lamarck franc.* 2. 228. *Allion. pedem. n.* 1967. *Jacqu. vind.* 296. *Gouan. illuſtr.* 77. *Pallas roſſ.* 1. 85.

S. pumila folio rotundo. *Baub. biſt.* 1. 2. 217. *Scheuch. it. alp.* 1. 43. 4. 340. *Raii biſt.* 1423. *ſyn.* 449. *Tournef. inſt.* 591.
Leaves quite entire ſmooth ovate obtuſe.

30. Salix myrtilloides. *Bilberry-leaved Willow.*
Lin. ſpec. 1446. *Reich.* 4. 229. *fl. lapp. n.* 357. *t.* 8. *f.* i. k. fol. *ſuec. n.* 889. *Pallas it.* 3. 33. *roſſ.* 1. 79. *Gouan illuſtr.* 77. *Hall. helv. n.* 1646.

S. cæſia. *Villars dauph.* 3. 768. *t.* 50. *f.* 11.

S. alpina pumila rotundifolia repens inferne ſubcinerea. *Baub. pin.* 474.
Leaves entire ſmooth ovate acute.

31. Salix integra.
Lin. ſyſt. 880. *Thunb. jap.* 24.
Leaves entire ſmooth linear oblong obtuſe.

32. Salix glauca. *Glaucous-leaved Willow.*
Lin. ſpec. 1446. *Reich.* 4. 229. *fl. lapp. n.* 363. *t.* 7. *f.* 5. *t.* 8. *f.* p. *fl. ſuec. n.* 890.

S. ſericea. *Villars dauph.* 3. 782. *t.* 51. *f.* 27.

S. alpina pyrenaica. *Baub. pin.* 474. *prodr.* 159.
Leaves quite entire very finely villoſe underneath ovate-oblong.

33. Salix caſpica. *Caſpian Willow.*
Pallas roſſ. 1. 74.
Leaves linear-lanceolate quite entire ſmooth.

*** *Leaves quite entire villoſe.*

34. Salix aurita. *Round-eared Willow.*
Lin. ſpec. 1446. *Reich.* 4. 230. *fl. lapp. n.* 369. *t.* 8. *f.* y. *ſuec. n.* 891. *Hoffm. ſal.* 1. 30. *t.* 4. *f.* 1, 2. & *t.* 5. *f.* 3. *Wither. arr. ed.* 3. 50. *Lightf. ſcot.* 602. *Neck. gallob.* 395. *Leers herborn. n.* 754. *Pollich pal. n.* 921. *Hall. helv. n.* 1652.

S. folio rotundo minore. *Dill. giſſ.* 38. *app.* 37. *Raii ſyn.* 450.

S. caprea 2, c. *Hudſ. angl.* 430.
Leaves quite entire villoſe on both ſides obovate appendiculed.

35. Salix lanata. *Woolly-leaved Willow.*
Lin. ſpec. 1446. *Reich.* 4. 230. *fl. lapp. n.* 368. *t.* 7. *f.* 7. & *t.* 8. *f.* x. *fl. ſuec. n.* 892. *Hall. helv. n.* 1651. *Pallas it.* 3. 449. *fl. roſſ.* 1. 82. *t.* 81. *f.* 1.—item, lanuginoſa. *p.* 83. *Wither. arr. ed.* 3. 50. *Villars dauph.* 3. 777.

S. humilis latifolia erecta. *Baub. pin.* 474. *prodr.* 159. *Raii biſt.* 1426.

β. S. depreſſa. *Lin. lapp. n.* 361. *t.* 8. *f. n. ſuec. n.* 899.
Leaves woolly on both ſides roundiſh acute.

36. Salix lapponum. *Lapland Willow.*
Lin. ſpec. 1447. *Reich.* 4. 230. *fl. lapp. n.* 366. *t.* 8. *f.* t. *ſuec. n.* 893. *Pallas it.* 3. 33. *roſſ.* 1. 82. *Gouan illuſtr.* 78. *Hall. helv. n.* 1643?
Leaves quite entire hirſute lanceolate.

37. Salix arenaria. *Sand Willow.*
Lin. ſpec. 1447. *Reich.* 4. 231. *fl. lapp. n.* 362. *t.* 8. *f.* o. q. *ſuec. n.* 894. *Neck. gallob.* 395. *Gouan illuſtr.* 78. *Pallas it.* 3. 33. *roſſ.* 1. 74. *Du Roi barbecc.* 2. 408. *Pollich pal. n.* 922. *Fl. dan. t.* 197. *Gærtn. fruct.* 2. 55. *Hall. helv. n.* 1642. *Gmel. ſib.* 1. 164. *t.* 36. *f.* 1. *Duham. arb.* 10.

S. lapponum. *Lightf. ſcot.* 604. *Wither. arr. ed.* 3. 51.

S. helvetica. *Villars dauph.* 3. 783.

S. pumila, foliis utrinque candicantibus & lanuginoſis. *Baub. pin.* 474. *Raii ſyn.* 447.
Leaves entire ovate acute ſubvilloſe above, tomentoſe underneath.

38. Salix incubacea. *Trailing Willow.*
Lin. ſpec. 1447. *Reich.* 4. 231. *fl. ſuec. n.* 895. *Pallas roſſ.* 1. 75.
Leaves quite entire lanceolate, underneath villoſe ſhining, ſtipules ovate acute.

39. Salix repens. *Creeping dwarf Willow.*
Lin. ſpec. 1447. *Reich.* 4. 231. *fl. ſuec. n.* 896. *Hudſ. angl.* 428. *Wither. arr. ed.* 3. 51. *Engl. bot.* 183. *Relh. cant. n.* 719. *Abbot, hedſ.* 213. *n.* 701. *Scop. carn. n.* 1213. *Villars dauph.* 3. 767.

S. depreſſa. *Hoffm. ſal.* 1. 63. *t.* 15. 16. *Sibth. oxon. n.* 49.

S. pumila anguſtifolia inferne lanuginoſa—& pum. anguſt. prona parte cinerea. *Raii ſyn.* 447.—item, S. alpina pum. rotundifolia repens inferne ſubcinerea. *Ibid* 448.

S. pumila latifolia 1. *Cluſ. biſt.* 1. 85.

S. pumila prior. *Dod. pempt.* 843. 2.

S. humilis. *Ger.* 1205. 6. *emac.* 1391. 6.

S. hum. latifolia & alpina repens. *Park. theat.* 1432. *n.* 2, 3. *t.* 1433. *f.* 2, 3.
Leaves quite entire lanceolate, ſomewhat downy on both ſides; ſtem decumbent creeping; ſtyle ſimple, ſtigma in four nearly equal ſegments; capſules ſmooth.

40. Salix fuſca. *Brown dwarf Willow.*
Lin. ſpec. 1447. *ſyſt.* 880. *Reich.* 4. 232. *fl. lapp. n.* 364. *t.* 8. *f. s. ſuec. n.* 897. *Hoffm. ſal.* 2. 7. *t.* 28. 29. *Wither. arr. ed.* 3. 51. *Jacqu. vind.* 297. *auſtr.* 5. *t.* 409. *collect.* 2. 200. *Neck. gallob.* 396. *Pallas it.* 3. 33. *roſſ.* 1. 80. *Gouan illuſtr.* 78. *Mill. illuſtr.*

S. pumila foliis utrinque candicantibus & lanuginoſis. *Baub. pin.* 474. *Raii ſyn.* 447. 3. *t.* 19. *f.* 3.
Leaves quite entire ovate pubeſcent underneath.

41. Salix roſmarinifolia. *Roſemary-leaved Willow.*
Lin. ſpec. 1448. *Reich.* 4. 232. *fl. ſuec. n.* 898. *Hall. helv. n.* 1644. *Pallas roſſ.* 1. 74.

S. humilis anguſtifolia. *Baub. pin.* 474.

S. humilis repens anguſtif. *Baub. biſt.* 1. 214. *Leb. ic.* 2. 137.
Leaves quite entire lanceolate-linear ſtrict ſeſſile tomentoſe underneath.

42. Salix Gmelini. *Gmelin's Willow.*
Pallas roſſ. 1. 77. *Gmel. ſib.* 1. 163. *n.* 19.
Leaves elliptic-lanceolate entire ſilky underneath.

43. Salix ſerotina. *Late Willow.*
Pallas it. 3. 759. *app. n.* 135. *t.* Nn. *roſſ.* 1. 77.
Leaves oblong acute quite entire ſilky, ſtipules lanceolate deciduous.

44. Salix arctica. *Arctic Willow.*
Pallas roſſ. 1. 86.
Leave quite entire obovate-rounded villoſe underneath.

**** *Leaves ſubſerrate villoſe.*

45. Salix ſibirica. *Siberian Willow.*
Pallas roſſ. 1. 78. *t.* 81. *f.* 3.
Leaves ovate-lanceolate ſubſerrate tomentoſe ſtiffiſh, ſtipules ovate ſomewhat toothed.]

46. Salix caprea. *Round-leaved Sallow.*
Lin. ſpec. 1448. *Reich.* 4. 232. *fl. lapp. n.* 365. *t.* 8. *f.* f. *ſuec. n.* 900. *Hoffm. ſal.* 1. 25. *t.* 3. & *t.* 5. *f.* 4. *Wither. arr. ed.* 3. 53. *Hall. helv. n.* 1653. *Fl. dan. t.* 245. *Gunn. norv. n.* 252. *Gmel. ſib.* 1. 157. *Neck. gallob.* 395. *Leers herborn. n.* 736. *Pollich pal. n.* 923. *Villars dauph.* 3. 774. *Du Roi barbecc.* 2. 404. *Gouan illuſtr.* 78. *Pallas roſſ.* 1. 81.

S. latifolia rotunda. *Baub. pin.* 474. *Raii ſyn.* 449.

S. latif. inferne hirſuta. *Baub. biſt.* 1. 2. 215.

S. caprea rotundifolia. *Ger.* 1203. 3. *emac.* 1390. 3.

S. caprea latifolia rotunda. *Park. theat.* 1432. 1.

S. caprea latif. *Tabern. ic.* 1038.
β. *Lin. lapp. n.* 367. *t.* 8. *f.* u. *Hoffm.* 28. *var.* 1.
γ. *Gmel. fib.* 1. 163. *n.* 19. 2. *Hall. helv. n.* 1651? *Hudſ. angl.* 429. *var.* γ.
Leaves ovate wrinkled tomenteſe underneath waved toothletted abeve.

47. Salix acuminata. *Long-leaved Sallow.*
Hoffm. ſal. 1. 39. *t.* 6. *Lin. lapp. n.* 367. *t.* 8. *f.* u. *Wither. arr. ed.* 3. 53. *Sibth. oxon. n.* 52. *Pallas roſſ.* 1. 81.
S. caprea acuto longoque folio. *Raii ſyn.* 450.
Leaves ovate-oblong tomenteſe underneath, the upper ones entire, the lower crenate.

[48. Salix pedicellata. *Stalk-capſuled Sallow.*
Deſont. atlant. 362.
Leaves lanceolate wrinkled tomenteſe underneath, capſules pedicelled ſmooth.

49. Salix triſtis. *Narrow-leaved American Willow.*
Ait. kew. 3. 393.
Not ſtipuled, leaves linear-lanceolate petioled wrinkled tomenteſe underneath.]

50. Salix viminalis. *Oſier.*
Lin. ſpec. 1448. *Reich.* 4. 283. *ſ. ſuec. n.* 901. *Hoffm. ſal.* 1. 22. *t.* 2. & *t.* 5. *f.* 2. *Hudſ. angl.* 430. *Wither. arr. ed.* 3. 54. *Lightf. ſcot.* 608. *Sibth. oxon. n.* 53. *Hall. helv. n.* 1641. *Neck. gallob.* 397. *Leers, herborn. n.* 757. *Pollich pal. n.* 924. *Scop. carn. n.* 1211. *Villars dauph.* 3. 785. *Pallas roſſ.* 1. 76. *Gmel. fib.* 1. 162. *n.* 16. *Du Roi barbecc.* 2. 403.
S. folio longiſſimo. *Raii cant.* 146. *ſyn.* 450.
S. foliis anguſtis & longiſſimis criſpis ſubtus albicantibus. *Baub. hiſt.* 1. 212. 2. *Raii hiſt.* 1423. 2.
Not ſtipuled, leaves lanceolate-linear very long almoſt quite entire flat ſilky underneath.

[51. Salix cinerea. *Cinereous-leaved Sallow.*
Lin. ſpec. 1449. *Reich.* 4. 234. *ſ. lapp. n.* 358. *ſuec. n.* 902. *Leers herborn. n.* 758. *Pallas roſſ.* 75. *Wither. arr. ed.* 3. 54.
S. caprea. *Hudſ. angl.* 429. *Lightf. ſcot.* 607. *Sibth. oxon. n.* 51.
S. ulmifolia. *Villars dauph.* 3. 776.
S. caprea retuſo folio, non auriculata. *Sherard phytop. Mſs.*
Leaves ſubſerrate oblong-ovate ſubvilloſe underneath, ſtipules half-cordate.]

52. Salix alba. *White Willow.*
Lin. ſpec. 1449. *Reich.* 4. 234. *bort. diff.* 473. *ſ. ſuec. n.* 903. *mat. med.* 211. *Hoffm. ſal.* 1. 41. *t.* 7. 8. *Hudſ. angl.* 430. *Wither. arr. ed.* 3. 55. *Lightf. ſcot.* 609. *Neck. gallob.* 396. *Scop. carn. n.* 1212. *Pollich pal. n.* 925. *Leers herborn. n.* 759. *Hall. helv. n.* 1635. *Villars dauph.* 3. 760. *Gmel. fib.* 1. 158. *Gouan. illuſtr.* 78. *Du Roi barbecc.* 2. 400. *Blackw. t.* 327. *Regnault bot.*
Salix. *Matth.* 199. *Dod. pempt.* 843. 1. *Lob. obſ.* 567. 2. *ic.* 2. 136. 3. *Ger.* 1203. 1. *emac.* 1389. 1. *Raii ſyn.* 447.
S. arborea anguſtifolia alba vulgaris. *Park. theat.* 1430. 1.
S. vulgaris alba arboreſcens. *Baub. pin.* 473.
S. maxima fragilis alba hirſuta. *Baub. hiſt.* 1. 2. 212. 1. *Raii hiſt.* 1419.
S. folio utrinque glauco, viminibus albidioribus. *Raii cant.* 142. 2.
Leaves lanceolate acuminate ſerrate pubeſcent on both ſides, the loweſt ſerratures glandular.

[53. Salix tetraſperma. *Four-ſeeded Willow.*
Roxb. corom. 66. *t.* 97.
Leaves broad-lanceolate acuminate ſerrulate, ſmooth above whitiſh below.

DESCRIPTIONS, &c.

Linneus remarked, almoſt half a century ago, that the ſpecies of the genus Salix are not to be extricated without extreme difficulty: that the ſoil and ſituation, marſhy, ſandy, mountainous, hot and cold, produced a conſiderable change in them, inſomuch that botaniſts frequently heſitated whether they ſhould pronounce many differences to conſtitute ſpecies or varieties only: add to this, that the deſcriptions of the old authors are in general imperfect and barbarous.

He adviſes therefore the hiſtory of Willows to be taken up afreſh, rejecting the old names, and deſcribing the ſeveral ſpecies accurately by means of ſkilful perſons who have an opportunity of viewing them in their natural places of growth; and who ſhould attend to the following circumſtances. 1. Whether the buds are one-valved, or many-valved. 2. The ſituation and folding of the leaves within the bud. 3. Whether the aments or catkins come from the ſame or a diſtinct bud from the leaves, above or below them. 4. Whether the leaves are ſerrate or quite entire about the edge, naked or pubeſcent on the ſurfaces. 5. What is the number of ſtamens. 6. Whether they are trees, ſhrubs, or creeping.

To theſe hints of Linneus Dr. Smith has added, that Willows require to be examined at three periods of their growth: firſt when in flower, at which time the leaves in general ſcarcely appear; next when the capſules are fully formed and nearly ripe, and the leaves juſt expanded with their ſtipules; laſtly when the leaves have attained their full ſize, and all remains of the fructification have diſappeared. In this laſt ſtate the true form, and pubeſcence or ſmoothneſs of the leaves is to be known; in the ſecond the nature of the ſtipules, which frequently are very deciduous, and the figure and ſurface of the capſules; whereas in the firſt ſtate the very diſcriminative and curious parts of the flower, the ſtamens, nectaries, and above all, the proportion and ſtructure of the germ, ſtyle and ſtigmas, are only to be learnt. Dr. Smith recommends theſe laſt-mentioned parts as affording much better characters for making natural ſubdiviſions of the genus, than the margin or pubeſcence of the leaves, if we could at all times command them: but the dioecous nature of theſe plants militates againſt a general arrangement of them according to parts, which it is an even chance whether we meet with or not, and which are ſo very tranſient[h].

Ray ſo far back as the year 1660 diſtinguiſhed and deſcribed very well ten ſpecies, which he obſerved himſelf about Cambridge; ſeparating the Willows with a more compact leaf, from the Sallows and Oſiers which have a leaf of a looſer texture; and correcting the error of old authors in ſuppoſing that the roſe-like excreſcences at the ends of the twigs in ſome Willows formed a diſtinct ſpecies.

Dillenius's edition of Ray's ſynopſis, in 1724, has twenty-two ſpecies of Engliſh Willows, ſome of which are only varieties. Mr. Hudſon, in 1778, has only ſixteen, but he has ſeveral varieties, which are real ſpecies. Mr. Lightfoot, in 1777, has the ſame number, but not the ſame ſpecies. He has deſcribed moſt of them at length; and Dr. Smith having compared his ſpecimens with thoſe in the Linnean herbarium, all difficulties reſpecting his ſpecies will be removed.

Haller, in 1768, has twenty-one ſpecies, but it is not eaſy to aſcertain them all with any degree of certainty. Scopoli, in 1772, has only twelve ſorts, which he has named and deſcribed with little reference to other authors. With his uſual modeſty he confeſſes himſelf to be unfortunate in extricating the ſpecies, and after all his attempts, owns that he has found only ſtill greater difficulties and miſtakes, the more he has conſulted writings even of the firſt reputation. Villars, in 1789, enumerates thirty ſpecies, natives of Dauphiné: he has taken much pains in deſcribing and aſcertaining them.

George Francis Hoffmann publiſhed the firſt faſciculus of his elaborate hiſtory of Willows in 1785, and completed his firſt volume in 1787; it contains twelve ſpecies, completely deſcribed, and beautifully figured. The firſt faſciculus of his ſecond volume, containing three ſpecies, came out in 1791. This is all I have ſeen of a work, ſo full, ſo accurate, I might almoſt ſay ſo perfect, as far as it goes, in the opinion of the judicious preſident of the Linnean Society. If Dr. Hoffmann goes on to deſcribe and figure the other ſpecies in the ſame manner, little or no doubt can remain concerning them. In the mean time we may expect moſt of the difficulties reſpecting the Bri-

[h] Linn. tranſ. 6. 111.

tiſh ſpecies to be cleared up by Dr. Smith, in his Flora Britannica, ſo far at leaſt as can be expected without figures. The opportunity he has of ſtudying Linneus's original ſpecimens, and of comparing them with Mr. Lightfoot's: the aſſiſtance he has received from his accurate and indefatigable friend Mr. Crowe, who has for many years collected Willows, both indigenous and exotic, from all quarters, carefully noticing their peculiar uſes and properties, diſtinguiſhing the truly wild from the naturalized, and watching them with a moſt diſcriminating eye through all their ſtages of growth in his garden[1]: together with his own accurate reſearch, and happy judgement, give Dr. Smith an advantage which has not perhaps fallen to the lot of any other man. The editor of this Dictionary has to lament that this article goes to preſs before he can profit by all the obſervations and corrections which may be expected in the Flora Britannica; at the ſame time that he is happy to acknowledge the aſſiſtance he has received from Dr. Smith's learned remarks, printed but not yet publiſhed in the Tranſactions of the Linnean Society; as well as that candid information by letter which he is ever ready to afford.

We may obſerve in general of this genus, that it contains trees or ſhrubs, ſome few ſpecies ſuffruticoſe or even ſubherbaceous; that the flowers and fruits are in ſeparate axillary or terminating aments or catkins, which, when young, are covered with a ſingle ſcale like a veil[k]. All the ſpecies except four are natives of Europe; and thirty-four or thirty-five are indigenous of Britain.

Willows, ſays Scopoli, ſupport the banks of rivers, ſupply bands or withs, feed a great variety of inſects, rejoice the bees, yield abundance of fire-wood, dry marſhy ſoil, afford nouriſhment to cattle with their leaves, and yield a ſuccedaneum to Jeſuit's bark.

The uſes of the Willow, including the Sallow and Oſier, are thus minutely detailed by the venerable Evelyn.—All kinds of baſket-work; for which even our rude forefathers were in eſtimation at Rome—

> "Barbara depictis veni *Baſcauda* Britannis;
> "Sed me jam mavult dicere Roma ſuam."
> *Martial.*

For pill-boxes, cart-ſaddle trees, gun-ſtocks and half-pikes, harrows, ſhoemaker's laſts, heels, clogs for pattens, forks, rakes eſpecially the teeth, pearches, raſters for hovels, ladders, poles for hops vines kidney-beans, &c. hurdles, ſieves, lattices; for the turner in making great town-tops, platters, little caſks and veſſels, eſpecially to preſerve verjuice in: pales, dorſers, fruit-baſkets, cans, hives, trenchers, trays, boards for whetting table-knives, coals, particularly for painter's ſcriblets; bavin and excellent ſweet firing without ſmoke. The wood will even endure a good while for poles, &c. if it be peeled and ſteeped in water for ſome months.

The ancient Britons made boats of wicker covered with ſkins (coracles) with which they paſſed rivers and arms of the ſea; ſo light as to be carried by a ſingle man. Modern Britons wield bats of Willow, in the game of Cricket.

1. This agrees with S. pentandra in its ſmooth leaves, bluntly ſerrate with glands, convolute, commonly ſix from each bud, yellowiſh; and in having villoſe aments of the ſame ſize and habit: but it differs from it in having the branches of a pale ruſſet-colour, not purpliſh; the upper ſurface of the leaves with ſcored not raiſed veins; protuberant glands at the baſe of the petioles; in flowering earlier, and producing a greater abundance of galls than the next ſpecies. Native of Sweden about Upſala[l], but not common. It is generally and almoſt wholly covered with a red coccus, ſo ſmall as almoſt to eſcape the ſight. In the year 1754 all the flowers excluded their ſtamens, and in their place appeared ſeſſile rudiments of anthers, on each ſide of the nectary, like three glands[m].

The real *hermaphroditica* of the Linnean herbarium is cloſely allied to *S. pentandra* except in the fructification; and has no right to a place among Britiſh plants. Hudſon introduces it with a mark of doubt; and S. latifolia folio ſplendente of Ray, ſeems by Dillenius's remark, to be a variety of the Sallow. What is found in the gardens under the name of *hermaphroditica*, is merely a broad-leaved variety of *S. pentandra*, which is dioecous and has five ſtamens: whereas the true *hermaphroditica* has but two ſtamens, and thoſe in the ſame flower with the piſtil. It does not ſeem to be known out of Sweden[n].

2. This is naturally a tree thirty feet or more in height, but being one of the beſt Oſiers for the uſe of Baſket-makers is generally cut and kept low. The bark of the ſtem and branches peels off ſpontaneouſly, almoſt like that of the plane-tree. The branches are upright, long, ſlender, pliable and tough, though ſomewhat brittle at their inſertion; their bark is browniſh and ſmooth. Leaves about three or four inches long, tapering away towards the baſe, and their breadth on each ſide the nerve is as nearly equal as poſſible; they terminate in a point; their margin is thickly ſerrate, the ſerratures incurved and rounded, a little glandular; both ſides ſmooth, the under rather glaucous. Stipules ovate, oblique, crenate, veiny, ſmooth, but often wanting. Catkins at the ends of ſmall leafy young branches, erect, ſlender, yelloviſh, with blunt downy ſcales. Stamens generally three to each ſcale, very rarely (in the ſame catkin) only two. Germ ovate, pointed, warty. Stigmas ſhort, ſpreading, notched. Capſule very ſmooth, green[o].

Mr. Curtis remarks that the leaves are more ſtrongly ſerrate than moſt others; that the branches in autumn are uſually furniſhed with ſtipules, but not always; and that towards the top they are angular or grooved, in a greater degree than any other Willow he has examined. It is not uſual for Willows to flower both in ſpring and autumn, but he has frequently found this ſpecies to do ſo.

Native of many parts of Europe; as Britain, Germany, Switzerland, France, Flanders, Carniola, Piedmont, &c. common alſo in Siberia.

This ſpecies may be admitted into ornamental plantations, the male catkins being very numerous, of a bright yellow colour, and of an agreeable ſcent. The male tree ſhould on this account be preferred for ornament; and alſo becauſe the females quickly ſhed their catkins and make a litter[p]. Mr. Wood remarks that the male tree is very frequent, and that he had ſeen the female only once. He obſerved it about Leeds; and Mr. Crowe at Lakenham near Norwich. The bark in doſes of one or two drams will cure an ague[q]. It flowers in april or may. Villars ſays that the female flowers much later, namely in june; that the wood of theſe is more brittle, the leaves narrower, ſmooth on both ſides, and harder: but perhaps it may be a different ſpecies.

Some authors confound this with the *amygdalina*; and give Ray's ſynonym of *S. folio auriculato ſplendente flexilis*, which belongs to that ſpecies.

Ray has marked their difference. The leaves of this, ſays he, are longer and narrower than in the *amygdalina*, produced into very long ſlender points, of a dark green ſhining as if poliſhed, approaching in form to thoſe of the Almond or Peach, elegantly toothed about the edges, having an appendix at the baſe on each ſide more conſpicuous than in other ſorts of Willow, beſides the earlets (ſtipules) at the baſe of the petioles on each ſide faſtened to the twigs, which are ſmaller in this than in the *amygdalina*. The bark of the ſtem and older branches is aſh-coloured, chopped, and parts readily from the wood; this is alſo the caſe in the *amygdalina*, but not ſo manifeſtly. The colour of the twigs is yellow.

3. The ſweet or bay-leaved Willow is ſufficiently well known by its broad odoriferous leaves, the ſerratures of which exude a copious yellow reſin, and its numerous ſtamens, commonly about five to each flower[r].

It frequently grows to a tree ten or twelve feet high, with a trunk as large as a man's thigh: the twigs are

[1] Linn. tranſ. 112. [k] Juſſieu. [l] Linn. ſpec. [m] Linn. ſuec. [n] Smith in Linn. tranſ. 6. 112. [o] Idem, 118. [p] Curtis. [q] Withering. [r] Smith in Linn. tranſ.

of a reddiſh colour tinged with yellow: the leaves are ſtiff, ſhining ſmooth on both ſides, finely ſerrate with cloſe numerous cartilaginous teeth; when full grown they are about three inches long, and an inch and half wide: their footſtalks are ſhort, broad, and ſprinkled with glands: each ſcale in the male catkin has uſually five ſtamens, but often ſix, and ſometimes ſeven. Theſe catkins are very ſweet-ſcented [t].

According to Mr. Gough, there are eleven leaves on the barren, and ſix or eight on the fertile ſhoots, the two lower comparatively ſmall and obovate. The nectaries are often wanting in the flowers at the extremity of the catkin, in room of which there are three additional perfect ſtamens.

Dr. Stokes remarks, that the nectaries are three, yelloviſh brown, two near the ſpike-ſtalk, and the third next the ſcale:—and Mr. Stackhouſe, that the catkins terminate the new ſhoot of the year, and do not appear until may.

This ſpecies, ſays Villars, is eaſily known by its broad leaves like thoſe of Bay, green on both ſides, a little clammy, having regular ſharp teeth, by its five ſtamens, and its yellow long thin catkins; and yet ſometimes *S. fragilis* approaches ſo near to it as ſcarcely to be diſtinguiſhed, except by the clammineſs of the leaves.

Ray deſcribes the young twigs as very dark-coloured; the leaves wider than in any other Willow, ſmooth, dark green and ſhining above, paler beneath, from two to three inches long, an inch and half or more in breadth, with ſmall notches on the edge, on ſhort petioles, alternate, ſweet-ſcented: they are ſhorter and wider in proportion than thoſe of *S. fragilis*.

Native of ſeveral parts of Europe, as Britain, Switzerland, Dauphiné, Piedmont; alſo of Siberia.—In Weſtmoreland and Yorkſhire, frequent, as about Kendal and Bradford. About Kilnſay and Carr end Wenſledale, where it is the moſt common ſpecies. Near Stafford, and in Mr. Boulton's plantations, Soho, Birmingham. Near Bungay in Suffolk, Coombe wood, and near Wimbledon in Surry. Scotland.

Much uſed in Yorkſhire for making the larger ſort of baſkets; the branches are cut to make ſpringles; the leaves afford a yellow die; the wood crackles greatly in the fire [t]. The down of the ſeeds, mixed with a third part of cotton, has been proved to be a very good ſubſtitute for cotton itſelf, and has been uſed for ſtuffing cuſhions, wicks for candles, &c. Goldfinches and ſome other birds line their neſts with the down of this and other ſpecies of Willow [u].

Variety β of Flora Suecica ſeems to be a diſtinct ſpecies, not yet found in England [x].

4. This appears to be a ſhrub, with ſmooth ſlender ſpreading branches. Leaves alternate, petioled, exactly lanceolate, rather acute, with broad and unequal crenatures principally about the middle, and between theſe in a manner ſinuate; the margin is a little more thickened than ordinary; the baſe and extremity of each leaf are entire, deſtitute of glands; all the leaves are either perfectly ſmooth in every part or a little ſprinkled with minute inconſpicuous hairs; dark green above, glaucous and reticulated with veins beneath. Footſtalks ſlender, ſmooth. Stipules creſcent-ſhaped, moſtly ſerrate, various in ſize [y].

Native of Lapland, and the northern parts of Sweden: about Herborn, according to Leers: and on the highlands of Scotland, where it was found at Finlarig, Breadalbane, with ſeveral others, by the Rev. Mr. Stuart, junior, of Killin, in Breadalbane, and communicated to Mr. Lightfoot, in whoſe herbarium this was diſcovered by Dr. Smith, and by him added to the Britiſh Flora.

5. The trunk ſcarcely riſes to the height or form of a tree. The branches are upright, round, rather brittle, ſmooth. Leaves two or three inches long, acute, a little rounded at the baſe, crenate in almoſt every part, but more ſlightly in the female plant; dark green and very ſmooth above; glaucous, veiny, rarely a little hairy beneath. Foot-ſtalks very broad at their baſe. Stipules, if preſent, rather large, obliquely heart-ſhaped, ſerrate, ſmooth. Catkins from an inch to an inch and half long, thickiſh, with obovate brown hairy ſcales. The two ſtamens are diſtinct, and more or leſs hairy about their baſe. Style ſhort, ſmooth. Stigmas thick, ovate, united at their baſe, permanent, undivided. Capſules on foot-ſtalks, long and tapering, clothed with long ſilky down, as are the general and partial ſtalks.

The leaves in the female plant are ſhorter and leſs crenate, as well as more tapering towards the baſe. Such differences between the two ſexes of Willows are rare, but I can hardly conceive theſe to be different ſpecies, as they agree in every part beſides.

No writer except Linneus appears to have known this Willow. In his Flora Lapponica he diſtinguiſhed it, but in his Species Plantarum he made it a variety of the *phylicifolia*, from which it differs in the much greater ſize of all its parts, as well as in the totally different form of its ſerratures, a part ſo peculiarly characteriſtic of the *phylicifolia*. It is named *nigricans* from the dark colour of its branches, as well as its black hue when dried, which laſt indeed is not abſolutely peculiar to it.

Native of Lapland; and found at Wrongay fen, Norfolk, and in oſier grounds in other places not uncommon, by Mr. Crowe.

6. Very nearly related to the laſt, but certainly a diſtinct ſpecies. It eſſentially differs in the male catkins, which are but half the ſize of thoſe laſt deſcribed, and their ſtamens are ſhorter, perfectly ſmooth, not hairy at their baſe. The leaves alſo are of a brighter green, their margin inclined to be revolute, and rather toothed than crenate. The germ alſo is ſhorter, blunter, and leſs tapering.

Found in oſier-holts and marſhy grounds by Mr. Dickſon, flowering in april and may.

7. This ſpecies has moſt affinity with the two preceding, but has longer and more ſlender twigs. The leaves are four or five inches long, about an inch broad, pointed, ſomewhat revolute, generally a little unequal at the baſe, bright green, ſmooth and ſhining above, glaucous and ſometimes a little hairy beneath. In drying they turn a purpliſh black. The footſtalks are peculiarly long, linear, and ſlender, ſilky on the upper ſide. Stipules ſmall, creſcent-ſhaped, toothed, ſmooth. Female catkins ſcarcely an inch long, with black, hairy, obovate, often notched ſcales. Germs on long footſtalks, ſmall, ovate, ſilky. Stigmas perfectly ſeſſile, ovate, obtuſe, divided into two lobes.

It was ſent to Mr. Crowe by Mr. Dickſon along with the laſt as of Britiſh growth. It flowers in april [z].

8. This is a middle-ſized tree, with round flexuoſe upright cinereous ſmooth divided branches. Leaves alternate, acuminate, ſmooth on both ſides, except while young, when they are villoſe; they are a finger's length and the petioles are very ſhort. Flowers from the ſame bud with the leaves.—Native of Japan, and flowering there in march [a].

Loureiro ſuſpects that this is not ſpecifically diſtinct from the *babylonica* or weeping Willow, although the branches are flexuoſe only, not pendulous.

9. The Yellow Willow is a middle-ſized tree, much branched at the top: branches upright. Bark gray, chopped, cinnamon-coloured within, bitter and aſtringent. The female trees, when left to themſelves, have pendant branches, but when lopped, are ſtiff and ſtraight. Male catkins at firſt upright, then turned down; cylindrical, ſlender, ſerpentine, two inches long or more; on fruitſtalks half an inch long. Nectaries two. Stamens two. Female catkins from two to three inches in length, on fruitſtalks from an inch to an inch and half long. Leaves alternate, upright, ſlightly ſerrate, with a yelloviſh midrib; they are about three inches long and one inch broad, but always broader in the female tree. Stipules none. Glands very few. The male tree is generally ſmaller and leſs common than the female.

Native of the more temperate parts of Europe.

[t] Lightfoot. [u] Witherieg. [x] Haller and Lightf. [y] Smith in Linn. tranſ. [z] Idem. [a] Thunberg.

Common in England, but doubtful whether it be indigenous. Haller regarded it as a variety of *S. alba*; and had a notion that if it were left wholly to itſelf it might degenerate into that ſpecies.

The ſhoots are uſed by baſket-makers. The wood is white and very tough. The cotton will make ordinary paper, and may ſerve ſome of the purpoſes of genuine cotton. The bark may be uſed in dyeing, and medicinally in agues[b]. It is common all over Ruſſia, and is uſed for Palms at Eaſter in the Greek churches[c].

10. This never riſes into a tree. The bark is deciduous, as in *S. triandra*, which added to the triandrous flowers perhaps led to the ſuſpicion that there exiſted no ſpecific difference between the two ſpecies: the leaves however will ſufficiently ſerve to diſcriminate them. Thoſe of *S. amygdalina* are ſhorter, ſcarcely two inches long, of a broadiſh ovate figure rounded at the baſe, by no means linear; they are moreover oblique, the width of the two ſides being unequal. The ſtipules are remarkably large, varying from a roundiſh to an half-heartſhaped form, crenate, deciduous. Female flowers and capſules much as in *S. triandra*[d].

There is much confuſion in the ſynonyms of this ſpecies. Ray calls it the round-eared ſhining Willow, and has marked it very well by its large ſtipules, three ſtamens, and other characters.—Villars ſuſpects it to be *n.* 1638. of Haller. It is certain that the illuſtrious Swiſs aſſigns the ſame ſynonym of Ray to his *n.* 1638, that we do to this.

Native of ſeveral parts of Europe, in oſier-holts and marſhes. Obſerved by Mr. Crowe, on Badleymere by Dereham, Norfolk.

11. This is diſtinguiſhed by its ſeſſile ovate ſmooth leaves, ſtarply and very finely but ſcarce apparently ſerrate; and its ſubcordate ſtipules.—It becomes a tree, but never tall. Branches round, very ſtraight, cinereous. Leaves hard, with very minute and ſcarcely viſible ſerratures, cinereous beneath, but ſmooth on both ſides, rigid, appendicled with two ovate entire leaflets[e].

Native of Lapland, Weſtrobothnia, Germany, Switzerland, Ruſſia and Siberia.—Introduced about 1780, by Meſſrs. Kennedy and Lee.

12. This tree grows to a conſiderable height. Leaves oblong, very large, hoary beneath, crenate about the edges[f].—Native of Egypt, and of Barbary near la Calle.

Retzius refers *S. nitida* of Gmelin to this ſpecies, although the leaves of that are ſaid to be entire and ſomewhat hairy. A ſweet water is diſtilled from the catkins, whence the Perſian name of *Biedmuſk* or *Baedmuſch*, ſignifying Water-muſk.

13. This grows to be one of the largeſt trees of the genus. The branches break off eaſily at the ſhoot of the preceding year. Leaves large, four inches long, an inch and half broad, diſtinctly and deeply ſerrate, ſmooth and ſhining on the upper ſide, glaucous underneath. Stipules ſcarcely any, but inſtead of them the footſtalks are dotted with prominent glands. The catkins have two or three fugacious leaves at the baſe of the peduncle[g].

Villars remarks, that though the branches are brittle on the tree, yet they are pliant when it is young or kept down for oſiers; and that the male flowers have ſometimes three ſtamens.

Native of the greater part of Europe eſpecially the northern parts; alſo of the temperate and ſouthern parts of Ruſſia to the limits of Caucaſus.

This tree is of quick growth and ſoon forms a ſhade in wet places; the males are fitteſt for this purpoſe. Bees are fond of the male flowers[h].

The bark of the branches manifeſts a conſiderable degree of bitterneſs to the taſte, and is alſo aſtringent; hence it has been thought a good ſubſtitute for the Peruvian bark, and has been recommended in caſes requiring tonic or aſtringent medicines. Not only the bark of this ſpecies, but that of ſeveral others, poſſeſſes the ſame qualities, particularly the *alba* and *pentandra*. The bark of the latter is perhaps the beſt; at leaſt its ſenſible qualities give it a decided preference[i].

14. The Weeping Willow grows to a conſiderable ſize, I have one in my view whilſt I am writing which is four feet and a half in circumference at three feet above the ground, and is at leaſt thirty feet in height; the age is thirty-four years. This tree is remarkable and generally eſteemed for its long ſlender pendulous branches, which give it a peculiar character, and render it a beautiful object on the margin of ſtreams or pools. Leaves minutely and ſharply ſerrate, ſmooth on both ſides, glaucous underneath, with the midrib whitiſh; on ſhort petioles. Stipules, when preſent, roundiſh or ſemilunar and very ſmall; but more frequently wanting, and then in their ſtead a glandular dot on each ſide. Catkins axillary, ſmall, oblong: in the male the filaments longer than the ſcale, with two ovate erect glands faſtened to the baſe: the female, on two leaved peduncles ſcarcely longer than half an inch[k].

Native of the Levant. Every where in the Cherſoneſus Taurica, but probably not indigenous there. Spontaneous on the coaſt of Perſia[l]. Frequent in China. Cultivated, but not commonly in Cochinchina[m]. According to an account of rare plants, with figures, publiſhed by the London gardeners, it was cultivated here in 1730[n].

The St. James's Chronicle (n. 6817. aug. 25 to 27. 1801.) has the following paragraph, but on what authority I know not. "The famous and admired Weeping Willow, planted by Pope, which has lately been felled to the ground, came from Spain, incloſing a preſent to the late lady Suffolk. Mr. Pope was in company when the covering was taken off; he obſerved that the pieces of ſtick appeared as if they had ſome vegetation, and added, perhaps they may produce ſomething we have not in England. Under this idea he planted it in his garden, and it produced the Willow tree that has given birth to ſo many others."

15. This is a buſhy ſhrub three or four feet high, with long ſlender tough purple ſhining branches. Leaves ſome oppoſite others alternate, nearly linear, but broadeſt upwards, ſerrate chiefly towards the ſummit, very ſmooth, glaucous beneath, deſtitute of ſtipules. The male catkins are very ſlender, ſcarcely an inch long, nearly ſeſſile, conſiſting of many thickſet flowers, the uppermoſt of which expand firſt. Scales black at the tip, hairy. Nectary a ſolitary gland oppoſite to each ſcale. Stamen one ſolitary ſimple, never dividing, bearing an orange-coloured double or four-lobed anther. Female catkins exactly like the male in ſize and form. Germ ſeſſile, ſmall, of an ovate or rather elliptic form, ſilky. Style very ſhort or ſcarcely any. Stigmas ſmall, ſeſſile, ſomewhat ovate, undivided, marked with a longitudinal furrow on the upper ſide. Capſule ovate, ſmall, ſilky[o].

The preſent ſpecies is particularly diſtinguiſhed by the length, as well as delicate ſlenderneſs of its twigs, and its ſubglaucous ſpurge-like leaves, but above all, by their extreme bitterneſs when chewed. The leaves vary greatly both in ſize and breadth, and ſtill more in their notchings. The ſtalks alſo vary much in colour, being ſometimes almoſt yellow. The leaves on the ſummits of the twigs are ſometimes found towards the end of auguſt of a brilliant red colour. The tops of the branches are found expanded into little ſquamous heads (as in the *alba* and others), ſomewhat reſembling roſes; this is the work of an inſect. The anthers, before they open, are of a bright orange colour[p].

Native of many parts of Europe. It grows ſparingly in the neighbourhood of London, commonly in hedges, ſometimes in oſier-grounds, where it is introduced accidentally: in ſome parts of the north of

[b] Hoffmann & Withering. [c] Pallas.
[d] Smith in Linn. tranſ. [e] Linn. ſuec. & Iapp.
[f] Deſfontaines. [g] Linn. ſpec. & ſuec. Lightfoot.
[h] Linn. ſuec.

[i] Woodville. [k] Linn. ſpec. Loureiro, Pallas.
[l] Pallas. [m] Loureiro. [n] Hort. kew.
[o] Smith in Linn. tranſ. [p] Curtis.

Eng'and

England, there is no Willow more common. Mr. Teesdale marks it about Beverley, and obſerves that female plants ſeem to be rare. I have frequently gathered it in the place marked by Ray in his Cambridge catalogue. He calls it the yellow dwarf Willow. It is the earlieſt in bloom of any of the ſpecies, flowering in mild ſeaſons by the end of february, uſually before the *caprea*.

The extreme bitterneſs of the leaves and twigs, renders it very valuable for many purpoſes. When uſed as a band or withe, it is never eaten by vermin; nor, when formed into a hedge, is it browſed on by cattle; even inſects prey on it much leſs readily than on the other ſpecies. In ſome parts of Yorkſhire, its twigs are uſed for making the fineſt ſorts of baſket work. By ſome obſervations I have made, ſays Mr. Curtis, I ſhould think it might be advantageouſly cultivated for ſuch purpoſes. Planting cuttings of all the common Willows one year by way of experiment, he found that this ſpecies gave the longeſt one year's ſhoot, exceeding even that of *S. viminalis*, or *Oſier*[s].

Linneus celebrates it for its toughneſs: *ramitenaciſſimi omnium*; and ſays that they are red, *ſanguineo-coralliní*; or as he expreſſes it in the *Flora ſuecica—verno tempore ſaturate purpurei*. In bands for thatching he ſays it laſts above a century in Scania; he recommends it as the beſt ſort for baſket work, and moſt excellent for hedges.

The leaves become of a blueiſh black colour in drying. The bark, from its extreme bitterneſs, may probably prove the moſt efficacious of any in agues[t].

16. This riſes to the height of nine or ten feet, and is a ſmall ſlender tree. Even in the form of its leaves it differs from the *purpurea*, being more truly lanceolate and taper-pointed, by no means obovate. The female catkins are ſomewhat longer, and twice as thick as in the laſt, and ſtand on longer ſtalks. The germ is ſeſſile, ovate and ſilky; but the ſtyle is conſiderably lengthened out, quite ſmooth and naked. The ſtigmas alſo, inſtead of being ſhort and ovate, are linear and conſiderably elongated. The leaves are leſs glaucous beneath, and not ſo bitter as thoſe of *S. purpurea*. From the ſize which Haller aſcribes to his *Salix, n.* 1640, Dr. Smith ventures to preſume he intended this plant, and not the *purpurea*, he therefore borrows from Haller the character of one ſtamen, having never ſeen the male of this ſpecies himſelf.

Haller and Ehrhart ſeem to have led Profeſſor Hoffmann into the error of confounding this with the preceding. Mr. Curtis, and ſome others of our more recent writers have followed Hoffmann, perhaps without ever having ſeen the true S. Helix. Mr. Crowe firſt pointed out to Dr. Smith the different heights of the two plants and ſizes of the catkins; and on a critical examination of the female flowers our acute Preſident found farther marks of diſtinction. It occurs in oſier-holts and marſhes: flowering in march and april[u].

The roſe-like excreſcencies are more common at the ends of the branches in this ſpecies; whence its name of Roſe-Willow[x].

Mr. Teeſdale obſerved the following diſtinctions between the *Helix* and *purpurea* in their native places of growth. In the month of march, previous to their flowering, the bark of the young ſhoot of *S. purpurea* is of a dark purple, and the ſcales of the buds are a fine red, almoſt ſcarlet, generally tipped with black, and before they drop off they turn wholly black: at the ſame time, the bark of the young ſhoots of *S. Helix* is of a yellowiſh brown, and the ſcales of the buds are always of a pale brown or cheſtnut colour[y].

Desfontaines deſcribes the branches as ſlender, rod-like, often purpliſh; the leaves ſmooth, narrow-lanceolate, ſerrulate but ſometimes quite entire, glaucous beneath, on ſhort petioles; the lower alternate, the upper ones oppoſite. Both male and female catkins ſlender. One ſtamen. The down long.

Haller informs us, that this Willow is planted about Aigle, to keep up gravelly banks and the ſhores of rivers.—Native of ſeveral parts of Europe, in oſier-holts and marſhes: flowering in march and april.

17. This is a ſhrub four or five feet high, with upright flexible and very tough branches, of a yelloweiſh aſh-colour, often purpliſh. Leaves alternate, on foot-ſtalks, two or three inches long, minutely toothed or ſomewhat ſerrate, principally towards the top; ſmooth on both ſides except when very young; dark green above, glaucous beneath. Stipules none. Catkins on ſhort ſtalks, cylindrical, blunt, firſt red, then yellow, flowering firſt at the top. The two ſtamens are united from the baſe about half way to the top. Anthers two-lobed, yellow. Germ ovate, acute, hairy. Style ſhort. Stigmas oblong, blunt, undivided[z].

Native of ſome parts of Europe on the ſandy banks of rivers, flowering in april, and ripening the ſeed in may[a].

With us it is cultivated in the fens, and preferred to all other Willows or Oſiers for baſket-work.—Obſerved in ſeveral oſier-grounds near Lynn in Norfolk, by Mr. Crowe; at Prickwillow near Ely, by the Rev. Mr. Hemſted; and at Fincham in Norfolk, by the Rev. Joſeph Forby[b].

Hoffmann ſuſpects that it may be the *Salix Eleagnos* of Scopoli, n. 1210.

18. The branches of this ſhrub are very long, ſlender, tough, ſmooth, gray or purpliſh. Leaves about four inches long when full grown, ſlightly toothed or ſerrate by no means entire, of a bright green on both ſides, ſmooth in general but ſometimes ſprinkled with a few ſlender hairs beneath. Stipules, if preſent, linear-lanceolate, a little toothed; but generally wanting. The female catkins differ but little from the preceding, except in having thicker almoſt ovate ſtigmas. Dr. Smith preſumes from analogy that the male catkins have monadelphous ſtamens; but he has not ſeen them.

This ſpecies appears to be little known, though among the moſt valuable as an Oſier. The habit of the plant, figure and length of its leaves, agree with the common Oſier; (S. viminalis) but their bright green colour on both ſides, and want of all pubeſcence, except when very young, render them eaſily diſtinguiſhable from that ſpecies, whilſt their great length, linear form, and narrowneſs, and their colour being not at all glaucous, prevent their being confounded with *S. ſiſſa*. Hudſon's name *rubra* is leſs appoſite than might have been wiſhed: *virens* or *concolor* would better have expreſſed the peculiar character of the ſpecies[c].

Native of England and France in oſier-holts, but leſs common; it flowers in april and may. In the oſier-holts between Maidenhead and Windſor. Found afterwards by the river near Saliſbury, by Mr. James Sherard in company with Mr. Rand[d]. In an oſier-holt near Ely, by the Rev. Dr. Goodenough; at Prickwillow near Ely, by the Rev. Mr. Hemſted; near Bedford, by the Rev. Mr. Abbot[e].

19. This ſcarcely riſes to the height of a tree. The branches are ſhort and ſpreading, rather brittle, clothed with a ſhining yelloweiſh or purpliſh bark. Leaves on foot-ſtalks, elliptical or inclining to obovate, ſomewhat pointed, ſcarcely an inch and half long, ſlightly ſerrate or rather crenate, ſmooth on both ſides, bright green and ſhining above, glaucous and veiny beneath. Catkins nearly ſeſſile, of a ſhort ſomewhat ovate form. Scales obovate, black, very hairy. Stamens pale lemon-coloured, longiſh, their filaments united from the baſe to a greater or leſs diſtance, ſometimes almoſt to the top. Anthers reddiſh.

This ſpecies ſeems to have eſcaped the notice of every botaniſt hitherto. Dr. Smith has therefore given it the name of its diſcoverer. It is moſt certainly very diſtinct from all others, and eaſily known by its united ſtamens, and ſhort broad leaves. It is deſtitute of the valuable properties of an Oſier, having ſhort and rather brittle, not long and flexible twigs. It has therefore to all appearance never been cultivated, but is truly wild in Norfolk; where Mr. Crowe found it, among other places at Cranberry ſen in

[s] Curtis. [t] Idem. [u] Smith in Linn. tranſ. [x] Haller. [y] Teeſd. in Linn. tranſ. 5. 71. [z] Smith in Linn. tranſ. [a] Hoffmann. [b] Smith. [c] Idem. [d] Ray ſyn. [e] Smith in Linn. tranſ.

the parish of East Winch. It flowers in april and may [c].

20. This is a shrub some feet in height, with a smooth bark of a dark brown or blackish colour, and diffused but upright branches. Leaves during the flowering ovate or obovate, smooth on both sides, thin and nearly transparent, finely and acutely toothed, on short stiff leaf-stalks: afterwards an inch broad and more than an inch long, both sides of the same colour, serrate all round, pointed at the end. Leaflet often an inch and half long, furnished with stipules of a squarish irregular figure, and serrate. Male catkins crowded, oblong or ovate-oblong, from an inch to an inch and half in length, on short fruit-stalks: stamens two: nectary one. Female catkins shorter than the other when in flower, ovate-oblong. Capsule on a pedicel, very smooth [a].

Linneus describes it as a shrub from a foot to two feet in height: very much branched; branches purplish and tough. Leaves alternate but in clusters, streaked with veins, having glandular serratures about the edge, when they first come out a little hairy, but afterwards smooth on both sides; on little or no petioles. Stipules none. Catkins villose, cinereous. Anthers brown. Peduncle from the same bud with the leaves. Germ cinereous-villose, but becoming smooth as it ripens [f].

Native of the mountains of Scotland, Lapland, Norway, Germany, Switzerland, Dauphiné and Italy. Mr. Dickson, who took it for *S. retusa*, found it on Ben Lawers in 1789 [g].—Hoffmann's figure in *t.* 19. and *t.* 24. *f.* 2. are Dr. Smith's *prunifolia*, which is the *myrsinites* of Lightfoot, but not of Linneus [h].

21. Scarcely a foot high, growing in form of a little tree. Stems slender, filiform, branched, reddish. Leaves lanceolate, acuminate at both ends, on very thin loose petioles, serrate on both sides with eight or five notches so small as to be scarcely visible [i]. Stipules none. In the Flora Suecica three varieties are set down, agreeing in place, appearance and stature, all having leaves so thin as to be almost transparent, and glaucous beneath; the capsules in all silky-villose [k]. But the third of these varieties is a distinct species, according to Afzelius, who has named it *folicolosa*. The leaves are quite entire and ovate-oblong [l].

In cultivation it grows to the height of a man, and has thicker leaves [m].

Pallas has it twice, in p. 80 and 83 of his Flora Rossica.

According to Retzius, the *arbuscula* of Jacquin does not seem to be the same with that of Lapland, where it grows in sandy moistish ground. I can scarcely think it to be Haller's *n.* 1647. But it seems to be the arbuscula of Villars.

22. This, though named *herbacea*, is not properly an herbaceous plant, but truly a shrub or tree, and the smallest yet known; being only from one to three inches in height. The bark is ash-coloured or brown. Branches irregular, knotty, scarcely an inch in length, striking root, having seldom more than three leaves. Leaves roundish or ovate, very minutely serrate, the largest near an inch in diameter, blunt or slightly notched at the end, smooth, petioled. In the male they are nearly orbicular or wider than they are long, a little notched at the top: in the female rather cordate and not emarginate. Lightfoot compares their size with that of a silver penny. Stipules none. Peduncle from the same bud with the leaves. Catkins terminating, upright. Males some lines in length, yellow, on peduncles as long as themselves: stamens two: nectaries two. Females shorter than the males, red, smooth, on peduncles of the same length [n].

Native of many parts of Europe, on high mountains. In the northern counties of England, Scotland and Wales: flowering in june and july.

Mr. Lightfoot has gathered it nine inches high, with some of the leaves as big as a shilling. It puts on this appearance when it grows out of the crevices of rocks, and is very old. Linneus (in Flora lapp.) has figured the male plant of the largest size that it ever appears in Lapland.

23. This contends for the prize of littleness with the preceding. The leaves have parallel veins [o].

A foot high. Leaves very smooth and shining, elliptic, the younger and lower ones perfectly round, on the longer branches lanceolate, serrate. Catkins constantly smooth, with large ovate blunt smooth scales, and two long stamens; they have few flowers, and on the highest alps occur with one flower only [p].

Stem quite prostrate, not unfrequently with all the branches on one side. The flowering buds are mixed with the leafing or branching buds. Catkins very long, with widish concave scales, often emarginate. Primary leaves suborbiculate, the rest oblong, sometimes acute, often blunt and emarginate; either quite entire or serrulate about the middle without any stipules. This is quite distinct from the *myrtilloides*, although Haller has united them [q].

Native of Dauphiné, Switzerland, Austria, Italy.—Introduced in 1763, by the Earl of Coventry [r].

24. This is a tree or shrub with abundance of diffused scattered branches, brittle especially at the joints: bark shining green or yellow somewhat cinereous. Male catkins two to five, scattered, alternate, first upright then horizontal, flexuose, subhirsute, ovate-oblong becoming cylindrical, from an inch to an inch and half in length, on a round peduncle, half an inch long, smooth or very finely villose. Stamens two, seldom three. Nectaries two. Female catkins also scattered, more numerous than the males, alternate, erect, cylindrical, from two to three inches long, subhirsute, on a peduncle half an inch in length, subtomentose and round. Germ ovate-attenuated, greenish, peduncled; style scarcely distinct, depressed in the middle; stigmas four, blunt, yellow. Nectary simple short truncate blunt, on the peduncle of the germ. Capsule ovate-oblong, acuminate, peduncled, when ripe yellowish green or brownish. Down long, silky.

Several species besides this, snap off easily at the joints, like the *fragilis*, and are probably confounded with that, from this obvious circumstance.

Hoffmann has named this *decipiens*, because it resembles another species so much, that an incurious observer might easily be *deceived* in taking them for the same.

Native of Europe, on the banks of rivers: flowering in may. The capsules ripen in june [s].

25. Branches upright, testaceous-brown; annual shoots short, alternate, very leafy. Leaves without stipules, on very short petioles, attenuated towards the petiole, becoming gradually almost entire. About the lake Baikal, and in all the east of Siberia to Kamtchatka. It is a low shrub.

26. Trunk the thickness of the human finger or thumb, very much and forkedly branched from the very bottom: branches very short, rigid, pressed close to the ground, brownish yellow. Leaves at the ends of the branches frequent, in some lanceolate, almost entire; in others ovate-lanceolate, largely toothed with blunt and somewhat waved serratures. Very smooth and without stipules. Female aments among the leaves, subsessile, leafless, scarcely an inch long, clustered, having a thick close down.

It approaches very near to the *phylicifolia* of Linneus, in its leaves.

On Sochondo one of the loftiest mountains of Dauria, spreading itself on the granite rocks.

27. Twigs scarcely a foot long, bay-coloured, and branched a little. Leaves very smooth, produced towards the petiole, rounded at the top, bluntly serrate or crenulate, more or less glaucous beneath.

In the subalpine marshes of Siberia from Obo to Baikal.

28. This is a little shrub, spreading over rocks that are covered with moss, about the size of *Arbutus alpina*, with a trunk at most the size of the little finger,

[a] Smith in Linn. transf.
[b] Fl. fuec. and lapp.
[c] Smith, information by letter.
[f] Linn. lapp.
[g] Withering from Hoffmann.
[h] Linn. transf.
[i] Linn. lapp.
[k] Suec. n. 886
[l] Lapp. n. 356. ed. Smith.
[m] Hoffm. Linn. lapp. and fuec.
[n] Linn. spec.
[o] Linn. spec.
[p] Haller.
[q] Gouan.
[r] Hort. kew.
[s] Hoffmann.

with a yellowiſh and ſomewhat jointed bark; more rugged on the trunk; with ſhortiſh branches crowded and twiſted together. (In Kamtchatka, the twigs are a foot or a foot and half long, and more ſlenderly ſtretched out.) Leaves on the outmoſt branches very much cluſtered, ſmall, netted with thickiſh veins, rigid; toothlets diſtant, ſpreading a little, acuminate, unequal. Male catkins among the old leaves, from the terminating buds, the length of the leaf, thin, with diſtant villoſe ſcales, two-ſtamened or three-ſtamened. Female catkins ſhorter than the leaf, with few, biggiſh, cluſtered capſules. On the male ſhrub, the branches are more ſlender and lengthened out; the leaves are ſmaller, with more frequent imbricate ſerratures.

Native of Ruſſia, in watery places throughout the temperate and ſouthern parts to the limits of Caucaſus [1].

29. This is a ſhrub, with the branches not much more than a finger's length and proſtrate. Leaves pointed, rounded or emarginate, thick and rigid; when fully grown ſmooth on both ſides, but marked with a network of veins, whence the name: three ariſe from a bud, ſupported each on a footſtalk. Stipules none. Male catkin moſtly terminating, rather woolly, an inch long, on a long ſlender peduncle: ſtamens two: nectary double. Female catkin terminating, ſeldom more than one on a branch, cylindrical, rather longer than the male, on a very long peduncle [2].

Native of high mountains in many parts of Europe. Northern counties of England, Wales and Scotland: flowering in may.

30. This is a ſmall ſhrub, ſcarcely a foot high, having the ſtature and appearance of *Vaccinium uliginoſum*. The upper branches are purpliſh, the uppermoſt fleſh-coloured. Leaves quite entire, ſmooth and green on both ſides, or a little cinereous beneath, with the edge in old leaves a little bent back; in ſome they are more rounded, in others more lengthened out. Peduncles few, furniſhed with leaves. Stipules none. Germs pedicelled, ſmooth. Flowers yellow, from the ſame bud with the leaves. Fruit commonly purpliſh, with the baſe brown [3].

In Ingria it is a foot or eighteen inches in height, and grows like a little tree, with a trunk often thicker than a ſtraw or reed. The Siberian plant is more tender, ſcarcely a foot high, with a trunk rather more ſlender. Branches alternate, pretty cloſely leafed. Leaves without ſtipules, in form and colour like thoſe of *Vaccinium Myrtillus*, ſome of them blunt iſh: in the Siberian plant more tender and ſmaller, always glaucous beneath. Male aments half an inch long, villoſe, with ſmall leaves on the peduncle, long ſtamens, and floſcules thin ſet. Female capſules few, ſmooth, on longer peduncles. In the eaſtern part of Siberia, in a lower ſituation, it grows higher, and has longer looſer catkins [4].

Villars thus deſcribes his *cæſia*, which is ſuppoſed to be the ſame with this, though he himſelf refers it to the *glauca* of Linneus. Height three or four feet. So like *S. Helix*, that it would ſeem to be a variety, if we did not examine the fructification. The wood ſupple and hard; the bark aſh-coloured, ſmooth, reddiſh, on the young twigs brown or green. Leaves oblong, elliptic, lanceolate, ſmooth, very entire, glaucous beneath, very even above; the lateral veins very frequent and very open, which is a ſingular character in this ſpecies. Catkins ſmall, elliptic, ſupported by four or five linear leaves, ſlightly villoſe. The ſcales and capſules are alſo a little villoſe.

Native of Sweden and Iceland, Switzerland, the South of France, Ingria and Siberia.—Introduced in 1772, by the right hon. Sir Joſeph Banks, Bart. K.B. It flowers here in may [5].

31. Stems round, long, cinereous, ſmooth. Leaves ſeveral from a bud, ſeſſile, ſmooth on both ſides, ſpreading, half an inch long or more. Flowers from the ſame buds with the leaves.—Native of Japan [6].

32. This is a ſhrub from two to three feet in height. Stems red, ſmooth. Leaves lanceolate, nerved beneath, having a few hairs ſcattered over them above, and clothed with whitiſh hairs on the under ſurface: the lower ones rather blunt, the upper ones ſharper and rather oblong. Stipules none. Male catkin ovate, ſo woolly that none of the ſcales are viſible. Peduncle leafy. Wool longer at the baſe of the petioles [7].

According to Villars it is a creeping and very ſingular ſhrub, with a large twiſted trunk; of a greeniſh aſh-colour; branches ſhort; bark greeniſh or blackiſh on the younger branches, a little villoſe at the end. Leaves lanceolate, quite white with the thick down which covers their ſurfaces. Male catkins oblong, flowers having two yellow ſtamens. Female catkins oblong, with capſules of the ſame ſhape, villoſe, ſhining white almoſt ſilvery; flowers remaining hid under the leaves.

Native of the mountains of Lapland, the Alps and Pyrenees.

33. This is a ſlender ſhrub, often the height of a man and ſeldom exceeding a fathom. Twigs ſlender, pliant, yellow, very ſmooth and ſhining. Leaves ſtiff, without ſtipules, very narrow and ſharp, glaucous beneath. Female catkins below the leaves naked, ſcarcely longer than an inch, upright, with the ſcales not very cloſe. Down very tender, not very long. It differs from *S. roſmarinifolia* in the catkins and ſmoothneſs of the leaves; the colour alſo of the ſhrub is very different, and the leaves are longer. In the ſlenderneſs of the twigs it almoſt emulates the Weeping Willow.

Native of Ruſſia, in the ſands between the ſouthern Volga and the Rhymnus towards the Caſpian ſea, and by the rivers Sarpa and Cuma very abundant [8].

34. This is a ſhrub, a few feet high, ſometimes growing up to be a ſmall tree, about the height of a man, (or from a yard to eight feet.) Bark grayiſh, ſmooth, entire. Branches numerous, ſpreading, ſmooth, tough, blackiſh or browniſh. Leaves roundiſh or obovate, ſometimes waved at the edge, blunt or with a ſhort taper point at the end; above dark green and ſomewhat woolly, paler cottony and reticulated beneath; on ſhort, cylindrical cottony footſtalks. The leaves when young are ſoft, even, an inch long; when old rigid, wrinkled, and two inches or more in length. (According to Lightfoot, the leaves are about the ſize of a ſixpence when full grown, not quite round, but obverſely oval, wrinkled with large ſwelling veins, and when young woolly on both ſides; but the pubeſcence wears off in ſome degree from the upper ſide as the leaves grow older.) Stipules (or auricles) two, at the baſe of each leaf-ſtalk, kidney-ſhaped, ſcalloped and toothed. Male catkins upright, ovate, blunt, half an inch long or more, three or four lines broad, on a ſhort peduncle: ſtamens two: nectary ſingle. Female catkins upright or ſpreading, ovate-oblong or cylindrical, blunt, from half an inch to an inch in length, and half as broad, on longer peduncles. It ſometimes flowers a ſecond time in the autumn [9].

Native of Europe, particularly the northern parts, in woods and marſhes; flowering in may. The capſules ripen in june. Mr. Lightfoot ſays it is frequent in woods and hedges in Scotland. Mr. Woodward, that it is frequent about Bungay in Suffolk. The ſhoots are ſlender and tolerably flexible.

35. The branches are covered all over with a white pubeſcence. Leaves ſubovate or roundiſh, quite entire, downy with a long and looſe wool, eſpecially when young, ſo cloſe that the veins are not viſible. Hence the whole tree appears white and villoſe. Stipules none. Two catkins generally come out at the ends of the twigs of the foregoing year; and the capſules are ſmooth [10].

This is a dwarf tree, a ſpan high, from a trunk ſcarcely as thick as the human finger, branching very much and diffuſed: branches ſubaſtigiate, with a brown bark; the extreme ones covered with a ſilky down. Leaves thickiſh, ſubacute, ſeſſile, very cloſely covered on both ſides with a ſilky pubeſcence. Stipules on the uppermoſt branches ovate-acute, villoſe

[1] Pallas. [2] Hoffmann. [3] Linn. ſuec. and lapp. [4] Pallas. [5] Hort. kew. [6] Thunberg. [7] Linn. ſuec. [8] Pallas. [9] Hoffmann. [10] Linn. lapp. and ſuec.

alſo. Female aments biggiſh, lateral, pedunculed, accompanied with one or two leaflets. Capſules white with cotton.

Pallas ſeems to have repeated this under the name of *lanuginoſa*; which he deſcribes as a ſpan high or ſcarcely larger, with a ſlender trunk divaricating into branches, and a yellow bark: the younger twigs pubeſcent. Leaves ovate-lanceolate, quite entire, tender, pale green, and clouded on both ſides with a very tender lanugo, ſo that Linneus has ill named it *lanata*. Under this he refers to Linneus. In his *lanata*, which he has figured, he gives no reference; and ſays it is very diſtinct from *caprea* and *acuminata*, but very nearly allied to *fragilis*[f].

Native of the mountains of Lapland, &c.

The *lanata* of Lightfoot is not the *lanata* of Linneus; Dr. Smith names it *ſphacelata*.

β. *S. depreſſa*, which Linneus made a diſtinct ſpecies in Flora lapponica and ſuecica, in Species plantarum is conſidered as a variety of *lanata*.—In the leaves it approaches very near to *S. caprea*, but they are more compact. It does not grow up into a tree, but cloſe to the ground, ſpreading all round ſcarcely a ſpan in length. The bud is a valve deeply emarginate. Catkin from the ſame bud with three leaves, white with curled woolly hairs, and the ſcales brown at the tip.—Native of the mountains of Lapland [g].

36. This approaches ſo near to *S. arenaria*, that perhaps it is only a variety; differing from it in having the upper ſurface of the leaves more villoſe, the leaves themſelves longer and waved.—In habit it approaches very near to *S. glauca*. The leaves are tomentoſe on both ſides, but underneath more ſo. The peduncles are furniſhed with leaves. The germs are hirſute with white cotton. This, together with *Betula nana* ſupports the perpetual fire of the Laplanders [h].

It grows to the height of a man, with a ſmooth ſtem, pale fleſh-coloured or ruſſet, the young twigs white with hairs. Leaves alternate, wrinkled along the veins. The capſules are covered with a white and very thick pubeſcence.

Native of Lapland, where it abounds in all the vallies of the high mountains [i]. Probably alſo native of Ruſſia. Perhaps of Switzerland. Not of Scotland, Lightfoot's *S. lapponum* being the *arenaria* of Linneus.

37. A ſhrub the height of a man. Stems upright, little branched, cinereous or red. Leaves alternate, erect, thick, green above, wrinkled along the veins, and having very fine ſcarcely viſible villoſe hairs thinly ſcattered, beneath ſnow-white, covered thickly with hairs and nerved [k]. Catkins both male and female ovate, very frequent from the leaf-buds: male very villoſe with diandrous flowers; female ſubvilloſe, the glumes terminated by a brown ſtigma.—Gærtner thus deſcribes the fruit—Capſule ovate-beaked. Seeds from eight to ſixteen, crinite all over, with ſilky-white ſimple hairs, the length of the capſule: faſtened to the inner ſurface of the valves, in an erect poſition.

Mr. Lightfoot deſcribes it, under the name of *S. lapponum*, as a ſhrub four or five feet high; the bark ſmooth and reddiſh, the young twigs white and hoary. Leaves alternate, lanceolate and entire, very woolly on both ſides, but moſtly on the under ſide; about an inch and quarter long, and half an inch wide: the longitudinal nerve ſometimes divides the leaf unequally, and the edges are often ſlightly waved. The capſules are covered with a thick woolly down. The upper ſurface of the leaves, when old, loſes moſt of its down, and becomes of a dark green colour.

Monſ. Villars deſcribes it under the name of *S. helvetica*. Height from one to two feet, with a greeniſh bark, but yelloviſh on the branches. Leaves lanceolate, quite entire, thick, netted, very dark green above, ſnow-white beneath; the veins however are viſible through this pubeſcence, which is very fine; the upper ſurface of the leaves is not deſtitute of this pubeſcence, but it is diſtinct and makes little alteration in the colour. Male catkins oblong, diandrous, about an inch long: females attain an inch and half; ſcales and capſules villoſe, ſilky.

The *arenaria* of Lightfoot is diſtinct both from *arenaria* and *lapponum* of Linneus; Dr. Smith names it *argentea*. Mr. Lightfoot thus deſcribes it.—This ſpecies is an humble diffuſe proſtrate ſhrub, ſeldom above two feet high. Leaves of a thick ſubſtance, alternate and elliptical, the largeſt an inch long, and half an inch wide, the ſmalleſt three quarters of an inch long, and a quarter of an inch wide. They are covered with white ſilken hairs on both ſides, but particularly on the under ſide. The dark green colour of the upper ſurface appears through the hairs, as Villars deſcribes in his *helvetica*. At the baſe of the leaves are ſometimes found ſmall ſtipules; but they are generally without them. The ſcales and capſules are hoary.

Native of Scotland, on the ſea ſhores, among blowing ſand.

Arenaria is native of many parts of Europe.

38. This reſembles the preceding, but differs from it in the leaves, which in that are rather ovate, in this rather lanceolate; in that having hairs irregularly ſcattered over the upper ſurface, in this quite ſmooth; in that, the lower ſurface white-tomentoſe, in this, having contiguous white hairs; in that, by no means ſhining, in this ſhining like ſilk. The branches alſo in that are red, in this whitiſh-green [l].

Native of Sweden, and perhaps ſome other parts of Europe, if the ſynonyms be right. Pallas ſays that it is found in the wet paſtures of northern Ruſſia; that it is frequent in ſome parts of Siberia, ſcarcely an ell in height; that it abounds in the marſhes of Ingria, where it is quite a dwarf; and that Gmelin's ſpecies, vol. 1. 162. n. 17, does not ſeem to differ from this.

Introduced in 1775, by the Doctors Pitcairn and Fothergill [m].

39. The true creeping Willow, for it has been much miſtaken, has a very ſtrong woody root, dark brown or black, throwing out many proſtrate or widely ſpreading ſtems, of which the flowering branches are generally erect. Leaves lanceolate or elliptical, ſilky when young, and ſeldom quite ſmooth beneath, when old; without ſtipules. Catkins not long; ſcales obtuſe, hairy. Germ oval, ſilky, with a ſhort undivided ſtyle, and a yellow ſpreading ſtigma, cloven almoſt equally into four lobes. Capſule, when ripe, ſmooth, lanceolate. The ſtyle and ſtigma muſt be particularly noticed in diſcriminating ſome of theſe ſmall Willows [n].

Linneus deſcribes the ſtem as being the thickneſs of the human finger; the branches rod-like, decumbent; the branchlets with ſcattered white hairs. Leaves ovate or ovate-oblong, quite entire, ſmooth on both ſides, glaucous beneath, petioled. Stipules none. The loweſt leaves oppoſite, tranſverſely and little hairy. Catkins lateral. Capſules of the female rufeſcent [o]. This is the leaſt of all the common Willows, indeed ſcarcely larger than *S. herbacea*, being immerſed in the marſh, ſo that only the tops of the branchlets appear [p].

Hoffmann, deſpairing of reconciling the ſynonyms of various authors, has given this ſpecies the name of *depreſſa*, not intending by it however the *depreſſa* of Linneus.

Native of many parts of Europe. Almoſt every moiſt ſandy heath abounds with this Willow, which flowers in may, and ripens its fruit in june and july; when, as in moſt of this genus, the leaves arrive at their full ſize. The varieties are numerous, differing in the breadth of their leaves, and in the greener or browner colour of the whole plant; hence Hudſon and others thought they had diſcovered *S. fuſca* and *roſmarinifolia* among them, whereas the former is *S. arenaria* of our Britiſh writers, but not of Linneus, and the latter is not of Britiſh growth. Profeſſor Gouan of Montpellier miſtook a widely different and nondeſcript ſpecies for *S. repens* of Linneus [q].

40. This is a very low ſhrub, for the moſt part procumbent, and creeping. Leaves very ſmall, alter-

[f] Pallas reiſ. [g] Linn. ſuec. [h] Idem. [i] Linn. lapp. [k] Idem. [l] Linn. ſuec. [m] Hort. kew. [n] Engl. bot. Spec. [o] Linn. ſuec. [p] Engl. bot.

nate,

ſtate, almoſt ſeſſile, blunt, ſmooth and dark green above, beneath glaucous with a few ſilky-white hairs. Bud one-valved, two-parted. Flowers peduncled, at the end of the branchlets of the year preceding; they are very many, with brown ſcales, and yellow filaments and anthers. The catkins have no leaves, and commonly turn black [s].

The ſilkineſs on the back of the leaves vaniſhes with age. The readieſt mark of diſtinction betwixt this and the preceding ſpecies, is that the catkins are on the ſides of the branches in that, and terminating in this [t].

Linneus remarks that theſe ſmall Willows, *arenaria*, *incubacea*, *repens* and *fuſca* are cloſely allied.

Native of ſeveral parts of Europe. In Britain, by Landown caſtle, between Southampton and Wincheſter, between Kilnſay and Arncliff in Yorkſhire, and in Scotland.

41. Leaves linear, acute, beneath ſhining, ſilky, villoſe. Stipules none [u].—Native of Sweden, Switzerland, Ruſſia, &c.

42. This occurs with taller and lower ſtems, with thicker ſhoots, yellow or browniſh. Leaves hoary above, ſilvery beneath. Stipules none on adult plants. Catkins among the leaf-buds, ſeſſile, naked: males an inch long, more ſlender than a ſtraw, pale-villoſe. In the autumn the leaves become very long, with a ſubrepand margin, and almoſt naked above.—This ſpecies, which approaches nearer to *viminalis* than to *caprea*, is conſidered by Linneus as a variety of the latter.—Native of Dauria [x].

43. This is a ſhrub the height of a fathom in the water, but in a drier ſituation it becomes a tree, with a trunk the ſize of the human arm. Shoots thick, rather brittle, ſtiff and upright, of a greeniſh gray colour. The younger leaves are ovate-lanceolate, ſilky-ſilvery; the older ones oblong and acute, often more than a great ſpan in length, ſoft, beneath very much veined and hoary. Stipules for the moſt part none, but on the luxuriant branchlets linear-acute. Catkins from the lateral buds, on a peduncle with a few ſmall leaves on it: males an inch and half long, hirſute, with cloſe ſcales, and very long ſtamens; females ſhorter, with the capſules biggiſh, frequent, white with nap. It bears a great affinity to the preceding, but yet it ſeems diſtinct. Perhaps it is allied to *S. egyptiaca* of Linneus.

Native of Ruſſia, in the ſandy ſhallows and iſlands of the ſouthern Volga, between Zarizin and Aſtrachan; where it does not unfold its buds and put forth its catkins till the beginning of june, when the river begins to ſubſide, a little later than *S. pentandra*.

44. This is a ſmall tree, almoſt like *S. fuſca*, with a trunk the thickneſs of a ſwan's quill, lying on the ground, with a few thickiſh ſtraddling branches a finger's length, quite from the bottom, the bark of which is of a yellowiſh bay colour. Stipules none. Leaves biggiſh in proportion to the plant, thickly netted, above ſhining, very finely villoſe beneath, petioled. Female catkin large, two inches long, the thickneſs of the little finger, on a long peduncle from the ſide of the branches, accompanied by two or three biggiſh leaves. Capſules cluſtered, thickiſh, conical, tomentoſe-hoary on the outſide. It grows within the Arctic Circle, by the Icy Sea.

45. Twigs yellow, ſtraight, little branched, rod-like; the younger ones hoary with nap, frequently all over. Leaves frequent, alternate, on ſhort petioles, ſubſerrate with few and very obſcure toothlets, much nerved, in ſome white-tomentoſe on both ſides, in others beneath only, and ſometimes without any pubeſcence. Stipules permanent, very ſharp, with a toothlet or two. On the banks of rivers it grows like a tree a fathom high or more, with very ſmooth leaves, and very branching twigs of a full yellow and as it were poliſhed; without any ſtipules: but in moiſt open vallies it becomes rod-like and tomentoſe.

Native of the farther Siberia by the ſubalpine ſtreams of the Jeniſea, eſpecially about Karyſch, and in the wet ſubalpine plains of Dauria [a].

46. This not unfrequently becomes a large tree. Branches when young paliſh, downy. Leaves ſlightly tapering to a point at both ends, above green and ſcarce ſenſibly downy, underneath pale green with a very thin woolline's: edge marked with ſome notches which are ſcarcely apparent unleſs carefully examined, but from the middle downwards evidently waved [b]. The lower buds produce leaves, the upper ones catkins not leafy [c].

Bark aſh-coloured, cracks very fine. Leaves roundiſh, ovate, obovate or ovate-oblong, four or five inches long, about three broad, ſmooth or downy above and dark green; blueiſh gray and cottony on the back, and marked with a network of veins. Stipules only to the uppermoſt leaves, roundiſh and finely ſcalloped. Male catkins ovate-oblong, one or two inches long, often an inch broad, on ſhort peduncles, which are woolly, furniſhed with eight or twelve leaflets, in a double or triple ſeries; the upper flowering firſt: ſtamens two: nectary one. Female catkins oblong or cylindrical, from one to two inches or more in length, half an inch broad, on peduncles which have ſix or ſeven leaflets.—Gleditſch found on this ſpecies both male and female flowers, and others that were hermaphrodite [d].

Our common Sallow was generally ſuppoſed to be this ſpecies; but it is now known to be the *cinerea* of Linneus.

Linneus ſays, that no ſpecies of Salix requires ſuch a dry ſoil as this does. The bark is uſed in dyeing leather by the Laplanders; and the beſt gloves are prepared with it in Scania. The wood is ſoft, light and flexible, fit for ſeveral uſes of the turner, the handles of tools, knife-boards, &c. [e] The coal is eſteemed good for making gunpowder, and is uſed in drawing. It is of conſiderable ſervice to bees, both on account of its flowering early, and having a great abundance of anthers [f].

47. This is a ſhrub ſix feet high, often reſembling a ſmall tree: bark ſmooth, aſh-coloured: branches *numerous, upright but diffuſed*. Leaves ovate-oblong or ovate-lanceolate, entire or a little ſerrate, two inches long and nearly one broad; *thoſe on the lower branches* a little ſcalloped at the edge, dark green above with little or no pubeſcence, cottony on the back, pale or glaucous and reticulated. Stipules kidney-ſhaped, waved and toothed at the edge, ſeldom found on the upper leaves. Male catkins ovate or ovate-oblong, an inch or more in length, half an inch broad, blunt, on a peduncle about two lines long, having four or ſix lanceolate ſcales: ſtamens two: nectary one, bellying below, with a ſlender tapering neck, truncate at the end. Female catkins the ſize and ſhape of the other, but on longer peduncles [g].

Linneus has made this a variety of the *caprea*, from which, according to Pallas, it is altogether different, and may eaſily be diſtinguiſhed, by having the leaves leſs wrinkled and veined, more acuminate, more tender, and whitiſh underneath with a very tender nap.

According to Hoffmann, it is an intermediate ſpecies between *caprea* and *aurita*, but different from both.

Native of ſeveral parts of Europe, flowering in march and april: the capſules ripen in may. It was firſt obſerved in England by William Sherard; and is frequent about Oxford. Dr. Withering marks it at Kirkſtall abbey in Yorkſhire.

48. This is allied to *caprea*. Leaves obovate-oblong, above wrinkled and ſmooth, beneath tomentoſe and aſh-coloured. Capſules ſmooth, pedicelled.—Native of the kingdom of Tunis [h].

49. Native of Penſylvania. Mr. William Young. Introduced in 1765. It flowers in april [i].

50. The Oſier is a very tall ſlender obſequious quick-growing ſhrub. Leaf and flower-buds diſtinct as in *S. caprea*. Leaves rolled back at the edges before they unfold [k].

[s] Linn. ſpec. ſuec. lapp.
[t] Linn. ſuec. and ſpec.
[u] Withering.
[x] Pallas.
[a] Linn. lapp.
[b] Linn. ſpec.
[c] Hoffmann.
[d] Linn. ſuec.
[e] Hoffmann.
[f] Idem.
[g] Deſcriptiones.
[h] Hort. kew.
[i] Linn. ſpec. and ſuec.
[k] Pallas.

Frequently

Frequently arboreſcent. Bark grayiſh, ſmooth, with here and there a crack. Branches very long, ſtraight, ſlender, tough. Leaves, eſpecially the lower ones, a ſpan long or more, waved at the edge. Male catkins ovate or oblong, from an inch to an inch and half in length, three or four lines in breadth, on very ſhort peduncles: ſtamens two: nectary one. Female catkins ovate-oblong or cylindrical, of the ſame length with the male, half an inch broad; peduncle two lines long. The leaves being ſilvery underneath; the nectary in the male flower being long and ſlender; and the ſtyle in the female flower being very long, are ſufficient marks to diſtinguiſh this and its varieties from the other ſpecies [s].

Leaves above deep ſhining green, underneath grayiſh, cloſely beſet with very fine ſhort hairs lying cloſe to the ſubſtance of the leaf. Leaf-ſtalks about half as long as the breadth of the leaf. A ſmall tongue-ſhaped glandular ſubſtance fixed to the ſtem juſt above the inſertion of the leaf-ſtalk, in the upper part of which there is a hollow to receive it. Leaf-ſcales (ſtipules) minute, one on each ſide of the baſe of each leaf-ſtalk [t].

Mr. Lightfoot remarks, that the nerves of the leaves underneath are parallel, but diverge almoſt to right angles with the midrib; that the edges are either ſlightly toothed or undulated, but being turned back this is ſcarcely perceptible; that at the baſe of the leaves, eſpecially near the top of the twigs, there are generally ſome linear awl-ſhaped ſtipules; that the catkins are ſeſſile, cylindrical, and ſhorter than the leaves; that the ſcales are oval and fuſcous, and the capſules downy. He notes a variety, the leaves of which on the under ſide are of a paler green than the upper, but without any viſible hoarineſs.—Some of the above remarks are from Haller.

This is the true *Oſier*, ſays Ray, at leaſt ſo called in Eſſex and Cambridgeſhire.—Varieties of it, and different ſpecies are doubtleſs cultivated under this name.

Native of moſt parts of Europe, in moiſt boggy land, woods and hedges. Much cultivated in oſier-holts, for making hoops and the larger ſorts of baſkets, hampers, cradles, bird-cages, &c. It is planted to prevent the banks of rivers from being waſhed away by the force of the current, and it forms a hedge very uſeful in keeping off winds [u].—Puttheons and weels for catching eels are made of the twigs [x].

Evelyn enumerates many varieties of Oſier known among baſket-makers in his time. We have in England, ſays he, three vulgar ſorts: one of little worth, being brittle, and very much reſembling the Sallow, with reddiſh twigs, and more greeniſh and rounder leaves. A ſecond, called *Perch*, of limber and green twigs, having a very ſlender leaf. The third totally like the ſecond, only the twigs not altogether ſo green, but yelloviſh. This is the very beſt for uſe, tough and hardy. The moſt uſual names by which baſket-makers call them about London are, the *Hard-Gelſter*, the *Horſe-Gelſter*, *Whyning* or *Shrivelled-Gelſter*, *Black-Gelſter* in which Suffolk abounds. Then follow the *Goldſtones*, the hard and ſoft, brittle and worſt of all the *Goldſtones*; the ſharp and ſlender-topped yellow *Goldſtone*; the fine *Goldſtone*. Then there is the *yellow Oſier*, the *green Oſier*, the *ſnake* or *ſpeckled Oſier*, *Swallow-tail* and *Spaniard*. To theſe we may add, the *Flanders Willow*, which will arrive to be a large tree: with theſe coopers tie their hoops to keep them bent. Laſtly, the *white Sallow*, uſed for green-work; and if of the tougheſt ſort to make *quarter can-hoops*, of which our ſeamen provide great quantities [y].

Innumerable varieties are cultivated in the oſier-grounds for the baſket-makers; and the ſame frequently under different names in different places; ſo that it would be difficult and of little uſe to enumerate them. The Dutch and Wire Oſiers are eſteemed about London. Dr. Smith informs me, that Mr. Crowe has lately made out the true Velvet Oſier, which is a valuable ſort, to be diſtinct from *viminalis*.

[s] Hoffmann. [t] Withering. [u] Linn. ſuec. Withering. [x] Stokes in Withering. [y] Silva, b. 1. c. 19. § 17. 19.

51. In woods more than ſix and ſometimes near twelve feet high; in expoſed boggy ground it ſpreads more, but does not riſe ſo high. Leaves alternate, rude, rugged, wrinkled and green above, beneath rough with hairs, the veins indiſtinct, the edge ſerrate, on looſe petioles two lines in length. Stipules in ſhape of half a heart, on each ſide ſerrate with three glands. Catkins browniſh, placed below the leaves, on a peduncle with a few ſmall ſpear-ſhaped leaflets [z].

Branches tough, cylindrical, ſmooth, reddiſh. Leaf-ſtalks conſiderably ſhorter than half the breadth of the leaves, nearly cylindrical, with a gland on each, juſt above the baſe. Stipules minute on each leaf, at the baſe of the foot-ſtalk. Catkins ovate, an inch and quarter long, and three quarters of an inch wide [a].

The young twigs whitiſh and downy. Leaves variouſly ſhaped even upon the ſame branch, ſome acute, others obtuſe; they are generally ſlightly ſerrate towards the upper part, and undulated towards the baſe; their upper ſurface is downy at firſt, but afterwards ſmooth, or the veins at moſt only hairy; the under ſurface wrinkled, hoary, ſoft and downy. Catkins cylindrical, ſhort and thick. Capſules downy at firſt, but when ripe almoſt ſmooth.

The inhabitants of the Highlands and Hebrides frequently uſe the bark to tan leather. The wood is ſmooth, ſoft, white and flexible. It is often uſed to make handles for hatchets, prongs, ſpades, &c. and furniſhes ſhoemakers with cutting-boards, and whetting-boards to ſmooth the edges of their knives upon [b].

About Palm Sunday, the children, in many parts of our iſland, gather the flowering branches, calling them Palms [c].

This is our common Sallow, and Engliſh botaniſts took it for the *caprea* of Linnæus, till they were taught better by Mr. Afzelius, and by conſulting the Linnean herbarium.

Native of Europe in moiſt woods and hedges, not in a dry ſoil. It flowers in april [d].

52. The common or White Willow, when ſuffered to grow without lopping, becomes a large and lofty tree. It is quick of growth, and when lopped ſoon decays. The trunk is ſtraight with a gray rough bark full of cracks. Branches numerous, upright but diffuſed, gray or browniſh green, the upper ones often duſky red. The inner bark is green; whereas in *vitellina* it is yellow, and in *babylonica* purple. Leaves ſharply and elegantly ſerrate; ſhining but pubeſcent above, white and ſilky underneath. Male catkins cylindrical, blunt, from an inch and half to two inches in length, four lines in breadth, on peduncles half an inch long. Stamens two. Nectaries two, one before the ſtamens obcordate, the other behind them oblong. Female catkins ſlender, cylindrical, two inches long, three or four lines broad, on peduncles near an inch in length [e].

Native of Europe. It flowers in april and may, and the capſules ripen in june. It loves a moiſt and open ſituation.

The wood is white, light and tough. Hanbury ſays, it is agreeable to burn, becauſe it does not ſmoke, and gives a regular heat; it is not however generally eſteemed for the fire. The old branches are brittle, the young ones pliant.

The bark will tan leather, and dye yarn of a [illegible] cinnamon colour. The inner bark has afforded a miſerable ſubſtitute for bread to the neceſſitous inhabitants of Kamtſchatka.

The wood is uſed for poles, ſtakes, hoops, &c. Cattle will feed on the leaves. The Arabs diſtil their celebrated *Calaf* water from the catkins of any ſpecies in which they are fragrant. They uſe this water as a cooling beverage, or as a febrifuge. In the ſummer ſeaſon the leaves have been obſerved to diſtil a clear liquor, which Scopoli affirms to be owing to the liquefaction of the ſpume (cuckoo-ſpittle, vulg.) which envelops the *Cicada ſpumaria* [f].

Mr. Stone (in Philoſ. Tranſ. 53. 195.) gives an account of the great efficacy of the bark of this tree in

[z] Linn. ſpec. ſuec. lapp. [a] Withering. [b] Lightfoot. [c] Stokes. [d] Withering. [e] Hoffmann. [f] Lightfoot.

curing intermitting fevers. He gathered the bark in ſummer, when full of ſap, dried it by a gentle heat, and gave a dram of it powdered every four hours between the fits. In a few obſtinate caſes he mixed it with one fifth part of Peruvian bark. It is remarkable that intermittents are moſt prevalent in wet countries, and this tree grows naturally in ſuch ſituations. Whilſt the Peruvian bark remained at its uſual moderate price it was hardly worth while to ſeek for a ſubſtitute; but now its price is ſo great, and the ſupply from South America hardly equal to the conſumption, we may expect to find it more adulterated every year. The white Willow bark is therefore likely to become an object worth the attention of phyſicians, and if its ſucceſs upon a more enlarged ſcale of practice ſhould prove equal to Mr. Stone's experiments, the world will be much indebted to that gentleman for his communication. The bark of *S. triandra, fragilis*, &c. have the ſame properties. (See triandra, n. 2. fragilis, n. 13. and Helix, n. 16.) A ſet of experiments ſhould therefore be inſtituted to aſcertain which of the ſpecies ought to be preferred[1].

53. Trunk erect but ſhort, as thick as a man's body; with a large and very branching head; the branchlets are rod-like. Leaves alternate, broad-lanceolate, acuminate, moſt minutely ſerrate, ſmooth above, whitiſh beneath, from two to four inches long, on ſhort petioles. Male catkin filiform; its peduncle often leaf-bearing, iſſuing from the dry ſmooth brown involucre-like ſcales of the bud. Filaments ſix to eight, retrofracted: anthers twin, ſingly orbicular and grooved. Female catkins ſhorter than the male. Germ on a long pedicel: ſtyle of the ſame length with the capſule; with two ſpreading ſtigmas. Capſule heart-ſhaped, opening from the apex, one-celled, four-ſeeded. Seeds oblong, involved in much fine white cotton, which does not adhere to them, but is inſerted with them into the bottom of the capſule.

This is the only ſpecies of Willow yet found in India. It is a middle-ſized tree, growing on the banks of rivulets and in moiſt places far among the mountains. It flowers in the cold ſeaſon[2].

There are other ſpecies of Willow not yet ſufficiently aſcertained; and many varieties which are well known and have diſtinct names among thoſe who cultivate them for uſe. The Mountain, Upland or Red Willow, and the Huntingdon Willow, for the propagation of which premiums are offered by the Society of Arts, Manufactures and Commerce, I am not able to reduce to their proper ſpecies.]

There are ſome other ſorts of Willows which are planted in the oſier-grounds, and are diſtinguiſhed by the baſket-makers and dealers in them, under titles which they have applied to them, which are little known to others; theſe are annually cut down, and always kept low, but when they are not cut down, and have room to grow, will riſe to a conſiderable height, and ſome of them will become large trees; ſo that they may be planted for the ſame purpoſes as the White Willow, and will make a variety when intermixed with it, though they are commonly cultivated for their twigs, which produce good profit to the owner of the land.

PROPAGATION AND CULTURE.

All the ſorts of Willows may be eaſily propagated by planting cuttings or ſets, either in the ſpring or autumn, (but the ſpring is the fureſt ſeaſon) which readily take root, and are of a quick growth. Thoſe ſorts which grow to be large trees, and are cultivated for their timber, are generally planted from ſets, which are about ſeven, eight or nine feet long; theſe are ſharpened at their larger end, and thruſt into the ground two feet and a half by the ſides of ditches and banks, where the ground is moiſt; in which places they make a conſiderable progreſs, and are a great improvement to ſuch eſtates, becauſe their tops will be fit to lop every ſixth or ſeventh year. This is the uſual method now practiſed in moſt parts of England, where the trees are cultivated, as they are generally intended for preſent profit; but if they are deſigned for large trees, or are cultivated for their wood, they ſhould be planted in a different manner; for thoſe which are planted from ſets of ſeven or eight feet long always ſend out a number of branches towards the top, which ſpread, and form large heads fit for lopping, but their principal ſtem never advances in height; therefore, where regard is paid to that, they ſhould be propagated by ſhort young branches, which ſhould be put almoſt their whole length in the ground, leaving only two, or at moſt but three buds out of the ground; and when theſe have made one year's ſhoot, they ſhould be all cut off, except one of the ſtrongeſt and beſt ſituated, which muſt be trained up to a ſtem, and treated in the ſame way as timber trees. If theſe are planted with ſuch deſign, the rows ſhould be eight feet aſunder, and the ſets four feet diſtance in the rows; by planting them ſo cloſe, they will naturally draw each other upward, and, when they are grown ſo large, as to cover the ground and meet, they ſhould be gradually thinned, ſo as at the laſt to leave the rows about twelve feet aſunder, and the plants in the rows eight. If they are ſo treated, the trees will grow to a large ſize, and riſe with upright ſtems to the height of forty feet or more.

When theſe cuttings are planted, it is uſual to ſharpen thoſe ends to a point which are put into the ground, for the better thruſting of them in; but the beſt way is to cut them horizontally juſt below the bud or eye, and to make holes with an iron inſtrument in the ground where each cutting is to be planted, and when they are put in, the ground ſhould be preſſed cloſe about the cuttings with the heel to ſettle it, and prevent the air from penetrating deep into the ground.

The after care muſt be to keep them clear from weeds the two firſt ſeaſons, by which time they will have acquired ſo much ſtrength, as to over-power and keep down the weeds; they will alſo require ſome trimming in winter to take off any lateral ſhoots, which, if ſuffered to grow, would retard their upright progreſs.

There are great tracts of land in England fit for this purpoſe, which at preſent produce little to the owners, and might, by planting of theſe trees, turn to as good account as the beſt Corn land. The larger wood, if ſound, is commonly ſold for making wooden heels for ſhoes; as alſo to turners for many kinds of light ware.

The Sallows are commonly planted in cuttings made from ſtrong ſhoots of the former year, about three feet long; theſe are commonly thruſt down two feet deep into the ground, and are one foot above it. The cuttings ſhould be placed about five feet row from row, and two feet aſunder in the rows, obſerving always to plant the rows the ſloping way of the ground (eſpecially if the tides overflow the place;) becauſe, if the rows are placed the contrary ways, all the filth and weeds will be detained by the ſets, which will choak them up.

The beſt ſeaſon for planting theſe cuttings in the oſier-grounds is february, for if they are planted ſooner, they are apt to peel, if it proves hard froſt, which greatly injures them. Theſe plants are always cut every year, and, if the ſoil be good, they will produce a great crop, ſo that the yearly produce of one acre has been often ſold for fifteen pounds, but ten pounds is a common price, which is much better than Corn land; ſo that it is great pity theſe plants are not more cultivated, eſpecially upon moiſt boggy ſoils, upon which few other things will thrive.

[In order to raiſe a bed of Oziers, the ground being properly dug over or ploughed, cuttings muſt be procured of two year's wood, though the bottom parts of the ſtrongeſt one year ſhoots may do; they ſhould be two feet and a half long, a foot and half to be thruſt into the ground, and the other foot to remain for the ſtool: put them in at two feet diſtance every way. The firſt ſummer the weeds muſt be kept under, and the next the taſleſt muſt be hacked down. In three years the ſets ſhould all be cut down to the firſt-planted head. They will ſell well to the hurdle-maker; and there will be a regular quantity of proper ſtools for an annual crop of twigs, which will be worth

[1] Withering, p. 56. [2] Roxburgh.

five or six pounds, or more, an acre, for the basket-maker.

If osier-holts are overflowed by the tide, the rows should go the same way with the stream, and should be at a greater distance from each other, that the weeds, &c. may have free course; in this case the cuttings may be planted closer in the rows.

Plantations designed to be cut every six or seven years for poles, may be raised in the same manner; only that the cuttings must be a yard asunder: but when intended for hurdles, the distance need not be so great.

In osier-holts they commonly mix with the true Osier, the Sallow, the long-shooting green Willow, the Crane Willow, the Golden Willow, the Silver Willow, the Welsh Wicker, &c. for different purposes of the basket-maker.

For timber, the cuttings should be of the last year's shoot; a foot and half long, a foot of which should be thrust into the ground: they should be planted at the distance of three feet every way. The end of may, or the beginning of june, the sets that have shot too luxuriantly should have all the branches removed, except the leading shoot [a].

In planting Willows, where the ground is too wet, or subject to be flooded, lay it out in beds three or four yards wide, with a ditch on each side, three feet wide at top, and one foot at bottom, two feet and a half deep, throwing the earth out of the ditch upon the bed: there should be a yard of earth above the common level of the water.

The sets or truncheons should be from twenty inches to two feet in length. Dibble them in by an iron crow fourteen or twenty inches, so that not more than six, nor less than four inches appear above.

The cuttings should be from poles of three years growth. Set them three feet asunder, in a quincunx order. The time of planting from january to the end of march. The sets should be cut from december to the end of february.

The late Mr. Bakewell had different small plantations of the Dutch Willow, one of which he used to cut down annually at seven years growth; they ran very long, and some of them very large, and were split and used for posts, gates, rails, &c. for which they are very excellent. He used no other wood for those purposes.

The Osier, says Mr. Marshall, in low moist situations, may be cultivated, on a small scale at least, with great advantage to every farm, for binders, thatching rods, hurdles, edders, stakes, rake and scythe handles, &c. and for poles and rails of almost any length.

The first step is to throw the soil into beds, so as to lay the surface sufficiently dry; the Osier disliking an unsound situation.

This work should be done in autumn: and in march following, these beds being firmly established, and their surfaces in good working order, the soil should be thoroughly trenched with the spade, and truncheons inserted.

Put in the sets two feet from each other, dibbling in a Potatoe plant between them. During summer keep the surface clean hoed, and the Potatoes earthed up.

In autumn, after the Potatoes are taken up, draw the soil towards the roots of the plants, leaving channels between them, to carry off the winter's rains. The ensuing spring look the plants over, and replace such as have failed with fresh strong sets.

After this, little more will be necessary than to keep down the taller weeds: if however the plants do not overcome the weeds in the course of three or four years, they must be cut down to the stub, the spaces dug, the rubbish turned in, and the roots of the plants freed from incumbrances, with the hoe.

Notwithstanding the Osier is usually planted near water, it affects a sound, if not a dry soil. The places it most delights in are drained moors, and the banks of large rivers, both peculiarly dry situations: it has no dislike to being flooded occasionally, but seems to be invigorated by such irrigation: the sand banks therefore which are frequently thrown up by the sides of rivers, and sometimes lie for half a century before they become profitable, are peculiarly eligible to be converted into Osier-grounds.

The method of planting an Osier-ground is this: the soil being laid perfectly dry, and its surface made clean; cuttings of the second or third year's growth, and about twelve inches long are planted in drills, about two feet and a half asunder, in the month of march. The cuttings ought to be thrust in seven or eight inches deep, leaving four or five inches of head above ground.

The intervals should be kept stirred with a small plough; or the first year, a crop of Potatoes may be taken; the drills in either case must be kept perfectly clean with the hand-hoe; and at the approach of winter, the intervals should be split, and the mould thrown to the roots of the young plants, to lay them dry and warm during winter. The following spring the first year's shoots may be trimmed off, and the plants which have failed must be replaced.

The second summer, the intervals must be kept stirred, the drills hoed, and the plants earthed up, as before, against winter.

The ensuing spring, the stools must again be cleared; although the twigs as yet will be of little value. But at the third cutting they will produce marketable ware, and will increase in quantity and value, until the profits arising from them will be very great. In situations which the Osier affects, and in countries where the twigs are in demand, Osier grounds have been known to pay an annual rent of ten pounds an acre. Under ordinary circumstances they will, if properly managed, pay four or five [y].

Willow Pollards, it is well known, are planted with great profit, by the sides of brooks and rivulets; and might, in many others, be planted with equal benefit.

An error, too frequently committed, in planting Willow poles for pollards, is to set them within the banks of the rivulet or brook. The proper situation for them is some feet, not less than half a rod, from the brink of the channel. The roots soon reach the moisture, and afford shade to cattle in hot weather, without danger to themselves, or injury to the channel or its banks [z].

It is generally imagined, says Dr. Anderson [a], that the Willow can be made to thrive no where except in wet or boggy ground. Experience however has sufficiently convinced me that it will not only grow, but thrive, in any rich well cultivated soil, even although it be of a very dry nature.

He recommends it as a fence for dividing any extensive field of rich ground into separate inclosures. For this he advises to mark off the boundaries in winter or early in the spring, in order to give a complete fallow to a ridge six or eight feet broad, in the middle of which the hedge is intended to be planted the ensuing winter. Plough it frequently during the summer; and in autumn manure it well with dung, lime, or both, and form it into a ridge before winter.

Be provided with a sufficient number of plants previously reared in a nursery as near the field to be inclosed as possible; for as they are very bulky, long carriage will be expensive. Plant as early in winter as can conveniently be done.

All the large kinds of hoop Willows may be used for this purpose; but there is a sort with stronger and more taper shoots, covered with a dark-green bark when young, which, upon the older shoots, becomes of an ash gray, of a firm texture, and a little rough to the touch: the leaves are not so long as, but much broader than those of the common Hoop Willow, pretty thick, and of a dark-green colour. This becomes very quickly of a large size at the root, and being strong and firm, deserves to be preferred for this purpose.

The shoots ought to be of two or three years growth, and should never be less than eight or nine feet in length.

[a] Hunter's Evelyn.

[y] Planting, woodlands, vol. 1. p. 183 to 187.
[z] Idem. 183. [a] Essays, 1. 87.

Having

Having ſtretched a line along the middle of the ridge, put in the ſets at the diſtance of eighteen or twenty inches from one another, ſlanting a little to one ſide, in a direction parallel to the line. Then begin at the oppoſite end of the line, and plant another row in the intervals between the plants of the former row; making theſe incline as much as the others, but in a contrary direction. Then plaiting theſe baſket-wiſe, work them into lozenges, like a net, faſtening the tops by plaiting the ſmall twigs with one another. Thus a tolerably good fence is formed immediately; but as theſe plants directly take root, and quickly increaſe in ſize, it becomes in a few years a very ſtrong hedge.

A man may plant and twiſt about a hundred yards in a day, if the plants be laid down to his hand: and there is no fence which could be reared at ſuch a ſmall expenſe, ſo quickly, and continue ſo long. It will be greatly improved by putting a plant of Eglantine (Sweet-briar or wild Briar) between each two plants of Willow, which will quickly climb up and be ſupported by them, and by its numerous prickles would effectually preſerve them from being browſed upon by cattle. (Brambles would anſwer the ſame purpoſe.)

Keep the ridge in culture for one year at leaſt; ſtir the earth once or twice by a gentle horſe-hoe in the beginning of ſummer, and in the month of June ſow it with Turneps or plant it with Coleworts, which will abundantly repay the expenſe of the fallow.

In lands of indifferent value, divided into ſmall fields, the produce of ſuch hedges would in ſome places amount to the value of the land itſelf. As the Sallows are adapted to wet ſoils, ſo the red mountain Willow will thrive on dry grounds, and on moſt others [b].

Nothing anſwers better againſt brooks, where the water and bank are not a complete fence of themſelves, than the network fence of Willows or Sallows, provided it can be kept from cattle till it has ſufficiently eſtabliſhed itſelf.

Truncheons of live Willow make excellent poſts in new incloſures, as they will often take root and grow, and therefore will not rot, nor be ſubject to the depredations of wood-ſtealers.

SALLOW. See *Salix*.

SALMASIA. (*So named by Schreber, in memory of* Claudius Salmaſius (*Claude Saumaiſe,*) *author of* Pliniane exercitationes in Solini polyhiſtora, &c. *He died in* 1653.)

Lin. gen. Schreb. n. 513. Tachibota. *Aubl. t.* 112. *Juſſ.* 295.

Claſſ. 5. 3. Pentandria Trigynia.

Nat. order of *Ciſti*, Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* one-leafed, five-parted: *ſegments* oblong, acute, permanent.

COR. *Petals* five, oblong, clawed, inſerted into the receptacle, the length of the calyx.

STAM. *Filaments* five, capillary, the length of the corolla, inſerted into the receptacle. *Anthers* roundiſh.

PIST. *Germ* three-cornered, ſuperior. *Style* none. *Stigmas* three.

PER. *Capſule* three-cornered, three-celled, three-valved. *Partitions* contrary to the valves.

SEEDS very many, minute.

ESSENTIAL CHARACTER.

Cal. five-parted. *Cor.* five-petalled. *Style* none. *Capſ.* three-celled, three-valved, many-ſeeded.

SPECIES.

1. Salmaſia racemoſa.

Lin. ſpec. ed. Willd. 1. 1502.

Tachibota guianenſis. *Aublet guian.* 1. 287. *t.* 112.

DESCRIPTION, *&c.*

This is a ſhrub with round hirſute rufeſcent branches. Leaves alternate ſubſeſſile oblong acuminate quite entire ſmooth. Stipules linear hirſute deciduous. Flowers white in long axillary and terminating racemes. Peduncles hirſute.—Native of Guiana in woods [c].

SALSAFY. See *Tragopogon*.

SALSILLA. See *Aſtroemeria*.

SALSIRORA. See *Droſera*.

[b] Belcher, mſs. information.

[c] Willdenow.

SALSŎLA. (*From the ſaltneſs of the plant.*)

Lin. gen. n. 911. *Reich. n.* 339. *Schreb. n.* 437. *Gærtn. t.* 75. *Juſſ.* 85. Kali. *Tournef. t.* 128.

Claſſ. 5. 2. Pentandria Digynia.

Nat. order of *Holoraceæ*. *Atriplices*, Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* five parted: *ſegments* ovate, concave, permanent.

COR. none, unleſs the calyx be called ſo.

STAM. *Filaments* five, very ſhort, inſerted into the ſegments of the calyx.

PIST. *Germ* globular. *Style* three-parted or two-parted, ſhort. *Stigmas* recurved.

PER. *Capſule* ovate, wrapped in the calyx, one-celled.

SEED ſingle, very large, ſpiral.

OBS. *Some ſpecies have three ſtyles.*

ESSENTIAL CHARACTER.

Cal. five-leaved. *Cor.* none. *Capſ.* one-ſeeded. *Seed* ſcrew-ſhaped.

SPECIES.

1. Salſola Kali. *Prickly Saltwort.*

Lin. ſpec. 322. *Juſſ.* 263. *Reich.* 1. 624. *Willd.* 1. 1310. *hort. cliff.* 86. *fl. ſuec. n.* 225. *Woodv. med. bot.* 386. *t.* 143. *Gærtn. fruct.* 1. 359. *Huſſ. angl.* 107. *Wither. arr. ed.* 3. 278. *Smith, brit.* 280. *engl. bot. t.* 634. *Lightf. ſcot.* 151. *Fl. dan. t.* 818. *Villars dauph.* 2. 560. *Allion. pedem. n.* 2064. *Deſfont. atlant.* 216. *Gmel. ſib.* 3. 88. *n.* 69. *Gron. virg.* 28. *Plenck, ic.* 162.

Kali Soda. *Scop. carn. n.* 285.

K. ſpinoſum cochleatum. *Baub. pin.* 289. *Rali hiſt.* 212. *ſyn.* 159.

K. ſpinoſo affinis. *Baub. pin.* 289. *Mor. hiſt. ſ.* 5. *t.* 33. *f.* 11.

Tragum. *Camer. epit.* 779. *Matth.* 1035.

Tragus ſpinoſus Matthioli ſ. Kali ſpinoſum. *Baub. hiſt.* 3. 706.

Tragus Matthioli. *Ger.* 960. *emac.* 1117. 3. *Park. theat.* 1034.

Herbaceous, decumbent, leaves awl-ſhaped ſpiny rugged, calyxes margined axillary.

2. Salſola Tragus.

Lin. ſpec. 322. *Juſſ.* 263. *Reich.* 1. 624. *Willd.* 1. 1310. *amoen.* 4. 311. *Deſfont. atlant.* 217.

Kali Tragus. *Scop. carn. n.* 284.

K. ſpinoſum cochleatum. *Baub. pin.* 289.

K. ſpin. foliis longioribus & anguſtioribus. *Tournef. inſt.* 247.

Drypis Theophraſti. *Tabern. hiſt.* 423.

Herbaceous, erect, leaves awl-ſhaped ſpiny even, calyxes ovate.

3. Salſola roſacea. *Roſe-coloured Saltwort.*

Lin. ſpec. 323. *Reich.* 1. 624. *Willd.* 1. 1310. *hort. upſ.* 56. *Lerche in nov. act. nat. cur.* 5. *app.* 181. *Cavan. ic.* 3. 44. *t.* 286. *Gmel. ſib.* 3. 96. *n.* 75. *Buxb. cent.* 1. 9. *t.* 14. *f.* 2. (Kali.)

Herbaceous, leaves awl-ſhaped mucronate, calyxes ſpread out.

4. Salſola Soda. *French Saltwort.*

Lin. ſpec. 323. *Juſſ.* 263. *Reich.* 1. 625. *Willd.* 1. 1311. *mant.* 347. *Guett. ſtamp.* 426. *Sauv. monſp.* 7. *Allion. pedem. n.* 2065. *Gmel. ſib.* 3. 87. *n.* 63. *Deſfont. atlant.* 216. *Jacqu. hort. t.* 68.

Kali. *Dod. pempt.* 81. 1.

K. majus cochleato ſemine. *Baub. pin.* 287. *Ger. emac.* 535. 2. *Rali hiſt.* 212. *Mor. hiſt. ſ.* 5. *t.* 33. *f.* 1. *Tournef. inſt.* 247.

K. majus cochleatum. *Park. theat.* 279. 1.

K. vulgare. *Bauh. hiſt.* 3. 702.

Soda, Kali magnum, ſedi medii folio. *Lob. ic.* 394. *adv.* 169.

Herbaceous, patulous, leaves unarmed.

[5. Salſola ſativa. *Spaniſh Saltwort.*

Lin. ſpec. 323. *Reich.* 1. 625. *Willd.* 1. 1311. *Loeſl. it.* 132. *Cavan. ic.* 3. 46. *t.* 291. *Plenck, ic. t.* 163.

Kali hiſpanicum ſupinum annuum, ſedi foliis breviori-bus. *Juſſ. act. par.* 1715. *p.* 74.

Kali

Kali minus alterum. *Baub. pin.* 283.
Diffuſed, herbaceous, leaves round ſmooth, flowers conglomerate.
6. Salſola ſpicata. *Spiked Saltwort.*
Lin. ſpec. ed. Willd. 1. 1311.
S. ſalſa. *Cavan. ic.* 3. 46. *t.* 290.
Herbaceous, leaves oblong obtuſe ſemicylindric, flowers in threes axillary ſubſpiked.
7. Salſola altiſſima. *Graſs-leaved Saltwort.*
Lin. ſpec. 324. *ſyſt.* 263. *Reich.* 1. 625. *Willd.* 1. 1312.
Chenopodium altiſſimum. *Lin. ſpec. ed.* 1. 221. *hort. upſ.* 55. *n.* 3.—foliis ſucculentis. *Buxb. cent.* 1. 21. *t.* 31. *f.* 2.
Kali gramineo folio. *Baub. pin.* 289. *prodr.* 133.
β. Salſola foliis filiformibus inermibus mucronatis, caule ramoſiſſimo. *Lin. hort. upſ.* 56.
Lerchea foliis filiformibus acutis. *Hall. goett.* 2. 22.
Herbaceous erect very much branched, leaves filiform ſharpiſh, pedunculiferous at the baſe.
8. Salſola trigyna. *Trifid-ſtyled Saltwort.*
Lin. ſpec. ed. Willd. 1. 1312.
S. altiſſima. *Cavan. ic.* 3. 46. *t.* 289.
Herbaceous erect, leaves filiform obtuſe fleſhy, flowers axillary ſeſſile in threes, ſtyles trifid.
9. Salſola ſalſa. *Striped-ſtalk Saltwort.*
Lin. ſpec. 324. *ſyſt.* 263. *Reich.* 1. 626. *Willd.* 1. 1312. *mant.* 347. *Pallas it.* 1. 420. *Lepech. it.* 1. 254. *Jacqu. hort.* 3. 44. *t.* 83. *Villars dauph.* 2. 560.
Chenopodium maritimum, foliis ſedi teretibus. *Buxb. cent.* 1. 21. *t.* 31. *f.* 1.
Herbaceous, nearly upright, leaves linear ſomewhat fleſhy awnleſs, calyxes ſucculent diaphanous.
10. Salſola nudiflora. *Naked-flowered Saltwort.*
Lin. ſpec. ed. Willd. 1. 1313.
Somewhat woody aſcending, leaves filiform fleſhy, flowers glomerate, leaves the length of the glomerules.
11. Salſola flaveſcens. *Yellow Saltwort.*
Lin. ſpec. ed. Willd. 1. 1313. *Cavan. ic.* 3. 45. *t.* 288.
Somewhat woody erect, leaves round pubeſcent, flowers ſubglomerate.
12. Salſola hirſuta. *Hairy Saltwort.*
Lin. ſpec. 323. *ſyſt.* 263. *Reich.* 1. 626. *Willd.* 1. 1313. *Fl. dan. t.* 187. *Villars dauph.* 2. 560?
Chenopodium hirſutum. *Lin. ſpec. ed.* 1. 221.
Kali minus villoſum. *Baub. pin.* 89. *Raii hiſt.* 199.
K. parvum hirſutum. *Baub. hiſt.* 3. 702.
Herbaceous diffuſed, leaves round obtuſe tomentoſe.
13. Salſola laniflora. *Woolly-flowered Saltwort.*
Lin. ſyſt. 264. *ſpec. ed. Willd.* 1. 1314. *ſuppl.* 172. *Gmel. it.* 1. 160.
S. lanata. *Pallas it.* 2. *app.* 104. *t.* P.
Herbaceous, leaves round pubeſcent, flowers axillary, anthers coloured.
14. Salſola hyſſopifolia. *Hyſſop-leaved Saltwort.*
Lin. ſpec. ed. Willd. 1. 1314. *Pallas it.* 1. *app. n.* 107. *t.* L.
Herbaceous, leaves linear flat, glomerules of flowers axillary woolly.
15. Salſola polyclonos. *Many-ſpiked Saltwort.*
Lin. ſyſt. 263. *Reich.* 1. 626. *Willd.* 1. 1314. *mant.* 54. *Bocc. muſ.* 2. *t.* 34. (Anthylloides.) *Barr. rar.* 214. *t.* 275. (Pedicularis.)
Somewhat woody diffuſed, leaves oblong, calyxes margined glomerate coloured.
16. Salſola proſtrata. *Proſtrate Saltwort.*
Lin. ſpec. 323. *ſyſt.* 263. *Reich.* 1. 627. *Willd.* 1. 1315. *amoen.* 2. 346. *Loeſl. it.* 151. *Pallas it.* 1. 490. *Gmel. ſib.* 3. *t.* 18. *f.* 2. *Buxb. cent.* 1. *t.* 11. *f.* 2. *Jacqu. auſtr. t.* 294. *Hall. helv. n.* 1575. (Chenopodium.)
Chenopodium auguſtanum. *Allion. pedem. n.* 2020.
Fruteſcent, leaves linear hairy unarmed.
17. Salſola monandra. *Fleſhy-leaved Saltwort.*
Lin. ſpec. ed. Willd. 1. 1315. *Pallas it.* 3. *app.* 83. *t.* M. *f.* 1.
Stem herbaceous branched fleſhy almoſt leafleſs, leaves round fleſhy, flowers one-ſtamened.]
18. Salſola vermiculata. *Narrow-leaved Saltwort.*
Lin. ſpec. 323. *Reich.* 1. 627. *Willd.* 1. 1315. *Pallas it.* 1. *app.* 103. *Loeſl. it.* 129. *Barr. rar.* 501. *t.* 215. (Kali.)
S. microphylla. *Cavan. ic.* 3. 45. *t.* 287.
Kali fruticoſum, ericæ folio. *Buxb. cent.* 1. 8. *t.* 14. *f.* 1?
Fruteſcent, leaves in bundles round filiform, floral leaves ovate acute fleſhy.
[19. Salſola Arbuſcula. *Buſhy Saltwort.*
Lin. ſpec. ed. Willd. 1. 1315. *Pallas it.* 1. *app. n.* 102. *t.* K.
Shrubby, leaves in bundles round attenuated at the baſe, incurved; flowers ſolitary ſcattered.
20. Salſola aphylla. *Leafleſs Saltwort.*
Lin. ſyſt. 264. *Willd.* 1. 1316. *ſuppl.* 173. *Thunb. prodr.* 48.
Caroxylon Salſola. *Thunb. nov. gen.* 2. *p.* 38.
Arboreſcent leafleſs jointed, leaves very ſhort ovate preſſed cloſe acute caducous.
21. Salſola arboreſcens. *Tree Saltwort.*
Lin. ſyſt. 264. *Willd.* 1. 1316. *ſuppl.* 173.
Kali fruticoſum incanum foliis exſuccis. *Buxb. cent.* 1. 9. *t.* 15.
Fruteſcent, leaves ſemicylindric, the lower conjugate.
22. Salſola fruticoſa. *Shrubby Saltwort.*
Lin. ſpec. 324. *ſyſt.* 263. *Reich.* 1. 627. *Willd.* 1. 1316. *mant.* 347. *Deſfont. atlant.* 217. *Rudſ. angl.* 108. *Wither. arr. ed.* 3. 278. *Smith, brit.* 280. *engl. bot. t.* 635.
Chenopodium fruticoſum. *Lin. ſpec. ed.* 1. 221. *hort. cliff.* 86. *Guett. ſtamp.* 2. 425. *Duham arb.* 1. 163. *t.* 62. *Allion. pedem. n.* 2019.
Lerchea foliis obtuſis. *Hall. goett.* 21.
Kali ſpecies vermicularis marina arboreſcens. *Baub. hiſt.* 3. 704.
Vermicularis frutex minor. *Ger. emac.* 523. 4.—fruticoſa altera. *Park. theat.* 731.
Anthyllis Chamæpityides fruteſcens. *Baub. pin.* 282.
Sedum minus arboreſcens. *Mutat. hiſt.* 469. *t.* 130.
Blitum marinum teretifolium Kali minus album dictum. *Raii hiſt.* 198.
B. fruticoſum maritimum, Vermicularis frutex dictum. *Raii ſyn.* 156.
Shrubby, leaves fleſhy round obtuſe imbricate.
23. Salſola indica. *Indian Saltwort.*
Lin. ſpec. ed. Willd. 1. 1317.
Shrubby, leaves linear fleſhy half round, floral leaves oblong obtuſe.
24. Salſola ſedoides. *Sedum-like Saltwort.*
Lin. ſpec. ed. Willd. 1. 1317. *Pallas it.* 1. *app. n.* 108. *t.* M. *f.* 1, 2.
Suffruticoſe, leaves round filiform ciliate, flowers glomerate axillary.
25. Salſola muricata. *Hairy Saltwort.*
Lin. ſyſt. 263. *Reich.* 1. 628. *Willd.* 1. 1317. *mant.* 54. 512. *Vahl, ſymb.* 1. 24. *Deſfont. atlant.* 217.
S. monobractea. *Forſk. deſcr.* 55. *n.* 85.
Baſſia muricata. *Allion. miſc. taur.* 3. 177. *t.* 4. *f.* 2.
Chenopodium maritimum ramulis virgatis. *Buxb. cent.* 3. 27. *t.* 49.
C. orientale fruticoſum incanum Pſyllii folio. *Tournef. cor.* 38?
Kali ægyptiacum villoſum, calyce ſtellato aculeato Vaillant. *Petiv. herb.*
Shrubby patulous, branchlets birſute, calyxes ſpiny.

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26. Salſola didyma. *Twin-fruited Saltwort.*
Lour. cochinch. 173. *ed. Willd.* 216.
Stem herbaceous decumbent, leaves oblong unarmed, capſules two-lobed two-ſeeded.
27. Salſola Echinus. *Thorny Saltwort.*
Billard. ic. ſyr. 2. 10. *t.* 5.
Shrubby, ſmooth, leaves ſubulate awnleſs, ſpines divaricate flowering.
28. Salſola camphoroſmoides. *Camphoroſma-leaved Saltwort.*
Deſfont. atlant. 218.
Kali orientale fruticoſum ſpinoſum, Camphoratæ foliis. *Tournef. cor.* 18.
Shrubby, ſmooth, leaves ſubulate with axillary bundles.

29. Salfola brevifolia. *Short-leaved Saltwort.*
Desfont. atlant. 218.
Kali ſiculum lignoſum, floribus membranaceis. *Bocc. ſic.* 59.
K. vermiculatum incanum fruticans. *Barrel. ic. t.* 205?
Shrubby, very much branched, leaves ovate cluſtered very ſhort pubeſcent.

30. Salſola mollis. *Soft-leaved Saltwort.*
Desfont. atlant. 218.
Shrubby, branches ſpreading, leaves round fleſhy glaucous obtuſe.

31. Salſola oppoſitifolia. *Oppoſite-leaved Saltwort.*
Desfont. atlant. 219.
S. fruticoſa. *Cavan. ic. n.* 312. *t.* 285.
K. ſiculum lignoſum, floribus membranaceis. *Bocc. ſic.* 59. *t.* 31. *Tournef. inſt.* 247. *Raii hiſt.* 212.
K. minus tenuifolium fruticoſum ſiculum. *Barrel. ic. t.* 79.
K. floridum ſemine cochleato & floribus membranaceis. *Mor. hiſt. ſ.* 5. *t.* 33. *f.* 2.
K. membranaceum foliis anguſtis conjugatis. *Shaw, afr. n.* 354.
Shrubby, leaves ſubulate unarmed oppoſite.

DESCRIPTIONS, *&c.*

Theſe plants, ſo well known for producing alkaline ſalt, commonly called Barilla, Soda or Kelp, are many of them herbaceous and annual, others have ſhrubby ſtems. The leaves are generally alternate, but in ſome oppoſite; in ſome round, in others flat. Flowers terminating or axiliary, in ſome having three bractes at the baſe[a]. Juſſieu is for having the genus divided. Linneus, in the firſt edition of his Species Plantarum, placed ſome of the ſpecies under Chenopodium. Haller has ſelected a few under the title of Lerchea.

1. Root annual, fibrous. Stems rigid, pubeſcent, very much branched, ſpreading in all directions, and forming a large round buſh, almoſt inacceſſible on account of the numerous prickly leaves, which are alternate, ſpreading, awl-ſhaped, channelled, dilated at the baſe, rugged, each tipped with a very ſharp ſpine. Flowers axillary, ſolitary, ſeſſile, with three bractes, reſembling the leaves and thorny, at the baſe of each. Leaves of the calyx externally dilated into a broad reddiſh waved margin, internally cloſely approaching each other, and covering the ſeed like a capſule. Seed turbinate or top-ſhaped, with its cotyledons curiouſly twiſted into a ſpiral form; by which character this genus is eſſentially diſtinguiſhed from *Chenopodium*, and all others of the ſame natural order[a].

Native of the ſandy ſhores of Europe, Aſia, Africa and America. It flowers with us in july.

This plant, on being burned, affords foſſil alkali, as do many other plants, ſome in a greater proportion. This contributes more generally to the manufacture of Soda, for making glaſs than *Chenopodium maritimum*, but is not reckoned equal to ſome other ſpecies of Salſola. See *S. Soda* and *ſativa*.

2. Gmelin and Willich eſteem this to be a variety of the preceding. Scopoli ſays, the flowers of this are two-ſtyled. According to Linneus, the ſtyle is trifid in *S. Kali*.] Mr. Miller ſays that it ſends out many diffuſed ſtalks a foot and half long; that the leaves are linear, an inch long; that the calyxes are blunt, and not ſo cloſely encompaſſed with leaves as thoſe of the other.

[This affords an ordinary kind of Soda, with which the French frequently mix the better kind in Languedoc. This adulteration is alſo practiſed by the Sicilians, who diſtinguiſh the plant by the term *ſelvaggia*[b].

Native of the South of Europe, and of Africa, on the ſea coaſt.]

3. The ſtalks of this ſeldom riſe more than five or ſix inches high. The flowers are ſmall, and of a roſe-colour, ſoon fading.—Native of Tartary.

4. [Stems procumbent or upright, with ſpreading branches. Leaves long fleſhy ſpreading awl-ſhaped ſmooth, roundiſh, widened at the baſe, aſh-coloured, with two oppoſite longitudinal ſtreaks, the margin of the baſe membranous and diaphanous. Flowers axillary, ſeſſile, one, two or three together[a].

Native of the South of Europe. Cultivated in 1759, by Mr. Miller[b], with the two preceding.]

He thus deſcribes it: Stems near three feet high, ſending out hoary branches their whole length, at bottom ſpreading out wide, but ſhort towards the top. Leaves on the principal ſtalk, and on the lower part of the branches, long, ſlender, without ſpines; on the upper part of the ſtalk and branches, ſhort and crooked. At the baſe of the leaves are produced the flowers, which are ſo ſmall as to be hardly perceptible. In warm countries it produces the flowers in june, and the ſeeds ripen in auguſt; but in this country the plants ſeldom flower. This is the ſort which is cultivated in Languedoc for making alkaline ſalt.

[Mr. Townſend ſays that the true Barilla is made in Spain from this ſpecies; both this and the *ſativa*, according to others, are cultivated there for that purpoſe, but principally the latter.

5. This grows abundantly on the Spaniſh coaſt which is waſhed by the Mediterranean ſea, and affords all the beſt Soda conſumed in Europe, and called by us Spaniſh or Alicant Soda, and by the Spaniſh merchants *Barilla de Alicante*[b].

In ſeptember the Spaniards collect the crop into heaps about ſix feet in height. Of theſe they burn fifty in one hole, ſtirring well the broth with ſticks; then, protecting it from rain, at the expiration of eight or ten days, the ſtone will be cold enough to be removed.

There are ſeveral other plants which they burn for pot-aſh in Spain, beſides *Salſola Soda* and *ſativa*. As—

1. Aguaſul, a ſpecies of Meſembryanthemum.
2. Salicor, which is Salicornia europæa.
3. Barilla punchoſa Soda colorada. Salſola Kali.
4. Soſa prima. Chenopodium maritimum.
5. Soſa blanca. Chenopodium album.
6. Soſa gorda. Salſola vermicularis.
7. Soſa lenoſa. Salſola roſacea.
8. Hyerba de la plata. Meſembryanthemum cryſtallinum[b].

In ſome countries other plants are uſed for this purpoſe: as Salicornia arabica, Meſembryanthemum nodiflorum, Plantago ſquarroſa; all theſe, according to Alpinus, yield this alkali. It has alſo been procured from ſeveral of the Fuci or ſea-weeds, eſpecially F. veſiculoſus; and is diſtinguiſhed here by the name of Kelp. The preparation of this is fully deſcribed by Borlaſe, in his obſervations on the ſtate of the Iſlands of Scilly.

Batis maritima is noticed by Jacquin on the coaſt about Carthagena in New Spain, as having a very ſalt taſte, and as being prepared there into Soda, which is uſed for the purpoſe of making glaſs. The inhabitants call it Barilla.

Various other marine plants yield Barilla or Soda by combuſtion, but the principal are of this genus or Salicornia, which both derive their names from this circumſtance. Salſola Kali, on the authority of Rauwolff, is the ſort from which the ſalt is uſually obtained in the eaſtern countries.

It is to be regretted, that the different ſorts of Soda which are brought to European markets, have not been ſufficiently analyſed to enable us to aſcertain with tolerable certainty the reſpective value of each: indeed whilſt the practice of adulterating this ſalt continues, any attempts of this kind are likely to prove fruitleſs. The beſt information on this ſubject is to be had from Juſſieu, Marcorelle and Cadet in Memoires de l'Academie Francoiſe, Borlaſe, and Seſtini in Lettere della Sicilia.

According to chemical analyſis Soda generally contains a portion of vegetable alkali and neutral ſalts; as common ſalt, and ſometimes vitriolated tartar, or Glauber ſalt; likewiſe liver of ſulphur; and not unfrequently ſome portion of iron is contained in the maſs: it is therefore to be conſidered as more or leſs a compound, and its goodneſs is to be eſtimated ac-

[a] Juſſieu. [b] Smith. [c] Woodville.

[a] Linn. and Desfont. [b] Hort. kew. [c] Woodville. [d] Townſ. Spain. 3. 197 to 199.

cordingly. The Spaniſh Soda of the beſt ſort is in dark-coloured maſſes of a blueiſh tinge, very ponderous, ſonorous, dry to the touch, externally abounding with ſmall cavities, without any offenſive ſmell, and very ſalt to the taſte; if long expoſed to the air, it undergoes a degree of ſpontaneous calcination. The beſt French Soda is alſo dry, ſonorous, brittle, and of a deep blue colour, approaching to black. The Soda, which is mixed with ſmall ſtones, gives out a fetid ſmell on ſolution, and is white, ſoft and deliqueſcent, is of the worſt ſort.

The method of purifying this ſalt for medicine, is directed in the London Pharmacopœia under the article *Natron præparatum*; and in the Edinburgh Pharm. under that of *Sal alkalinus fixus feſſilis purificatus*. The pure cryſtals, thus formed from Alicant Barilla, are colourleſs, tranſparent, lamellated, rhomboidal, and one hundred parts are found to contain twenty of alkali, ſixteen of aerial acid, and ſixty-four of water; but upon keeping the cryſtals for a length of time, if the air be not excluded, the water evaporates, and they aſſume the form of a white powder. This ſalt preſerves fleſh longer than common ſalt, but not ſo long as the vegetable alkali. Natron has been thought uſeful in ſcrophulous diſorders, but is ſeldom given in its ſimple ſtate.

In combination with vitriolic acid this alkali forms Glauber ſalt or Natron vitriolatum; with nitrous acid, cubic nitre; with marine acid, common ſalt; with the ſedative ſalt of Homberg, borax; and with cream of tartar, Rochelle ſalt or ſel ſaignette.

Soda or Barilla is in common uſe in the manufactures of glaſs and ſoap. White Spaniſh ſoap, being made of the finer kinds of olive oil, is preferred for internal uſe [l].

Salſola ſativa was introduced here in 1783 by Abbé Pourret [m].

6. This alſo is a native of Spain.

7. Peduncles three-flowered, the lateral ones ſpringing at the baſe of the middle one, as in *Theſium* and *Turnera*. Styles three [n].

Linneus at firſt made this a *Chenopodium*, and Pallas thinks it rather belongs to that genus.—Native of Italy, Saxony and Aſtrachan. Introduced in 1775, by John Earl of Bute [o].

8. In habit this very much reſembles the preceding, but it is quite diſtinct, having axillary flowers not inſerted into the leaf, as in that.—Native of Spain [p].

9. Stems a foot high, panicled, even, purpliſh, ſomewhat ſtriated. Leaves flat above. Flowers axillary, ſeſſile, in threes. Calyx-leaves very much arched, convex, cloſed, in the fruit hyaline. Styles three, cloven at the top [q].

Linneus had originally made this alſo a *Chenopodium*, and Pallas remarks that it has an affinity to that genus.

Salſola baccata alexandrina is perhaps the ſame with this. It has an upright ſtem, a foot high, hardiſh, with almoſt upright branches; three flowers in each axil; the calyxes, when the fruit is ripe, ſucculent, ſmooth, ſubdiaphanous, ſeſſile, green; and three ſtyles.

Native of Aſtrachan [r].—This, and all the preceding, are annual plants.

It was introduced in 1782, by P. M. A. Brouſſonet, M.D. [s]

10. Stems branched, panicled at the top, branches ſimple covered with little balls of flowers, which appear to be naked, but are propped by a ſhort leaf. Leaves as in the preceding.

Native of the Eaſt Indies, near Tranquebar, on the coaſt. Perennial.

11. Diſtinct from the next ſpecies, in having a ſuffruticoſe ſtem, narrower leaves ſhorter than the flowers. Native of Spain. Perennial [t].

12. Native of Denmark and the South of France, on the ſea coaſt. Diſtinguiſhed by its pubeſcent leaves. It is annual.

13. Stem two feet high, when young woolly, but towards the time of fructification becoming naked. Leaves blunt, fleſhy. Flowers in threes, yellow. Calyx growing out into ſharp very long chaffs, with the lateral laminas roſe-coloured. It differs in its roſe-coloured anthers from all the reſt.—Native of Siberia about Saratſchik [u].

14. This is an annual plant, native of the dry ſalt plains of Siberia.

15. Stems very much branched. Leaves fleſhy, awnleſs. Flowers axillary and terminating, glomerate, ſeſſile. Calyx funnel-form, five-parted, membranous, with a flat, ſmall, coloured border.—Native of the ſea-coaſt of Spain and Sicily [x].

16. Native of Spain, Auſtria, Switzerland and Siberia. Introduced in 1780, by Peter Simon Pallas, M.D. [y]

17. This has the habit of Salicornia or Polycnemum. Native of Siberia by the lake Altan, and in the ſteppes of Aſtrachan. Annual [z].]

18. Stems ſhrubby, three or four feet high, ſending out many ſide branches. Leaves fleſhy, ovate, acute-pointed, coming out in cluſters from the ſide of the branches; they are hoary, and have no ſtiff prickles. The flowers are produced from among the leaves, towards the ends of the branches, they are ſo ſmall as ſcarcely to be diſcerned.—Native of Spain, [and Siberia. Cultivated by Mr. Miller in 1759.

19. Native of the Tartarian ſteppes.

20. This is a ſhrub the height of a man, leafleſs and very irregular. Branchlets covered with the rudiments of flowers. Flowers ſeſſile with a ſpreading membranous border.—Native of the Cape of Good Hope.

21. Stems ſhrubby, aſcending, white. Leaves alternate, even; the lower ones of the branches commonly in pairs and equal, or two from each point. Spike terminating. Calyxes ſcarioſe, roſe-coloured, with a ſcarioſe, five-valved blunt little crown.—Native of Siberia [a].

22. Stem about two feet high or more, woody, erect, round, very much branched; the branches alſo erect, and thickly clothed with alternate, ſeſſile, ſemicylindrical, bluntiſh, fleſhy, even, almoſt upright, rather glaucous leaves. Flowers inconſpicuous, axillary, ſeſſile, ſolitary, green; with three ſmall, concave, ſcarioſe bractes [b]. Linneus remarks, that the germ is cylindrical, and the ſtyles three in number.

The leaves have an herbaceous flavour, with a ſlight degree of ſalt and ſome acrimony. It forms an elegant evergreen ſhrub, flowering in july and auguſt, not unworthy of a place in gardens [c].

Native of France, Spain, Barbary and Perſia, on the ſea-coaſt.—The firſt perſon mentioned as the diſcoverer of this plant in England is the famous Sir Thomas Brown, M.D. of Norwich, ſo well known by his *Religio Medici* and other learned productions. He found it on the Norfolk coaſt, where it ſtill grows, about Wells and Cley, as well as in Suffolk. Mr. Lambert found it at Weymouth [d]; and Dr. Pulteney plentifully on the iſthmus of Portland called Cheſil Bank; a large quantity oppoſite Fleet Houſe; abundantly at Windmill Point, Poole, and elſewhere on the coaſt of Dorſetſhire. Ray collected it abundantly on the iſthmus of Portland, and mentions that Sir Thomas Brown had before that ſhown it him from the coaſt of Norfolk. Lobel ſays that he had gathered it plentifully on the Holms in the Briſtol Channel. Mr. Woodward obſerved it near Southwold in Suffolk.

23. This is a ſmall ſhrub, ſcarcely more than a foot high. Leaves nearly as in the preceding, but twice as long; the floral leaves are very ſhort, oblong and blunt. Flowers three ſeſſile on the axils of the leaves, on the branches of the former year, not towards the top. In other reſpects it has the habit of the preceding ſpecies.—Native of the Eaſt Indies.

24. This is diſtinct from the next ſpecies, in its round ciliate leaves, with long hairs.—Native of Siberia, in the ſalts by the Samara and the middle Jaik [e].

[l] Woodville. [m] Hort. kew. [n] Linn. ſyſt. [o] Hort. kew. [p] Willdenow. [q] Linn. ſyſt. [r] Linn. mant. [s] Hort. kew. [t] Willdenow. [u] Linn. ſuppl. [x] Linn. mant. [y] Hort. kew. [z] Willdenow. [a] Linn. ſuppl. [b] Smith. [c] Idem. [d] Idem. [e] Willdenow.

25. Stem upright, hairy, aſh-coloured. Leaves linear, ſomewhat fleſhy, ſoft, aſh-coloured. Calyxes in pairs, heaped. Seed ſmall, within a three-toothed bag [f].

Stem ſuffruticoſe, flowering from bottom to top. Branches ſlender, panicled. Leaves alternate, villoſe, awnleſs. Flowers ſmall, one, two or three together, axillary, ſeſſile. Calyx tomentoſe, when the fruit is ripe ſpreading into a ſtar, each of the five parts terminated by a rigid awn, which is frequently hooked at the end [g].

Native of Egypt, and Barbary near Caſſa. Introduced in 1773, by John Earl of Bute. Annual: flowering in july and auguſt [h].

26. Stem two feet long, diffuſed, rough. Leaves blunt, quite entire, thick, ſmooth, oppoſite. Flowers axillary, glomerate, ſubſeſſile. Calycine ſegments emarginate, cowled at the top. Stigmas two, ſeſſile, oblong, erect. Capſule two-celled, with one rough black ſeed in each cell.—Native of the iſland of Mozambique in Africa [i].

27. This is a ſhrub, a foot in height, very much and cloſely branched. Branches upright, flexuoſe, ſmooth, yellowiſh: ſpines ſtout, axillary, ſolitary, an inch long, divaricate, ſimple or branched, floriferous. Leaves alternate, ſtiffiſh, glaucous, ſmooth, with an edge membranous on both ſides at the baſe, preſſed cloſe to the ſpines underneath, in the adult plant few. Flowers ſeſſile, ſolitary or glomerate, ſome from the ſpines themſelves, others from their axil: leaflets ternate, awl-ſhaped, with a membranous edge, ſurrounding each flower, the lower one a little larger than the two others.—Native of the higher mountains of Libanus [k].

28. Stems upright, very much branched: branches panicled, ſpiny; ſpines like needles. Bark in the younger plants white, in the older brown. Leaves alternate, ſmooth.—Native of Barbary near Tlemſen, in fallow fields.

29. Branches numerous, pubeſcent. Leaves alternate, villoſe, blunt; branch-leaves very much cluſtered, of the ſize and ſhape of *Sedum Acre*. Flowers axillary, ſeſſile, ſolitary, numerous. Calyx permanent, in the ripe fruit membranaceous.—Near Caſſa in Barbary, in ſands; alſo in Sicily.

30. Upright, very much branched. Leaves very ſoft ſmooth and juicy, very like thoſe of *Sedum album*, but a little ſhorter and thinner.—With the preceding.

31. Very much branched. Branches oppoſite, upright, knotty, ſmooth. Leaves ſmooth, fleſhy, awnleſs, depreſſed above. Flowers axillary, ſolitary, two or three together, ſeſſile. Bractes three, awl-ſhaped, ſmall; the lower larger. Calyx ſmall: ſegments blunt, upright. Membranes five, roſe-coloured, wide, like fans, rounded at the top, unequal, converging into a ſpreading bell, emerging below the tip of each ſegment of the calyx as the fruit ripens. Anthers four-cornered. Styles two.

This is a very handſome ſpecies, and quite diſtinct from its congeners.—Native of Tunis in Africa [l]; alſo of Spain and Sicily.

PROPAGATION AND CULTURE.

All the annual ſorts may be propagated by ſeed.

In thoſe countries where the preparation of Soda forms a conſiderable branch of commerce, the ſeeds are regularly ſown in a proper ſituation near the ſea; where they uſually ſhoot above ground in the courſe of a fortnight [m]. In Spain they plough the land four or five times, dung it well, and then, having turned the earth twice more, they make it ſmooth with boards inſtead of harrows, and ſow the ſeed in january and february, waiting always for wet weather. When the plant is about the bigneſs of a ſhilling, they clear off all the weeds [n]. About the time that the ſeeds become ripe, the plants are pulled up by the roots, and expoſed in a ſuitable place to dry, and there the ſeeds are collected: this being done, the plants are tied up in bundles, and burned in an oven conſtructed for that purpoſe; the aſhes, whilſt hot, being continually ſtirred with long poles. The ſaline matter, on becoming cold, forms a hard ſolid maſs, which is afterwards broken in pieces of a convenient ſize for exportation [o].

The ſhrubby ſorts may be propagated by layers or cuttings; but Salſola fruticoſa, it ſeems, can ſcarcely, if at all, be increaſed by the latter mode [p].

SALSOLA. See *Chenopodium*.

SALTWORT. See *Glaux*, *Salicornia*, *Salſola*.

SALVADORA. (*So named by Garcin from Salvadore, an apothecary at Barcelona.*)

Lin. gen. n. 163. *Reich. n.* 175. *Schreb. n.* 220. *Garcin in Phiſoſ. Tranſ.*

Claſſ. 4. 1. Tetrandria Monogynia.

Nat. order of *Atriplices*, Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* one-leafed, four-cleft; *lobes* revolute.

COR. one-petalled: *tube* ſhort: *border* four-cleft; *ſegments* oblong, revolute.

STAM. *Filaments* four, the length of the calyx, reflex. *Anthers* round.

PIST. *Germ* roundiſh. *Style* ſingle, ſhort, (or none.) *Stigma* ſimple, blunt, umbilicate.

PER. *Berry* globular, one-celled.

SEED ſingle, ſpherical, covered with a callous *Aril*.

ESSENTIAL CHARACTER.

Cal. four-cleft. *Cor.* four-cleft. *Berry* one-ſeeded. Seed covered with an aril.

SPECIES.

1. Salvadora perſica.
   Lin. ſpec. 178. *Jaſſ.* 166. *Reich.* 1. 347. *Willd.* 1. 695. *amoen.* 3. 21. *Vahl, Symb.* 1. 12. *t.* 4. *Roxb. corom.* 1. 26. *t.* 26.
   Salvadora. *Garc. in phil. tranſ.* 1749. *n.* 491.
   Rivina paniculata. *Lin. ſyſt. ed.* 10. 899. *ed.* 14. 165.
   Ciſſus arborea. *Forſk. deſcr.* 32. *n.* 8.
   Embelia Groſſularia. *Retz. obſ.* 4. 24.
   E. indica. *Gmel. ſyſt.* 280.
   Leaves oval or oblong, flowers panicled.
2. Salvadora capitulata.
   Lour. cochinch. 87. *ed. Willd.* 110.
   Leaves ovate acuminate, heads axillary.
3. Salvadora biflora.
   Lour. cochinch. 88. *ed. Willd.* 110.
   Leaves lanceolate-ovate, flowers in pairs.

DESCRIPTIONS, *&c.*

1. Trunk generally crooked, eight or ten feet high to the branches, and one foot in diameter: bark very ſcabrous and deeply cracked. Branches exceedingly numerous, ſpreading, with their extremities perfectly pendulous, like the weeping Willow. Leaves oppoſite, petioled, oval or oblong, entire, very ſmooth and ſhining on both ſides, without veins, from one to two inches long, and about an inch broad. Stipules none. Panicle terminating, and from the exterior axils, compound. Flowers minute, very numerous, greeniſh yellow. Bractes minute. Calyx inferior, four-toothed, permanent. Corolla one-petalled; tube ſhort; border four-cleft: ſegments oblong, revolute. Filaments inſerted below the diviſions of the corolla, and rather ſhorter than them. Anthers oval. Germ globular. Style none. Stigma ſcabrous. Berry very minute, much ſmaller than a grain of black Pepper, ſmooth, red and juicy. Seed browniſh green.

This is a middle-ſized tree, a native of moſt parts of the Circars, though by no means common: it ſeems to grow equally well in every ſoil; and flowers and bears ripe fruit all the year round.

The berries have a ſtrong aromatic ſmell, and taſte much like garden creſſes.

The bark of the root is remarkably acrid; bruiſed and applied to the ſkin it ſoon raiſes bliſters, for which purpoſe the natives often uſe it: as a ſtimulant it promiſes to be a medicine poſſeſſed of very conſiderable powers [q]. Koenig ſent it from Tranquebar. Native alſo of the Perſian gulph.

2. This alſo is a middle-ſized tree, very much branched. Leaves alternate, very rough, unequally ſerrate, ſubpetioled. Flowers from the axils in heads containing eight of them or thereabouts, on a long

[f] Linn. mant. [g] Desfontaines. [h] Hort. kew. [i] Loureiro. [k] Billardiere. [l] Desfontaines. [m] Woodville. [n] Townſend. [o] Woodville. [p] Eng^h. bot. [q] Roxburgh.

common

common peduncle, and very ſhort partial ones. Calyx four or five-parted, inferior, permanent. Corolla none. Filaments awl-ſhaped, reflex, double the length of the calyx. Stigma bifid, in ſome double. Berry yellow, roundiſh, ſmall, twin at the top.

3. Ten feet high, with many twiſted ſpreading branches. Leaves ſubſerrate, rough, alternate. Flowers axillary, on long peduncles. Calyx four-parted. Corolla none. Style bifid, with ſimple ſtigmas. Berry yellow, two-lobed, one-ſeeded, eſculent. Seed roundiſh, not arilled.

Both ſpecies are natives of Cochinchina, in woods and hedges; and are not eaſily diſtinguiſhed unleſs when they are in flower[t].]

SALVIA. (*From* ſalvere; *on account of its healing qualities.*)

Lin. gen. n. 39. *Reich. n.* 42. *Schreb. n.* 50. *Tournef. t.* 83. *Juſſ.* 111. *Gærtn. t.* 66. Horminum. *Tournef. t.* 82. Sclarea. *Tournef. t.* 82.

Claſſ. 2. 1. Diandria Monogynia.

Nat order of *Verticillatæ*. *Labiatæ*, Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* one-leafed, tubular, ſtriated, gradually widening and compreſſed at the top: *mouth* erect, two-lipped; lower lip two-toothed.

COR. one-petalled, unequal: *tube* widening at the top, compreſſed; *border* ringent, *upper lip* concave, compreſſed, curved inwards, emarginate, *lower lip* wide, trifid, *middle ſegment* larger, roundiſh, emarginate.

STAM. *Filaments* two, very ſhort; two threads are faſtened tranſverſely to theſe almoſt in the middle, on the lower extremity of which is a *gland*, on the upper an *Anther*.

PIST. *Germ* four-cleft. *Style* filiform, very long, in the ſame ſituation with the ſtamens. *Stigma* bifid.

PER. none. *Calyx* very ſlightly converging, having the ſeeds in the bottom of it.

SEEDS four, roundiſh.

OBS. *The ſingular forking of the filaments conſtitutes the eſſential character.*

Rudiments of two ſtamens, but barren ones, in the opening of the corolla. Gland in moſt ſpecies callous, but in a few a ſort of rudiment of an anther with little or no pollen occurs. (The gland is one cell of the anther, commonly ſteril, connected with the other cell fertile, having an anveraceous membrane lengthened out into a thread.)

Salvia Tournef. *has the upper lip ſickle-ſhaped or vaulted; the lower flat or bent back on the ſides.*

Horminum Tournef. *has the upper lip aſcending, ſhort; the lower with the middle ſegment concave.*

Sclarea Tournef. *has the upper lip erect, ſickle-ſhaped; the lower lip with the middle ſegment concave.*

ESSENTIAL CHARACTER.

Cor. unequal. *Filam.* faſtened tranſverſely to a pedicel.

SPECIES.

[1. Salvia ægyptiaca. *Egyptian Sage.*
Lin. ſpec. 33. *Syſt.* 68. *Reich.* 1. 61. *Willd.* 1. 127. *hort. cliff.* 13. *Gouan illuſtr.* 2. *Jacqu. hort.* 2. 49. *t.* 108. *Etling. ſalv.* 22. *Vahl, ſymb.* 1. 7. *Desfont. atlant.* 19.
Meliſſa perennis. *Forſk. deſcr.* 108. *n.* 30.
Horminum ægyptium minimum ramoſiſſimum. Lipp. *Boerh. lugdb.* 1. 66.
Leaves lanceolate toothletted, flowers peduncled.

2. Salvia dentata. *Tooth-leaved Sage.*
Ait. kew. 1. 37. *Lin. ſpec. ed. Willd.* 1. 128.
Leaves linear-oblong tooth-pinnatifid, whorls two-flowered, calycine ſegments blunt.

3. Salvia cretica. *Cretan Sage.*
Lin. ſpec. 33. *Reich.* 1. 61. *Willd.* 1. 128. *Schreb. nov. act. acad. nat. cur.* 3. 479. *Etling. ſalv. n.* 3. *Willd. arb.* 352. *Pluk. phyt. t.* 57. *f.* 1.
S. cretica anguſtifolia. *Cluſ. hiſt.* 1. 343.
S. tenuifolia. *Riv. mon. t.* 128.
Leaves linear-lanceolate, flowers two-ſtyled, calyxes two-leaved.

4. Salvia lyrata. *Lyre-leaved Sage.*
Lin. ſpec. 33. *Syſt.* 69. *Reich.* 1. 61. *Willd.* 1. 128. *mant.* 318. *Etling. ſalv. n.* 25. *Gron. virg.* 8.

β. H. virginicum. *Lin. ſpec.* 832. *Mor. hiſt.* 3. 395. *ſ.* 11. *t.* 13. *f.* 27.
Meliſſa atrorubens bugulæ folio. *Dill. elth.* 219. *t.* 175. *f.* 216.
Sideritis bugulæ folio mariana, floribus purpureis longo tubo donatis. *Pluk. mant.* 171.
Root-leaves lyrate toothed, helmet of the corolla very ſhort.

5. Salvia leucantha.
Lin. ſpec. ed. Willd. 1. 129. *Cavan. ic. rar.* 1. 16. *n.* 22. *t.* 24.
Leaves linear-lanceolate crenulate wrinkled, flowers whorl-ſpiked, calyxes tomentoſe.

6. Salvia habliziana.
Lin. ſpec. ed. Will. 1. 129.
S. taurica. *Habliz. taur.* 207. *n.* 33.
Leaves linear quite entire pubeſcent ſeſſile, flowers whorl-ſpiked, bractes ovate acuminate.]

7. Salvia officinalis. *Garden Sage.*
Lin. ſpec. 34. *Reich.* 1. 62. *Willd.* 1. 129. *hort. cliff.* 12. *upſ.* 10. *mat. med.* 39. *Woodv. med. bot.* 110. *t.* 38. *Etling. ſalv. n.* 1. *Hoffm. germ.* 1. *Allion. pedem. n.* 51. *Krock. ſileſ. n.* 46. *Villars, dauph.* 2. 402. *Desfont. atlant.* 20. *Blackw. t.* 10. *Berg. phyt.* 2. 89. *Plenck, ic.* 19.

α. S. major. *Common or great Garden Sage.*
Baub. pin. 237. *Matth.* 709. *Dod. pempt.* 290. 1. *Tabern. ic.* 370. *Fuchſ. hiſt.* 248. *Lob. ic.* 554. *Ger.* 623. 1. *emac.* 764. 1.—vulgaris. *Park. theat.* 49. *f.* 1.
S. latifolia. *Trag.* 52. *Camer. epit.* 475. *Baub. hiſt.* 3. 304. *Raii hiſt.* 509. *Rivin. mon. t.* 71.

β. Salvia minor aurita & non aurita. *Baub. pin.* 237. *Blackw. t.* 71. *Gmel. ſib.* 3. 226.
Leaves lanceolate-ovate crenulate, whorls few-flowered, calyxes mucronate.

8. Salvia grandiflora. *Broad-leaved garden Sage.*
Lin. ſpec. ed. Willd. 1. 130. *Etling. ſalv. n.* 2.
S. tomentoſa. *Mill. dict. n.* 2.
S. flore magno. *Riv. mon. t.* 127.

β. S. latifolia ſerrata. *Baub. pin.* 237.
S. ſerrata criſpa. *Baub. hiſt.* 3. 305. *Mor. hiſt.* 3. 399. *ſ.* 11. *t.* 15. *f.* 7. *Raii hiſt.* 510. 5.
S. criſpa. *Riv. mon. t.* 126.
S. maxima ſ. latifolia. *Park. theat.* 49. 2.
Leaves cordate-oblong crenate, whorls many-flowered, calyxes acute.

9. Salvia triloba. *Three-lobed Sage* or *Sage of Virtue.*
Lin. ſuppl. 88. *ſpec. ed. Willd.* 1. 130. *Ait. kew.* 1. 38.
S. auriculata. *Mill. dict. n.* 3.
S. minor. *Ger.* 623. 2. *emac.* 764. 2. *Raii hiſt.* 510. 7.
S. baccifera. *Etling. ſalv. n.* 4. *Baub. pin.* 237. *Riv. mon. t.* 125. *Tournef. inſt.* 181.
S. quinquefolia. *Riv. mon. t.* 131.
S. cretica baccifera. *Camer. epit.* 476.
S. gallifera cretica. *Baub. hiſt.* 3. 306.
S. cretica pomifera. *Cluſ. hiſt.* 343. *Ger. emac.* 765. *f.* 8. *Raii hiſt.* 511. 10. *Mor. hiſt. ſ.* 11. *t.* 15. *f.* 4. *Pluk. phyt. t.* 57. *f.* 2.
S. pomifera & minor pinnata. *Park. theat.* 50. *f.* 1. 4.
Tomentoſe, leaves petioled very much wrinkled three-lobed, the middle lobe produced oblong, the lateral ones ovate blunt.

10. Salvia pomifera. *Apple-bearing Sage.*
Lin. ſpec. 34. *Reich.* 1. 62. *Willd.* 1. 130. *arb.* 353.
S. fragifera. *Etling. ſalv. n.* 5.
S. cretica non pomifera & pomifera Cluſii. *Mor. hiſt.* 3. 399. *n.* 4.
S. cret. frutescens pomif. foliis longioribus incanis & criſpis. *Tournef. cor.* 10. *itin.* 1. 92. *t.* 92.
S. criſpa. *Riv. mon. t.* 125.
Leaves cordate elliptic blunt tomentoſe crenulate-waved at the edge, whorls in cluſters, calyxes trifid blunt.

[11. Salvia

[t] Loureiro.

[11. Salvia urticifolia. *Nettle-leaved Sage.*
Lin. spec. 34. *syst.* 69. *Reich.* 1. 62. *Willd.* 1. 131. *Etling. salv. n.* 23. *Gron. virg.* 8.
Horminum virginianum erectum urticæ foliis flore minore. *Mor. hist.* 3. 395. *s.* 11. *t.* 13. *f.* 31.
Leaves ovate-oblong doubly-serrate, calyxes three-toothed, upper segment three-toothed.
12. Salvia occidentalis. *West-Indian Sage.*
Lin. spec. ed. Willd. 1. 131. *Swartz, prodr.* 14. *descr.* 43. *Brown. jam.* 117. 1.
Leaves ovate serrate, spikes loose, bractes cordate subtriflorous.
13. Salvia tiliæfolia. *Lime-leaved Sage.*
Lin. spec. ed. Willd. 1. 131. *Vahl symb.* 3. 7.
S. polystachya. *Cavan. ic.* 1. 17. *n.* 25. *t.* 27?
Leaves cordate wrinkled equally-crenate serrate acute, calyxes smoothish awned.
14. Salvia serotina. *Late-flowering Sage.*
Lin. syst. 69. *Reich.* 1. 62. *Willd.* 1. 131. *mant.* 25. *Jacqu. collect.* 1. 140. *icon. rar.* 1. *t.* 3. *Etling. salv. n.* 12. *Ard. spec.* 1. 10. *t.* 1.
Leaves cordate serrate soft, flowers raceme-spiked, corollas scarcely exceeding the calyx.
15. Salvia tenella.
Lin. spec. ed. Willd. 1. 132. *Swartz, prodr.* 14. *ic. t.* 2. *descr.* 45.
Leaves cordate, stem filiform creeping, spikes ascending.]
16. Salvia viridis. *Green-topped Sage.*
Lin. spec. 34. *syst.* 69. *Reich.* 1. 63. *Willd.* 1. 132. *hort. upsal.* 11. *Etling. salv. n.* 17. *Jacqu. misc.* 2. 366. *icon. rar.* 1. *t.* 4. *Desfont. atlant.* 20. *t.* 1. *Kniph. orig.* 8. *n.* 80. *Allion. pedem. n.* 53.
Horminum coma viridi. *Tournef. inst.* 178.
H. sativum; var. 3. *Mill. dict.*
Leaves oblong crenate, helmet of the corolla semiorbicular, fruiting calyxes reflex.
17. Salvia Horminum. *Red-topped Sage.*
Lin. spec. 34. *Reich.* 1. 63. *Willd.* 1. 132. *vir. cliff.* 4. *hort. cliff.* 11. *mat. med.* 40. *Etling. salv. n.* 16. *Plenck, ic. t.* 20. *Allion. pedem. n.* 52.
Horminum sativum. *Baub. pin.* 238. *Mill. dict. n.* 5. *Raii hist.* 542.—genuinum sativum Dioscorides. *Park. theat.* 55. *n.* 2.
H. verum Matthioli. *Gesn. fasc.* 17. *t.* 11. *f.* 21.
H. sylvestre foliis purpureis. *Ger.* 628. 2. *emac.* 771. 2.
H. coma purpuro-violacea. *Tournef. inst.* 178.
H. creticum. *Alp. exot.* 113. *Barr. obs.* 226. *ic.* 1233.
Horminum. *Dod. pempt.* 293. *Lob. ic.* 555. *Tabern. hist.* 764.
Sclarea minor coma violacea. *Buxb. cent.* 4. 24. *t.* 39. *f.* 2.
Purple-topped Sage or *Clary.*
β. Horminum coma rubra. *Baub. hist.* 3. 309. *Tournef. inst.* 178. *Riv. mon. t.* 59. *f.* 2. *Raii hist.* 542. 2.
Red-topped Sage.
Leaves obtuse crenate, upper bractes barren larger coloured.
[18. Salvia virgata. *Long-branched Sage.*
Lin. spec. ed. Willd. 1. 133. *Ait. kew.* 1. 39. *Jacqu. hort.* 1. 14. *t.* 37. *Etling. salv. n.* 43.
Horminum creticum. *Riv. mon. t.* 63.
Sclarea orientalis verbasci folio, flore partim albo partim flavescente. *Tournef. cor.* 10.
Leaves oblong cordate wrinkled crenate, hairs of the stem and calyx glandular at the tip.]
19. Salvia sylvestris. *Spotted-stalked Bohemian Sage.*
Lin. spec. 34. *syst.* 69. *Reich.* 1. 63. *Willd.* 1. 133. *Ait. kew.* 1. 39. *Etling. salv. n.* 37. *Scop. carn. n.* 32. *Crantz. austr.* 241. *Jacqu. austr.* 3. 7. *t.* 212. *Roth. germ.* 1. 11. 2. 29. *Hoffm. germ.* 9. *Krock. silef. n.* 43. *Allion. pedem. n.* 54.
Sclarea sylvestris. *Mill. dict. n.* 7.
Horminum sylvestre salvifolium majus maculatum. *Baub. pin.* 239.
H. sylvestre 5 altera species. *Clus. hist.* 2. 31.
Leaves cordate wrinkled biserrate, bractes coloured shorter than the flower acuminate, hairs of the stem and calyx simple.
20. Salvia nemorosa. *Spear-leaved Sage.*
Lin. spec. 35. *Reich.* 1. 64. *Willd.* 1. 134. *Roth. germ.* 1. 11. 2. 30. *Hoffm. germ.* 9. *Linn. goett.* 297. *Gmel. sib.* 3. 226.
Sclarea nemorosa. *Mill. dict. n.* 6.
S. folio salviæ, minor s. glabra. *Tournef. inst.* 180.
Horminum sylvestre salvifolium minus. *Baub. pin.* 239.
Leaves cordate lanceolate serrate flat, bractes coloured, lower lip of the corolla reflex.
21. Salvia syriaca. *Syrian Sage.*
Lin. spec. 36. *syst.* 69. *Reich.* 1. 64. *Willd.* 1. 134. *Etling. salv. n.* 31. *Retz. obs.* 3. 7. *n.* 2.
Sclarea syriaca. *Mill. dict. n.* 5.—flore cæruleo. *Tournef. inst.* 180.
Horminum syriacum. *Baub. pin.* 238. *prodr.* 114. *ic.*
Leaves cordate toothed, the lower repand, bractes cordate short acute, calyxes tomentose.
[22. Salvia viscosa. *Clammy Sage.*
Lin. syst. 69. *Willd.* 1. 134. *Jacqu. misc.* 2. 328. *ic. rar.* 1. *t.* 5. *Ait. kew.* 1. 40.
Leaves oblong blunt crose-crenate viscid, flowers in whorls, bractes cordate acute.]
23. Salvia hæmatodes. *Bloody Sage.*
Lin. spec. 35. *syst.* 69. *Reich.* 1. 64. *Willd.* 1. 135. *Etling. salv. n.* 34. *Scop. carn. n.* 36.
Horminum sanguineum asphodeli radice. *Triumf. obs.* 69. *t.* 69.
H. sylvestre majus hæmatodes glabrum, flore cæruleo, italicum. *Barr. rar.* 234. *t.* 185.
H. sylv. maculatum tuberosum. *Mor. hist.* 3. 394. *s.* 11. *t.* 14. *f.* 15.
Sclarea asphodeli radice. *Tournef. inst.* 179.
S. tuberosa. *Mill. dict. n.* 12.
Leaves cordate-ovate wrinkled tomentose, calyxes bispid, root tuberous.
24. Salvia pratensis. *Meadow Sage* or *Clary.*
Lin. spec. 35. *Reich.* 1. 65. *Willd.* 1. 135. *fl. suec. n.* 32. *hort. cliff.* 12. *upsal.* 10. *Etling. salv. n.* 40. *Hudf. angl.* 10. *Wither. arr. ed.* 3. 21. *Smith, brit.* 30. *engl. bot. t.* 153. *Sibth. oxon. n.* 20. *Abbot, bedf.* 6. *Hall. belv. n.* 253. *Roth. germ.* 1. 12. 2. 30. *Hoffm. germ.* 9. *Pollich pal. n.* 28. *Crantz. austr.* 243. *Pallas it.* 1. 73. *Villars dauph.* 2. 403. *Krock. silef. n.* 42. *Allion. pedem. n.* 55. *Blackw. t.* 258. *Berg. phyt.* 2. *t.* 95. *Plenck, ic. t.* 22.
Sclarea pratensis. *Mill. dict. n.* 4.—foliis serratis flore cæruleo. *Tournef. inst.* 180. *Dill. in Raii syn.* 237.
Horminum pratense. *Riv. mon. t.* 36.—foliis serratis. *Baub. pin.* 238. *Raii hist.* 544. 8.
H. sylvestre. *Fuchs. hist.* 569. *Camer. epit.* 629. *Ger. emac.* 769. 3.—vulgare. *Park. theat.* 55. *n.* 5.
Orvala sylvestris species quarta. *Dod. pempt.* 293.
Gallitrichum sylvestre. *Mor. hist.* 3. 393. *s.* 11. *t.* 13. *f.* 10.
β. Sclarea major, foliis in profundas lacinias incisis. *Tournef. inst.* 179.
Horminum sylvestre foliis profundius incisis. *Baub. pin.* 239.
γ. Salvia agrestis. *Lin. amœn.* 3. 399. *Villars dauph.* 2. 402.
Horminum pratense niveum foliis incanis. *Baub. pin.* 238.
Leaves cordate-oblong crenate, the upper ones embracing, whorls almost naked, corollas having a glutinous helmet.
[25. Salvia bicolor. *Two-coloured Sage.*
Lin. spec. ed. Willd. 1. 136. *Desfont. in Fourcroy journ.* 3. 1792. *n.* 20. *atlant.* 22. *t.* 2. *Lamarck, illustr. n.* 300.
Leaves ovate erose-toothed, flowers nodding, the middle segment of the lower lip of the corolla concave.]
26. Salvia indica. *Indian Sage* or *Clary.*
Lin. spec. 37. *syst.* 69. *Reich.* 1. 65. *Willd.* 1. 136. *mant.* 318. *Jacqu. hort.* 1. 33. *t.* 78. *Etling. salv. n.* 39. *Curt. mag.* 395.
Sclarea indica. *Mill. dict. n.* 9.—floribus variegatis. *Tournef. inst.* 179.
Horminum hirsutum flore violaceo punctis aureis notato. *Mor. hist.* 3. *s.* 11. *t.* 13. *f.* 16.

Leaves cordate ſublobed at the ſides, the upper ones ſeſſile, whorls almoſt naked very remote.

27. Salvia dominica. *Dominica Sage.*
Lin. ſpec. 35. *Reich.* 1. 66. *Willd.* 1. 137. *Swartz, obſ.* 18. *t.* 1. *f.* 1. *Mill. dict. n.* 9.
Leaves cordate obtuſe crenate ſubtomentoſe, corollas narrower than the calyx.

28. Salvia verbenaca. *Vervain Sage* or *Clary.*
Lin. ſpec. 35. *Syſt.* 70. *Reich.* 1. 66. *Willd.* 1. 137. *vir. cliff.* 17. *hort. cliff.* 12. *Etling. ſalv. n.* 19. *Hudſ. angl.* 10. *Wither. arr. ed.* 3. 21. *Smith, brit.* 31. *engl. bot. t.* 154. *Curt. lond.* 6. *t.* 1. *Relh. cant. n.* 20. *Sibth. oxon. n.* 21. *Abbot, bedf.* 7. *Heſſm. germ.* 10. *Roth. germ.* 1. 12. 2. 32. *Sawv. monſp.* 278. *Ger. prov.* 258. *n.* 4. *Villars dauph.* 2. 404. *Allion. pedem. n.* 56. *Deſfont. atlant.* 21. *Gron. virg.* 8. *Berg. phyt.* 2. 99. *Blackw.* 258.
Horminum verbenaceum. *Mill. dict. n.* 1.
H. ſylveſtre lavanduloe flore. *Baub. pin.* 239. *Raii hiſt.* 545. *ſyn.* 237. *Park. theat.* 57. 8. *Mor. hiſt. ſ.* 11. *t.* 14. *f.* 33.
H. ſylveſtre. *Ger. emac.* 771. 1.
H. ſylv. minus, inciſo folio, flore azureo. *Barr. ic.* 208.
H. verbenacæ laciniis anguſtifolium. *Triumf. obſ.* 66. *t.* 66.
H. ſilv. quarti quinta ſpecies. *Cluſ. hiſt.* 2. 31. *f.* 1.
Leaves ſerrate ſinuate ſmoothiſh, corollas narrower than the calyx.

[29. Salvia ſcabra. *Rugged Sage.*
Lin. ſyſt. 72. *Willd.* 1. 137. *ſuppl.* 89.
Rugged, leaves lyrate toothed wrinkled, ſtem panicle-branched.

30. Salvia runcinata. *Runcinate-leaved Sage.*
Lin. ſyſt. 72. *Willd.* 1. 138. *ſuppl.* 89.
Rugged, leaves runcinate-pinnatifid toothed, flowers ſpiked whorled.]

31. Salvia clandeſtina. *Cut-leaved Sage.*
Lin. ſpec. 36. *ſyſt.* 70. *Reich.* 1. 66. *Willd.* 1. 138. *Etling. ſalv. n.* 20. *Zinn. goett.* 198. *Deſfont. atlant.* 23.
Horminum lyratum. *Mill. dict. n.* 2.
H. ſylveſtre, inciſo folio, cæſio flore, italicum. *Barr. rar.* 24. *t.* 220.
Leaves ſerrate pinnatifid very much wrinkled, ſpike obtuſe, corollas narrower than the calyx.

[32. Salvia auſtriaca. *Auſtrian Sage.*
Lin. ſyſt. 69. *Willd.* 1. 138. *Ait. kew.* 1. 41. *Etling. ſalv. n.* 41. *Crantz, auſtr.* 4. 238. *Jacqu. auſtr.* 2. 8. *t.* 112.
Leaves ovate and cordate eroſe-ſinuate, root-leaves petioled, ſtem almoſt leafleſs, ſtamens double the length of the corolla.

33. Salvia pyrenaica. *Pyrenean Sage.*
Lin. ſpec. 36. *Reich.* 1. 67. *Willd.* 1. 138. *Etling. ſalv. n.* 42.
Horminum pyrenaicum glutinoſum anguriæ folio. *Herm. par.* 187. *t.* 187.
Sclarea pyrenaica glutinoſa, foliis ſinuatis. *Tournef. inſt.* 179.
Leaves obtuſe eroſe, ſtamens double the length of the corolla.

34. Salvia diſcermas. *Long-ſpiked Sage.*
Lin. ſpec. 36. *ſyſt.* 70. *Reich.* 1. 67. *Willd.* 1. 139. *mant.* 318. *Etling. ſalv. n.* 32. *Arduin. ſpec.* 1. 9. *t.* 1. *Allion. hort.* 49. *n.* 4. *Retz. obſ.* 3. 7. *n.* 4.
Horminum ſylveſtre majus flore albo, integris foliis. *Barr. ic.* 187.
Leaves cordate-oblong eroſe, ſtamens equal to the corolla.

35. Salvia rugoſa. *Wrinkled-leaved Sage.*
Lin. ſpec. ed. Willd. 1. 139. *Ait. kew.* 1. 42.
Leaves cordate oblong-lanceolate eroſe-crenate wrinkled ſomewhat hairy, ſtamens ſhorter than the corolla.

36. Salvia nubia. *Nubian Sage.*
Lin. ſyſt. 70. *Willd.* 1. 139. *Murr. comm. gott.* 1778. *p.* 90. *t.* 3. *Ait. kew.* 1. 42.
Leaves oblong ſubcordate unequilateral wrinkled crenate ſometimes eared at the baſe.

37. Salvia nilotica. *Nile Sage.*
Lin. ſyſt. 70. *Willd.* 1. 140. *Murr. comm. gott.* 1778. *p.* 88. *t.* 2. *Jacqu. hort.* 3. *t.* 92. *Retz. obſ.* 3. 7. *n.* 3.
Leaves ſinuate angular crenate-toothed, teeth of the calyxes ſpiny, angles and margin of the aperture ciliate.]

38. Salvia mexicana. *Mexican Sage.*
Lin. ſpec. 37. *Reich.* 1. 67. *Willd.* 1. 140. *hort. cliff.* 13. *Etling. ſalv. n.* 35. *Cavan. ic.* 1. 16. *n.* 24. *t.* 26.
Sclarea mexicana. *Mill. dict. n.* 14.—altiſſima, facie heliotropii. *Dill. elth.* 339. *t.* 254. *f.* 330.
Leaves ovate, acuminate at both ends, ſerrate.

[39. Salvia amethyſtina. *Amethyſtine Sage.*
Smith ic. ined. 2. 27. *t.* 27. *Willd. ſpec.* 1. 140.
Leaves cordate acute ſerrate woolly beneath, whorls naked, calyxes trifid, corollas pubeſcent.

40. Salvia fulgens. *Fulgid Sage.*
Lin. ſpec. ed. Willd. 1. 140. *Cavan. ic.* 1. 15. *n.* 21. *t.* 23.
Leaves cordate acute crenate wrinkled tomentoſe beneath, whorls naked, calyxes trifid, helmet of the corollas villoſe.

41. Salvia formoſa. *Shining-leaved Sage.*
Lin. ſpec. ed. Willd. 1. 140. *L'Herit. ſtirp.* 1. 41. *t.* 21. *Ait. kew.* 1. 43. *Curt. magaz.* 376.
S. Leonuroides. *Gloxin obſ. bot.* 15. *t.* 2.
Leaves ſubcordate, helmet of the corollas bearded, calyxes three-lobed, ſtem fruteſcent.

42. Salvia tubiflora. *Long-tubed Sage.*
Smith ic. ined. 2. 26. *t.* 26. *Willd. ſpec.* 1. 141.
Leaves cordate crenate ſomewhat hairy, calyxes trifid, corollas very long tubular, ſtamens ſtanding out.

43. Salvia longiflora. *Long-flowered Sage.*
Lin. ſpec. ed. Willd. 1. 141.
S. tubifera. *Cavan. ic.* 1. 16. *n.* 23. *t.* 25.
Leaves ovate acute ſerrate pubeſcent, calyxes trifid, corollas very long tubular pubeſcent, ſtamens the length of the corolla.

44. Salvia coccinea. *Scarlet flowered Sage.*
Lin. ſyſt. 71. *Willd.* 1. 141. *ſuppl.* 88. *Murr. comm. gott.* 1778. *p.* 86. *t.* 1. *Etling. ſalv. n.* 11. *Ait. kew.* 1. 43.
Leaves cordate acute tomentoſe ſerrate, corollas narrower than the calyx and twice as long.

45. Salvia pſeudococcinea.
Lin. ſpec. ed. Willd. 1. 141. *Jacqu. collect.* 2. 302. *ic. rar.* 2. *t.* 209.
Leaves ovate acute ſerrate unequal at the baſe, ſtem hairy, corollas double the length of the calyx.

46. Salvia hiſpanica. *Spaniſh Sage.*
Lin. ſpec. 37. *Reich.* 1. 67. *Willd.* 1. 141. *Gærtn. fruct.* 1. 316. *Etling. ſalv. n.* 18. *Scop. carn. n.* 35. *Allion. pedem. n.* 58. *Knipb. orig. t.* 2. *n.* 78. *Sabb. hort. rom.* 3. *t.* 22. *Ard. ſpec.* 10. *t.* 2.
Sclarea hiſpanica. *Tabern. hiſt.* 764. *ic.* 374.
Leaves ovate, petioles mucronate each way, ſpikes imbricate, calyxes trifid.

47. Salvia abyſſinica. *Abyſſinian Sage.*
Lin. ſpec. ed. Willd. 1. 142. *Jacqu. collect.* 1. 132. *ic. rar.* 1. *t.* 6. *Ait. kew.* 1. 43.
Lower leaves lyrate, upper cordate, flowers in whorls, calyxes mucronate ciliate.]

48. Salvia verticillata. *Whorl-flowered Sage.*
Lin. ſpec. 37. *ſyſt.* 70. *Reich.* 1. 68. *Willd.* 1. 142. *hort. cliff.* 495. *upſ.* 11. *Etling. ſalv. n.* 247. *Hoffm. germ.* 10. *Roth. germ.* 1. 12. 2. 32. *Scop. carn. n.* 34. *Crantz. auſtr.* 241. *Knipb. orig.* 6. *t.* 79. *Hall. helv. n.* 251. *Berg. phyt.* 2. 91.
Horminum verticillatum. *Mill. dict. n.* 3.
H. ſylveſtre latifolium verticillatum. *Baub. pin.* 338.
H. ſylveſtre tertium. *Cluſ. hiſt.* 2. 29.
H. ſpurium. *Riv. mon. t.* 69.
β. Horminum ſylveſtre hirſutum, lampſanæ folio, flore cæſio. *Barrel. ic.* 199.
H. folio rapi. *Buxb. cent.* 5. *app.* 43. *f.* 23.
H. napifolium. *Mill. dict. n.* 4.
Leaves cordate crenate-toothed, whorls almoſt naked, ſtyle of the corolla incumbent on the lower lip.

[49. Salvia napifolia. *Rape-leaved Sage.*
Lin. ſpec. ed. Willd. 1. 143. *Etling. ſalv. n.* 13. *Jacqu. hort.* 2. 71. *t.* 152. *Ait. kew.* 1. 44.
Leaves cordate crenate-toothed, lower ones haſtate and lyrate, whorls almoſt naked, upper lip ſhorter.]

50. Salvia glutinosa. *Yellow Sage* or *Clary.*
Lin. spec. 37. *syst.* 70. *Reich.* 1. 68. *Willd.* 1. 143. *mant.* 319. *hort. cliff.* 13. *usp.* 11. *Etling. salv. n.* 38. *Hoffm. germ.* 10. *Roth. germ.* 1. 12. 2. 33. *Hall. helv. n.* 252. *Scop. carn. n.* 33. *Crantz. austr.* 239. *Jacqu. vind.* 5. *Sauv. monsp.* 146. *Villars dauph.* 2. 404. *Krock. siles. n.* 44. *Allion. pedem. n.* 59. *Berg. phyt.* 2. 97.
Sclarea glutinosa. *Mill. dict. n.* 11.
Horminum flore luteo. *Riv. mon. t.* 57. *Mor. hist.* 3. 394. *f.* 11. *t.* 13. *f.* 18.
H. luteum glutinosum. *Bauh. pin.* 238. *Raii hist.* 547. 24.
H. sylvestre secundum. *Clus. hist.* 2. 29. *Lob. ic.* 557.
H. luteum s. Colus Jovis. *Park. theat.* 58. 12.
Colus Jovis Lobelii. *Dalech. hist.* 966. *Ger.* 627. 3. *emac.* 769. 4.
Orvala tertia. *Dod. pempt.* 292. *f.* 3, 4.
Galeopsis lutea viscida, & odorata nemorensis. *Bauh. hist.* 3. 314.
G. lutea. *Dalech. hist.* 1248. *Park. theat.* 608. *n.* 3.
Leaves cordate-sagittate serrate acute.
[51. Salvia Barrelieri.
Lin. spec. ed. Willd. 1. 143. *Etling. salv. n.* 46.
H. sylvestre majus, hastato folio, flore cæsio hispido. *Barr. rar.* 236. *t.* 186.
H. majus hastato s. lapathi unctuosi foliis. *Mor. hist.* 3. 393.
Sclarea folio triangulari dentato. *Tournef. inst.* 180.
Leaves unequally toothed acuminate cordate angular-hastate at the base, whorls almost naked.]
52. Salvia canariensis. *Canary Sage.*
Lin. spec. 38. *syst.* 71. *Reich.* 1. 68. *Willd.* 1. 144. *mant.* 319. *hort. cliff.* 13. *usp.* 10. *Etling. salv. n.* 36. *Kniph. orig.* 6. *t.* 77. *Pluk. phyt. t.* 301. *f.* 2.
Horminum folio hastato. *Riv. mon. t.* 61.
H. canar. tomentosum, hastato folio. *Mor. hist.* 3. 94. *f.* 11. *t.* 13. *f.* 17.
Sclarea tomentosa. *Mill. dict. n.* 13.
S. folio triangulari, caule tomentoso. *Tournef. inst.* 180.
Leaves hastate-triangular oblong crenate obtuse.
[53. Salvia aurita. *Eared Sage.*
Lin. syst. 72. *Willd.* 1. 144. *suppl.* 88.
Villose, leaves ovate toothed eared, flowers whorl-spiked.]
54. Salvia africana. *Blue-flowered African Sage.*
Lin. spec. 38. *Reich.* 1. 69. *Willd.* 1. 144. *hort. cliff.* 13. *Etling. salv. n.* 7. *Comm. hort.* 2. 181. *t.* 91.
Leaves roundish serrate, truncate and toothed at the base.
55. Salvia aurea. *Gold-flowered African Sage.*
Lin. spec. 38. *syst.* 71. *Reich.* 1. 69. *Willd.* 1. 145. *hort. cliff.* 13. *Etling. salv. n.* 9. *Comm. hort.* 2. 183. *t.* 92. *Curt. magaz.* 182.
Leaves roundish quite entire, truncate and toothed at the base.
56. Salvia colorata. *Coloured-calyx African Sage.*
Lin. syst. 71. *Reich.* 1. 69. *Willd.* 1. 145.
S. integerrima. *Mill. dict. n.* 12. *fig.* 150. *t.* 225. *f.* 2.
Horminum africanum frutescens, cistí seminæ foliis subrotundis. *Mor. hist.* 3. *f.* 11. *t.* 16. *f. ult.*
Leaves elliptic almost quite entire tomentose, border of the calyx membranaceous coloured.
57. Salvia paniculata. *Panicled African Sage.*
Lin. syst. 71. *Reich.* 1. 69. *Willd.* 1. 145. *mant.* 25. & 511. *Etling. salv. n.* 10.
S. chamæleagna. *Berg. cap.* 3.
S. minor æthiopica, foliis chamæleagni asperis. *Breyn. cent.* 169. *t.* 5. *Mor. hist.* 3. *f.* 11. *t.* 16. *f.* 1. *Mill. fig.* 150. *t.* 225. *f.* 1.
Leaves obovate-wedge-form toothletted naked, stem frutescent.
[58. Salvia acetabulosa.
Lin. syst. 71. *Reich.* 1. 70. *Willd.* 1. 145. *mant.* 25. *Etling. salv. n.* 6. *Gron. orient.* 10.
S. syriaca, cistí seminæ foliis, acetabulis Moluccæ. *Mor. hist.* 3. 399.
S. orientalis frutescens, foliis circinatis, acetabulis Moluccæ. *Tournef. cor.* 10.
Leaves obovate toothed, calyxes bell-shaped, spreading hairy, stem shrubby.
59. Salvia spinosa. *Thorny-calyxed Sage.*
Lin. syst. 71. *Reich.* 1. 70. *Willd.* 1. 146. *mant.* 511. *Etling. salv. n.* 29. *Jacqu. collect.* 1. 139. *ic. rar.* 1. *t.* 7.
S. ægyptiaca. *Lin. mant.* 26.
Horminum syriacum. *Bauh. pin.* 238. *prodr.* 114. *Mor. hist.* 3. 392. *f.* 11. *t.* 16. *f.* 2.
Leaves oblong repand, calyxes spiny, bractes cordate mucronate concave.
60. Salvia tingitana. *Tangier Sage.*
Lin. spec. ed. Willd. 1. 147. *Etling. salv. n.* 30.
Horminum tingitanum. *Riv. mon. t.* 62.
Sclarea tingitana fœtidissima hirsuta, flore albo. *Tournef. inst.* 179.
Leaves cordate erose-toothed, calyxes spiny, bractes quite entire cordate mucronate concave ciliate.]
61. Salvia Sclarea. *Common Clary.*
Lin. spec. 38. *Reich.* 1. 71. *Willd.* 1. 147. *hort. cliff.* 12, *usp.* 10. *mat. med.* 10. *Etling. salv. n.* 27. *Hoffm. germ.* 10. *Roth. germ.* 2. 33. *Guett. stamp.* 263. *Villars dauph.* 2. 405. *Allion. pedem. n.* 62. *Ludw. edit. t.* 171. *Berg. phyt.* 2. 93. *Pluck, ic.* 21.
Sclarea. *Tabern. ic.* 373. *Matth.* 889. *Tournef. inst.* 179. *Garid.* 433.
S. vulgaris. *Lob. ic.* 556. *Blackw. t.* 122. *Mill. dict. n.* 1.
Horminum Sclarea dictum. *Bauh. pin.* 238. *Raii hist.* 543. 3. *Mor. hist. f.* 11. *t.* 16. *f.* 1. *ord.* 3.
H. sylvestre 1. *Clus. hist.* 2. 28. *f.* 2.
H. sativum vulgare s. Sclarea. *Park. theat.* 55. 1.
Gallitricum. *Ger.* 626.—*f.* Horminum. *Ger. emac.* 768. 1.
G. sativum. *Bauh. hist.* 3, 309.
Orvala. *Dod. pempt.* 292.
Leaves wrinkled cordate oblong villose serrate, floral bractes longer than the calyx concave acuminate.
[62. Salvia involucrata.
Lin. spec. ed. Willd. 1. 147. *Cavan. ic.* 2. 114. *t.* 105.
Leaves ovate-lanceolate serrate, flowers in terminating spikes, bractes very large coloured.]
63. Salvia ceratophylla. *Horn-leaved Sage.*
Lin. spec. 39. *Reich.* 1. 71. *Willd.* 1. 148. *hort. cliff.* 13. *usp.* 10. *Etling. salv. n.* 44. *Kniph. orig.* 6. *t.* 78. *Pluk. phyt. t.* 194. *f.* 5. *Herm. par.* 186. *Mor. hist.* 3. 393. *f.* 11. *t.* 13. *f.* 6. (Horminum.)
Sclarea ceratophylla. *Mill. dict. n.* 8.
Leaves wrinkled pinnatifid woolly, upper whorls barren.
64. Salvia Æthiopis. *Woolly Sage* or *Clary.*
Lin. spec. 39. *syst.* 71. *Reich.* 1. 71. *Willd.* 1. 148. *hort. cliff.* 13. *Etling. salv. n.* 28. *Gouan monsp.* 469. *illustr.* 2. *Jacqu. austr.* 3. 7. *t.* 211. *Crantz, austr.* 238. *Ger. prov.* 259. *Villars, dauph.* 2. 405. *Allion. pedem. n.* 61. *Sabb. hort. rom.* 3. *t.* 23. *Desfont. atlant.* 24.
Sclarea Æthiopis. *Mill. dict. n.* 2.
S. vulgaris lanuginosa ampliffimo folio. *Tournef. inst.* 179. *Garid.* 432.
Æthiopis. *Dalech. hist.* 1306. *Dod. pempt.* 148. *f.* 2. *Matth.* 1152. *Lobel. adv.* 242. *Ger.* 634. *emac.* 779. *Raii hist.* 543.
Æ. multis. *Bauh. hist.* 3. 315.
Æ. foliis sinuosis. *Bauh. pin.* 241.
Æ. phlomitis. *Besl. cyst. æst.* 8. *p.* 3. *f.* 1.
Sclarea æthiopica, s. Æthiopis laciniatis & non laciniatis foliis. *Park. theat.* 57. 13. *t.* 58. *f.* 13.
β. Æthiopis laciniatis foliis. *Barr. rar.* 24. *t.* 188.
Æ. fol. in profundas laciniasdivisis. *Bauh. pin.* 241. *prodr.* 115.
Sclarea lacin. foliis. *Tournef. inst.* 179. *Garid.* 432.
γ. Marum ægyptiacum. *Vesl. alp.* 212. *ic.*
Horminum syriacum album salviæ folio lanuginoso. *Mor. hist.* 3. 392. *f.* 11. *t.* 16. *f.* 3. *ord.* 3.
Leaves oblong erose woolly, whorls woolly, bractes recurved somewhat spiny.
[65. Salvia phlomoides.
Lin. spec. ed. Willd. 1. 148. *Vahl, symb.* 1. 7.

Introd. in oryct. arrag. 158. *t.* 4. *Roemer ſcript. pl. hiſp. luſit.* 10. *t.* 1. *f.* 1.

Leaves lanceolate almoſt entire, ſtem woolly and viſcid.]

66. Salvia argentea. *Silvery-leaved Sage* or *Clary.*
Lin. ſpec. 38. *Reich.* 1. 72. *Willd.* 1. 149. *Etling. ſalv. n.* 33.
Sclarea argentea. *Mill. dict. n.* 15.
S. ſicula folio argenteo ſubrotundo. *Boerh. lugdb.* 1. 163.
Æthiopis tota argentea cretica lanuginoſa. *Cup. cathol.*
Leaves oblong tooth-angular woolly, upper whorls barren, bractes concave.

[67. Salvia vulnerariæfolia. *Kidney Vetch-leaved Sage.*
Lin. ſpec. ed. Willd. 1. 149.
S. orientalis foliis alatis non crenatis odore Mari. *Tournef. cor.* 11.
Leaves pinnate quite entire, terminating leaflet very large.]

68. Salvia pinnata. *Wing-leaved Sage.*
Lin. ſpec. 39. *ſyſt.* 71. *Reich.* 1. 72. *hort. cliff.* 13. *Etling. ſalv. n.* 14. *Boerh. lugdb.* 1. 167. *ic.*
Leaves pinnate, pinnas eroſe.

[69. Salvia incarnata. *Fleſh-coloured Sage.*
Lin. ſpec. ed. Willd. 1. 150. *Etling. ſalv. n.* 15. *Mor. hiſt. ſ.* 11. *t.* 13. *f.* 19. *Pluk. phyt. t.* 194. *f.* 6. (Horminum.)
Leaves pinnate ſerrate, ſtems procumbent hirſute.

70. Salvia roſæfolia. *Roſe-leaved Sage.*
Smith ic. ined. 1. 5. *t.* 5. *Lin. ſpec. ed. Willd.* 1. 150.
S. orientalis, foliis alatis minoribus & crenatis, odore mari. *Tournef. cor.* 11.
S. foliis ebuli. *Buxb. cent.* 2. 41. *t.* 46?
Leaves pinnate hoary, leaflets ſerrate, calyxes ringent.

71. Salvia japonica. *Japan Sage.*
Lin. ſyſt. 72. *Willd.* 1. 150. *Thunb. jap.* 22. *t.* 5. *Kæmpf. amoen.* 5. 887.
Leaves bipinnate ſmooth.

72. Salvia ceratophylloides. *Branchy Sage.*
Lin. ſyſt. 72. *Reich.* 1. 72. *Willd.* 1. 151. *mant.* 26. *Etling. ſalv. n.* 45. *Arduin. ſpec.* 2. 12. *t.* 2.
Leaves pinnatifid wrinkled villoſe, ſtem panicled very much branched.

73. Salvia Forſkaelei.
Lin. ſyſt. 72. *Reich.* 1. 72. *Willd.* 1. 151. *mant.* 26. *Etling. ſalv. n.* 26.
S. bifida. *Forſk. deſcr.* 202.
Leaves lyrate-eared, ſtem almoſt leafleſs, helmet of the corolla ſemibifid.

74. Salvia nutans. *Nodding Sage.*
Lin. ſpec. 39. *ſyſt.* 72. *Reich.* 1. 73. *Willd.* 1. 151. *Etling. ſalv. n.* 47. *Nov. act. petrop.* 1. 378. *t.* 14. *Hall. comm. gott.* 1. 210. *t.* 11. *Kniph. cent.* 7. *t.* 79.
Leaves cordate indiſtinctly five-lobed eroſe, ſtem roundiſh, racemes nodding.

75. Salvia haſtata. *Halbert-leaved Sage.*
Lin. ſpec. ed. Willd. 1. 151. *Etling. ſalv. n.* 48.
Leaves haſtate-lanceolate crenate, ſtem almoſt naked, racemes drooping.

76. Salvia betonicæfolia. *Betony-leaved Sage.*
Lin. ſpec. ed. Willd. 1. 152. *Etling. ſalv. n.* 49.
Leaves lanceolate crenate, ſtem almoſt naked, racemes drooping.

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77. Salvia algerienſis. *Algerine Sage.*
Deſfont. atlant. 23. *t.* 3.
Sclarea africana præcox annua. *Vaill. herb.*
Lower leaves ovate crenate decurrent into the petiole, calyxes tooth-ſpiny nodding, bractes reflex.

78. Salvia fœtida. *Fetid Sage.*
Deſfont. atlant. 24. *Lamarck, illuſtr. n.* 295.
Sclarea tingitana fœtidiſſima hirſuta flore albo. *Tournef. inſt.* 179. *Vaill. herb.*
Marum ægyptiacum. *Alp. ægypt.* 212? *exot.* 252? *v. n.* 64. γ.
Shrubby, leaves cordate-ovate very much wrinkled villoſe, flowers whorl-ſpiked, fruiting calyxes compreſſed.]

79. Salvia patula. *Spreading Sage.*
Deſfont. atlant. 25.

Sclarea luſitanica. *Mill. dict. n.* 3.—glutinoſa ampliſſimo folio. *Tournef. inſt.* 179. *Vaill. herb.*
Root-leaves cordate woolly ſinuate eroſe, ſtem and calyxes villoſe glutinoſe, bractes concave mucronate, upper flowers fading.

DESCRIPTIONS, *&c.*

[This large genus conſiſts of herbs or underſhrubs. The flowers are from one to three together from a bracte or a leaf, frequently in ſpikes. The filaments are ſtipitate in the middle in the Salvia of Tournefort; but beyond the middle in the Sclarea of the ſame author. The upper lip of the corolla is compreſſed and ſickle-ſhaped in both theſe: but in Horminum of Tournefort it is concave and ſhaped like the bowl of a ſpoon. The ſtyle in S. cretica is double, which is unuſual in the natural order of Labiatæ, but its ſeeds are abortive[1]. Mr. Miller has followed Tournefort in dividing the genus, and has treated of it under the three articles of *Horminum*, *Salvia* and *Sclarea*.

Our Engliſh name *Sage* is from the French *Sauge*. In German it is *Salbey*, which is evidently from the Latin. Clary is plainly from *Sclarea*, which is from σκληρος, hard; the ſtalks being hard and not ſucculent. Horminum is ſaid to be απο του ορμαν, quòd ad venerem ſtimulet, according to Dioſcorides.

1. This is an annual plant, a foot high, ſtiff and brachiate. Leaves naked, rugged, very much wrinkled underneath. Spikes as it were ſpiny. Flowers in threes, pedicelled, very minute. Corollas white, with the upper lip very ſhort, emarginate, not compreſſed; the lower trifid, with the middle ſegment violet-coloured and dotted. Stamens ſmall with blueiſh anthers[1].

Gouan affirms that he has moſt commonly found four ſtamens in the flowers.

Vahl ſays that the wild plant is a low rigid little ſhrub, ſcarcely a ſpan in height, aſh-coloured and reverſely hairy; with the leaves turned back at the edge and hairy.

Desfontaines deſcribes it as of an aſh colour, upright, and very much branched: the branches ſlender, with ſhort reverſe hairs. The leaves wrinkled, waved, running down into the petiole. The whorls diſtinct; the lower having ſix, the upper two flowers, all pedicelled, and the upper ones abortive. Bractes very ſmall, ovate, acute, ſhorter than the pedicel. Calyx villoſe, ſtriated: with the upper lip ſhorter, two-toothed, and the mouth ciliate. Corolla white, ſmall, dotted; with the upper lip very ſhort.

Native of Egypt and the Canary iſlands. Cultivated in the ſands about Caſſa in Barbary. Introduced in 1770, by Monſ. Richard. It flowers in june and july[2].

2. Native of the Cape of Good Hope, where it was found by Maſſon, and introduced in 1774. It flowers in december and january. It is ſhrubby[3].

3. Calyxes two-leaved. Styles two, with ſimple ſtigmas[4]. In the opinion of Willdenow, it ſeems to be only a variety of S. officinalis.—Native of the iſland of Candia. Cultivated in 1760 by Mr. James Gordon. It flowers from june to auguſt, and is ſhrubby[5].

4. Root-leaves oblong, ſinuate and ſometimes jagged, reſembling thoſe of the common Bugle, but larger, above dark green with dark-purple ſpots about the veins, beneath duſky purple; which colour the ſtems frequently have alſo. The whole is hirſute and hairy; the hairs on the upper part ſpringing from dots or ſmall tubercles. The ſtem is a long ſpan or a foot high, ſingle or ſeveral, with one or two joints, at each of which is a pair of leaves, not branched; at the upper part are ſeveral whorls of flowers, ſix in each placed in a ring, with two leaves beneath; theſe in the upper whorls are ſmall, entire, like thoſe of Myrtle; in the lower whorl longer, with here and there a cut on the edge. Calyxes biggiſh, ſtreaked with five lines, two-parted, the upper ſegment wider and trifid, the lower narrower and bifid. Corollas pale blue; the upper lip bifid with widiſh wings ending in a ſhort cuſp, the lower alſo bifid, ſometimes notched about the

[1] Juſſieu. [2] Lieu. ſyſt. [3] Hort. kew. [4] Idem. [5] Schreber. [6] Hort. kew.

edges.

edges. Seeds biggiſh, bluntly three-cornered, with the outer part protuberant, roundiſh; the inner where they touch each other pared off and angular; when ripe they are blackiſh [a].

Linneus made two ſpecies of this in his *Species Plantarum*, under the names of *Salvia lyrata* and *Horminum virginicum*; but in his *Mantiſſa* he referred the latter to the former, it being the ſame plant, bearing clandeſtine flowers in Europe.

Native of Virginia and Carolina. Cultivated in 1728, by James Sherard, M.D.[b] The ſeeds, from Virginia, were given to him by Charles Du Bois, Eſq. treaſurer to the Eaſt India Company [c].

5. Stems branched, upright, five feet high. Leaves narrow, long, beneath tomentoſe, whitiſh, above dark green; petioles ſhort, ſubconnate, with very ſmall glands at the baſe reſembling brown dots. Flowers in very long interrupted ſpikes, compoſed of many-flowered whorls, covered with a lanuginous violet-coloured nap. Calyx alſo violet-coloured, with the upper lip entire and acute, the lower ſhortly bifid. Corolla white, twice as large as the calyx; upper lip arched, plaited, entire, villoſe; lower trifid, with the ſegments rounded, nearly equal, and under them a ſhort excreſcence.

Native of Mexico. It flowers in the royal garden at Madrid in november and december [d].

6. This is a handſome plant. Stem indiſtinctly quadrangular, pubeſcent. Leaves very narrow, ſmooth above, pubeſcent beneath. The whorls have each two bractes which are ovate, acuminate, and longer than the calyx; which is as in S. officinalis, only larger and green. Corolla as in that, but larger. There are commonly leafy branches from the upper axils of the leaves.—Native of Tauris [e].

7. The common garden or officinal Sage is a branching ſhrub, about two feet in height. The younger branches are tomentoſe and whitiſh. The leaves are wrinkled, cinereous white or tinged with duſky purple, on very ſhort petioles, ſometimes eared at the baſe. Flowers terminating, in long ſpikes compoſed of ſix-flowered whorls, approximating yet diſtinct. Bractes ovate, acute, deciduous. Calyx ſtriated, five-toothed; the teeth acute, the three upper ones nearly equal and ſmaller. Corolla blue: upper lip blunt, emarginate; lower three-lobed, the ſide lobes bent back, the middle lobe larger and two-lobed [f].

Native of the South of Europe, and Barbary. Cultivated in 1597 by Gerarde [g]: and doubtleſs we had it much earlier in our gardens.]

Mr. Miller enumerates the following varieties:—1. The common green Sage. 2. The Wormwood Sage. Salvia abſinthites. *Ger. emac.* 764. *n.* 7. *Raii hiſt.* 511. Johnſon ſpeaks of this as a rarity and a tender plant. He firſt ſaw it with Mr. Cannon. S. minor altera. *Baub. pin.* flore rubente. *Park. theat.* 50. *n.* 7. 3. 3. Green Sage with a variegated leaf. S. variegata vulgaris. *Ger. emac.* 764. 6. *Raii hiſt.* 510. 4. Red Sage. S. nigra. *Baub. pin. Raii hiſt.* 509. 2. 5. Red Sage with a variegated leaf. [Salvia variegata. *Park. parad.* 446.—elegans. *Ger. emac.* 764. 5. Painted or Party-coloured Sage: with red leaves ſtriped with white, or white red and green mixed. It was firſt found, ſays Johnſon, in a country garden by Mr. John Tradeſcant, and by him imparted to other lovers of plants.] There is alſo Spaniſh Sage. S. hiſpanica. *Mill. dict. n.* 4.—lavendulæ folio. *Tournef. inſt.* 181. The leaves linear-lanceolate, very narrow and quite entire, in cluſters on the ſide of the ſtalks; they are very hoary, and the branches are covered with a hoary down: the leaves on the upper part of the ſtalk are narrower than thoſe of Roſemary. The flowers grow in cloſer ſpikes, and are of a light blue colour.

The variety with red or blackiſh leaves is the moſt common in the Engliſh gardens; and the Wormwood Sage is in greater plenty here than the common green-leaved Sage.

[Sage has a ſtrong fragrant ſmell, and a warm bitterish aromatic taſte. In ancient times it was much celebrated as a remedy of great efficacy, but at preſent few practitioners conſider it as of much importance; and although frequently employed as a ſudorific, it ſeems to have no advantage over many other plants; and by ſome it has been ſucceſsfully uſed even for the purpoſe of reſtraining inordinate ſweating. Van Swieten found it to be remarkably efficacious in ſtopping night ſweats, infuſed in wine or ſpirit; but Quarin remarks, that a ſtrong infuſion in water has been experienced to be equally ſucceſsful. Van Swieten alſo found it uſeful in reſtraining the improper continuance of a flow of milk from the breaſts of women after they had weaned their children. As poſſeſſing a ſhare of aromatic and aſtringent power, it may prove a ſerviceable tonic in a debility of the ſtomach and nervous ſyſtem. The Chineſe value it highly for this purpoſe, and prefer it to their own tea. The power of this plant, in reſiſting the putrefaction of animal ſubſtances, has alſo been adduced in proof of its medicinal efficacy. From the experiments of Etlinger, it has a conſiderable ſhare of antiſeptic power [h].

Sage appears in the catalogue of the Materia Medica of the London College, but is not directed to be uſed in any of the preparations. It ſtill keeps its ground in fomentations among the common people, and in the kitchen for ſauce to luſcious and ſtrong meats.]

8. This is generally called Balſamic Sage by the gardeners. The ſtalks do not grow ſo upright as thoſe of the common Sage; they are very hairy, and divide into ſeveral branches. Leaves broad, woolly, on long petioles, ſerrate, and rough on the upper ſurface: the leaves on the flower-ſtalks are oblong-ovate, on ſhorter petioles, and very ſlightly ſerrate. The whorls are pretty far diſtant, and few flowers in each; they are of a pale blue, and about the ſame ſize with thoſe of the common ſort. It flowers in june, and in good ſeaſons the ſeeds ripen in autumn. This Sage is preferred to all the others for making tea.

9. The leaves of this, which is the common Sage of Virtue, are narrower than thoſe of the common ſort; they are hoary, and ſome of them are indented on their edges towards the baſe, which indentures have the appearance of ears. The ſpikes of flowers are longer than thoſe of the two preceding ſorts, and the whorls are generally naked. The flowers are ſmaller, and of a deeper blue than thoſe of the common Sage.

[Native of the South of Europe, (Crete and Syria.) Cultivated in 1597, by Gerarde [i].

It has the habit of S. officinalis, and is all over hoary with a nap. It is ſingular in having earlets at the baſe of the leaves [k].—This however is not conſtant; ſometimes there is only one earlet, and ſometimes none. The leaves under the whorls are of a different ſhape from the others. The flowers are for the moſt part three together. Calyx five-cleft; with three ſegments placed by the upper lip of the corolla, and two by the lower lip. Helmet or upper lip of the corolla arched and bifid: beard or lower lip four-cleft.]

10. Stem ſhrubby, four or five feet high, dividing into ſeveral branches. Flowers of a pale blue colour. The branches have often punctures made in them by inſects, producing protuberances as big as Apples, in the ſame manner as galls upon the Oak, and the rough balls on the Briar. [The common Sage has the ſame excreſcencies in the iſland of Candia or Crete, and they carry them to market there under the name of Sage Apples.

Tournefort thus deſcribes this ſpecies, which ſeems to have been confounded with the preceding. It is a very tufted ſhrub, two or three feet high. Trunk twiſted, hard, brittle, two inches thick, ruſſet, covered with a gray chopped bark, and divided into ſeveral branches the ſize of the little finger, ſubdivided into others, the ſhoots from which are ſquare, oppoſite, whitiſh, cottony. Leaves two inches and a half long or more, an inch or fifteen lines wide, rough like ſhagreen, whitiſh, curled, elegantly veined, ſtiff and hard, dotted beneath, on a petiole ſeven or eight lines in length, cottony and grooved. Spike of flowers a foot long,

[a] Dillenius. [b] Hort. kew. [c] Dillenius. [d] Cavanilles. [e] Willdenow. [f] Desfontaines. [g] Hort. kew. [h] Woodville. [i] Hort. kew. [k] Linn. ſuppl.

long, compoſed of cloſe whorls. Each flower is an inch or fifteen lines in length. Calyx half an inch long, pale green tinged with purple, cut irregularly into five points. Upper lip of the corolla hollowed like the bowl of a ſpoon, villoſe, of a deeper or paler blue, eight or ten lines in length: lower lip a little longer, trifid; the two lateral ſegments bordering the opening between the two lips, the middle one rounded, emarginate, pale blue, curled and marbled, ſtriped with white about the middle. Seeds oval, blackiſh, a line in length. The odour partakes of that of common Sage and Lavender.

Found by Tournefort in Candia. Cultivated in 1699, by the Hon. Charles Howard [a].

11. Stem high, upright, ſmooth. Leaves like thoſe of Nettle, or rather of Scrophularia, having a wide baſe, but going off gradually at the top into a ſharp point. Petiole an inch long. Flowers in whorls, ſix together, ſmall [b]. Upper lip ſhort. Piſtil longer than the upper lip [a].—Native of Virginia and Florida.

12. Root fibrous annual. Stem aſcending, branched, a foot high, diffuſed, knotty, even. Leaves ſhortly acuminate, hiſpid above, ſmooth beneath. Petioles four-cornered, red, pubeſcent. Bractes oppoſite, alternate, awned; within them two or three ſmall blue flowers. Calyx angular-ſtriated, covered with glandular hairs. Style the length of the upper lip. Seeds two, one of which only ripens; and that is ovate, compreſſed and black. It differs from the other ſpecies in its looſe ſpikes and remote flowers.

Native of the Weſt Indies [c]. In Jamaica this little plant is found creeping under every hedge and buſh in the lower lands: it runs frequently to the length of two or three feet, but always roots at the lower joints. It has a faint ſmell of Balm when firſt pulled [c].

13. Stem herbaceous, upright, ſtiff, ſomewhat villoſe, with the angles blunt. Leaves netted-veined, wrinkled eſpecially beneath, two inches or more in length, ſcarcely pubeſcent, bluntly ſerrate; ſerratures equal. Petiole the ſame length with the leaf. Pedicels in whorls, about eight. Bractes awl-ſhaped, deciduous. Calyx bell-ſhaped, with eight raiſed hairy lines, bifid: ſegments ovate, acuminate; lower bifid, upper undivided. Corolla a little longer than the calyx, blue.—It differs from *S. ſerotina* in having the ſtem leſs hairy; the leaves not ſoftly villoſe, but wider, acute, with equal ſerratures; and the lines on the calyx hairy only, not glutinous [b].

Sent to Vahl by Bellardi, but from what country unknown. The plant figured and deſcribed by Cavanilles, under the name of *S. polyſtachya*, appears to Willdenow ſcarcely to differ from this, although the leaves be ovate, the ſpikes ſhorter and the flowers larger. If that ſhould prove to be the caſe, it is a native of Mexico. Cavanilles ſaw it flowering in november and december in the royal garden at Madrid.

He deſcribes his *polyſtachya* as a fathom high, with the angles of the ſtem acute; the branches tender and ſomewhat villoſe. Leaves longer than the petioles, ovate-acute, ſerrate, ſoft, glaucous beneath: the baſe of the petioles externally biglandular. Flowers in many denſe terminating ſpikes; the whorls compoſing them approximating and many-flowered. Calyx ſhort, villoſe, ſtriated. Corolla ſmall, blue: upper lip ſhort, arched, entire; lower trifid, with the middle ſegment larger and emarginate.

He remarks, that this, together with the four other ſpecies which he deſcribes, (fulgens, leucantha, tubiflora and mexicana) have the upper lip almoſt entire; and the calyx in all two-lipped; the upper lip entire, one-toothed; which Juſſieu makes three-toothed.

14. Root biennial. Stem ſuffruticoſe, a foot and half high, brachiate, ſcarcely tomentoſe; with the lower branches cauleſcent. Leaves waved and very finely ſerrate, ſcarcely tomentoſe, but very ſoft and paler underneath. Spike ſcarcely pedunculed, whorled. Calyx cylindrical, narrow, ſtriated, with a trifid mouth; the lower ſegment wider. Corolla minute, the ſize of Ziziphora, ſcarcely larger than the mouth of the calyx. Odour of Nepeta, unpleaſant, ſtrong. Calyxes pedunculed, with bractes ſo ſmall as to be hardly viſible.—Suppoſed to be a native of the iſland of Chios [a].

15. This is an herbaceous annual plant, with long, capillary, creeping roots. Stem decumbent, four or five inches long, the lower part creeping, ſubdivided, aſcending, ſtriated, pubeſcent. Leaves ſmall, petioled, remote, tooth-ſerrate, nerved, pubeſcent. Spikes terminating, upright, compoſed of approximating, three or four-flowered whorls. Flowers pedicelled, ſmall, blue. Bractes ovate, very ſmall, two, three or four under the peduncles. Calyx gibbous underneath, three-toothed: upper ſegment ſhorter retuſe, very minutely three-toothed; the two anterior ones a little longer, blunt; all hirſute with glandular hairs; glands pellucid, azure. Lower lip of the corolla white in the middle, blue at the edge; the opening with blue lines. Seeds two naked, erect, ovate, compreſſed, black. It is eaſily known by its habit and ſmallneſs: and flowers all the year.

Native of Jamaica, in the gravelly and graſſy parts of the higheſt mountains.

16. This is an annual plant, and has altogether the appearance of S. Horminum. Stem upright or decumbent at the baſe, branched, hirſute with longiſh villoſe hairs. Leaves cordate and ovate, blunt, wrinkled, pubeſcent, equally and ſlightly crenate; the lower ones on long hirſute petioles. Whorls ſix-flowered; the lower ones diſtinct and often remote; the upper ones confluent. Bractes large, cordate, acute, hirſute; the lower ones crenate, longer than the calyx; there are commonly four interior ones beſides, which are linear-ſubulate and ciliate. It has the flowers of S. Horminum, on ſhort pedicels. Calyx villoſe, elongated, deeply ſtriated, four-toothed, the teeth acute and ſhort: when the fructification is complete, it nods. The upper lip is emarginate. Corolla ſmall, roſe-coloured, one third part longer than the calyx: upper lip ſemiorbicular, bluntiſh; lower three-lobed, the middle lobe concave, emarginate, of a paler colour. Style ſhorter than the corolla. Seeds four, brown, ſomewhat compreſſed.—Give it a coloured coma, and it will be S. Horminum. Perhaps it may be no more than a variety.—The ſpecies here deſcribed is certainly the ſame with that of Tournefort's corollary. In S. viridis of Linneus and Jacquin the upper lip of the corolla is blue, whereas in the African it is roſe-coloured: in other reſpects they are alike [c].

Jacquin deſcribes it as about a foot high, branched little or not at all. Calyx nearly cylindrical green, hirſute with clammy capitate hairs. Upper lip of the corolla oblong, a little hirſute on the outſide, violet-coloured, converging: lower lip blue, blunt, the lateral ſegments oblong, the middle one concave and roundiſh. Stigma violet-coloured. Seeds ovate, compreſſed a little, black. The plant has a ſtrong ſmell.

Native of Italy, and Africa on the hills about Tunis. Introduced in 1776, by Monſ. Thouin [f].

17. Stems erect, about a foot and half high. Leaves ſhaped like thoſe of the common red Sage, gradually diminiſhing in ſize to the top. The ſtems have whorls of ſmall flowers, and are terminated by cluſters of ſmall leaves, (or barren bractes, called the *coma* by Linneus) and forming two varieties; one with purple, and another with red tops. For the ſake of this coma they are preſerved in gardens for ornament. They flower in june and july, and their ſeeds ripen in the autumn.

[Native of the South of Europe. Cultivated in 1597 by Gerarde [f].

18. Radical leaves oblong, obtuſe, cordate at the baſe, footſtalked, contracted and wrinkled, with very numerous veins, undulated or ſinuated at the margins, of a dark green and ſmooth above, except on the midrib and veins: they are about ſix or nine inches long, and two or three broad: the cauline leaves are foot-ſtalked, but thoſe on the upper part are ſeſſile, and are crenated, wrinkled, and but ſlightly hairy. Stems hirſute, obtuſely quadrangular, upright, about

[a] Morison. [b] Idem. [c] Linn. ſyſt. [d] Swartz, [e] Browne. [f] Vahl.

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four feet tall, and have ſeveral long branches growing at acute angles from their ſides, and terminated by the long flowering ſpikes. Bractes entire, cordate, and acute, from each of which proceed three flowers on ſhort footſtalks. Calyx rough and bilabiate: corollas white or pale roſe-colour, or ſometimes blueiſh [a].

Native of the Pyrenean mountains. Cultivated in 1758, by Mr. Miller. It flowers from july to november [b].]

19. This has an abiding root, from which come out many cordate-lanceolate leaves, about four inches long, and an inch and half broad, of a bright green colour, with many white ſpots diſperſed on their ſurface. The ſtalks are thick, and riſe near three feet high, having ſeſſile leaves in pairs below, and above long looſe ſpikes of flowers in ſmall whorls, with coloured bractes. [Theſe bractes are ovate and three-flowered. The upper lip is compreſſed, and has ſeſſile glands ſcattered over it below the tip. The leaves are oblong and ſubcordate at the baſe, villoſe beneath. Opening of the corolla cloſed with ſcales, which terminate one tip of the filament. Fulcre ſhorter than theſe ſcales. Stamen below the contact of the fulcre toothed [c].

Native of Auſtria, Bohemia, Sileſia, the hills about Turin, &c.—Cultivated in 1759, by Mr. Miller. It flowers from june to october [d].

Etlinger unites this with the next; but they are very diſtinct [e].]

20. This alſo has an abiding root, ſending out many ſmooth leaves, about the ſize and ſhape of broad-leaved Sage. Stalks ſlender, a foot and half high, with ſmaller leaves towards the bottom, and ſpikes compoſed of ſmall whorls of blue flowers in the upper part.

[Root-leaves cordate; ſtem-leaves ovate-lanceolate, equally ſerrate, naked above, ſubtomentoſe beneath. Spikes before the flowers open exactly ſquare, with coloured bractes ſhorter than the flower. The corollas have impalpable dots ſcattered over them: the middle lobe of the lower lip is cloſely bent back beneath the calyx [f].

Reichard remarks, that Crantz unites this with the preceding ſpecies.

Native of Auſtria and Tartary. Cultivated in 1728, by Mr. Miller. It flowers from june to october [g].]

21. This alſo is an abiding plant, with the roots running deep in the ground. Lower leaves about four inches long, and an inch and half broad in the middle. Stalks ſlender, ſtiff, a foot and half high, with ſmaller leaves of the ſame ſhape in pairs. Flowers in ſmall whorls, diſpoſed in looſe ſpikes at the top of the ſtalks; they are ſmall and blue.

[It has the ſtature of S. *pratenſis*. Angles of the ſtem blunt. Leaves very much wrinkled, ſomewhat downy underneath, bluntly crenate. Panicle brachiate, rod-like. Bractes ſhorter than the calyx; which is five-cleft; the ſegments equal and acuminate. Corollas white. Style double the length of the upper lip [h].

Stem hairy. Root-leaves elliptic: ſtem-leaves ovate; the lower ones petioled, the upper ſeſſile. Bractes ſeſſile, leſs wrinkled than the leaves, toothed, acuminate, about the length of the calyxes. Flowers ſix in a whorl, white, like thoſe of S. *pratenſis*, but larger. Calyx five-toothed, awned, compreſſed. Filaments white, the length of the upper lip. Style longer, purple. It laſts two or three years, and has a ſweet ſmell [i].

Native of Syria: found in Paleſtine by Haſſelquiſt. Cultivated in 1759, by Mr. Miller. It flowers in july [k].

22. Root perennial. Lower part of the ſtem woody. Reſt of the ſtem herbaceous, upright, a foot and half high, little branched. The whole plant has a ſtrong ſweet ſmell, and has clammy hairs tipped with capitate glands. Leaves cordate at the baſe, petioled, indiſtinctly crenulate, ſharpiſh, veined, wrinkled. Whorls diſtant, ſix-flowered; the flowers on ſhort peduncles, ſupported by a roundiſh-cordate acuminate ſhorter bracte. Each lip of the calyx acuminate and two-toothed; the lower more deeply cut. Corolla purple; the lower lip paler, with the lateral ſegments oblong; the upper villoſe-viſcid on the outſide [l].

Native of Italy. Introduced in 1773, by John Earl of Bute. It flowers in may and june [m].]

23. This has large ſwelling roots, like thoſe of Peony. Root-leaves five or ſix inches long, and almoſt four broad at their baſe, where they are eared; they are on pretty long foot-ſtalks. Between theſe ariſe ſtrong ſtalks about four feet high, having on the upper part looſe ſpikes of whorled flowers of a purple colour.

[Stem upright, viſcid. Leaves repand, ſmooth above, with ſerruginous ſpots; the uppermoſt ſmall and ſeſſile. Upper lip of the calyx concave above, keeled, blunt, emarginate; lower bifid. Corolla blue, like that of S. *ſylveſtris*: the upper lip fickle-ſhaped; the lower trifid; the middle ſegment very wide, emarginate, bagged, reflex. Style longer than the upper lip. Anthers coadunate, black, with a yellow pollen [n].

The whole plant is hiſpid. Perioſt ſhorter than the diameter of the leaf. From twenty to twenty-four flowers in a whorl, with dry bractes. Peduncles unequal. Calyx five-cleft, ſublabiate. Opening of the corolla cloſed by two plates: upper lip ovate, contracted behind, villoſe; lower trifid, with the lateral ſegments ſubovate, the middle one concave and obtuſe; tube ſerruginous, gibbous below. Filaments ſerruginous: anthers blue. Style long, ſerruginous [o].

Native of Italy and Iſtria. Cultivated by Mr. Miller in 1759.

24. Root perennial. Leaves oblong, nearly ſmooth, irregularly crenate, wrinkled and veiny; the root-leaves and lower ſtem-leaves on longiſh footſtalks, and ſometimes ſinuate; the uppermoſt ſeſſile, embracing the ſtem, ſharply pointed. Long whorled ſpikes of large blue flowers, ſix in a whorl, terminate the ſtem and branches, with a pair of very ſmall heart-ſhaped acuminate bractes to each whorl, whence Linneus characterizes it *verticillis ſubundis*, the bractes being ſo much leſs conſpicuous than in moſt other ſpecies. The flower-ſtalks and calyx, as well as the apex of the corolla, are hairy and viſcid [p].

Dr. Withering remarks that the floral leaves are about the length of the calyx, which is ſpread open; that the corolla, of a blueiſh purple, is four times as large as the calyx, with the helmet hooked like the handle of a walking-ſtick; and that its gumminеſs, not being conſtant, ought not to make a part of the ſpecific character.

Native of many parts of Europe, in dry paſtures and by hedge ſides. It is one of the moſt ſpecious, as well as one of the more rare plants of Britiſh growth. The indefatigable Ray never found it wild in England. It ſeems to have been firſt noticed by Bobart, as having been found by Watts near Cobham in Eſſex; but that ſhould have been Kent, where Lord Darnley has a ſeat, and where Mr. Jacob Rayer has ſince gathered it. Mr. Swayne found it at Wick-cliffs in Glouceſterſhire: Dr. Sibthorp, between Middleton Stoney and Audley in Oxfordſhire: Mr. Marſh, near Ford-End Farm, Bedford. In the counties of Suſſex and Surry Dr. Stokes ſays it is common. It flowers in july.

β. Bauhin notices a variety, with the leaves more deeply cut, the lower ones quite jagged. He ſays the flowers are paler, and ſometimes of a ſort of aſh colour. In Cluſius's figure, (2. 30. *f.* 2.) to which he refers, the leaves are not at all jagged.

γ. Whether the S. agreſtis of Lin. amoen. be the ſame with that of Villars I know not. The latter gives it as a ſpecies doubtingly; and deſcribes it as a foot high; the calyx and corolla both very clammy, occaſioned by a great number of golden glands, viſible with a glaſs. The upper lip of the corolla is almoſt ſtraight; the piſtil is longer than that by half; the lower lip is trifid, the middle ſegment rounded, a little concave and emarginate, the two lateral ones are ſhorter,

narrower,

[a] Jacquin. [b] Hort. kew. [c] Scopoli. [d] Hort. kew. [e] Willdenow. [f] Linn. ſpec. [g] Hort. kew. [h] Linn. ſpec. [i] Retz. [k] Hort. kew. [l] Jacquin. [m] Hort. kew. [n] Linn. ſyſt. [o] Scopoli. [p] Engl. bot.

long, compoſed of cloſe whorls. Each flower is an inch or fifteen lines in length. Calyx half an inch long, pale green tinged with purple, cut irregularly into five points. Upper lip of the corolla hollowed like the bowl of a ſpoon, villoſe, of a deeper or paler blue, eight or ten lines in length: lower lip a little longer, trifid; the two lateral ſegments bordering the opening between the two lips, the middle one rounded, emarginate, pale blue, curled and marbled, ſtriped with white about the middle. Seeds oval, blackiſh, a line in length. The odour partakes of that of common Sage and Lavender.

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four feet tall, and have ſeveral long branches growing at acute angles from their ſides, and terminated by the long flowering ſpikes. Bractes entire, cordate, and acute, from each of which proceed three flowers on ſhort footſtalks. Calyx rough and bilabiate: corollas white or pale roſe-colour, or ſometimes blueiſh [x].

Native of the Pyrenean mountains. Cultivated in 1758, by Mr. Miller. It flowers from july to november [x].

19. This has an abiding root, from which come out many cordate-lanceolate leaves, about four inches long, and an inch and half broad, of a bright green colour, with many white ſpots diſperſed on their ſurface. The ſtalks are thick, and riſe near three feet high, having ſeſſile leaves in pairs below, and above long looſe ſpikes of flowers in ſmall whorls, with coloured bractes. [Theſe bractes are ovate and three-flowered. The upper lip is compreſſed, and has ſeſſile glands ſcattered over it below the tip. The leaves are oblong and ſubcordate at the baſe, villoſe beneath. Opening of the corolla cloſed with ſcales, which terminate one tip of the filament. Fulcre ſhorter than theſe ſcales. Stamen below the contact of the fulcre toothed [y].

Native of Auſtria, Bohemia, Sileſia, the hills about Turin, &c.—Cultivated in 1759, by Mr. Miller. It flowers from june to october [z].

Ehinger unites this with the next; but they are very diſtinct [a].]

20. This alſo has an abiding root, ſending out many ſmooth leaves, about the ſize and ſhape of broad-leaved Sage. Stalks ſlender, a foot and half high, with ſmaller leaves towards the bottom, and ſpikes compoſed of ſmall whorls of blue flowers in the upper part.

[Root-leaves cordate; ſtem-leaves ovate-lanceolate, equally ſerrate, naked above, ſubtomentoſe beneath. Spikes before the flowers open exactly ſquare, with coloured bractes ſhorter than the flower. The corollas have impalpable dots ſcattered over them: the middle lobe of the lower lip is cloſely bent back beneath the calyx [b].

Reichard remarks, that Crantz unites this with the preceding ſpecies.

Native of Auſtria and Tartary. Cultivated in 1728, by Mr. Miller. It flowers from june to october [c].]

21. This alſo is an abiding plant, with the roots running deep in the ground. Lower leaves about four inches long, and an inch and half broad in the middle. Stalks ſlender, ſtiff, a foot and half high, with ſmaller leaves of the ſame ſhape in pairs. Flowers in ſmall whorls, diſpoſed in looſe ſpikes at the top of the ſtalks; they are ſmall and blue.

[It has the ſtature of S. pratenſis. Angles of the ſtem blunt. Leaves very much wrinkled, ſomewhat downy underneath, bluntly crenate. Panicle brachiate, rod-like. Bractes ſhorter than the calyx; which is five-cleft; the ſegments equal and acuminate. Corollas white. Style double the length of the upper lip [d].

Stem hairy. Root-leaves elliptic: ſtem-leaves ovate; the lower ones petioled, the upper ſeſſile. Bractes ſeſſile, leſs wrinkled than the leaves, toothed, acuminate, about the length of the calyxes. Flowers ſix in a whorl, white, like thoſe of S. pratenſis, but larger. Calyx five-toothed, awned, compreſſed. Filaments white, the length of the upper lip. Style longer, purple. It laſts two or three years, and has a ſweet ſmell [e].

Native of Syria: found in Paleſtine by Haſſelquiſt. Cultivated in 1759, by Mr. Miller. It flowers in july [f].

22. Root perennial. Lower part of the ſtem woody. Reſt of the ſtem herbaceous, upright, a foot and half high, little branched. The whole plant has a ſtrong ſweet ſmell, and has clammy hairs tipped with capitate glands. Leaves cordate at the baſe, petioled, indiſtinctly crenulate, ſharpiſh, veined, wrinkled. Whorls diſtant, ſix-flowered; the flowers on ſhort pedunculs, ſupported by a roundiſh-cordate acuminate ſhorter bracte. Each lip of the calyx acuminate and two-toothed; the lower more deeply cut. Corolla purple; the lower lip paler, with the lateral ſegments oblong; the upper villoſe-viſcid on the outſide [g].

Native of Italy. Introduced in 1773, by John Earl of Bute. It flowers in may and june [x].]

23. This has large ſwelling roots, like thoſe of Peony. Root-leaves five or ſix inches long, and almoſt four broad at their baſe, where they are eared; they are on pretty long foot-ſtalks. Between theſe ariſe ſtrong ſtalks about four feet high, having on the upper part looſe ſpikes of whorled flowers of a purple colour.

[Stem upright, viſcid. Leaves repand, ſmooth above, with ferruginous ſpots; the uppermoſt ſmall and ſeſſile. Upper lip of the calyx concave above, keeled, blunt, emarginate; lower bifid. Corolla blue, like that of S. ſylveſtris: the upper lip fickle-ſhaped; the lower trifid; the middle ſegment very wide, emarginate, bagged, reflex. Style longer than the upper lip. Anthers coadunate, black, with a yellow pollen [h].

The whole plant is hiſpid. Perioſt ſhorter than the diameter of the leaf. From twenty to twenty-four flowers in a whorl, with dry bractes. Peduncles unequal. Calyx five-cleft, ſubbiabiate. Opening of the corolla cloſed by two plates: upper lip ovate, contracted behind, villoſe; lower trifid, with the lateral ſegments ſubovate, the middle one concave and obtuſe; tube ferruginous, gibbous below. Filaments ferruginous: anthers blue. Style long, ferruginous [i].

Native of Italy and Iſtria. Cultivated by Mr. Miller in 1759.

24. Root perennial. Leaves oblong, nearly ſmooth, irregularly crenate, wrinkled and veiny; the root-leaves and lower ſtem-leaves on longiſh footſtalks, and ſometimes ſinuate; the uppermoſt ſeſſile, embracing the ſtem, ſharply pointed. Long whorled ſpikes of large blue flowers, ſix in a whorl, terminate the ſtem and branches, with a pair of very ſmall heart-ſhaped acuminate bractes to each whorl, whence Linneus characterizes it *verticillis ſubundis*, the bractes being ſo much leſs conſpicuous than in moſt other ſpecies. The flower-ſtalks and calyx, as well as the apex of the corolla, are hairy and viſcid [k].

Dr. Withering remarks that the floral leaves are about the length of the calyx, which is ſpread open; that the corolla, of a blueiſh purple, is four times as large as the calyx, with the helmet hooked like the handle of a walking-ſtick; and that its gumminess, not being conſtant, ought not to make a part of the ſpecific character.

Native of many parts of Europe, in dry paſtures and by hedge ſides. It is one of the moſt ſpecious, as well as one of the more rare plants of Britiſh growth. The indefatigable Ray never found it wild in England. It ſeems to have been firſt noticed by Bobart, as having been found by Watts near Cobham in Eſſex; but that ſhould have been Kent, where Lord Darnley has a ſeat, and where Mr. Jacob Rayer has ſince gathered it. Mr. Swayne found it at Wick-cliffs in Glouceſterſhire: Dr. Sibthorp, between Middleton Stoney and Audley in Oxfordſhire: Mr. Marſh, near Ford-End Farm, Bedford. In the counties of Suſſex and Surry Dr. Stokes ſays it is common. It flowers in july.

β. Bauhin notices a variety, with the leaves more deeply cut, the lower ones quite jagged. He ſays the flowers are paler, and ſometimes of a ſort of aſh colour. In Cluſius's figure, (2. 30. *f.* 2.) to which he refers, the leaves are not at all jagged.

γ. Whether the S. agreſtis of Lin. amoen. be the ſame with that of Villars I know not. The latter gives it as a ſpecies doubtingly; and deſcribes it as a foot high; the calyx and corolla both very clammy, occaſioned by a great number of golden glands, viſible with a glaſs. The upper lip of the corolla is almoſt ſtraight; the piſtil is longer than that by half; the lower lip is trifid, the middle ſegment rounded, a little concave and emarginate, the two lateral ones are ſhorter,

narrower,

[x] Jacquin. [y] Hort. kew. [z] Scopoli. [a] Hort. kew. [a] Willdenow. [b] Linn. ſpec. [c] Hort. kew. [d] Linn. ſpec. [e] Retz. [f] Hort. kew. [g] Jacquin. [h] Hort. kew. [i] Linn. ſyſt. [k] Scopoli. [l] Engl. bot.

narrower, and rolled back. Corolla blue, ſeldom red. In S. pratenſis the leaves are more elongated, and the upper lip of the corolla is ſickle-ſhaped; but in low warm ſituations it approaches to the *agreſtis*.

25. This is a handſome plant. Leaves cordate-oblong, wrinkled, ſomewhat villoſe; the lower ones blunt, petioled, running down the petiole, unequally ſinuate-toothed, frequently eroſe-laciniate, the ſegments acute, unequal; the upper ſtem-leaves connate, ſeſſile, acute. Stem pubeſcent, with blunt angles. Flowering branches rod-like, erect, pubeſcent, eighteen inches high, and even more. Whorls commonly ſix-flowered, approximating. Bractes ovate-lanceolate, acuminate, bent down, pubeſcent, longer than the pedicels. Flowers nodding both before and after flowering. Calyx ſtriated, glandular-hairy, five-toothed or two-lipped; the upper lip three-toothed, the lower two; the middle upper tooth very ſhort. Corolla the ſame ſize as in S. pratenſis, (according to Willdenow, of the ſame colour, but double the ſize and more elegant:) upper lip ſickle-ſhaped, violet-blue, villoſe, often dotted with white; the lower lip white: the lateral lobes more produced, and acuminate; the middle lobe very large, bagged, ſometimes emarginate. Filaments bowed, on very ſhort pedicels. Style very long, ſtanding out. Stigmas acute. Seeds brown, even, roundiſh. According to Willdenow, the upper lip of the corolla is compreſſed and emarginate; the middle ſegment of the lower lip ſnow-white, two-lobed, concave, aſcending.

Native of Barbary, in the corn fields about Tlemſen; flowering early in the ſpring. Willdenow marks it as perennial. Deſfontaines as biennial. According to the latter, in gardens the lower leaves are not eroſe but crenate-ſinuate [n].]

26. Lower leaves heart-ſhaped, acutely crenate, of a thick conſiſtence, ſeven or eight inches long, and four broad at the baſe, where they are eared. Stem four feet high, having two or three pairs of ſmaller leaves on the lower part at the joints. The upper part, for the length of two feet, has whorls of flowers, at two or three inches diſtance from each other, without any leaves under them. Calyx hairy and blunt. Helmet of the corolla arched, erect and blue, terminating in a blue point; the two ſide ſegments of the under lip are of a violet colour; the middle ſegment, which is indented at the point, is white, and curiouſly ſpotted with violet on the inſide; the two ſide lobes turn yellow before the flower drops.

[Stem herbaceous, blunt at the corners, white with hairs, as are alſo the petioles. Leaves oblong, wrinkled, almoſt naked, hairy beneath. Floral leaves cordate, ſeſſile, entire, acute, ſmall. Calyx compreſſed a little: upper lip three-toothed, the middle tooth ſomewhat ſmaller; the lower lip two-parted, hairy, clammy. Corolla large, blue: the upper lip ſickle-ſhaped, compreſſed, emarginate; the lower trifid, the middle ſegment large, bagged, two-lobed; with a whitiſh baſe; the lobes have violet ſpots, with a white border, which turns yellow; the lateral ſegments are horizontal, lanceolate, ſtretched out, and folded back; ſo that the lower lip in ſome degree reſembles a bee [o].

Native of India. Cultivated in 1731, by Mr. Miller [p]: and yet even now, ſays Mr. Curtis, this magnificent plant is rarely ſeen in our gardens. This perhaps may be owing to its being conſidered as a hardy plant, and yet requiring ſome care to be taken of it in ſevere winters. It flowers from may to july.

27. Stem, towards the root, ſuffruticoſe, erect, ſubdivided, ſtriated, pubeſcent; branches ſpreading, both they and the ſtem ſquare. Leaves acuminate, bluntly angular at the baſe, crenate-toothed, wrinkled, hiſpid above, ſubhirſute beneath. Petioles quadrangular, pubeſcent. Flowers terminating, in whorls, peduncled, blue. Whorls ſix-flowered, remote; bractes minute, linear, under the whorls. Calyx tubular, a little gibbous, ſtriated, compreſſed, hairy; mouth two-lipped, lower lip two-toothed, upper entire, erect. Hairs terminated by very minute blue glands. Upper lip of the corolla ſhort, emarginate; lower longer, trifid, the middle ſegment emarginate, whitiſh in the middle at the bottom of the tube. Style longer than the upper lip. Seeds oblong, naked, black and ſhining.

Common in the Weſt Indies, in fields and coppices. A ſpecimen in the Linnean herbarium creates a ſuſpicion that this is ſcarcely diſtinct from S. ſerotina [q].]

According to Miller, it is an annual plant, three or four feet high, with leaves of a bright green colour, on long ſlender footſtalks. The flowers in cloſe ſpikes at the ends of the branches of a fine blue colour; appearing in july.

[It is marked by Willdenow as perennial. Swartz does not inform us whether it is ſo, or annual.

28. Root perennial, brown, the thickneſs of the middle finger, ſtriking deep into the earth, and furniſhed with numerous fibres. Stems nearly upright, two feet high, ſet with horizontal ſomewhat viſcid hairs, purpliſh eſpecially at the joints. Root-leaves on long petioles, varying in form, oblong, rounded at the end, ſometimes a little pointed, not unfrequently heart-ſhaped at the baſe, but more commonly the leaf runs down on each ſide the footſtalk, and to a greater length on one ſide than on the other, very ſlightly hirſute, on the margin irregularly waved and ſerrate or toothed, paler beneath, veiny and marked with ſmall glandular concave dots: ſtem-leaves ſomewhat remote, the lowermoſt on ſhort footſtalks, the uppermoſt ſeſſile. Flowers in whorls, almoſt naked, containing about ſix flowers. Bractes cordate, acuminate, turned down, ſhorter than the flowers. Calyx purpliſh, ſlightly viſcid: upper lip obovate, moſtly terminated by a ſhort point, marked with three ribs, thoſe on the ſide much ſhorter than the middle one; lower lip almoſt ribbed, cloven nearly half way down; ſegments ovate-lanceolate, pointed, curved up. Corolla violet-coloured, a little longer than the calyx. Anthers oblong, black. Seeds black [r].

This and pratenſis are the only ſpecies of Salvia which are indigenous of Britain. It is ſmaller than that, but more aromatic, and of a deeper green. The ſtem is decumbent at the baſe. Bractes much larger in proportion to the flower; which is much ſmaller, and of a dark blueiſh purple [s]. The bractes are longer than the calyx, which is much wider than the tube of the corolla, but its ſegments do not ſpread open [t].

Native of all the four continents. Not uncommon in England, eſpecially on chalky and gravelly ſoils. Mr. Curtis has often remarked it in church-yards. The famous Cluſius, being in England in 1579, obſerved it about Greenwich, flowering and bearing ſeed in ſeptember. It flowers indeed during the whole ſummer from june, and even in october.

The herb and flowers prove very aromatic when rubbed. The ſeeds are ſmooth, and produce a great quantity of ſoft taſteleſs mucilage when moiſtened, whence they become ſerviceable for removing extraneous matter from the eyes. If put under the eyelid for a few moments, the tears diſſolve their mucilage, which envelops any ſand or duſt that may be in the way, and brings it out ſafely [u]. Hence ſome old writers have called it *Oculus Chriſti*; and others of our own country have ridiculouſly enough derived our Engliſh name *Clary* from the ſame circumſtance.

29. Native of the Cape of Good Hope; where it was found by Thunberg and Maſſon. The latter introduced it in 1774. It is ſhrubby, and flowers here moſt part of the ſummer [v].

30. This alſo was found at the Cape by Thunberg [x].

31. This has the herb of S. verbenaca, with the leaves of S. ceratophylla, and is a dwarf. Stems blunt, villoſe, aſcending, a ſpan high: with two branches commonly at top. Leaves oblong pinnate-ſinuate, crenate, blunt, petioled, two or three pairs on the ſtem. Spike truncate, with the whorls remote. Bractes cordate, three-flowered. Calyxes with glutinous hairs, and the upper lip plaited. Corolla violet-coloured,

[n] Deſfontaines and Willdenow. [o] Linn. mant. [p] Hort. kew. [q] Swartz. [r] Curtis. [s] Smith. [t] Withering. [u] Engl. bot. [v] Hort. kew. and Linn. ſuppl. [x] Linn. ſuppl.

ſcarcely

ſcarcely twice as long as the calyx, with the middle lobe of the lower lip white [f].

Leaves tomentoſe underneath, bent back at the edge; the pinnules ſublinear, diſtinct, unequal, blunt, unequally toothed. Stem upright, branched at bottom, hirſute. Whorls approximating, ſix-flowered. Flowers ſubſeſſile. Bractes ovate, ſhorter than the calyx; which is ſhort and hirſute, with the upper lip compreſſed rounded emarginate, the lower two-toothed, the teeth acuminate. Corolla blue, nearly three times as long as the calyx. Barrelier's figure has the leaves leſs deeply pinnatifid, and the pinnules wider [g].]

The lower leaves are upwards of four inches long, and not more than an inch broad, regularly ſinuate on both ſides. The ſtalks riſe about the ſame height with S. Verbenaca, but all the leaves upon them are ſinuate; the flowers alſo are ſmaller.

[Native of Italy, and of Barbary near Caſſa, if it be the plant of Deſfontaines, whoſe deſcription differs in ſo many circumſtances from that of Linneus.—Cultivated in 1768, by Mr. Miller. It flowers from may to july, and is biennial [h].

32. This ſpecies riſes with a ſingle ſtem about a foot high, tetragonal, and about the thickneſs of a quill: radical leaves ovate, varying occaſionally in their form, being more or leſs broad, and either ſharp-pointed or obtuſe, crenated, and almoſt pinnatifid; wrinkled, of a deep green, and very ſmooth; but pale and villoſe beneath. Cauline leaves ſimilar, but much ſmaller, and very few in number: they are alſo ſeſſile. Flowers white or very pale yellow, and of moderate ſize [i].

Native of Auſtria, Hungary and Moldavia.—Introduced in 1776, by Joſeph Nicholas Jacquin, M.D. It flowers in june and july [k].

33. Native of the Pyrenees.

34. The whole plant is pubeſcent with villoſe hairs glutinous at the tip. Leaves wrinkled, pubeſcent. Bractes cordate, villoſe, ſharpiſh, generally ſhorter than the calyx. Upper lip of the calyx three-toothed, equal; lower biſid, acute. Upper lip of the corolla erect; lower concave, with the lateral ſegments ſtretched out. Anthers ſtanding out. Style white [l].

Retzius aſſerts, that with him the leaves are ovate, and not cordate: but that when the plant is kept conſtantly in the hot-houſe, they approach nearer to a cordate form, and the plant is luxuriant with very long looſe branches. The racemes are quite ſimple, with far-diſtant whorls, and the whole plant has a pleaſant but powerful ſmell. When kept in a pot in a green-houſe, and ſet out in ſummer, it is much ſmaller, upright, hard, has leſs ſmell, the leaves are narrow, and the flowers are in a brachiate panicle, with the whorls leſs remote.

Native of *Syria*. Introduced in 1773, by Chevalier Murray. *It flowers in july.*

35. This approaches *very near* to the preceding, and indeed ſcarcely differs from it, except in its ſhort ſtamens reaching up only to the throat or aperture of the corolla, which is white.

Native of the Cape of Good Hope, where it was found by Maſſon, and introduced in 1775. It flowers in july and auguſt [m].—It is marked as ſhrubby, whereas the *S. diſermas* is marked only as perennial.

36. Stem a foot and half high, and a thumb's thickneſs at bottom, but gradually tapering in its aſcent, quadrangular, and hollowed on the ſides, ſlightly villoſe with horizontal hairs: branches oppoſite, and croſſwiſe; leaves ovate-lanced, cordate, much wrinkled, and unequally double-crenate: the radical leaves are footſtalked, the cauline ſeſſile: ſpike terminal on the ſtem and branches, decompounded, and viſcous: ſpikelets ovate, conſiſting of ſix-flowered approximating whorls, on a common quadrangular footſtalk: calyx ſtriated, hairy, and blue-green above: flowers about the ſize of thoſe of S. ſylveſtris, and of a pale blue colour, and marked within by three deep blue lines [n].

[f] Linn. ſpec. and ſyſt. [g] Deſfontaines. [h] Hort. kew. [i] Jacquin. [k] Hort. kew. [l] Linn. mant. [m] Hort. kew. [n] Murray.

Native of Africa. Introduced in 1784, by Monſ. Thouin. *It flowers in june and july* [o].

37. Height about two feet: upright, obtuſely quadrangular; channelled on the ſides, branched: lower branches very ſhort, the others longer, all ſpreading: leaves firm, wrinkled, hairy, crenate-toothed, ſubundulated, very ſpreading, the loweſt longer than the reſt, ſinuated and ſublyrated towards the baſe; the middle ones ovate, ſinuate-angular, obtuſe, and ſtanding on ſhort footſtalks; the uppermoſt cordate, ſeſſile, pointed, and recurved: ſpikes terminal, verticillated, and either ſimple or compound: whorls remote, horizontal, with three flowers on each ſide: bractes ovate, ſharp-pointed, hairy, and of a browniſh-green: calyx ciliated on the edges: flowers ſmall, blue, with a narrow tube, and ſhort helmet: ſtamens ſhorter than the helmet.

Suppoſed to be a native of Egypt [p].]

38. Stem ſhrubby, eight or ten feet high, ſending out ſlender four-cornered branches of a purpliſh colour. Leaves thin, pale green, and hairy on their under ſide, on long ſlender footſtalks. Flowers in cloſe thick ſpikes at the end of the branches. Corolla of a fine blue colour.

[Stems thick, a fathom high, four-grooved, with the corners rounded, ſubpubeſcent, whitiſh. Leaves ovate-acute, ſerrulate, ſoft, three inches long, whitiſh beneath: petioles ſhorter than the leaves, biglandular on the outſide at the baſe; the glands callous. Flowers in long, denſe, interrupted ſpikes, compoſed of many-flowered whorls. Calyx ſtriated, ſmooth; upper lip entire, lower biſid, with the points ſubulate. Corolla deep blue, much longer than the calyx [q].

Native of Mexico. Cultivated in 1724, by James Sherard, M.D. [r] But it did not flower in the Eltham garden till november 1729. Cavanilles ſays, that it flowers in the Madrid garden in december; and Mr. Miller, that it makes a pretty variety in the green-houſe by flowering in the winter ſeaſon. In the Kew catalogue it is marked as flowering from may to july.

39. Stem ſuffruticoſe, bluntly four-cornered, rough-haired. Leaves cordate-oblong, cloſely ſerrate, wrinkled, green and rough-haired above, very cloſely woolly and white beneath. Petioles angular, rough-haired, ſcarcely the length of the leaves. Raceme terminating, almoſt upright. Whorls rather remote, compoſed of about ſix flowers, without any bractes. Peduncles ſcarcely ſo long as the calyx, ſpreading, round, rough-haired, one-flowered. It is ſingular in this ſpecies, that one or two flowers in each whorl expand at the ſame time, and not thoſe of the loweſt whorl firſt, and then the next ſucceſſively. Calyx bell-ſhaped, angular, rough-haired, coloured at the tip, rugged within; upper lip entire, acute, with the point curved in; the lower biſid. Corolla twice as long as the calyx, of a very lively violet colour: upper lip arched, blunt, entire, denſely bearded on the outſide, naked only at the margin; lower three-lobed, pubeſcent on the outſide; palate wrinkled, ſmooth, pale. Stamens ſhorter than the corolla. Style ſtanding out, curved in, violet, rough-haired. Segments of the ſtigma ſpreading, acute, ſmooth. Seeds obovate, ſmooth.

There is no ſmell or aromatic taſte in the dry plant, but the leaves are almoſt as bitter as the roots of Gentian.—Native of New Granada [s].

40. Stems three feet high, ſomewhat rugged, reclining at bottom and then upright; branches ſpreading a little and then turning up, oppoſite. Leaves almoſt equal, on channelled petioles. Flowers in terminating ſpikes, compoſed of ſix-flowered whorls. Stipules ſhort, acute, ſoon falling. Calyx bell-ſhaped, ſmooth ſtriated; upper lip entire, ovate-mucronate; lower biſid at the tip. Corolla an inch and half long, of a deep and very fulgid ſcarlet colour, paler within: upper lip elongated, entire; lateral ſegments of the lower lip ſhorter, revolute, the middle one wide plaited with an orbicular three-notched diſk. Filaments ſhorter

[o] Hort. kew. [p] Murray. [q] Cavanilles. [r] Hort. kew. [s] Smith.

by half than the corolla, white; anthers ovate, whitiſh. Germs ovate, ſet in a ſquare receptacle, to which adheres in front a longer acute membrane, covering the two forward germs. Style wider at top, compreſſed, bearded. Stigmas revolute, fleſh-coloured, ſtanding out. Seeds obovate.

Native of Mexico, flowering in the royal Madrid garden from october to february [a].

41. Stem ſuffruticoſe, the height of a man, upright, brachiate, ſomewhat knotty, looſely chapped, aſh-coloured. Branches and branchlets oppoſite, ſpreading, four-cornered, naked at the baſe, rufous: ſhoots four-grooved, green at the top, clammy. Leaves ſpreading, acute (in the garden bluntiſh,) crenate-ſerrate, ſomewhat wrinkled, veined, with the midrib and veins prominent only beneath, ſubcoriaceous, greeniſh but paler on the back. Petiole ſcarcely half as long as the leaf, round on one ſide, grooved on the other. Flowers very many, from the axils of the ſhoots, in a ſort of whorl, in the garden commonly five together, the two lower of which are later: they are on ſhort, ſpreading one-flowered peduncles, jointed at the top. Bractes ſome, two of them larger, one from each ſide, like ſtipules, leafy, linear, acute, reflex. Calyx nerved, ſtriated at the baſe: upper lip erect, acuminate, flat; lower of the ſame ſhape, but two-parted. Corolla ſcarlet, an inch and half long, ſcarcely papilloſe to the view: tube angular, tubercled and ventricoſe at bottom, longer than the calyx: upper lip ſtraight, elongated, ſcarcely emarginate, denſely bearded, concealing the ſtamens and ſtyle by its converging ſides; lower lip hanging down at a right angle, roundiſh, blunt, trifid, villoſe, the lateral ſegments blunt, the outmoſt wide, ſhort, emarginate or repand. Filaments ſhort, curved in: rudiments of a third and fourth filament are inſerted into the tube above. Anthers linear, compreſſed, peltate, one-celled, ſcarlet. Germs indiſtinctly girt with a fleſhy receptacle. Style compreſſed, bearded at the tip and ſcarlet. Stigma naked, ſtanding out beyond the helmet, ſcarlet; the ſegments ſubulate, very long, reflex, the upper one longer and acute, the lower bluntiſh. Calyx ſcarcely increaſed, but ſhrivelling in feeding time. Seeds oblong, compreſſed, erect, approximating, brown.

Native of Peru, where it was found in the province of Huanuco, near the head of the river of Amazons by Dombey, who ſent the ſeeds to the Paris garden [b]. It was introduced at Kew in 1783, by Monſ. Thouin; and flowers moſt part of the ſummer [c].

According to Cavanilles, this may be diſtinguiſhed from the *fulgens* by having the ſtem hard and ſhrubby; the leaves ſmooth, ſhining, and ſomewhat coriaceous; the flowers ſhorter and leſs fulgid. Dombey, who firſt found it, with Pavon and Ruiz, named it *Salvia pyrifolia*; and the younger Linneus, who ſaw it when he was at Paris, gave it the name of *S. leonuroides*, which Gloxin has adopted.

The latter author remarks a ſingularity in the inflorescence of this ſpecies, that the flowers are not in a terminating raceme, ſpike, or panicle, as in the others, but in ſeparate whorls from the axils of the leaves, without any proper bractes. The ſize, villoſity and colour of the corolla are ſtriking circumſtances, the ſtraightneſs of the upper lip, and the peculiar appearance of the lower lip. The upper lip of the calyx being entire, is common to this but with few of the ſpecies, as *mexicana* and *hiſpanica*; the former of which, on this very account, was ſeparated by Heiſter from the Salvias, and made a new genus, under the name of *Jungia*. *S. formoſa* is allied to this in having the tube of the corolla twice as long as the calyx, the upper lip ſtraight, ſomewhat ſickle-ſhaped, and villoſe, the ſtyle longer than the corolla and hirſute; but then the *mexicana* has ſix-flowered whorls forming a raceme, and ovate leaves, acuminate at both ends, ſerrate except at the baſe [d].

42. Stem ſuffruticoſe, ſtriated, villoſe at top. Leaves ſmoothiſh above, paler beneath and hairy along the nerves and edges. Petioles ſhorter than the leaves, hairy. Spike terminating, whorled, erect. Two flowers commonly in each whorl. Bractes oppoſite, ovate, mucronate, nerved, hairy, deciduous. Peduncles filiform, ſhorter than the calyx, denſely woolly, one-flowered, all directed the ſame way. Calyx ſcarcely ventricoſe, nerved, woolly on the outſide, rugged within; the three ſegments nearly equal, acute. Corolla three times as long as the calyx, curved in, ſcarlet, hairy on the outſide; border biſid, the ſegments nearly equal, ſcarcely ringent. Stamens ſtanding out very far beyond the corolla, ſmooth. Anthers incumbent. Style the length of the ſtamens, ſmooth. The two ſegments of the ſtigma are acute, recurved, ſmooth. The dried leaves are ſcarcely aromatic, and not very bitter. Salvia coccinea, formoſa, tubiflora and amethyſtina are all allied to tubiflora, but yet very diſtinct ſpecies.—This is a native of Lima in South America. Dombey and Thouin [e].

43. This reſembles the preceding, but the leaves are ovate and ſoft, the corollas narrower and pubeſcent, the lower lip reflex, and the ſtamens ſhorter. The corolla is ſcarlet in both.—Native of Mexico [f].

44. Leaves exquiſitely cordate, petioled. Calyxes funnel-form, ſlender, ſcarcely rough-haired. Corollas very beautiful ſcarlet [g].

Native of Eaſt Florida; where it was found by Mr. John Bartram, and cultivated here in 1774. It flowers moſt part of the year [h].

45. This reſembles the preceding, but the leaves are ovate, ſmoothiſh, unequal at the baſe; the ſtem is hairy, the corollas longer, widening at the throat.—Native of South America [i].

46. Root annual. Stem a foot and half high, blunt at the corners, four-grooved, clothed at top with reflex white hairs. Leaves acute, wrinkled, ſerrate, acute at the baſe. Spike ſquare, with ovate bractes, the length of the calyxes and ciliate. Calyxes under each ſcale often five, three-toothed at the mouth, acute, the upper tooth ſingle. Corolla blue, with the border the length of the calyx; the helmet ſhorter and ſubvilloſe; the lower lip trifid, blunt, quite entire, with two pale ſpots at the baſe [k].

Native of Spain and Italy. Cultivated in 1739 by Mr. Miller. It flowers in june and july [l].

Gærtner remarks, that the ſeeds of various ſpecies of Salvia are mucilaginous, beſides thoſe of Verbenaca; as diſcermas, argentea, ceratophylla, Æthiopis, urticifolia, canarienſis, &c. but that in hiſpanica, nutans, glutinoſa, and ſome others they are not ſo. He deſcribes the ſeeds of this ſpecies as elliptic, compreſſed like a lens, ſmooth and ſhining, aſh-coloured marbled with brown.

Miller has a S. hiſpanica, but it cannot be this: neither is it to be found among his Horminums or Sclareas.

47. This riſes with ſeveral ſomewhat ſhrubby ſtems about a foot and half high, upright, tetragonal and hairy, branching from the boſoms of all the leaves: leaves oppoſite, the lower ones lyrated, obtuſe, and footſtalked; the upper cordate, ſeſſile, and more acute: all rugoſe, villoſe, and crenated. Whorls ſix-flowered, at firſt approximated, and afterwards becoming more remote in conſequence of the elongation of the branches: bractes cordate, pointed, ſeſſile, and purple: calyx hairy, purpliſh brown: corolla deep violet-purple: ſmell of the whole plant unpleaſant [m].

Native of Africa. Introduced in 1775, by James Bruce, Eſq. It flowers in june and july [n].]

48. This ſends out from the root a great number of heart-ſhaped leaves, ſerrate, deeply veined, upon pretty long foot-ſtalks which are hairy. From among theſe ariſe the ſtalks, two feet and a half high, having at each joint two leaves which are alſo heart-ſhaped, and half embrace the ſtalk. At the two or three upper joints a long flowering-ſtalk comes out on each ſide: theſe, as well as the principal ſtalk, have whorls of ſmall blue flowers, not much unlike thoſe of the S. verbenaca, but larger. The ſpikes are more than a

[a] Cavanilles. [b] L'Heritier. [c] Hort. kew. [d] Gloxin, p. 18, 19. [e] Smith. [f] Willdenow. [g] Linn. ſuppl. [h] Hort. kew. [i] Willdenow. [k] Linn. ſpec. [l] Hort. kew. [m] Jacquin. [n] Hort. kew.

foot

foot long, and towards the top the whorls are nearer together.—Native of Germany and Auſtria.

β. This has ſome reſemblance to that juſt now deſcribed, but the lower leaves are cut at the baſe to the midrib, into one or two pairs of ears or lobes, which are ſmall, and often at a diſtance from each other; the leaves are not ſerrate, but bluntly indented. The ſtalks of this are more ſlender, and do not grow ſo tall, nor are the ſpikes of flowers ſo long.

Native of the South of France and Italy. [Cultivated in 1683, by Mr. James Sutherland. It flowers from june to november [b].

49. This ſpecies bears ſo near a reſemblance to S. verticillata as to be with ſome difficulty diſtinguiſhed, except when in flower; the corolla differing conſiderably from that of the verticillata; being of a deep purple, with the upper lip cordate-emarginate, obtuſe, and ſpreading: the lateral diviſions of the lower lip ſubovate, ſpreading, and of the ſame length with the upper, but the middle one longer, and very obtuſe.

Suppoſed to be a native of the warmer parts of the globe [c].—Introduced in 1776, by Joſeph Nicholas de Jacquin, M.D.[d]

50. This has an abiding root, compoſed of ſtrong woody fibres. Leaves four inches long, and three broad at the baſe, of a pale yellowiſh green colour, upon foot-ſtalks three or four inches long. Stems ſtrong, near four feet high, having ſmaller leaves below, and the upper part cloſely ſet with whorls of large yellow flowers. The whole plant is very clammy, and has a ſtrong ſcent ſomewhat like common garden Clary. The flowers are uſed in Holland to give a flavour to the Rheniſh wines.

[Calyx three-lobed. Corolla ſickle-ſhaped, yellow dotted with brown: the middle lobe of the lower lip crenate [e].

Native of Germany, Auſtria, Switzerland, Italy and the South of France.—Cultivated by Gerarde in 1596. It flowers from june to november [f].

51. Native of Spain.—Leaves large, hairy. Stems upright, three feet high. Flowers large, blue, in diſtant whorls. Seeds round, browniſh [g].]

52. Stem ſhrubby, five or ſix feet high, dividing into many branches covered with a flocky down. Leaves three inches and a half long, and an inch and half broad at the baſe, where are two acute angular ears; petioles long and woolly. The top of the ſtalk branches out into many foot-ſtalks, forming a ſort of *panicle*. The flowers are of a light blue colour, and are ranged in whorled ſpikes, having two ſmall leaves under each whorl.

[Calyx five-cleft, hiſpid: the upper ſegment larger, blunt, triſid; the lower two-parted [h].

Native of the Canary Iſlands. Cultivated in 1697, by the Dutcheſs of Beaufort. It flowers from june to ſeptember [i].

53. Native of the Cape of Good Hope: obſerved there by Thunberg.]

54. This riſes with a ſhrubby ſtalk four or five feet high, dividing into branches. Leaves ovate, of a gray colour. The flowers come out in whorls towards the end of the branches; they are of a fine blue colour, larger than thoſe of the common Sage, appear in ſucceſſion moſt of the ſummer months, and thoſe which come early are often followed by ſeeds ripening in autumn.

Native of the Cape of Good Hope. [Cultivated in 1739, by Mr. Miller [k].]

55. This riſes with a ſhrubby ſtalk ſeven or eight feet high, covered with a light-coloured bark, ſending out branches the whole length which grow almoſt horizontally. Leaves of a gray colour. Flowers in thick ſhort ſpikes at the end of the branches; they are very large, and of a dark gold colour.

[Calyx bell-ſhaped, three-lobed, villoſe at the baſe [l]. The leaves are nearly round, and have a pleaſing ſilvery hue, a few of them only, and thoſe chiefly at the extremities of the young ſhoots are of the form deſcribed in Linneus's ſpecific character. The colour of the leaves, the colour and unuſual magnitude of the corolla, are the moſt ſtriking features of the ſpecies.

It is called *aurea* from the colour of the corolla; *ferruginea* would have been more expreſſive, for though when it firſt opens it is yellow, yet it quickly and conſtantly becomes of the colour of ruſty iron [m].

Native of the Cape of Good Hope. Cultivated in 1731, by Mr. Miller. It flowers from may to november [n].]

56. This has great reſemblance to *africana*, but the branches are ſtronger, and grow more erect; the leaves are longer and not ſo broad, and their edges are not ſerrate; the flowers grow in long looſe ſpikes at the end of the branches, they are larger and of a paler blue; their calyxes are broader, ſpread wider, and are of a pale blue colour.

[Stems ſix feet high, rooting at bottom. Leaves petioled, an inch long: the lower ſerrate, but ſeldom eared; the upper ones quite entire. Calyxes bell-ſhaped, with the ſegments rounded, finally becoming ſcarioſe, wide, blood-red.

Native of the Cape of Good Hope, on the ſandy coaſt [o]. Introduced by Mr. Miller from Holland before 1759.

57. Stem fruteſcent, erect, round, purpliſh, rugged. Leaves ſmall, wedge-form, ſharply toothed, veined, even, ſubpetioled. Panicle brachiate, decompounded. Calyxes triſid, ſcarcely hairy, with the two lower ſegments acute, the upper one three-toothed. Helmet of the corolla ſcarcely longer than the lip. Style longer than the corolla [p].—Native of the Cape of Good Hope.

Though Mr. Miller in his figures refers to the *africana* of Linneus, yet it is plain that he intended the *paniculata*, which he does not appear to have diſtinguiſhed from that, notwithſtanding he cultivated them both. This in 1758. It flowers from june to ſeptember [q].

58. This is a little ſhrub, with brachiate, narrow, even branches. Leaves petioled, toothed towards the baſe, tomentoſe underneath. Racemes at the diviſions of the ſtem, elongated, remotely whorled. Flowers on each ſide three, pedicelled. Bractes ovate, quite entire, acuminate, ſmooth, commonly ſmaller than the calyx; which is ſpreading-bell-ſhaped, like that of Moluccella or Marrubium Pſeudodictamnus, with a five-lobed border: the two upper lobes wider, hairy on the outſide. Corolla whitiſh, larger than the calyx: the upper lip bifid, patulous, (not ſickle-ſhaped or elongated;) the lower triſid, with the middle ſegment larger. Stamens the length of the corolla; but the ſtyle twice as long.—Native of the Levant.

59. Stem a foot high, obſcurely quadrangular, hirſute, brachiate. Leaves petioled, ſubcordate or ovate, wrinkled, bluntiſh, more hairy beneath; the upper ones ſeſſile, acuminate, ſerrate-crenate. Bractes nerved, ſmooth above, quite entire, awned. Whorls three-flowered on each ſide, ſeſſile. Calyx tubular, grooved, awned, almoſt equal, with three upper teeth cloſer together, and two lower. Corolla white: helmet erect, ſubfalcate, emarginate, the length only of the lower lip; which is triſid, with the middle ſegment concave, two-lobed, and the lateral ones bent down. Stamens white, longer than the helmet. Anthers yellow. Style purple. Calyx of the fruit dry, compreſſed, ſtriated, the length of the bractes, with awl-ſhaped teeth, pungent as in Hyoſcyamus, within the bractes at the whorls. Involucrets two-leaved, ſhort, acute.—Native of Egypt; where it was found by Forſkahl [r].

60. Very nearly allied to the preceding, but ſufficiently diſtinct, by its fruteſcent ſtem, cordate eroſe-toothed wrinkled leaves, and ciliate bractes; it is beſides a very ſtinking plant.—Native of northern Africa [s].]

61. Common Clary has the lower leaves large, in good ground ſeven or eight inches long, and four

[a] Hort. kew. [b] Linn. mant. [c] Linn. mant. [d] Jacquin. [e] Hort. kew. [f] Hort. kew. [g] Linn. ſyſt. [h] Hort. kew. [i] Moriſon. [k] Idem. [l] Curtis. [m] Hort. kew. [n] Linn. mant. [o] Hort. kew. [p] Linn. mant. [q] Hort. kew. [r] Willdenow. [s] Linn. ſyſt. Curtis. [t] Linn. mant.

broad

broad at the base, ending in blunt points. Stems large and clammy, about two feet high, with leaves of the same shape, but smaller, and sending out small opposite side branches. Flowers in loose terminating spikes, composed of whorls, of a pale blue colour. It is a biennial plant native of Syria [and Italy, Dauphiné, &c.—It was cultivated here in 1562, as appears from Turner's herbal, and flowers from july to september[s].

The whole plant has a very strong scent. It was formerly used in medicine, but is now neglected. A wine is made from the herb in flower boiled with sugar, which has a flavour not unlike Frontiniac.

62. This plant is very beautiful from the number and size of the flowers, the spike of which is terminated by bractes complicated into a pale rose-coloured strobile. It differs from the rest in the size of the bractes, in its long compressed tube, and its dense terminating great-flowered spike.—Native of Mexico[s].]

63. This is a biennial plant. Leaves very thick and woolly, eight or nine inches long, narrow, cut into obtuse segments nearly opposite on their sides almost to the midrib, somewhat like a stag's horn in shape, and *spreading* flat on the ground. Stem more than a foot high, thick and very woolly, sending out branches by pairs, and having long narrow leaves in pairs at each joint, which are serrate. Flowers in loose whorled spikes, at the top of the stalks barren. Corolla white.

[Bobart describes it as ochroleucous or pale yellow, or brimstone-coloured. Seeds large, rounder than in most of the other species.

Native of Persia, where it was gathered by Rauwolff. It was sent by Huntingdon from Aleppo, and was cultivated several years (before 1699) in the Oxford botanic garden. It flowers in july and auguſt[s]. Its being sent from Aleppo, probably gave occasion to Mr. Miller to set it down as a native of Syria.]

64. Leaves of a thick substance and very woolly, especially on their under side, the upper side rugged and wrinkled, with several longitudinal veins diverging from the midrib. Stems about two feet high, sending out many branches in pairs. Flowers in whorled terminating spikes: under each whorl two hollow green leaves shorter than the calyx. Under lip of the corolla white, upper pale blue.

[Stem upright, firm, clothed with white wool, single at bottom, but divided above into numerous panicled branches. Root-leaves procumbent, ovate, petioled, sinuate, crenate, very much wrinkled, woolly, white, blunt: upper stem-leaves sessile, toothed, acute: the uppermost sometimes bent back. Bractes concave, nerved, converging, roundish, mucronate, shorter than the calyx, woolly or subvillose. Whorls four or six-flowered. Flowers on short pedicels. Calyx whilst young woolly, striated, five-toothed, the teeth ending in a little prickle; but when the fruit is ripe, closed and compressed. Corolla white, pubescent: upper lip narrow, sickle-shaped; lower three-lobed, the side lobes very small, the middle one excavated, emarginate; or as Linneus describes it cohering in front and forming a bag. Anthers yellow. Seeds brown, even, compressed a little on one side, and subtriquetrous on the other[y].

It is a biennial plant, native of France, Austria, Illyria, Italy, Greece and Africa. It was cultivated in 1570, according to Lobel, and flowers in may and june[s].]

There are two varieties of this, one with very broad embracing leaves, slightly indented on the sides; the other with longer leaves deeply jagged.

[65. Has the leaves nearly of the shape of Betony, but more deeply sinuate towards the base, soft and sanguinose. Stems branched, a cubit high. Flowers few in a whorl, white. It came from Aleppo[s]. See n. 78.

65. This differs from the preceding, in having the stem almost always quite simple, in its clamminess, in its narrow bractes, with the leaves not bent back at the tip, and its unarmed calyxes. It is distinguished from S. argentea, by having narrower leaves, not at all erose or tooth-angular, the stem not panicled, and by the colour of the flowers.—Native of Spain, in the mountains about Siguenza[s].]

66. Leaves of a thick consistence, having several irregular indentures on their borders. Stem near a foot and half high, sending out two or four branches near the bottom, which grow erect. Whorls of flowers large, towards the top barren. Corollas white.

[It is a middle species between *Sclarea* and *Æthiopis*. Leaves erose, in the barren herb very tomentose. Panicle less brachiate, pubescent, clammy, with the ends of the branches barren, as it were spiny. Bractes concave, awnless. Corolla white, with the helmet purplish and pubescent, and the lip yellowish. Style longer than the corolla[s].

Native of the island of Candia. Biennial. Cultivated in 1768, by Mr. Miller[s], who says that it is a native of Sicily, as well as of the Archipelago; that in dry soils it will live several years; that it flowers in june, and that the seeds ripen in the beginning of auguſt.

[67. Stem pubescent at top and roundish. Lower leaves quinate-pinnate, the upper ones ternate. Lateral leaflets petioled lanceolate blunt veined quite entire pubescent on both sides: terminating leaflet twice as large as the others oblong blunt veined pubescent on both sides. Flowers whorl-spiked terminating naked. Bractes ovate acuminate quite entire.—Native of the Levant. Shrubby[s].]

68. This is an annual or biennial plant, with trailing stalks. The lower leaves are composed of two or three small pairs of leaflets, terminated by one large leaflet; those higher up are trifoliate, with the terminating leaflet four times the size of the side ones. Flowers in whorls, large, both corolla and calyx of a deep blue colour.

Stem hairy. Calyx ovate, hirsute, inflated; the mouth compressed without teeth. Corolla not sickle-shaped small purple[t].

Native of the Levant. Cultivated 1739, in the Chelsea garden. It flowers in july[s].

69. Lower leaves pinnate, upper ternate, with the end leaflet larger, equally serrate, on long petioles, the upper ones often simple. Flowers in whorls, large, flesh-coloured. Seeds round, black[b]. It resembles the following species, but is distinct in the form of the leaves, the structure of the flowers, and the long lanceolate bractes[t].—Native of the Levant.

70. Stem suffruticose low round hoary with a few white hairs scattered over it. Common petiole channelled. Leaflets five petioled obovate serrate towards the tip, nerved, the end leaflet a little larger. Flowers in whorls forming a terminating spike; the lower whorls supported by two bracte-shaped entire leaves. There is besides a single proper bracte to each flower, ovate acute entire hoary shorter than the calyx. Calyx striated two-lipped ringent, with the upper lip three-toothed, the lower deeply divided, with the teeth spiny. Corolla purple, twice as long as the calyx; the throat ventricose, the upper lip arched emarginate villose on the outside, the lower widened and waved.

Native of Armenia, where it was gathered by Tournefort[s].

71. This differs from S. pinnata, to which it is allied, in having the lower leaves bipinnate, the plant naked and smooth below, the flowers panicle-whorled. Native of Japan. Annual[t].

72. This is an intermediate species between S. clandestina and ceratophylla. Native of Sicily, and Egypt, where it was found by Forskahl. Biennial[m]. Introduced in 1771, by Monſ. Richard. It flowers from june to september[s].

73. Stem of the second year flowering, erect, a foot and half high, leafless, with whorls beyond the middle. Branches two, opposite, below the lowest whorl. Root-leaves ovate, lyrate, with a smaller lobe at the

[s] Hort. kew. [a] Cavanilles. [x] Mor. hiſt. and hort. kew. [y] Desfontaines. [z] Hort. kew. [b] Mor. hiſt. [b] Vahl. [c] Linn. ſpec. [d] Hort. kew. [e] Willdenow. [f] Linn. ſyſt. [g] Hort. kew. [h] Ellinger. [i] Willdenow. [k] Smith. [l] Thunberg. [m] Linn. mant. [n] Hort. kew.

baſe on both ſides, repand-crenate, blunt, villoſe, green. Bractes ſhorter than the calyx, cordate, acute, quite entire. Whorls on each ſide with three or five flowers, on ſhort peduncles. Calyxes with clammy hairs ſcattered over them. Corolla blue, three times as large as the calyx: helmet ſickle-ſhaped, ſemibifid with the lobes incumbent: lip three-lobed, with the middle one two-lobed, larger, crenate, netted at the baſe with blue dots. Style twice as long as the corolla. It has the appearance of the next ſpecies [a].—Native of the Levant; where it was found by Forſkahl.

74. Native of Ruſſia. Introduced in 1780, by Peter Simon Pallas, M.D. It flowers from june to ſeptember [b].

75, 76. Both ſuppoſed to be natives of the empire of Ruſſia.

77. Stem upright, hirſute, with blunt angles. Branches long, rod-like, upright. Leaves ſmooth; the lower ovate-oblong, blunt; middle and upper few, ſeſſile, lanceolate, acute, often quite entire. Two, four or ſix flowers in a whorl, diſtinct, pedicelled, before and after they open nodding. Bractes ovate, acute, reflex. Calyx hirſute, ſtriated, five-toothed; teeth briſtly-ſpinoſe at the tip, the three upper ones ſhorter. Corolla blue, the ſize of S. pratenſis: the upper lip villoſe, ſickle-ſhaped, compreſſed; the lower three-lobed; the middle lobe larger, concave. It differs from S. bicolor in having ovate-oblong crenate leaves, not eroſe or ſinuate-crenate. It is an annual plant, native of Algiers near Maiane.

78. This is a branched upright ſhrub. Branches villoſe, with blunt angles. Leaves petioled, crenate-toothletted, with the teeth ſometimes ſharp, ſometimes blunt; the lower ones ending bluntly, the upper branch-leaves acutely. Whorls four or ſix-flowered. Flowers ſubſeſſile. Bractes cordate, concave, mucronate, hirſute. Calyx two-lipped, villoſe, with whitiſh dots frequently ſcattered over it, after flowering compreſſed on both ſides and cloſed: the three upper teeth almoſt equal; the lower ſomewhat ſpiny. Corolla like that of S. pratenſis, but white and only half the ſize: upper lip villoſe and bowing; lower three-lobed, the middle lobe excavated, emarginate. Stamens two barren, very ſmall; two fertile, often ſtanding out. Seeds roundiſh. The whole plant has a very ſtrong ſmell.—Native of the kingdom of Tunis.

79. Allied to S. Æthiopis. Differs in the ſtem, branches, clammy calyxes villoſe not woolly, in the corolla being almoſt double the ſize; the upper flowers abortive. The leaves are almoſt tomentoſe, lying in a ring on the ground. But the leaves are ſometimes almoſt ſmooth. The root is biennial [c].

This is probably the third Sclarea of Miller, which he ſays] has ſome reſemblance of the ſecond, (S. Æthiopis) but the leaves are larger, very woolly, and glutinous; they are oblong-ovate, deeply and ſharply indented, and end with very acute points. The ſtalks are woolly, about two feet and a half high, ſending out ſide branches by pairs; theſe terminate in looſe ſpikes of whorled flowers, which are white, and the whorls are ſmaller than thoſe of the other ſorts.

Native of Portugal and Syria, alſo of Barbary. It was cultivated by Mr. Miller in 1743.

Mr. Miller has another ſpecies of Sclarea from Tournefort's corollary, which he names after that celebrated author. *S. orientalis* (n. 10). He deſcribes it as having a perennial root, from which ſpring out many ſpear-ſhaped leaves about four inches long, and one inch and a half broad in the middle, of a dark green colour, ſerrate and ending in acute points. The ſtalks riſe three feet high, ſending out many branches by pairs their whole length, having leaves on them, which towards the top are ſeſſile. The flowers grow in whorled ſpikes at the top, having no leaves under them; they are ſmall, of a bright blue colour, and at the top of the ſpike are very deep blue flowers which are barren. Theſe appear in july, and the ſeeds ripen in ſeptember.

Native of the Levant, where it was diſcovered by Tournefort, who ſent the ſeeds to the royal garden at Paris, and compares the leaves to thoſe of Betony, only that they are very ſharp, and notices the purple coma. This alſo was cultivated by Mr. Miller in 1743.

He has likewiſe two ſpecies of Salvia not noticed by Linneus, both found about Smyrna by William Sherard, when he was conſul there: S. fruticoſa, n. 5. and S. orientalis, n. 8.

PROPAGATION AND CULTURE.

All the ſorts of Sage may be propagated by ſeeds if they can be procured; but as ſome of them do not perfect their ſeeds in England, and moſt of the ſorts, but eſpecially the common kinds for uſe, are eaſily propagated by ſlips, it is not worth while to raiſe them from ſeeds. The ſlips of the hardy ſorts ſhould be planted the beginning of april on a ſhady border, where, if they are now and then refreſhed with water, if the ſeaſon ſhould prove dry, they will ſoon take root. When the ſlips have made good roots, they may be taken up with balls of earth, and tranſplanted where they are to remain, which ſhould always be upon a dry ſoil, and where they may have the benefit of the ſun: for if they are planted on a moiſt ſoil, or in a ſhady ſituation, they are very ſubject to be deſtroyed in winter; nor will theſe plants endure the cold ſo well, when planted upon a rich ſoil, as thoſe which have a barren, dry, rocky ſoil, which is the caſe of moſt of the verticillate plants; for theſe will often grow upon walls, where, although they are more expoſed to the cold than thoſe plants in the ground, they are always found to remain in ſevere winters when the others are deſtroyed. The ſide ſhoots and tops of theſe plants may be gathered in the ſummer, and dried, if deſigned for tea, otherwiſe they are beſt taken green from the plants for moſt other uſes.

The roots of the common ſorts of Sage will laſt ſeveral years, if they are in a warm dry ſoil; but where they are often cropped for uſe, the plants will become ragged, ſo there ſhould be a ſucceſſion of young ones raiſed every other year.

Several of the ſorts are ſomewhat tender, and will not live through the winter in the open air in England, therefore theſe muſt be planted into pots filled with freſh, light, ſandy earth, and in winter they muſt be removed under a hot-bed frame, that they may have a great ſhare of freſh air whenever the ſeaſon is mild; for if they are too much drawn, they ſeldom flower well, and make but an indifferent appearance. In ſummer they muſt be expoſed amongſt other exotic plants in ſome well-ſheltered ſituation, for they are pretty hardy, and only require to be ſheltered from the froſt. Theſe plants muſt be often refreſhed with water in warm weather, otherwiſe they will ſhrivel and decay; and they ſhould be new-potted at leaſt twice every ſummer, becauſe their roots will greatly increaſe, which, if confined in the pots too long, will turn mouldy and decay.

Others, as the 1ſt, 27th, 68th, &c. are annual plants, only propagated by ſeeds; theſe may be ſown upon a bed of light earth in the places where they are to remain. The ſeeds of the 68th ſort ſhould be ſown in autumn, and then the plants will come up the following ſpring; but, if they are kept out of the ground till ſpring, the plants will not come up till the next year. Thoſe of the 27th ſort may be ſown the beginning of april upon a warm border, where the plants will appear in may, and require no other care but to thin them where they grow too cloſe, and keep them clean from weeds; and if they ſhould grow tall, they muſt be ſupported, otherwiſe the ſtrong winds will break them down; but the 68th ſort ſpreads its branches upon the ground, ſo will require no ſupport, therefore this only requires to have room, and to be kept clean from weeds.

Others again, as the 2d, 29th, 35th, 54th, 55th, 56th and 57th, being natives of a warmer country, require protection in winter; they are eaſily propagated by cuttings in the ſpring and ſummer months. If theſe are planted early in the ſpring, it will be the better way to plant them in pots, which ſhould be plunged

[a] Linn. mant. [b] Hort. kew. [c] Deſfontaines.

into a very moderate hot-bed; and, if they are ſhaded from the ſun in the heat of the day, and gently refreſhed with water as they may require it, they will have put out good roots in about two months, when they ſhould be inured gradually to the open air, into which they ſhould be removed ſoon after. The cuttings, which are raiſed early in the ſeaſon, will become ſtrong plants before winter, and will be in a better condition to reſiſt the cold than thoſe which are weak.

If the cuttings are planted in ſummer, they will require no artificial heat, ſo that if theſe are planted on a bed of freſh loamy earth, and covered cloſe down with a bell or hand-glaſs, and ſhaded from the ſun in the heat of the day, giving them now and then a little water, they will take root freely; and when they begin to ſhoot, they ſhould have free air admitted to them by raiſing the glaſs on one ſide, and ſo gradually expoſed to the open air. When the plants are well rooted, they ſhould be each tranſplanted into a ſeparate ſmall pot filled with freſh light earth, and placed in a ſhady ſituation till they have taken new root; then they may be removed to a ſheltered ſituation, where they may remain till the approach of froſt, when they muſt be carried into ſhelter, and in winter treated in the ſame manner as other hardy green-houſe plants, which only require protection from froſt, obſerving not to over-water them during the cold weather, but in ſummer, when they are in the open air, they will require it often.

16, 17. Sow the ſeeds in the ſpring, where they are deſigned to remain; keep them clean from weeds, and thin them where they are too cloſe.

26. This, though a native of India, is hardy enough, to live in the open air in England; and the root will abide ſeveral years in a dry ſoil.

[It requires however a little care to be taken of it in ſevere winters. It flowers in great perfection in a large garden pot, but it will ſucceed as well or better in the open border.

This magnificent ſpecies may be increaſed by ſeeds, but theſe being in general ſparingly produced in England, it may be alſo increaſed by parting the roots in the autumn or ſpring[1].]

28. 31. Theſe propagate themſelves in plenty, if the ſeeds are permitted to ſcatter, and only require to be kept clean from weeds.

38 and 52. Theſe rarely or never producing ſeeds in England, are propagated by cuttings, which may be planted any time in ſummer; if theſe are planted in a bed of ſoft loamy earth, and covered cloſe with a bell or hand-glaſs, obſerving to ſhade them from the ſun, and refreſh them with water as they may require it, they will take root very freely, then they muſt be inured to the open air; after they have put out good roots, they ſhould be carefully taken up, and each planted in a ſeparate ſmall pot filled with light freſh earth, placing them in the ſhade till they have taken new root; then they may be placed among other hardy green-houſe plants in a ſheltered ſituation till october, when they ſhould be removed into ſhelter before hard froſt comes on; but as they only require protection from hard froſt, they ſhould have as much free air as poſſible in mild weather.

Mexican Sage muſt have a dry ſituation in winter, for the young ſhoots are very apt to grow mouldy in a damp air.

[41. This charming ſpecies of Sage is now very generally cultivated near London, as a green-houſe plant. It is eaſily propagated by cuttings. In the winter it requires to be placed in a warm dry green-houſe, and to be ſparingly watered, being tender and apt to go off[2].]

48. Sow the ſeeds in the ſpring on an open ſpot of ground; keep the plants clean from weeds, and let them not be nearer than two feet, for they grow very large, and will laſt ſeveral years.

50. This may not only be propagated by ſeeds, but by parting the roots in autumn, and will continue ſeveral years.

[1] Curtis. [2] Idem.

61. Common Clary is propagated by ſeeds, which ſhould be ſown in the ſpring, and when the plants are fit to remove, they ſhould be either tranſplanted into beds, or if a large quantity is required, they may be planted in an open ſpot of ground in rows two feet aſunder, and one foot diſtance in the rows. After the plants have taken root, they will require no farther care but to keep them clean from weeds. The winter and ſpring following the leaves, which are the only part uſed, will be in perfection, and in the ſummer they will run up to flower, and after they have ripened their ſeeds decay, ſo that there ſhould be annually young plants raiſed for uſe. It will thrive upon almoſt any ſoil that is not very wet, for in moiſt ground the plants frequently rot in winter.

The other ſpecies of Salvia, commonly known under the name of Sclarea or Clary, may be propagated and treated in the ſame way; as ſylveſtris, n. 19. nemoroſa, n. 20. ſyriaca, n. 21. hæmatodes, n. 23. pratenſis, n. 24. glutinoſa, n. 50. ceratophylla, n. 63. Æthiopis, n. 64. patula, n. 79. Glutinoſa and ſome others may be increaſed by parting the roots. Moſt of them do beſt in a warm dry ſoil; where ſome will endure ſeveral years.

66. Sow the ſeeds in the beginning of april in a dry or rubbiſhy ſoil, where the plants will live through the winter in the open air, and the ſecond year will produce flowers and ſeeds.

[SALVIA. See *Phlomis*.

SALVIFOLIA. See *Celtis*.

SALVINIA. (*So named by Micheli, in honour of Antonio Maria Salvini, a nobleman of Florence.*)

Lin. gen. Schreb. n. 1617. *Mich. gen.* 58. *Guettard in act. gall.* 1762. *p.* 549. *t.* 29. *Juſſ.* 16.

Claſſ. 24. 1. Cryptogamia Miſcellaneæ.

GENERIC CHARACTER.

* *Male* Flowers four to nine, among whorled roots, heaped into a little ball.

CAL. ſubglobular, pubeſcent, one-celled, conſiſting of a double membrane, the inner thinner, ten or twelve ribs between them; gaping?

COR. none, unleſs it be the inner membrane of the calyx.

STAM. An upright pillar, placed on the baſe of the calyx, the whole length of it, and putting out from the top from two to three hundred capillary *filaments*. *Anthers* globular, one-celled.

* *Female*, in the middle of the ball, ſolitary.

CAL. and COR. as in the Males.

PIST. *Germs* about fifteen, obliquely ovate, blunt, rugged with dots, each on diſtinct pedicels, faſtened to the bottom of the calyx. *Style* none. *Stigma* a dot on the top of the germ?

PER. none.

SEEDS as many as there are germs, and of the ſame form.

OBS. *The male and female flowers may be diſtinguiſhed in the dry plant before the calyxes open, by the ſize of the protuberant grains.*

For the ſpecies, ſee MARSILEA.

SAMARA.

Lin. gen. Reich. n. 156. *Schreb. n.* 195. *Juſſ.* 379.

Claſſ. 4. 1. Tetrandria Monogynia.

Nat. order of *Rhamni*, Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* very ſmall, four-parted, acute, permanent.

COR. *Petals* four, ovate, ſeſſile, with a longitudinal pit at the baſe.

STAM. *Filaments* four, awl-ſhaped, long, oppoſite to the petals, immerſed in the pit. *Anthers* ſubcordate.

PIST. *Germ* ovate, ſhorter by half than the corolla, ſuperior, ending in a *Style* that is ſuperior and longer. *Stigma* funnel-form.

PER. *Drupe* roundiſh.

SEED ſolitary.

ESSENTIAL CHARACTER.

Cal. four-parted. *Cor.* four-petalled. *Stam.* immerſed in the baſe of the petal. *Drupe* one-ſeeded.

SPECIES.

1. Samara læta.
Lin. mant. 199. *fyſt.* 159. *Reich.* 1. 333. *Willd.* 1. 665. *Swartz, prodr.* 151.
Memecylon umbellatum. *Lin. zeyl. n.* 469. *Burm. ind.* 87. *Burm. zeyl.* 76. *t.* 31.
Flowers cluſtered pedicelled, leaves ovate obtuſe.

2. Samara coriacea.
Lin. ſpec. ed. Willd. 1. 665. *Swartz, prodr.* 32. *deſcr.* 261.
Flowers ſeſſile conglomerate, leaves lanceolate-ovate acute ſubcoriaceous.

3. Samara pentandra.
Lin. ſpec. ed. Willd. 1. 665. *Ait. kew.* 1. 160.
Flowers pentandrous, leaves elliptic.

4. Samara floribunda.
Lin. ſpec. ed. Willd. 1. 665.
S. pentandra. *Swartz, deſcr.* 262.
Rapanea guianenſis. *Aubl. guian.* 1. 121. *t.* 46. *Swartz obſ.* 51.
Flowers pentandrous, leaves obovate.

DESCRIPTIONS, *&c.*

1. Branches purpliſh, even. Leaves alternate, petioled, lanceolate-elliptic, quite entire, even on both ſides. Corymbs lateral, axillary, ſcarcely longer than the petioles. Flowers copious, yellow.—It differs from Cornus not only in having a ſuperior germ, but the filaments oppoſite to, not alternate with the petals. The leaves alſo are alternate, whereas in Cornus they are oppoſite. It is a ſhrub, and native of the Eaſt Indies[1].

2. This is a tree, with a trunk from twenty to thirty feet in height, and upright branches. Branchlets alternate, ſometimes four-cornered, even. Leaves alternate, ſcattered, quite entire, ſomewhat rigid, nerved and veined, very ſmooth, membranaceous, dark-green; on ſhort petioles. Flowers lateral and axillary, ſmall, whitiſh. Balls of flowers ſcattered, approximating. Calyx four-leaved, or four-parted to the baſe: leaflets ovate, acute, keeled, ſcarcely half a line in length, a little connate at bottom. Petals four, ſlightly connected at the baſe, oblong, ſharpiſh, ſpreading, three times as long as the calyx. Filaments very ſhort, inſerted into the baſe of the petals. Anthers oblong, ſpreading, preſſed cloſe to the ſegments of the corolla, biggiſh. Germ ſuperior, globular. Style very ſhort. Stigma large, ovate. Berry? globular, the ſize of a pepper-corn, one-celled. Some trees of this ſpecies have male flowers only. S. læta has ſmaller thinner leaves and blunt; flowers cluſtered, not conglomerate, but ſubumbelled, on pedicels a line and half in length; and the corollas more coloured.

Native of Jamaica, in the ſouthern parts, in woods on the mountains[2].

3. Native of the Cape of Good Hope. Introduced about 1770. It flowers from november to february[3]. Diſtinct from the two preceding, and agreeing with the next ſpecies in having five ſtamens to the flowers.

4. This is a ſhrub, with the trunk five feet high, branched at top. Leaves alternate, petioled, thick, ſmooth, quite entire. Flowers in bundles, ſubſeſſile, ſcattered over the bark of the branches and branchlets. Corolla white. The unripe germ exhibits five or ſix ſeeds, but one only ripens. Berry violet-coloured. It flowers and fruits in december.

Native of Cayenne and Guiana on the margins of meadows or ſavannas[3].

SAMBAC. See *Joſminum.*]

SAMBUCUS (*of Pliny. Derivation uncertain. Aſh of the Greeks.*)
Lin. gen. n. 372. *Reich. n.* 402. *Schreb. n.* 505. *Tournef. t.* 376. *Vaill. acad. gall.* 1722. *Juſſ.* 214. *Gærtn. t.* 27.
Claſſ. 5. 3. Pentandria Trigynia.
Nat. order of *Dumoſæ. Caprifolia*, Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* one-leafed, ſuperior, five-parted, very ſmall, permanent.

COR. one-petalled, rotate-concave, five-cleft, blunt: *ſegments* reflex.

STAM. *Filaments* five, awl-ſhaped, the length of the corolla. *Anthers* roundiſh,

PIST. *Germ* inferior, ovate, blunt. *Style* none, but inſtead of it a ventricoſe gland. *Stigmas* three, blunt.

PER. *Berry* roundiſh one-celled.

SEEDS three, convex on one ſide, angular on the other.

ESSENTIAL CHARACTER.

Cal. five-parted. *Cor.* five-cleft. *Berry* three-ſeeded.

SPECIES.

1. Sambucus Ebulus. *Dwarf Elder.*
Lin. ſpec. 385. *Reich.* 1. 736. *Willd.* 1. 373. *fl. ſuec n.* 265. *vir. cliff.* 25. *hort. cliff.* 110. *mat. med.* 88. *Woodv. med. bot. ſuppl.* 128. *t.* 260. *Hudſ. angl.* 130. *Wither. arr. ed.* 3. 316. *Smith, brit.* 336. *engl. bot. t.* 475. *Curt. lond.* 3. 18. *Lightf. ſcot.* 171. *Relh. cant. n.* 247. *Sibth. oxon. n.* 320. *Abbot, bedf.* 70. *Hall. helv. n.* 671. *Scop. carn. n.* 371. *Pollich pal. n.* 312. *Hoffm. germ.* 109. *Roth. germ.* 1. 137. 2. 365. *Krock. ſilef. n.* 477. *Villars, dauph.* 2. 544. *Allion. pedem. n.* 473. *Du Roi barbacc.* 2. 415. *Blackw. t.* 488. *Mill. fig. t.* 226. *Plenck, ic.* 230.
S. humilis. ſ. Ebulus. *Baub. pin.* 456. *Raii hiſt.* 1611. *ſyn.* 461.
Ebulus. *Fuchſ. hiſt.* 65. *Camer. epit.* 979. *Matth.* 1270.
E. ſ. Sambucus humilis. *Ger.* 1238. *emac.* 1426. *Park. theat.* 208. 7. *t.* 209. *f.* 7.
E. ſ. S. herbacea. *Baub. hiſt.* 1. 549. 2.
β. Sambucus humilis. *Mill. dict. n.* 5.
S. hum. ſ. Ebulus folio laciniato. *Baub. pin.* 456.
Cymes three-parted, ſtipules leafy, ſtem herbaceous.

2. Sambucus canadenſis. *Canadian Elder.*
Lin. ſpec. 385. *Reich.* 1. 737. *Willd.* 1. 1494. *arb.* 356. *Du Roi barbacc.* 2. 414. *Wangenh. amer.* 115. *Townh. jap.* 126.
Cymes five-parted, leaves ſubbipinnate, ſtem frutescent.

3. Sambucus nigra. *Common Elder.*
Lin. ſpec. 385. *fyſt.* 295. *Reich.* 1. 737. *Willd.* 1. 1495. *mat. med.* 89. *Woodv. med. bot.* 219. *t.* 78. *Fl. ſuec. n.* 265. *hort. cliff.* 109. *Gærtn. fruct.* 1. 137. *Hudſ. angl.* 130. *Wither. arr. ed.* 3. 316. *Smith, brit.* 336. *engl. bot. t.* 476. *Lightf. ſcot.* 171. *Relh. cant. n.* 248. *Sibth. oxon. n.* 321. *Fl. dan. t.* 545. *Hall. helv. n.* 670. *Hoffm. germ.* 109. *Roth. germ.* 1. 137. 2. 366. *Pollich pal. n.* 313. *Scop. carn. n.* 372. *Krock. ſilef. n.* 478. *Villars, dauph.* 2. 544. *Allion. pedem. n.* 472. *Du Roi barbacc.* 2. 410. *Blackw. t.* 151. *Knorr. del.* 1. *t.* H. *Plenck, ic.* 229. *Regnault bot.* (Le Sureau.)
α. Sambucus pulla. *Ait. kew.* 1. 374.
Black-berried Elder.
Sambucus. *Ded. pempt.* 845. 1. *Camer. epit.* 975. *Matth.* 1268. *Fuchſ. hiſt.* 64. *Trag.* 997. *Tabern. ic.* 1028. *Lob. ic.* 2. 161. *Ger.* 1234. *emac.* 1422. *Raii ſyn.* 461.
S. vulgaris. *Baub. hiſt.* 1. 544. *Park. theat.* 208. 1. *Raii hiſt.* 1609.
S. fructu in umbella nigro. *Baub. pin.* 456. *Tournef. inſt.* 606. *Duham. arb.* 2. 253. *t.* 65.
β. S. viridis. *Ait. kew.* 1. 374.
Green-berried Elder.
S. fructu in umbella viridi. *Baub. pin.* 456.
γ. S. alba. *White-berried Elder.*
S. fructu albo. *Ger.* 1234. *emac.* 1422. *Park. theat.* 208. *Raii hiſt.* 1610.
S. acinis albis. *Baub. hiſt.* 1. 546. *Raii ſyn.* 461. 2.
δ. S. laciniata. *Mill. dict. n.* 2. *Lin. fyſt.* 296. *Du Roi barbacc.* 2. 413. *Baub. hiſt.* 1. 549. *Raii hiſt.* 1610. *Retz. obſ.* 3. 30. *n.* 47. & 6. 27. *n.* 32.
S. laciniatis foliis. *Ger.* 1234. 2. *emac.* 1422.
S. lacin. folio. *Baub. pin.* 456. *Park. theat.* 208. *Raii ſyn.* 461.
Parſley-leaved Elder.
Cymes five-parted, leaflets ovate ſerrate, ſtem arboreous.

[4. Sambucus japonica. *Japoneſe Elder.*
Lin. fyſt. 295. *Willd.* 1. 1496. *Thunb. jap.* 125.
Cymes three-parted; ſtipules none, ſtem ſhrubby.]

5. Sambucus

[1] Linn. mant. and ſyſt. [2] Swartz. [3] Hort. kew. [4] Aublet.

5. Sambucus racemoſa. *Red-berried Elder.*
Lin. ſpec. 386. *Reich.* 1. 738. *Willd.* 1496. *arb.* 337. *Jacqu. collect.* 1. 36. *icon. rar.* 1. *t.* 59. *Hoffm. germ.* 109. *Roth. germ.* 1. 137. 2. 367. *Pollich pal. n.* 314. *Scop. carn. n.* 373. *Hall. helv. n.* 672. *Krock. ſileſ. n.* 479. *Villars dauph.* 2. 545. *Allion. pedem. n.* 474. *Gmel. ſib.* 3. 147. *Du Roi harbeck.* 2. 417.
S. racemoſa rubra. *Baub. pin.* 456. *Park. theat.* 208. 4. *Raii hiſt.* 1614. *Tournef. inſt.* 606. *Duham. arb.* 2. *t.* 66.
S. rac. acinis rubris. *Baub. hiſt.* 1. 549.
S. rac. vel cervina. *Ger.* 1234. *f.* 3. *emac.* 1422. 4.
S. cervina. *Tabern.* 1029.
S. montana. *Camer. epit.* 976.
S. mont. racemoſa. *Lob. ic.* 163.
Racemes compound ovate, ſtem arboreous.

DESCRIPTIONS, *&c.*

1. [Root creeping. Stems herbaceous, three feet high, upright, roundiſh, grooved, leafy, ſomewhat enlarged at the joints, purpliſh, branched above; the branches oppoſite and upright. Leaves oppoſite, unequally pinnate, dark green, ſmoothiſh: leaflets four to ſix pairs, ovate-lanceolate, veined, acute, ſerrate, unequal and generally glandular at the baſe, ſmooth above, downy with a ſlight roughneſs underneath, and whiter; the lowermoſt often lobed. Stipules large, leafy, ſerrate, ſometimes accompanying a pair of leaflets as well as the whole leaf. Cyme terminating, in three principal branches, and thoſe dividing into many others, hairy and many-flowered. All the flowers pedicelled. Calyx ſmall, purple. Corolla of a dull blood red. Filaments thick, upright, white, with red anthers, having the lobes ſo diſtant, that Dr. Withering conſiders them as diſtinct, and the flower therefore as having ten anthers. Berries globular, purpliſh black, with three, ſometimes four ſeeds[a].

The dwarf Elder, formerly called Wall-wort or rather Wale-wort, and Danewort, from a notion of its having ſprung from the blood of the Danes; differs from the common Elder in being herbaceous, in having a creeping root, and narrower leaflets more numerous, and ſometimes lobed[a].

Mr. Woodward remarks, that the ſtems are very brittle: and Dr. Withering, that the calyx has ſometimes ſix ſegments, and that the diviſions of the corolla are pointed, white above and purple beneath.

Mr. Curtis ſpeaks of the ſtem as ſix feet in height; I have never ſeen it near ſo high.] Mr. Miller gives it from three to five feet, in proportion to the goodneſs of the ground: he diſtinguiſhes this from the common Elder, by the number and ſhape of the leaflets: that ſeldom has more than five, broader and much ſhorter than in this, and pretty deeply ſerrate; whereas the dwarf Elder has nine, eleven or even thirteen leaflets, long, narrow, and very ſlightly indented. The flowers are ſmaller in this, and ſpotted with red. The berries alſo are ſmaller.

[Native of many parts of Europe, in waſte ground, balks of corn fields, by hedges and way ſides, flowering in july. In the midland counties of England it is not uncommon; in Cambridgeſhire rather frequent. About London not ſo, Mr. Curtis having found it only about Lambeth-marſh, and in a lane leading to Upton, Eſſex, by the garden wall of the late Dr. Fothergill. Dr. Milne however ſays, that he found it abundantly at Ratley or Ratcliffe, ſix miles from Barnet, at Ewell in Surry, between Eaſt and Weſt Tilbury, a little beyond Oſpringe and in Uxbridge church-yard. Alſo near Farnham, St. Edmund's Bury, Harwich, and St. Clement's church-yard, Ipſwich. Blackſtone obſerved it on Uxbridge moor. Warner, in the lane between Sewardſtone, commonly called Suſan and Waltham-Abbey. Dr. Smith, at Honingham in Norfolk. Dr. Sibthorp, in the parks behind Wadham College, and near Eynſham. Dr. Withering, at the foot of Tamworth Caſtle-hill. Mr. Pitt, at Tutbury Caſtle. Mr. Atkinſon, near Dalton, Lancaſhire. Gerarde remarked it at Kilburn Abbey on the road to Edgware, near Dartford in Kent, at old Brentford town's end next London, and many other places. The berries ripen late in the autumn; but, like the fruit of many other creeping plants, ſeldom perfect their ſeeds.

The whole plant has a faint diſagreeable ſmell, reſembling that of common Elder, but ſtronger and more unpleaſant. It has the ſame properties with common Elder, but in ſome reſpects more violent. A dram and half of the root is a ſtrong purge. A rob of the berries, though actively cathartic, may be uſed with tolerable ſafety as far as an ounce in a doſe; but it has the inconveniences of Senna, and is in no reſpect to be preferred to that drug. No cattle will eat this plant. Moles will not come where the leaves of this or the common Elder are laid. They alſo drive away mice from granaries, and the Sileſians ſtrew them where their pigs lie, under a perſuaſion that they prevent ſome of the diſeaſes to which ſwine are liable[b].]

β. Mr. Miller makes the cut-leaved dwarf Elder a diſtinct ſpecies. He ſays that the roots do not creep ſo much; that the ſtems do not riſe ſo high; that the leaves have ſeldom more than ſeven leaflets, and towards the top only five, longer and narrower than in the common dwarf Elder, deeply cut on their edges, and ending with winged acute points.

2. This riſes to the height of twenty feet in North America, but in England it is ſeldom much more than half that height. The leaves have generally ſeven or nine leaflets, which are longer and narrower than thoſe of the common Elder: the berries are ſmaller, of the ſame black colour, but not ſo full of juice; nor have the leaves ſo ſtrong a ſcent.

[It is a middle ſpecies between Ebulus and nigra, having the habit of the latter, but pinnate leaves, with the lower leaflets ternate, and all more of an ovate form. It is ſhrubby, but commonly periſhes above ground in winter. The cymes are of the ſame ſtructure as in nigra; and the ſtipules are filiform and truncate, as in that, not expanded into leaflets, as in Ebulus. The berries are reddiſh, and ſaid to be eatable[c].

In the Mantiſſa Linneus remarks, that it is perhaps a variety, with the leaves ſimply pinnate; the berries globular and red, the ſize of Coriander ſeed.

The ſtem, ſays Willdenow, in our gardens, is perennial; the leaves bipinnate, ſeldom ſimply pinnate; the flowers as in S. nigra, but ſmaller and ſmelling ſtrong; the berries ſmall, dark red and ſweet.

Native of North America. Cultivated in 1768, by Mr. Miller. It flowers from june to auguſt[d].

3. The common Elder grows to a bulhy tree, twelve or ſixteen feet in height, much branched, and covered with a ſmooth gray bark when young, which becomes rough on the trunk and older branches. Wood hard, tough, yellow, poliſhing almoſt as well as the box-tree; the younger branches containing a very large proportion of medullary matter or pith. Leaves oppoſite, unequally pinnate: leaflets commonly five, ſmooth, nearly equal at the baſe, with very ſmall or no ſtipules. Cymes terminating, dividing into five principal branches, and many ſmall ones. Flowers cream-coloured, with a ſweet but faint ſmell, eſpecially when dried. Stamens divaricating; anthers yellow, ſagittate, ſingle. Berries globular, blackiſh purple, mawkiſhly ſweet[e]: the juice watery and red. There are three little threads in the axis of the berry, inſerted into the apex of the ſeeds; which are oblong, narrowing upwards, cartilaginous, ſhagrined with very ſmall wrinkles, flatted a little, ſlightly convex on one ſide and ſomewhat angular on the other[f].

Native of Britain and many other parts of Europe, alſo of Africa, Japan, &c. With us it is abundant in damp hedges and woods; flowering in may and june.

The whole plant has a narcotic ſmell, and it is not prudent to ſleep under its ſhade. The wood is commonly made into ſkewers for butchers, tops for angling rods, and needles for weaving nets; it is not bad to

[a] Smith and Curtis. [b] Curtis. [c] Withering, Smith, Woodville. [d] Linn. ſpec. [e] Hort. kew. [f] Smith. [g] Gaertner.

turn in the lathe. The pith being exceedingly light, is cut into balls, uſed in electrical experiments.

This tree is as it were a whole magazine of phyſic to ruſtic practitioners, nor is it quite neglected by more regular ones. An ointment is made of the green inner bark, which is alſo a ſtrong purgative: in ſmaller doſes it is diuretic, and has done eminent ſervice in obſtinate glandular obſtructions and in dropſies. Sydenham, who recommends it as an effectual hydragogue, directs three handfuls of it to be boiled in a quart of milk and water, till only a pint remains, of which one half is to be taken night and morning, and repeated ſeveral days. Boerhaave gave its expreſſed juice in doſes from a dram to half an ounce. It uſually operates both upwards and downwards. If ſheep that have the rot can get at the bark and young ſhoots, they will ſoon cure themſelves. It is an ingredient in the black dye.—The leaves are alſo purgative, but more naufeous than the bark. They are an ingredient in ſeveral cooling ointments. If turneps, cabbages, fruit-trees or corn be whipped with the green leaves and branches of Elder, or if a gate ſtuck with the branches be drawn over the crops, it is ſaid that inſects will not attack them. An infuſion of the leaves is uſeful for curious gardeners to ſprinkle over the buds of ſuch flowers as they wiſh to preſerve from minute caterpillars, for few inſects can bear the Elder. It has however its *Phalæna* and *Aphis*; the latter of which, according to Evelyn, is exceedingly troubleſome, and gathers a fiery redneſs where it attacks. Not only inſects abhor the Elder, but the leaves laid into the ſubterraneous paths of the Mole are ſaid to drive it away. The flowers are reported to be fatal to turkies, and the berries to poultry in general.—A decoction of the flowers, taken internally, is ſaid to promote expectoration in pleuriſies: freſh gathered they are gently laxative and aperient; when dry, they are ſaid to promote chiefly the cuticular excretion, and to be particularly ſerviceable in eryſipetalous and eruptive diſorders: externally they are uſed in fomentations, to eaſe pain and abate inflammation; in the London Pharmacopœia they are directed in form of an ointment. Many perſons uſe them to give a flavour to vinegar.—The berries are boiled into a rob, which is really uſeful in ſore throats and catarrhs, and acts as a gentle laxative in febrile diſorders. The officinal preparation of theſe berries is the *ſuccus baccæ ſambuci ſpiſſatus* of the London Pharmacopœia. The juice of the berries is employed to give a red colour to raiſin or ſugar wines [z]; and ſome country houſewifes make a wine with this juice chiefly or only, which they eſteem very wholeſome, but many people think it naufeous.

Linneus ſays, that ſheep eat the Elder, but that horſes, cows and goats refuſe it; others report that cows are fond of it [a].] *Mr. Miller* remarks, that the leaves and ſtalks are ſo naufeous, that few animals will browſe upon it: and that he has often ſeen the trees growing in parks, where there has been a variety of animals, which were untouched, when almoſt all the other trees within reach were cropped by the cattle.

β, γ. The varieties of the common Elder, are thoſe with white or green berries, and variegated leaves. The latter is undoubtedly a variety; and thoſe with white and green berries are the ſame: but it may be doubted whether this is not a diſtinct ſpecies, the leaflets being much ſmaller, and very ſlightly ſerrate, whereas thoſe of the common ſort are deeply ſerrate; they are alſo ſmoother, and of a lighter green.

δ. Parſley-leaved Elder is a diſtinct ſpecies, in the opinion of Mr. Miller: the leaflets being narrower, and cut into ſeveral ſegments, which are again deeply indented on their edges regularly, in form of winged leaves. The ſtalks are much ſmaller, and the ſhoots are ſhort; the leaves have not ſo ſtrong an odour, and the berries are a little ſmaller.

[Retzius, in his third faſciculus, believed this to be a diſtinct ſpecies, but in his ſixth he abandoned this opinion, having found that the ſeeds uniformly produce only the common Elder.

[z] Woodville, Withering, Engl. bot.
[a] Withering.

3. Stem ſhrubby, with the branches empty, ſmooth, oppoſite, round, parulous. Leaves oppoſite, unequally pinnate: leaflets in three, five or ſeven pairs, ovate, acute, often acuminate, ſerrate with the margin cartilaginous and white, ſmooth, an inch or a little more in length. Common petiole round, ſmooth: partial petioles half an inch long. Flowers terminating, panicle-cymed. Cyme ſuperdecompound, trichotomous, naked without bractes, ſmooth, ſpreading. Corollas white. Filaments ſhorter than the corolla. Germ ſuperior. Style filiform, ſhorter than the ſtamens. Stigma capitate, white.—Native of Japan [i].]

5. This ſends up many ſhrubby ſtalks from the root, riſing ten or twelve feet high, and dividing into many branches, which are covered with a brown bark. Leaves oppoſite; the lower generally compoſed of two pairs of leaflets, terminated by an odd one, ſhorter and broader than thoſe of the common Elder, and deeply ſerrate; the upper have frequently but three leaflets; they are of a pale green colour and pretty ſmooth. Flowers of an herbaceous white colour, appearing in april, and ſometimes ſucceeded by berries, which are red when ripe.

[Native of Germany, Switzerland, Italy and Siberia. Cultivated in 1596, by Gerarde [k].

The leaves are eaten by the red deer, and the berries by partridges, moor-game, and other birds of that order [l].]

PROPAGATION AND CULTURE.

1. Dwarf Elder propagates itſelf faſt enough wherever it is once planted, by its creeping roots, inſomuch that it is very difficult to keep it within bounds.

2. Canadian Elder will put out roots from cuttings almoſt as eaſily as the common ſort; but being liable to injury from ſevere froſts, it ſhould be planted in a ſheltered ſituation.

5. The common, and the red-berried Elder may be eaſily propagated from cuttings, or by ſowing their ſeeds; but the former being the moſt expeditious method, is generally practiſed. The ſeaſon for planting their cuttings is any time from ſeptember to march, in the doing of which, there needs no more care than to thruſt the cuttings about ſix or eight inches into the ground, and they will take root faſt enough, and may afterwards be tranſplanted where they are to remain, which may be upon almoſt any ſoil or ſituation; they are extremely hardy, and if their ſeeds are permitted to fall upon the ground, they will produce plenty of plants the ſucceeding ſummer.

Theſe trees are often planted for making fences, becauſe of their quick growth; but as their bottoms become naked in a few years, they are not ſo proper for that purpoſe; neither would I recommend them to be planted near habitations, becauſe at the ſeaſon when they are in flower, they emit ſuch a ſtrong ſcent, as will occaſion violent pains in the heads of thoſe who abide long near them; beſides the crude parts which are continually perſpired through their leaves, are accounted unwholeſome, though the leaves, bark, and other parts, are greatly eſteemed for many uſes in medicine.

The common Elder will grow in any ſoil or ſituation. It is frequently ſeen in old walls, cloſe to ditches and in very wet places; and even on hollow trees, for wherever the berries are ſcattered by birds, the ſeeds will come up.

[SAMBUCUS. See *Erithalis*.

——— aquatica. See *Viburnum Opulus*.

SAMOLOIDES. See *Scoparia*.]

SAMOLUS (*of Pliny. A diminutive from* Samos, *in which iſland this plant was obſerved by Valerandus.*)

Lin. gen. n. 222. *Reich. n.* 238. *Schreb. n.* 294. *Tournef. t.* 50. *Juſſ.* 97. *Gærtn. t.* 30.

Claſs. 5. 1. Pentandria Monogynia.

Nat. order of *Preciæ*. *Lyſimachiæ*, Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* five-parted, ſuperior, blunt at the baſe: *ſegments* erect, permanent.

[i] Thunberg. [k] Hort. kew. [l] Krocker.

Cor. one-petalled, falver-ſhaped: *tube* very ſhort, the length of the calyx, patulous: *border* flat, five-parted, blunt: *ſcalelets* very ſhort, at the baſe of the ſinus of the border, converging.

Stam. *Filaments* five, ſhort, fenced by the ſcalelets of the corolla. *Anthers* converging, covered.

Pist. *Germ* inferior. *Style* filiform, length of the ſtamens. *Stigma* capitate.

Per. *Capſule* ovate, girt by the calyx, one-celled, half-five-valved.

Seeds very numerous ovate (angular, *G.*) ſmall. *Receptacle* globular, large.

Obs. *The ſituation of the germ obſcures the inſertion of the corolla, which is placed at that point where the calyx opens from the germ. Hence it may be doubted whether this corolla is not perigynous and more nearly allied to the* Portulacæ, *although it be one-petalled.* Juſſieu.

ESSENTIAL CHARACTER.

Cor. falver-ſhaped. *Stam.* fenced by the ſcalelets of the corolla. *Capſ.* one-celled, inferior.

SPECIES.

1. Samolus Valerandi. *Brookweed* or *Water Pimpernel.*
Lin. ſpec. 243. *ſyſt.* 212. *Reich.* 1. 472. *Willd.* 1. 927. *hort. cliff.* 51. *upſ.* 42. *fl. ſuec. n.* 192. *Gærtn. fruct.* 1. 146. *Hudſ. angl.* 94. *Wither. arr. ed.* 3. 246. *Smith, brit.* 259. *Curt. lond.* 4. *t.* 20. *Relh. cant. n.* 177. *Sibth. oxon. n.* 247. *Fl. dan. t.* 198. *Hall. helv. n.* 707. *Pollich pal. n.* 216. *Neck. gallob.* 117. *Ger. prov.* 455. *Villars dauph.* 2. 463. *Desfont. atlant.* 183. *Gron. virg.* 23. *Kniph. cent.* 4. *n.* 71. *Sabb. hort.* 2. *t.* 47. *Berg. phyt.* 1. 39. *Weber ſpicil. p.* 7. *Bauh. hiſt.* 3. 792. 1. *Tournef. inſt.* 143. *Raii ſyn.* 283.
Anagallis aquatica, rotundo folio non crenato. *Bauh. pin.* 252.
A. aquat. rotundifolia. *Ger. emac.* 620. 3. *Raii hiſt.* 1101.
A. aquat. 3. *Lob. obſ.* 249. 1. *ic.* 467.
A. folio ſubrotundo non crenato. *Park. theat.* 1237. 5.
Alſine aquatica perennis foliis Beccabungæ. *Mor. hiſt.* 2. 323. *ſ.* 3. *t.* 24. *f.* 28.
β. Samolus africanus.
S. afr. folio rotundiore. *Walth. hort.* 162. *t.* 23.

DESCRIPTION, *&c.*

[Root perennial, conſiſting of long white fibres, commonly ſimple. The whole herb is ſmooth. Stem from a ſpan to a foot in height, upright, round, leafy, commonly branched a little at top. Leaves alternate, ſubſeſſile except the root-leaves, obovate, obtuſe, perfectly entire, ſhining, having few veins and thoſe diſtant. Racemes terminating, erect, many-flowered: pedicels commonly in pairs, one-flowered, erect, jointed; with one lanceolate bracte at the joint. Flowers ſmall, ſnow-white: calyx bell-ſhaped, ſcarcely half-five-cleft: tube of the corolla cylindrical; border ſpreading, the ſegments bluntiſh, equal, the ſcales lanceolate. Stamens ſhorter than the tube, included. Style very ſhort[a]. Capſule ſmall, ſubglobular, covered at bottom by the calyx, which is faſtened to it, opening at top half way into five parts. Seeds ſmall, angular, very minutely dotted, of a ferruginous-brown colour, inſerted into a biggiſh, central, globular, ſpongy, free, pedicelled receptacle, full of little cavities[b].

This is properly of the genus of *Montia*, and therefore allied to the *Portulaceæ* of Juſſieu, as that celebrated author ſuſpected. *Sheffieldia repens* of Forſter is another ſpecies, according to the report of Mr. Dryander[c].

It is an inhabitant, as Mr. Curtis remarks, of every quarter of the globe, in marſhes, wet meadows, and great ditches. It is not very common in England, but by no means ſo rare as to make it neceſſary to enumerate its places of growth. July is the month of its flowering.

Mr. Miller conſiders it as annual. Linneus marks it as biennial; others as perennial.

β. The African plant differs in having the ſtem firmer and more branched; but it ſcarcely poſſeſſes ſufficient marks to render it a diſtinct ſpecies[d].]

PROPAGATION AND CULTURE.

If the ſeeds be ſown ſoon after they are ripe on a moiſt ſpot of ground, they will come up readily and require only to be kept clean from weeds.

[Sampacca. See *Liriodendron* and *Michelia.*

Sampire. See *Crithmum.*

———, Golden. See *Inula.*

——— Marſh. See *Salicornia.*

Sampsucus. See *Thymus.*

Samstravadi. See *Eugenia.*]

Samyda. (Σαμυδα *of Theophraſtus. Derivation unknown.*)
Lin. gen. n. 543. *Reich. n.* 600. *Schreb. n.* 755. *Jacqu. amer.* 132. *Juſſ.* 439.
Claſſ. 10. 1. Decandria Monogynia.

GENERIC CHARACTER.

Cal. *Perianth* one-leafed, coloured within: *tube* bell-ſhaped, ten-ſtreaked: *border* five-cleft; *ſegments* ovate, flat, ſpreading very much, blunt, two of them augmented with a point.

Cor. none.—*Nectary* one-leafed, conical, truncate, ten-ſtreaked, almoſt the length of the calyx, and inſerted into its border at the baſe; *mouth* bluntly ten-toothed or eight-toothed.

Stam. *Filaments* none. *Anthers* ten or eight, oblong, erect, ſmall, placed on the teeth of the nectary.

Pist. *Germ* ovate. *Style* awl-ſhaped, erect, length of the nectary. *Stigma* capitate, obtuſe.

Per. *Capſule* roundiſh, four-grooved, coriaceous, thick, one-celled, four-valved.

Seeds very many, ſubovate, obtuſe, marked with a little pore at the baſe, faſtened to the valves, wrapped in a pulpy pellicle.

ESSENTIAL CHARACTER.

Cal. five-parted, coloured. *Cor.* none. *Nect.* bell-ſhaped, ſtaminiferous. *Capſ.* berried within, four-valved, one-celled. *Seeds* neſtling.

SPECIES.

[1. Samyda nitida.
Lin. ſpec. 557. *Reich.* 1. 302. *Willd.* 1. 624. *Brown. jam.* 217. *t.* 23. *f.* 3.
Flowers eight-ſtamened, leaves cordate ſmooth.

2. Samyda macrophylla.
Lin. ſpec. ed. Willd. 2. 625.
Flowers eight-ſtamened, leaves ovate acute ſmooth, axils of the veins villoſe beneath, corymb terminating.

3. Samyda multiflora.
Lin. ſpec. ed. Willd. 2. 625. *Cavan. ic.* 1. 48. *t.* 67.
Flowers eight-ſtamened, leaves oblong toothed attenuated to both ends, tomentoſe beneath, peduncles one-flowered aggregate axillary.

4. Samyda villoſa.
Lin. ſpec. ed. Willd. 2. 625. *Swartz prodr.* 68. *deſcr.* 2. 758.
Flowers ten-ſtamened, leaves oblong ſubſerrate oblique at the baſe, ſilky, villoſe beneath, peduncles ſolitary axillary.

5. Samyda glabrata.
Lin. ſpec. ed. Willd. 2. 625. *Swartz prodr.* 68. *deſcr.* 2. 760.
Flowers ten-ſtamened, leaves ovate-lanceolate quite entire ſhining, peduncles axillary one-flowered.

6. Samyda ſpineſcens.
Lin. ſpec. ed. Willd. 2. 626. *Swartz prodr.* 68. *deſcr.* 2. 762.
Flowers ten-ſtamened terminating, leaves lanceolate-ovate obtuſe crenate ſmooth, branches patulous ſpineſcent.

7. Samyda pubeſcens.
Lin. ſpec. 557. *Reich.* 1. 302. *Willd.* 2. 626.
Flowers twelve-ſtamened, leaves ovate tomentoſe beneath.]

8. Samyda ſerrulata.
Lin. ſpec. 558. *ſyſt.* 409. *Reich.* 2. 303. *Willd.* 2. 626. *Jacqu. amer.* 132. *collect.* 2. 328. *t.* 17. *f.* 1. *pict.* 66.
Guidonia ulmi folio flore roſeo niveo. *Plum. gen.* 4. *ic.* 146. *f.* 2.
Flowers twelve-ſtamened, leaves ovate-oblong ſerrulate.

[9. Samyda

[a] Smith, Curtis. [b] Gærtner. [c] Smith. [d] Linn.

[9. Samyda polyandra.
Lin. ſpec. ed. Willd. 2. 626.
Meliſtaurum diſtichum. *Forſt. gen. n.* 72. *prodr. n.* 570.
Flowers many-ſtamened.

DESCRIPTIONS, *&c.*

1. Browne calls this ſhrubby Samyda with waxen rudiments, or the larger Clovenberry Buſh. It is frequent, with his two other ſpecies, in Jamaica, growing commonly in the low lands. It ſhoots ſometimes to the height of ſeven or eight feet. The leaves are ſhining and very ſlightly crenate; rudiments or ſegments of the nectary ſoft, red; flowers in ſlender axillary racemes.

2. Branches ſmooth, round, ſcarred with the fallen leaves, yelloviſh. Leaves large, commonly half a foot or more, indiſtinctly crenulate at the edge, ſmooth on both ſides, except that at the axils of the veins and along the midrib they are villoſe. Flowers ſmall, in a pedunculed ſubterminating corymb. Calyx bell-ſhaped, with the border five-cleft and revolute. Nectary bell-ſhaped bearing eight very minute awl-ſhaped filaments. Anthers brown. Germ ovate. Style awl-ſhaped. Stigma hairy.—Native of the Eaſt Indies[1].

3. The ſtem ſeems to be ſhrubby. Branches woody, round. Leaves alternate, ovate, ſubſerrate, one-nerved with the nerve branched, tomentoſe beneath. Stipules none, except they were fallen off, or confounded with the axillary ſcalelets. Flowers ſmall, each on its own ſhort peduncle, all ſpringing from a ſcaly axillary globule, at firſt cloſed, afterwards open. Calyx very deeply divided into four whitiſh ovate ſegments. Inſtead of filaments a whitiſh pitcher-ſhaped body, ſurrounding the germ (as in Swietenia and Porteſia) ſupports at its top eight ovate ſeſſile anthers. Germ ovate, gradually narrowing towards the top; ſtigma globular. Deſcribed from a dry ſpecimen.—Native of the Weſt Indies[2].

4. Shrub a fathom high. Leaves alternate, ſpreading, rounded and oblique at the baſe, having a ſhort point at the end, nerved and veined, the nerves beneath ferruginous. Petioles round, ſhort, villoſe. Peduncles axillary, ſolitary, riſing, very ſhort, one-flowered. Flowers biggiſh, white. Certainly different from *pubeſcens*.

Native of Jamaica, in the mountains; flowering in ſpring.

5. A ſmall tree, with a trunk ten or twelve feet high, ſmooth, unarmed. Leaves alternate, ſpreading horizontally, nerved and veined, ſmooth on both ſides, ſhining above, bright green, with pores ſo ſmall as to be ſcarcely viſible. Petioles ſhortiſh. Peduncles in general ſhorter than the petioles and thicker, axillary, ſolitary, one-flowered. Flowers biggiſh, white. Two ſmall acute ſtipules at the baſe of the peduncles. Not to be confounded with *S. nitida*, which has cordate leaves, and other differences. Nor does *Caſearia nitida* of Jacquin agree with this; for it has its nectaries alternate with the ſtamens, and therefore differs from all the ſpecies of Samyda.

6. A ſmall tree. Leaves petioled, ſcattered, alternate, commonly terminating. Stipules intermixed with the petioles, lanceolate, blunt, ſmall, membranaceous. Flowers ſubſeſſile among the leaves at the ends of the branchlets, biggiſh, pale. Quite diſtinct from the other ſpecies, and intermediate between the *Samydas* and *Caſearias*, on account of the calyx being five-leaved, which in them is one-leafed.

Native of Hiſpaniola, where it flowers in december and january[3].

7. This is an obſcure plant, native of America.

8. Shrub three or four feet high, with round ſomewhat villoſe branchlets. Leaves alternate, bifarious, on very ſhort petioles, lanceolate, acute, ſomewhat villoſe on both ſides and at the edges. Peduncles axillary, ſolitary, one-flowered, very ſhort. Bractes to theſe two, ſubulate, ſmall, brown. Flowers without ſmell. Calyx thick, externally villoſe, dirty yelloviſh green, white within. Anthers browniſh. Germ villoſe. Stigma green. Nectary and Style white. Fruit reddiſh yellow. Seeds pale.—Native of America[4].

9. Native of New Caledonia[5].]

PROPAGATION AND CULTURE.

Theſe plants are propagated by ſeeds procured from the countries where they naturally grow. Sow them upon a hot-bed in the ſpring; and when the plants come up ſet them in ſmall pots filled with good kitchen garden earth, plunge them into a hot-bed of tanner's bark, and treat them in the ſame way as other tender plants from the ſame countries. Keep them in the bark-bed till they have acquired ſtrength, and then they may be expoſed in ſummer, but in winter they require a good green-houſe.

[SAMYDA. See *Caſearia*.

SANAMUNDA. See *Daphne*, *Lachnæa*, *Paſſerina*, and *Phylica*.

SANASANCTA. See *Nicotiana*.

SANDAL-WOOD. See *Santalum*.

SAND-BOX TREE. See *Hura*.

SANDERS, White and Yellow. See *Santalum*.

SANDORICUM.
Lin. gen. ed. Schreb. n. 1751. *p.* 802. *Cavan. diſſ.* 7. 359. *t.* 202, 203. *Lamarck, encycl.* 3. 69. *Juſſ.* 265.
Claſſ. 10. 1. Decandria Monogynia.

GENERIC CHARACTER.

CAL. *Perianth* one-leafed, tubular, five-toothed, ſhort.
COR. *Petals* five, lanceolate, ſpreading.
Nectary; tube cylindrical, length of the petals, with a ten-toothed mouth.
STAM. *Filaments* none. *Anthers* ten, oblong, within the mouth of the nectary.
PIST. *Germ* globular, ſuperior. *Style* filiform, length of the nectary. *Stigma* thickiſh, grooved, ten-rayed; the rays recurved.
PER. *Berry* (Drupe) roundiſh, depreſſed, five-lobed, ſuculent, one-celled.
SEEDS five, large, convex on one ſide, angular on the other.

ESSENTIAL CHARACTER.

Cal. five-toothed. *Pet.* five. *Nect.* cylindrical, truncate, bearing the anthers at its mouth. *Drupe* filled with five nuts.

SPECIES.

1. Sandoricum indicum.
Lin. ſpec. ed. Willd. 2. 556. *Cavan. diſſ.* 7. 357. *t.* 202, 203. *Lamarck, encycl.* 3. 66.
Sandoricum. *Rumph. amb.* 1. 167. *t.* 64?
Hantol. *Raii ſuppl. app.* 54. 9. *Camelli ic.* 136.

DESCRIPTION, *&c.*

This is a tree with an aſh-coloured bark, and the wood red in the middle. Leaves alternate, on long petioles, ternate. Leaflets petioled, roundiſh-ovate, acuminate, veined, quite entire, ſmooth above, ferruginous-tomentoſe beneath. Petioles tomentoſe. Panicle narrow, axillary, longer than the petiole, naked. It is very nearly allied to Trichilia nervoſa, but ſeems to differ, in not having the leaves veinleſs on the upper ſurface, and in the panicle being naked, not having a lanceolate leaflet to each branch as the Trichilia has.

Native of the Philippine and Molucca iſlands[6]. The fruit is acid. It is called *Hantol* in the Philippine iſlands[6].

SANDWORT. See *Arenaria*.]

SANGUINARIA. (*From its bloody-coloured juice.*)
Lin. gen. n. 645. *Reich. n.* 701. *Schreb. n.* 878. *Dill. elth.* 252. *Juſſ.* 236.
Claſſ. 13. 1. Polyandria Monogynia.
Nat. order of *Rhœadeæ*. *Papaveraceæ*, Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* two-leaved, ovate, concave, ſhorter than the corolla, caducous.
COR. *Petals* eight, oblong, blunt, ſpreading very much: alternately interior and narrower.
STAM. *Filaments* very many, ſimple, ſhorter than the corolla. *Anthers* ſimple.

[1] Willdenow. [2] Cavanilles. [3] Swartz. [4] Jacqu. collect. [5] Forſter. [6] Juſſieu. [6] Willdenow.

PIST. *Germ* oblong, compreſſed. *Style* none. *Stigma* thickiſh, two-grooved with a ſtreak, height of the ſtamens, permanent.

PER. *Capſule* oblong, ventricoſe, ſharp at both ends, two-valved.

SEEDS very many, round, acuminate.

ESSENTIAL CHARACTER.

Cal. two-leaved. *Cor.* eight-petalled. *Silique* ovate, one-celled.

SPECIES.

1. Sanguinaria canadenſis. *Canadian Sanguinaria, Bloodwort*, or *Puccoon*.
   Lin. ſpec. 723. *ſyſt.* 489. *Reich.* 2. 568. *Willd.* 2. 1140. *hort. cliff.* 202. *Gron. virg.* 57. *Giſeck ic. faſc.* 1. *n.* 13. *Curt. magaz.* 162.
   S. minor flore ſimplici. *Dill. elth.* 335. *t.* 252. *f.* 327.
   Chelidonium majus canadenſe acaulon. *Corn. canad.* 212. *Mor. hiſt.* 2. 257. *ſ.* 3. *t.* 11. *f.* 1. *Raii hiſt.* 1887. *Park. theat.* 617. 3.
   Ranunculus virginienſis albus. *Park. theat.* 327. *t.* 326. *f.* 8. *Raii ſuppl.* 314. 3.
   β. Sanguinaria major, flore ſimplici. *Dill. elth.* 335. *t.* 252. *f.* 325.
   γ. S. major, flore pleno. *Dill. elth. f.* 326.

DESCRIPTION, *&c.*

[Root tuberous, thick, fleſhy, not unlike that of Tormentilla, placed tranſverſely, with ſeveral ſlender fibres deſcending from it; of a reddiſh ſaffron colour, and yielding a juice of the ſame hue, which gave occaſion to Morinus, and after him Dillenius and others, to give it the name of Sanguinaria; this juice is bitter and acrid, and it flows alſo from the leaves and foot-ſtalks when cut. In the ſpring the root puts forth ſlender round ſmooth ſtems, paliſh green or browniſh tinged with purple, each terminated by a little conical head, which expands into a white flower of eight petals, at firſt concave, then flat, and finally rolled back ſo as to be convex, marked with ſlender ſtreaks. Filaments white with ſaffron-coloured anthers. Germ glaucous. Capſule yellowiſh when ripening, but of a purpliſh glaucous colour when quite dry. Seeds ſhining, yellowiſh and poliſhed like thoſe of Millet. When the flowers are about expanding, a ſingle leaf comes out upon each flower-ſtalk, at firſt ſmall, compreſſed, and protecting the flower with its foot-ſtalk; but afterwards becoming larger, and unfolding into lobes, like thoſe of the Fig, which are thickiſh, ſmooth, internally of a deep glaucous green, externally of a whitiſh glaucous colour, with frequent veins, moſt conſpicuous on the outſide; on petioles which are flat and ſlightly grooved on the inſide, and convex on the outſide. Three or four flower-ſtems ariſe from each root, and are ſurrounded at the baſe by oblong, membranaceous, tender, ſtriated ſcales. The root, leaves and flowers have no ſmell[y],

Linneus remarks, that the radical leaf very tenderly embraces and cheriſhes the infant flower, after the manner of Oſmunda Lunaria. There is only a ſingle cowled leaf, and a one-flowered ſcape, from each bivalve bud of the root. The anthers in Linneus's ſpecimen had ſcarcely any pollen in the anthers; he therefore ſuſpects that the plant may be dioecous, but there does not ſeem to be any ground for that ſuſpicion. It has a ſulvous milk, like Celandine[z]. With this juice the Indians are ſaid to paint themſelves.

Though the Sanguinaria cannot be conſidered as a ſhowy plant, yet it has few equals in point of delicacy and ſingularity: there is ſomething in it to admire from the time that its leaves emerge from the ground and embroſom the infant bloſſom, to their full expanſion and the ripening of the ſeed-veſſels.

The woods of Canada and other parts of North America produce this plant in abundance. With us it flowers in the beginning of april: its bloſſoms are fugacious, and fully expand only in fine warm weather.

It appears from Moriſon, that it was cultivated in this country in 1680, by Mr. William Walker, in his ſuburban garden, in St. James's ſtreet, not far from St. James's palace.

Dillenius has figured three varieties; a large one, a ſmall one, and a third in which the petals are multiplied, but which can ſcarcely be called double[a].]

PROPAGATION AND CULTURE.

This plant is hardy enough to live in the open air in England, but it ſhould be planted in a looſe ſoil and a ſheltered ſituation, not too much expoſed to the ſun. It is propagated by the roots, which may be taken up and parted every other year; the beſt time for doing of this is in ſeptember, that the roots may have time to ſend out fibres before the hard froſt ſets in. The flowers of this plant appear in april, and when they decay, the green leaves come out, which will continue till midſummer; then they decay, and the roots remain unactive till the following autumn; ſo that unleſs the roots are marked, it will be pretty difficult to find them after their leaves decay, for being of a dirty brown colour on the outſide, they are not eaſily diſtinguiſhed from the earth.

This plant is very proper to mix with the Dog's-tooth Violet, Spring Cyclamen, Perſian Iris, Bulbocodium, Siſyrinchium, and ſome other low growing bulbous and tuberous-rooted flowers, which require the ſame culture, where theſe will add to the variety when they are in beauty; for when the roots are ſtrong and grow in a good ſoil, they will produce a great number of flowers upon each root; the roots may be planted about four or five inches aſunder every way.

A ſoil having a mixture of bog earth or rotten leaves in it, ſuits this plant beſt.

SANGUISORBA. (*From its ſuppoſed medical qualities, in ſtopping hæmorrhagies: quod ſanguineos fluxus ſiſtat & ſorbeat.*)

Lin. gen. n. 126. *Reich. n.* 152. *Schreb. n.* 190. *Juſſ.* 336.

Claſs. 4. 1. Tetrandria Monogynia.

Nat. order. *Miſcellaneæ*, Lin. *Roſaceæ*, Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* two-leaved: *leaflets* oppoſite, very ſhort, caducous.

COR. one-petalled, wheel-ſhaped; *tube* ſubglobular: *border* four-cleft, flat; *ſegments* ſubovate.

STAM. *Filaments* four, almoſt the length of the corolla. *Anthers* ſimple.

PIST. *Germ* roundiſh, within the tube of the corolla. *Style* filiform, length of the corolla, permanent. *Stigma* ſimple.

PER. *Capſule* globular, one-celled, cut tranſverſely.

SEEDS very many, roundiſh, very ſmall.

ESSENTIAL CHARACTER.

Cal. two-leaved, inferior. *Cor.* ſuperior. *Germ* between the calyx and corolla.

SPECIES.

1. Sanguiſorba officinalis. *Great Burnet.*
   Lin. ſpec. 169. *ſyſt.* 158. *Reich.* 1. 327. *Willd.* 1. 653. *hort. cliff.* 39. *fl. ſuec. n.* 137. *mat. med.* 52. *Huds. angl.* 65. *Wither. arr. ed.* 3. 199. *Smith, brit.* 186. *Relh. cant. n.* 119. *Sibth. oxon. n.* 178. *Abbot, bedf.* 31. *Fl. dan. t.* 97. *Hall. helv. n.* 705. *Roth. germ.* 1. 62. 2. 176. *Hoffm. germ.* 54. *Pollich pal. n.* 164. *Scop. carn. n.* 166. *Krock. ſileſ. n.* 243. *Allion. pedem. n.* 291. *Gmel. ſib.* 3. 141. *Ludw. ed. t.* 94. *Kniph. cent.* 4. *n.* 72. *Sabb. hort.* 2. *t.* 70. *Fl. ruſſ. t.* 142. *Plenck, ic.* 63.
   S. major. *Fuchſ. hiſt.* 788.
   S. major flore ſpadiceo. *Bauh. hiſt.* 3. 120. *Raii ſyn.* 203. 2. *Petiv. brit. t.* 4. 11.
   Pimpinella major vulgaris. *Park. theat.* 582. 3.
   P. ſylveſtris. *Ger.* 889. 2. *emac.* 1045. 2. *Raii hiſt.* 402. 2.
   P. ſanguiſorba major. *Bauh. pin.* 160. *Matth.* 1033. *Mor. hiſt.* 3. *ſ.* 8. *t.* 18. *f.* 7.
   P. ſylv. ſ. ſanguiſorba major. *Ded. pempt.* 105. 2.
   β. Sanguiſorba ſabauda. *Mill. dict. n.* 2.
   S. auriculata. *Allion. pedem. n.* 292.
   Pimpinella major rigida præalta auriculata ſabauda. *Bocc. muſ.* 2. 19. *t.* 7.

[y] Dillenius. [z] Lin. ſyſt. [a] Curt's.

γ. S. hiſpanica. *Mill. dict. n.* 3.
Pimpinella major hiſpanica altera, conglomerato flore. *Tournef. inſt.* 157.
Spikes ovate.

[2. Sanguiſorba media. *Short-ſpiked Burnet.*
Lin. ſpec. 169. *ſyſt.* 158. *Reich.* 1. 328. *Willd.* 1. 654. *Zinn. gott.* 239.
Pimpinella minor de Canada. *Zanon. hiſt. t.* 138.
P. canadenſis major, ſpica breviore rubra, foliis lævibus. *Mor. hiſt.* 3. 264. *ſ.* 8. *t.* 18. *f.* 8.
Spikes cylindrical.]

3. Sanguiſorba canadenſis. *Canadian Burnet.*
Lin. ſpec. 169. *ſyſt.* 158. *Reich.* 1. 328. *Willd.* 1. 654. *hort. cliff.* 39. *Gmel. ſib.* 3. 143.
S. canad. flore albo ſpicato. *Rupp. gen.* 63.
Pimpinella maxima foliis longioribus, &c. *Amm. ruth.* 37. *n.* 27.
P. ſanguiſorba canadenſis major, ſpica longiore alba. *Mor. hiſt.* 3. 264. *ſ.* 8. *t.* 18. *f.* 12.
P. ſanguiſorba hortenſis maxima. *Ger. emac.* 1046. 3.
P. maxima canad. longius ſpicata. *Corn. canad.* 175. *t.* 174. *Barr. rar.* 18. *f.* 739. *Raii hiſt.* 402. 4.
P. max. americana. *Park. theat.* 583. 4.
Spikes very long.

DESCRIPTIONS, *&c.*

1. [This is a hardy plant, from eighteen inches to two feet and a half in height. Stem upright, almoſt naked, branching towards the top. Leaves unequally pinnate, conſiſting of four, five or ſix pairs of leaflets, which are ovate-oblong, cordate, acutely crenate, ſmooth, near two inches long, and an inch broad at the baſe. Spikes thick, blunt, of a dark blood-red, the upper flowers expanding firſt, and being commonly without ſtamens, or only an imperfect one. Segments of the corolla mulberry-coloured, hairy on the outſide at the baſe; tube white, fleſhy, incloſing the germ; a glandular ring cloſely embracing, but not adhering to the ſtyle: the ſegments, when old, adhere ſo ſlightly at the baſe, that the corolla might almoſt be conſidered as four-petalled. Beſides the ſmooth coat formed by the permanent baſe or tube of the corolla, there is an ovate ſeed-veſſel, including one ſeed [b].

It differs from the next ſpecies, in having ovate, not cylindrical ſpikes; and ſmooth calyxes, not ciliate at the edge [c].

Native of many parts of Europe, Linnæus ſays in drier meadows, with us in moiſt meadows, particularly in a chalky or limeſtone ſoil, principally in the northern parts of the iſland. Mr. Woodward informs us, that he has not found it farther to the ſouth-eaſt than Ripton in Huntingdonſhire. It is common in lime-ſtone paſtures in the north, and not uncommon in marly ſoils about Stafford. In Cambridgeſhire, at King's-hedges, Whitwell, Ditton, Shelford, Long Stanton, Cottenham. In Bedfordſhire, at Bromham, Fenlake and Cow meadows. In Oxfordſhire, at Iſley, Cowley and Binſey. Scotland, in low moiſt meadows near Dumfries, &c. but not common.

Old Gerarde ſays: "my ſelfe have founde it growing upon the ſide of a cawſey which croſſeth the "one halfe of a fielde, whereof the one part is earable "grounde, and the other part medowe, lying betweene "Paddington and Lyſſon greene, neere unto London, "upon the high way." Parkinſon alſo points it out as growing not only there, but by Pancras church. It is not noticed in Curtis's Flora Londinenſis, or by Dr. Milne, in his indigenous botany. It is found about Grantham in Lincolnſhire: Beſton and Lenton in Nottinghamſhire; and Parkinſon ſays it is common in Huntingdon and Northampton ſhires. It flowers in june and july.

This plant is too hard and ſticky for cattle; nor has it any of the Cucumber ſmell, which is found in the Poterium or leſſer Burnet. It is certainly a defect in the Linnean ſyſtem that two plants ſo ſimilar in habit, ſhould be ſo diſtant from each other.]

3. The Italian Burnet riſes with ſtiff upright ſtalks more than three feet high, branching out towards the top; each branch terminated by a cylindrical ſpike of brown flowers, ſmaller than thoſe of the common ſort. Leaves on very ſtrong foot-ſtalks, much longer than in that: they have ſeven or eight pairs of ſtiff leaflets, oblong-heart-ſhaped, deeply ſerrate, of a lucid green on the upper ſide, but pale on the under, on pretty long pedicels, at the baſe of which come out two ſmall roundiſh leaves or ears, which are deeply indented.

γ. The leaves of the Spaniſh Burnet are ſmaller, having but four pairs of leaflets, bluntly ſerrate, pale green above and hoary beneath, on very ſhort foot-ſtalks. The ſtalks riſe about two feet high, and branch pretty much towards the top: the branches are terminated by round heads or ſpikes of reddiſh flowers.

[Mr. Miller conſiders theſe as ſpecifically diſtinct from our great Burnet.

2. The ſpikes of flowers are cylindrical and longer; the ſtamens alſo are longer than in S. officinalis [d].

According to Moriſon, the leaves are larger, longer and more ſerrate.

Native of Canada. Introduced in 1785, by Mr. John Bell. It flowers from july to ſeptember [e].]

3. This has leaves like thoſe of the common ſort, but a little ſtiffer, compoſed of four or five pairs of leaflets; thoſe on the lower part of the midrib ſtand alternate, but the two upper pairs are oppoſite; they are of a light green colour, and deeply ſerrate. The ſtalks riſe three feet high, dividing towards the top into ſmall branches, which ſtand erect, and are terminated by long ſpikes of flowers of an herbaceous white colour, each upon a ſhort foot-ſtalk.

There is another with long ſpikes of red flowers, of a higher growth, with thicker ſpikes, and broader leaflets whiter underneath.

[Moriſon remarks, that this red-ſpiked American Burnet has the ſpikes three or four inches long; whereas in the herbaceous-ſpiked they are only two or three. He ſays that the lower flowers open firſt; and that they are of a yelloviſh green colour.

Native of North America and Siberia.—It appears from Parkinſon that it was cultivated here in 1640. It flowers from june to ſeptember [f].]

PROPAGATION AND CULTURE.

The Burnets are very hardy perennial plants, and will thrive in almoſt any ſoil or ſituation. They may be propagated either by ſeeds or parting of the roots; if they are propagated by ſeeds, they ſhould be ſown in in the autumn, for when they are ſown in the ſpring, they ſeldom grow the ſame year: when the plants come up, they muſt be kept clean from weeds till they are ſtrong enough to tranſplant, when they may be planted in a ſhady border, at about ſix inches diſtance each way, obſerving to water them till they have taken new root, after which they will require no other care but to keep them clean from weeds till autumn, when they may be tranſplanted to the place where they are to remain; the following ſummer they will produce flowers and ſeeds, but their roots will abide many years.

If the roots are parted, it ſhould be done in autumn, that they may get good root before the dry weather comes on in the ſpring.

SANGUISORBA. See *Poterium.*

SANICLE. See *Sanicula.*

——— American. See *Heuchera.*

——— Yorkſhire. See *Pinguicula.*

SANICULA. (*Dimin.* a ſanando *vulnera. From its ſuppoſed quality of healing wounds.*)
Lin. gen. n. 326. *Reich. n.* 356. *Schreb. n.* 458. *Tournef. t.* 173. *Juſſ.* 225. *Gærtn. t.* 20.
Claſſ. 5. 2. Pentandria Digynia.
Nat. order of *Umbellatæ* or *Umbelliferæ.*

GENERIC CHARACTER.

CAL. *Umbel univerſal* with very few rays (often four:) *partial* with very many, cluſtered, ſubcapitate.
Involucre univerſal halved, placed outwardly: *partial* furrounding, ſhorter than the floſcules.
Perianth ſcarcely obſervable.

[b] Withering and Smith. [c] Willdenow. [d] Linn. ſpec. [e] Hort. kew. [f] Idem.

Cor. *universal* uniform: *Floſcules* of the diſk abortive.
Proper of five compreſſed inflexed petals, cloſing the flower.
Stam. *Filaments* five, ſimple, twice as long as the corollets, erect. *Anthers* roundiſh.
Pist. *Germ* hiſpid, inferior. *Styles* two, awl-ſhaped, reflexed. *Stigmas* acute.
Per. none. *Fruit* ovate acute, rugged, bipartile.
Seeds two, convex and muricate on one ſide, flat on the other.

ESSENTIAL CHARACTER.

Umbels cluſtered, ſubcapitate. *Fruit* rugged. *Flowers* of the diſk abortive.

SPECIES.

1. Sanicula europæa. *Common* or *European Sanicle.*
Lin. ſpec. 339. *ſyſt.* 272. *Reich.* 1. 652. *Willd.* 1. 1366. *fl. ſuec. n.* 235. *mat. med.* 76. *Hudſ. angl.* 110. *Wither. arr. ed.* 3. 284. *Smith, brit.* 291. *engl. bot. t.* 98. *Relh. cant. n.* 208. *Sibth. oxon. n.* 281. *Lightf. ſcot.* 154. *Fl. dan. t.* 293. *Hoffm. germ.* 90. *Pollich pal. n.* 265. *Hall. helv. n.* 737. *Krock. ſileſ. n.* 397. *Villars dauph.* 2. 656. *Allion. pedem. n.* 1282. *Blackw. t.* 63. *Plenck, ic.* 174.
5. officinarum. *Neck. gallob.* 137. *Tournef. inſt.* 326. *Bauh. pin.* 319. *Mor. hiſt. ſ.* 5. *t.* 34. *ord.* 3. *f.* 1.
Caucalis Sanicula. *Crantz, auſtr.* 228. *Roth. germ.* 1. 121. 2. 310.
Aſtrantia Diapenſia. *Scop. carn. n.* 304.
Sanicula. *Dod. pempt.* 140. 1. *Riv. pent. t.* 31.
S. ſ. Diapenſia. *Ger.* 801. *emac.* 948. *Raii hiſt.* 475. *ſyn.* 221.
S. mas. *Dalech. hiſt.* 1268. *Fuchſ. hiſt.* 671.—ſ. Diapenſia. *Bauh. hiſt.*
S. vulgaris ſ. Diapenſia. *Park. theat.* 532. 1.
Diapenſia. *Brunf. herb.* 1. 80. *Camer. epit.* 763.—ſ. Sanicula. *Matth.* 1019.
Sideritis tertia Dioſcoridia. *Column. phyt.* 59. *t.* 16.
Root-leaves ſimple, florets all ſeſſile.
[2. Sanicula canadenſis. *Canadian Sanicle.*
Lin. ſpec. 339. *Reich.* 1. 653. *Willd.* 1. 1366. *Gron. virg.* 146. *Thunb. jap.* 116. *prod. cap.* 49.
S. canad. ampliſſimo laciniato folio. *Tournef. inſt.* 326.
Root-leaves compound, leaflets ovate.
3. Sanicula marilandica. *Maryland Sanicle.*
Lin. ſpec. 339. *Reich.* 1. 653. *Willd.* 1. 1367. *hort. upſ.* 57. *Gron. virg.* 31. *Jacqu. collect.* 2. 293. *icon. rar.* 2. 348. *Raii ſuppl.* 260. *Gaertn. fruct.* 1. 79.
Male flowers peduncled, hermaphrodites ſeſſile.

DESCRIPTIONS, *&c.*

1. Root perennial, with long branched fleſhy fibres. Stem from twelve to eighteen inches high, upright, round, grooved, almoſt naked, little branched, ſmooth. Leaves petioled, ſmooth, deeply ſeven-lobed or five-lobed, deep green above, paler green and ſhining underneath; the lobes wedge-ſhaped, trifid, cut and ſerrate, with briſtles at the end of the ſerratures. Univerſal umbel unequal, with the rays often branched. Univerſal involucres two-leaved, leafy, pinnatifid: partial many-leaved; the leaflets lanceolate, acute, entire. Flowers ſeſſile, heaped, white or reddiſh: the petals all nearly equal, entire. The central ones are male, having no ſtyle, but in its place a concave glandular nectary, ſimilar to what crowns the germ in the fertile florets. The female florets have elongated, acute calycine teeth, but no petals, according to Scopoli; Mr. Wood however informs us that they are only deciduous [g].

Native of Europe, in woods and thickets, flowering in may.

This plant was much celebrated formerly as a vulnerary. It diſcovers to the taſte, ſays Lewis, ſome bitterniſhneſs and roughneſs, followed by an impreſſion of acrimony which affects chiefly the throat: in the freſh leaves the taſte is very weak, in the dry leaves conſiderable: in the extract made from them by water or ſpirit, moderately ſtrong.—Sanicle has long been entirely diſcarded as a medicine; and in Dr. Smith's opinion ſeems to partake of that viroſe acrimony which is found in moſt umbelliferous plants growing in a moiſt fat ſoil.

2. This is ſo ſimilar in ſtructure to the preceding, that there is ſcarcely any difference except that it is frequently ten times as large in all its parts.

Native of Virginia [h]. Found alſo at the Cape of Good Hope and in Japan by Thunberg. Nothing therefore can be more unfortunate than the trivial name adopted by Linneus from Tournefort. Names indeed taken from their native place are generally of the worſt ſort.

3. Root perennial. The whole plant ſmooth. Stem annual, erect, about two feet high, the thickneſs of a quill, with alternate branches, trichotomous at top. Root-leaves on long petioles, ternate, acutely ſerrate, acute; leaflets rhombed, ſubſeſſile, the middle one three-lobed at top, the ſide ones two-parted into ſubtrilobate lobes like the middle one. Lower ſtem-leaves alternate, like the root-leaves, but ſharper and ſmaller. Upper ſtem-leaves and branch-leaves at the diviſions oppoſite, almoſt ſeſſile, ternate, ſerrate, acute, but ſcarcely lobed. Umbels peduncled, ſimple, few-flowered. Male flowers on ſhort pedicels. Females ſeſſile. Leaves of the involucre few ovate and acute, ſometimes lobed. Leaflets of the perianth lanceolate, acute, concave, erect, green, the length of the corolla. Petals whitiſh, acute, bent in, erect. Germ hiſpid. Fruit roundiſh-compreſſed, echinate, brown, ſmall [i]. A ſort of two-celled capſule, not bipartile or ſeparating from the ſeed. One of the ſeeds is commonly abortive [k].

Native of Virginia and Maryland. Introduced in 1765 by Mr. John Cree. It flowers in june and july [l]. It is not in the Linnean herbarium, and Mr. Dryander ſuſpects it not to differ from the preceding.

PROPAGATION AND CULTURE.

Part the roots, any time from ſeptember to march; but the beſt time is in autumn. In a moiſt ſoil, and a ſhady ſituation they will thrive exceedingly.

[Sanicula. See *Heuchera* and *Saxifraga.*
Sanicula alpina. See *Aretia, Androſace, Primula,* and *Verbaſcum.*
——— indica. See *Mitella.*
——— montana. See *Cortuſa, Pinguicula,* and *Saxifraga.*

SANTALUM.

Lin. gen. n. 480. *Reich. n.* 169. *Schreb. n.* 215. *Juſſ.* 321.
Claſs. 4. 1. Tetrandria Monogynia.
Nat. order of *Onagræ*, Juſſ.

GENERIC CHARACTER.

Cal. *Perianth*: margin ſuperior, four-toothed.
Cor. *Petals* four, placed on the ſegments of the calyx, ſtraighter.
Glands four, ſmaller than the petals, alternate with them.
Stam. *Filaments* four, growing on the tube of the calyx. *Anthers* ſimple.
Pist. *Germ* inferior. *Style* length of the ſtamens. *Stigma* ſimple.
Per. *Berry.*
Seed one.

ESSENTIAL CHARACTER.

Cal. four-toothed. *Cor.* four-petalled; with the petals growing on the calyx, beſides four *glands*. *Berry* inferior, one-ſeeded.

SPECIES.

Santalum album. *White and yellow Sandal-wood.*
Lin. ſyſt. 164. *Reich.* 1. 344. *Willd.* 1. 691. *Bauh. pin.* 392. *Rumph. amb.* 2. 42. *t.* 11. *Burm. ind.* 87. *Raii hiſt.* 1804. *Ger.* 1389. 1. *emac.* 1586. *Park. theat.* 1605. *Plenck, ic.* 101.
S. verum. *Lin. mat. med.* 102. *Breyn. ic.* 94. *t.* 5. *f.* 1. *Vahl ſymb.* 2. 32.
Sirium myrtifolium. *Lin. mant.* 200. *Roxb. corom.* 1. *p.* 2. *t.* 2.

DESCRIPTION, *&c.*

This tree has the appearance of a Myrtle, with ſtiff brachiate branches, every where jointed [m]. In habit,

[g] Smith and Withering.
[h] Linn. [i] Jacquin. [k] Gaertner. [l] Hort. kew. [m] Linn. mant.

leaves

leaves and inflorescence resembling the Privet*. Leaves oppoſite, on ſhort petioles, ſpreading, lanceolate, entire, waved, ſmooth, ſhining, about two inches long, and three quarters of an inch broad. Stipules none. Flowers ſmall, red, in a terminating, compound, ſmall, erect, thyrſe-like raceme. Calyx ſuperior, bell-ſhaped, four-cleft: diviſions ovate, expanding, coloured. Corolla none, except the nectary be ſuch. Nectary four-leaved, obcordate, notched, inſerted into the mouth of the calyx. Filaments ſhort, hairy, inſerted into the calyx alternately with the leaflets of the nectary. Stigma four-lobed. Berry globular, ſize of a large pea, ſmooth, juicy, black when ripe.

This valuable tree is a native of many parts of India. In the Circar mountains, where it is wild, it is but of a ſmall ſize, and the wood of little value. On the Malabar coaſt it is much larger, and the wood of the beſt ſort.

This wood is the white and yellow Sanders or Sandal wood, Santalum album and flavum of the Materia Medica; both being the produce of the ſame tree, and not, as Garcias ſays, of different trees. Moſt trees in India, when large and old, become coloured towards the centre; that part is always much more hard and durable than the exterior uncoloured part. So it is with the Sandal tree: the centre, when the tree becomes large, acquires a yellow colour, great fragrance and hardneſs; while the exterior part of the ſame tree, that covers the coloured part, is leſs firm, white and without fragrance. It is only the yellow part that is of uſe; and the larger the tree the more valuable is the wood, it having then acquired a greater degree of fragrance, for which alone it is held in ſuch univerſal eſtimation.

Birds eat the berries greedily, by which means it is propagated extenſively*.]

SANTOLINA. (*Dimin. q.* Sanctolina. *Holy Herb; ſo named on account of its ſuppoſed medical qualities.*)
Lin. gen. n. 942. *Reich. n.* 1022. *Schreb. n.* 1278. *Tournef. t.* 260. *Vaill. act. gall.* 1719. *Juſſ.* 185. *Gærtn.* 165.

Claſſ. 19. 1. Syngeneſia Polygamia Æqualis.
Nat. order of *Compoſitæ Diſcoideæ. Corymbiferæ*, Juſſ.

GENERIC CHARACTER.

CAL. *Common* hemiſpherical, imbricate: *ſcales* ovate-oblong, acute, preſſed cloſe.
COR. *Compound* uniform, longer than the calyx. *Corollets* hermaphrodite, equal, numerous.
Proper one-petalled, funnel-form: *border* five-cleft, revolute.
STAM. *Filaments* five, capillary, very ſhort. *Anther* cylindrical, tubulous.
PIST. *Germ* four-cornered, oblong. *Style* filiform, length of the ſtamens. *Stigmas* two, oblong, depreſſed, truncate.
PER. none. *Calix* unchanged.
SEEDS ſolitary, oblong, four-cornered. *Down* none.
REC. chaffy, ſtarriſh: *Chaffs* concave.
OBS. *S. alpina differs in having no female florets.*

ESSENTIAL CHARACTER.

Cal. imbricate, hemiſpherical. *Down* none. *Recept.* chaffy.

SPECIES.

1. Santolina Chamæcypariſſus. *Common Lavender-Cotton.*
Lin. ſpec. 1179. *Reich.* 3. 729. *hort. cliff.* 397. *vrſ.* 252. *mat. med.* 182. *Gærtn. fruct.* 2. 391. *Hall. helv. n.* 123. *Allion. pedem. n.* 603. *Ludw. eſt. t.* 198. *Blackw. t.* 346. *Kniph. cent.* 6. *n.* 80. *Regnault bot.*
Santolina. *Dod. pempt.* 269. 1.
Chamæcypariſſus. *Ger.* 952. *emac.* 1109. *Bauh. piſt.*
Abrotanum femina. *Beſl. cyſt. æſt.* 14. *t.* 7. *f.* 3. *Matth.* 692.—vulgare. *Cluſ. hiſt.* 1. 341. *Park. theat.* 951.—foliis teretibus. *Baub. pin.* 136. *Mor. hiſt.* 3. 11. *n.* 12. *f.* 6. *t.* 3. *f.* 12.
Polium Theophraſti & Dioſcoridis. *Col. ecphr.* 54.
β. Santolina villoſa. *Hoary Lavender-Cotton.*
Mill. dict. n. 2. *Ait. kew.* 3. 165. β.

S. flore majore, foliis villoſis & incanis. *Tournef. inſt.* 460.
Abrotanum fœmina flore majore, fol. vill. & inc. *Bauh. pin.* 137. 2. *Raii hiſt.* 359. 3.
A. fœm. 3. *Cluſ. hiſt.* 1. 341. *f.* 342.
A. fœm. narbonenſe magno flore. *Park. theat.* 96. *f.* 3.
Abſinthium marinum, Abrotoni fœminæ facie. *Ger.* 944. 5. *emac.* 1102. 4.
γ. Santolina decumbens. *Creeping hoary Lavender-Cotton.*
Mill. dict. n. 3.
S. 5. *Dod. pempt.* 269.
S. repens & caneſcens. *Tournef. inſt.* 460.
Abrotanum fœmina repens caneſcens. *Bauh. pin.* 137. 6. *Raii hiſt.* 360. 7.
δ. Santolina virens. *Dark-green Lavender-Cotton.*
Mill. dict. n. 4. *Ait. kew.* 3. 165.
S. foliis obſcure virentibus, flore aureo. *Tournef. inſt.* 461.
S. altera. *Dod. pempt.* 269. 2.
Abrotanum fœmina viridis. *Bauh. pin.* 137. 8. *Raii hiſt.* 360. 6.
A. fœm. vir. minor. *Park. theat.* 96. 7.
A. fœm. 6. *Cluſ. hiſt.* 1. 342.
Peduncles one-flowered, leaves toothed four ways.
2. Santolina roſmarinifolia. *Roſemary-leaved Lavender-Cotton.*
Lin. ſpec. 1180. *Reich.* 3. 729. *hort. cliff.* 397. *Willich obſ. n.* 125. *D'Aſſo arag. n.* 805.
α. S. foliis roriſmarini major. *Tournef. inſt.* 491.
Abrotanum fœmina foliis roriſmarini majus. *Bauh. pin.* 137. 9. *Park. theat.* 96. 5. *Raii hiſt.* 359. 4.
A fœm. 4. *Cluſ. hiſt.* 1. 342.
A. fœm. fol. longis viridibus. *Mor. hiſt.* 3. *ſ.* 6. *t.* 3. *f.* 22.
β. Santolina minor. *Mill. dict. n.* 6.
S. fol. roriſmarini minor. *Tournef. inſt.* 461.
A. fœm. fol. roriſm. minus. *Bauh. pin.* 137. 10. *Park. theat.* 96. 6. *Raii hiſt.* 359. 5.
A. fœm. 5. *Cluſ. hiſt.* 1. 342.
Peduncles one-flowered, leaves linear tubercled at the edge.
[3. Santolina fragrantiſſima. *Sweet-ſmelling Lavender-Cotton.*
Vahl ſymb. 1. 70. *Forſt. deſcr.* 147. *n.* 71.
Flowers corymbed, leaves ovate crenulate.
4. Santolina alpina. *Alpine Lavender-Cotton.*
Lin. ſpec. 1180. *ſyſt.* 741.
S. erecta. *Lin. ſyſt. ed. Reich.* 3. 730.
Santolinoides alpina ſaxatilis, foliis glaucis & veluti argenteis, floribus luteis. *Mich. gen.* 31. *t.* 27.
Pyrethrum alterum minus, ceſpitoſa radice, anthemidis flore, italicum. *Barr. rar.* 1105. *t.* 522.
Peduncles one-flowered, leaves bipinnate, ſtems ſimple.]
5. Santolina anthemoides. *Chamomile-leaved Lavender-Cotton.*
Lin. ſpec. 1180. *Reich.* 3. 730. *Pallas it.* 1. 438.
S. chamæmelifolia. *Mill. dict. n.* 7.
S. perennis, chamæmeli folio, caule ramoſo. *Vaill. in act. par.* 372.
S. incana chamæmeli odore ſuaviore. *Boerh. lugdb.* 123.
Peduncles one-flowered, leaves bipinnate, ſtem very much branched, and villoſe.
6. Santolina maritima. *Sea Lavender-Cotton.*
Lin. ſpec. Mſs. 1182. *Smith, brit.* 860. *Hudſ. angl.* 356. *Withr. arr. ed.* 3. 707.
Athanaſia maritima. *Lin. ſpec.* 1182. *Dict. noſtr. n.* 7.
Gnaphalium. *Camer. epit.* 605. *Matth.* 860.—legitimum. *Gærtn.* 2. 391. *Cluſ. hiſt.* 1. 329. *f.* 3.—marinum. *Lob. ic.* 1. 480. 1. *Dod. pempt.* 65.
Peduncles corymbed, leaves oblong blunt crenate denſely woolly.

DESCRIPTIONS, &c.

1. Common Lavender-Cotton has a ſhrubby ſtalk, dividing into many woody branches; with ſlender hoary leaves, indented four ways, and having a rank ſtrong odour when handled. The branches divide towards the top into ſeveral ſlender ſtalks, the lower parts of which have a few ſmall leaves of the ſame ſhape as the others, but naked above, and terminated by

* Willdenow. * Roxburgh.

by a ſingle flower, compoſed of ſulphur-coloured fiſtular florets, without any ray. [Receptacle convex, covered on all ſides with oblong blunt keeled chaffs, pubeſcent on the outſide at top. Seeds oblong, acuminate downwards, blunt above, angular, indiſtinctly ſtriated, pale, bald, terminated by a blunt little point[a].]

This plant will riſe near three feet high, in a dry ſoil and ſheltered ſituation. The flowers appear in july. [It was cultivated in 1596, by Gerarde[b]; who ſays it was then very common in the Engliſh gardens.

Native of the South of Europe; as Spain and Italy. Haller is doubtful whether it be a native of Switzerland.

Lavender-Cotton is acrid, bitter and aromatic, and has much the ſame qualities as Southernwood. It is reputed reſolvent, corroborant and diaphoretic. The leaves or flowers in powder may be given in the doſe of a dram as a vermifuge, or twice that quantity in infuſion[c]. As a medicine it is diſuſed among us.]

β. Hoary Lavender-Cotton branches out like the common ſort, but ſeldom grows ſo tall. The branches are divided into a great number of ſtalks, which are ſhort, hoary, and below ſet very cloſely with ſhorter, thicker and whiter leaves. The flowers are much larger, and the brims of the florets are more reflexed; they are alſo of a deeper ſulphur colour. It grows naturally in Spain.

γ. This is of ſtill lower ſtature, ſeldom riſing more than fifteen or ſixteen inches high. The branches ſpread horizontally near the ground, and have ſhorter leaves than either of the former; they are hoary, and finely indented; the ſtalks are ſhort, and are each terminated by a ſingle flower of a bright yellow colour, and larger than thoſe of the common ſort.

δ. The dark-green Lavender-Cotton riſes higher than theſe; the branches are more looſely diſpoſed, and more diffuſed; they are more ſlender, ſmooth, and have very narrow long leaves of a deep green colour, indented only two ways; the ſtalks are ſlender, naked towards the top, and terminated by ſingle flowers of a gold colour. [Mr. Miller conſiders theſe varieties as diſtinct ſpecies.

2. Roſemary-leaved Lavender-Cotton is herbaceous, ſcarcely ſuffruticoſe. Leaves at the edge on both ſides crenulate with tubercles in two rows, but on the flowering-ſtalk linear, toothletted on each ſide at the top. Peduncles long, terminating, one-flowered[d].

According to Willich, the ſcales of the calyx are narrow and acute, the uppermoſt bent back outwards at the tip. The ſeeds are crowned with a ſimple down almoſt as long as the corolla. Receptacle honeycombed, naked.]

Stalks ſhrubby, about three feet high, ſending out long ſlender branches, with ſingle linear leaves about an inch and half long, pale green and entire. The ſtalks are terminated by large, ſingle, globular flowers of a pale ſulphur colour.

[D'Alſo deſcribes it as a ſuffruticoſe plant, a foot in height, with rod-like one-flowered ſtems naked at top. Leaves linear, acute, fleſhy, with a double row of toothlets on each ſide. Flowers twice as large as in the common ſort. Chaffs concave.—How comes Willich to aſſert that the receptacle is naked?

Native of Spain. Cultivated in 1683, by Mr. James Sutherland. It flowers from july to ſeptember[e].]

β. The branches of this are ſhorter, thicker, and cloſer ſet with leaves; which come out in cluſters, are ſhorter, and blunt. The flower-ſtalks are ſparſedly diſpoſed, and have leaves to their top. The flowers are ſmall and yellow.

[3. Stem hoary, with alternate branches. Leaves alternate, ſeſſile, approximating; the younger ones imbricate, crenulate, blunt, thick, villoſe. Corymbs terminating, compound. Scales of the calyx oblong, blunt, keeled, villoſe. Chaffs of the receptacle oblong, membranaceous at the edge[f].

4. The flowers are without any female florets[g]. It is herbaceous, and has the leaves cut into very fine ſegments, as in *Anthemis* and *Chamæmelum*.

Native of Tuſcany, among ruins of rocks, flowering in june[h].

5. This plant is a palm in height. Stem villoſe, leafy. Leaves like thoſe of Chamomile pubeſcent. Peduncles terminating, longer than the leaves, when fruiting ſtiffiſh.—Native of Spain, Italy[i], and Siberia.]

Miller deſcribes his *chamæmelifolia* as having ſhrubby ſtalks which riſe near three feet high, and divide into many hoary branches, with broader leaves, having the indentures looſer but double; they alſo are hoary, and when bruiſed have an odour like Chamomile; they are placed pretty far aſunder, but quite to the top of the ſtalks; which are divided at the end into two or three footſtalks, each ſuſtaining one pretty large ſulphur-coloured flower.

6. [For the deſcription of this ſpecies ſee Athanaſia maritima.—Linnæus, in the firſt edition of his Species Plantarum, made it a *Filago*; in the ſecond an *Athanaſia*; but in his obſervations on this edition, as we are informed by Dr. Smith, he corrected it to *Santolina*. Gærtner, following Tournefort and many old authors, inſiſts that it is a *Gnaphalium*, and that it differs not only from Athanaſia and Filago, but from all the *Diſcoideæ*, in the very unuſual form of the corollets, which are compreſſed and dilated below, ending at the baſe in two nectariferous proceſſes like ſpurs embracing the ſide of the germ. He deſcribes the receptacle as convex or ovate-globular, ſmall, and covered with oblong concave chaffs, externally tomentoſe at the top: the ſeeds as ſmall, oblong, acuminate downwards, compreſſed and bald.

He alſo remarks that Browne (*hiſt. jam.* 315.) very rightly referred *Calea oppoſitifolia* and *Amellus* to the genus *Santolina*; there being no veſtige of a pappus in them, and the whole ſtructure of the flower being very like that of *Santolina*.]

PROPAGATION AND CULTURE.

Theſe are hardy plants, which will thrive in the open air, provided they are planted in a poor dry ſoil, for in ſuch ground the plants being ſtinted, will be better able to reſiſt the cold; and they will have a better appearance than thoſe which are in rich ground, whoſe branches being long and diffuſed, by hard rains or ſtrong winds are diſplaced, and ſometimes broken down; whereas, in poor land, they will grow compact, and the plants will continue much longer.

Theſe plants may be cultivated ſo as to become ornaments to a garden, particularly in ſmall boſquets of evergreen ſhrubs, where, if they are artfully intermixed with other plants of the ſame growth, and placed in the front line, they will make an agreeable variety, eſpecially if care be taken to trim them twice in a ſummer to keep them within bounds, otherwiſe their branches are apt to ſtraggle, and in wet weather to be borne down and diſplaced, which renders them unſightly; but, when they are kept in order, their hoary and different-coloured leaves will have a pretty effect in ſuch plantations.

They may be propagated by planting ſlips or cuttings during the ſpring; they ſhould be put into a border of light freſh earth, and watered and ſhaded in dry weather until they have taken root, after which they will require no farther care, but to keep them clear from weeds till autumn, when they ſhould be carefully taken up, and tranſplanted where they are deſigned to remain; but if the ground is not ready by that time to receive them, it will be proper to let them remain in the border until ſpring; for if they are tranſplanted late in autumn, they are liable to be deſtroyed by cold in winter.

SANTOLINA. See *Athanaſia*, [*Calea*, *Cotula*, *Filago*,] *Tanacetum*.

[SANTOLINOIDES. See *Anacyclus* and *Santolina*.

SANTONICA. See *Artemiſia*.]

SAPINDUS; (*q.* Sapo Indus; *the rind of the fruit ſerving for ſoap.* Tournef.)

[a] Gærtner. [b] Hort. kew. [c] Allioni.
[d] Linn. ſpec. [e] Hort. kew. [f] Vahl.
[g] Linn. ſyſt. [h] Micheli. [i] Linn. ſpec.

Lin. gen. n. 499. *Reich. n.* 541. *Schreb. n.* 681. *Tournef. t.* 440. *Juſſ.* 247. *Gærtn. t.* 70.

Claſſ. 8. 3. Octandria Trigynia.

Nat. order of *Tribilatæ. Sapindi*, Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* four-leaved, ſpreading: *leaflets* ſubovate, almoſt equal, flat, ſpreading, coloured, deciduous; two of them exterior.

COR. *Petals* four, ovate, clawed; two of them more approximating.

Nectary of four oblong concave erect leaflets, inſerted into the baſe of the petals. *Glands* four roundiſh, inſerted alſo into the baſe of the petals.

STAM. *Filaments* eight, length of the flower. *Anthers* cordate, erect.

PIST. *Germ* triangular. *Styles* three ſhort. *Stigmas* ſimple obtuſe.

PER. *Capſules* three, fleſhy, globular, connate, inflated.

SEED. *Nut* globular (two-celled, *G.*)

Obs. *The three capſules ſeldom all come to maturity: Houſtoun remarks that two are commonly abortive. It ſeems allied to* Paullinia *and* Cardioſpermum.

ESSENTIAL CHARACTER.

Cal. four-leaved. *Pet.* four. *Capſule* fleſhy, connate, ventricoſe.

SPECIES.

1. Sapindus Saponaria. *Common Soap-berry Tree.*
Lin. ſpec. 526. *Reich.* 2. 220. *hort. cliff.* 152. *mat. med.* 105. *Brown. jam.* 206. *Ait. kew.* 2. 35. *Lour. cochinch.* 238. *ed. Willd.* 293. *Forſt. prodr. n.* 178. *Sloane jam.* 2. 131. (Prunifera racemoſa, &c.) *Comm. hort.* 1. 183. *t.* 94. (Nux americana.) *Plenck, ic.* 305.
S. foliis coſtæ alatæ innaſcentibus. *Tournef. inſt.* 659.
Saponaria. *Rumph. amb.* 2. 134. *Burm. ind.* 91.
Nucula Saponariæ non edules. *Bauh. pin.* 511.
Saponariæ ſphærulæ arboris filicifoliæ. *Bauh. hiſt.* 1. 312.
Quity *Piſ.* & *Maregr. Raii hiſt.* 1548.
Unarmed, leaves pinnate, leaflets lanceolate, rachis winged.

2. Sapindus longifolius. *Long-leaved Soap-berry Tree.*
Lin. ſpec. ed. Willd. 2. 469. *Vahl ſymb.* 3. 53.
Leave pinnate, leaflets lanceolate ſmooth, one terminating, rachis ſimple.

3. Sapindus ſpinoſus. *Thorny Soap-berry Tree.*
Lin. ſpec. 526. *Reich.* 2. 221. *Brown. jam.* 207. *t.* 20. *f.* 2.
Leaves abruptly pinnate, ſtem very thorny.

4. Sapindus laurifolius. *Bay-leaved Soap-berry Tree.*
Lin. ſpec. ed. Willd. 2. 469. *Vahl ſymb.* 3. 54.
S. trifoliatus. *Lin. ſpec.* 526. *hiſt.* 380. *Reich.* 2. 221.
Saponaria arbor zcylanica trifolia, ſemine lupini. *Herm. muſ.* 69. *prodr.* 373. *Burm. zcyl.* 209.
Conghas. *Herm. zcyl.* 69. *Lin. zcyl. n.* 603.
Poenrifii. *Rheed. mal.* 4. 43. *t.* 19.
Leaves pinnate, leaflets ovate-oblong attenuated ſmooth, rachis ſimple, petals tomentoſe at the edge.

5. Sapindus emarginatus. *Notch-leaved Soap-berry Tree.*
Lin. ſpec. ed. Willd. 2. 469. *Vahl ſymb.* 3. 54.
Leaves pinnate, leaflets oblong emarginate villoſe beneath, rachis ſimple, petals tomentoſe at the edge.

6. Sapindus rubiginoſus. *Ruſty Soap-berry Tree.*
Lin. ſpec. ed. Willd. 2. 469. *Roxb. corom.* 1. 44. *t.* 62.
Leaves pinnate, leaflets oblong lanceolate acute villoſe beneath, rachis ſimple, petals ſmooth.

7. Sapindus tetraphyllus. *Four-leaved Soap-berry Tree.*
Lin. ſpec. ed. Willd. 2. 469. *Vahl ſymb.* 3. 54.
Leaves pinnate, leaflets lanceolate-oblong ſmooth, rachis ſimple, racemes almoſt ſimple, petals ſmooth.

8. Sapindus rigidus. *Aſh-leaved Soap-berry Tree.*
Lin. ſpec. ed. Willd. 2. 470. *Ait. kew.* 2. 36. *Vahl ſymb.* 3. 55. *Gærtn. fruct.* 1. 341. *Pluk. phyt. t.* 217. *f.* 7. (Nucipruniſera arbor, &c.)
Leaves pinnate, leaflets ovate-oblong, rachis ſimple, corollas and fruits ſmooth.

9. Sapindus arboreſcens. *Arboreſcent Soap-berry Tree.*
Lin. ſpec. ed. Willd. 2. 470. *Aubl. guian.* 1. 357. *t.* 139.
Leaves pinnate, leaflets ovate acuminate ſmooth, panicle axillary ſimple.

10. Sapindus fruteſcens. *Fruteſcent Soap-berry Tree.*
Lin. ſpec. ed. Willd. 2. 470. *Aubl. guian.* 1. 355. *t.* 138.
Leaves pinnate, leaflets alternate lanceolate acuminate ſmooth, panicle axillary ſimple.

11. Sapindus edulis. *Eſculent Soap-berry Tree*, or *Chineſe Lee-chee.*
Ait. kew. 2. 36. *Vahl ſymb.* 3. 55.)
Dimocarpus Litchi. *Lin. ſpec. ed. Willd.* 2. 346.
Lour. cochinch. 233. *ed. Willd.* 287.
La-tji. *Oſb. it.* 192. 204. *ed. angl.* 1. 308.
Litchi. *Berg. em lackerheter.* 171.
Li-tchi. *Du Halde chin.* 2. 144. *t.* 154.
L. chinenſis. *Sonnerat it.* 2. 180. *t.* 129.
Litſea chinenſis. *Lamarck encycl.* 3. 550.
Lechea. *Richard hiſt. du Tonquin.* 1. 60.
Liſchia f. Liſchion Indiæ orientalis. *Zanon. hiſt.* 147. *t.* 108.
Li-ci. *Beym. ſin. t.* D.
Euphoria. *Juſſ. gen.* 247.
Scytalia chinenſis. *Gærtn. fruct.* 1. 197. *t.* 42. *f.* 3. *Schreb. gen. n.* 671.
Unarmed, leaves pinnate, leaflets lanceolate-oblong, rachis ſimple, fruits muricate (or, *berries cordate ſcaly.*)

12. Sapindus Mukoroſſi. *Japan Soap-berry Tree.*
Thunb. jap. 356. *Gærtn. fruct.* 1. 342.
Leaves alternate unequally pinnate, leaflets ſubſeſſile ovate or lanceolate entire ſmooth.

13. Sapindus abruptus. *Abrupt-leaved Soap-berry Tree.*
Lour. cochinch. 238. *ed. Willd.* 293.
Unarmed, leaves abruptly pinnate, leaflets lanceolate quite entire ſmooth.]

DESCRIPTIONS, &c.

1. The firſt ſort grows naturally in the iſlands of the Weſt Indies, where it riſes with a woody ſtalk from twenty to thirty feet high, ſending out many branches towards the top, which are garniſhed with winged leaves, compoſed of three, four, or five pair of ſpear-ſhaped leaflets, which are from three to four inches long, and an inch and a quarter broad in the middle, drawing to a point at both ends. The midrib has a membranaceous or leafy border running on each ſide from one pair of leaflets to the other, which is broadeſt in the middle between the leaflets; they are of a pale green colour, and are pretty ſtiff; the flowers are produced in looſe ſpikes at the end of the branches; they are ſmall and white, ſo make no great appearance. Theſe are ſucceeded by oval berries as large as middling Cherries, ſometimes ſingle, at others two, three, or four are joined together; theſe have a ſaponaceous ſkin or cover which incloſes a very ſmooth roundiſh nut of the ſame form, and of a ſhining black when ripe. Theſe nuts were formerly brought to England for buttons to waiſtcoats, ſome were tipped with ſilver, and others with different metals; they were very durable, as they did not wear, and ſeldom broke. The ſkin or pulp which ſurrounds the nuts, is uſed in America to waſh linen, but it is very apt to burn and deſtroy it, if often uſed, being of a very acrid nature.

[The ſeed-veſſels, ſays Dr. Patrick Browne are very deterſive and acrid; they lather freely in water, and will cleanſe more linen than ſixty times their weight of ſoap; but they are obſerved to corrode or burn the linen in time: and the water in which the tops or leaves have been ſteeped or boiled, have the ſame quality in ſome degree. The ſeeds are round and hard, have a fine poliſh, and are frequently made into buttons and beads among the Spaniards. The whole plant, eſpecially the ſeed-veſſel, being pounded and ſteeped in ponds, rivulets or creeks, is obſerved to intoxicate and kill the fiſh.

Loureiro celebrates the berries ſlightly bruiſed and ſteeped in water, as a very excellent ſoap, and remarks that it is only required to uſe them with prudence, all abſtergents being in ſome degree corroſive.

He deſcribes this as a large tree, whereas Browne ſays it ſeldom riſes above ten or fifteen feet in height in the ſavannas of Jamaica, where it is very common. According to Loureiro, it is both wild and cultivated

in Cochinchina: and our circumnavigators found it in Eaſter iſland in the South Seas. It was cultivated here in 1697 by the Dutcheſs of Beaufort [a].

2. Unarmed. Leaflets five pairs; the loweſt oppoſite ſmaller lanceolate-oblong; the outer alternate, four or five inches long broad-lanceolate: all quite entire, ſmooth, veined, ſhining above, paler beneath, ſharpiſh. Petioles roundiſh, equal; the partial ones ſhort. Raceme decompounded. Flowers cluſtered, on very ſhort pedicels. Calyx tomentoſe-hoary, four-leaved: leaflets ovate acute. Petals length of the calyx.—Suppoſed to be a native of the Eaſt Indies [a].

3. This ſpecies is very remarkable for the pricklineſs of its trunk, which ſeldom exceeds ſeven or eight feet in height, and two or three inches in diameter. The fruit is much ſmaller than that of the firſt, and though the embryos are always trilocular as in that, no more than one of the cells and ſeeds ever grows to perfection: the capſules however are marked with longitudinal futures, that run down between the two abortive embryos, which have been formed by the laceration of the ſtyle in the growth of one of the cells; for there is no more than one ſtyle in any of the flowers.

Native of Jamaica, in the borough of St. James's. Called there the Licca Tree [b].

4. Branches round, ſtriated, ſmooth. Leaves alternate, abruptly pinnate, three-paired: leaflets ſuboppoſite, ſhortly petioled, five inches long, the inner ones ſmaller, ovate-oblong or elliptic lanceolate, attenuated, quite entire, ſharpiſh, ſmooth on both ſides, veined, the inner ſhorter at the baſe. General petiole roundiſh: the partial ones wrinkled. Raceme ſuperdecompound. Peduncles and pedicels ſubpubeſcent. Bractes ovate, minute. Calyx five-leaved: leaflets ovate. Corolla five-petalled: petals oblong, villoſe, white-tomentoſe at the edge. Stamens eight, villoſe. Germ and fruit as in the next ſpecies.—Native of Malabar.

5. Unarmed. Branches round, almoſt as thick as the little finger, ſmooth, gray. Leaves alternate, abruptly pinnate, two-paired or three-paired: leaflets on very ſhort petioles, oppoſite, the middle ones alternate, two or three inches long, the inner ones ſmaller, ſcarcely unequal at the baſe acute, very blunt at the tip, emarginate, rigid, veined. General petiole roundiſh: partial ones ſhort, wrinkled. Raceme terminating, ſuperdecompound, large. Peduncles and pedicels ſpreading, pubeſcent. Bractes ſmall, ovate, at the baſe of the pedicels. Calyx five-leaved, pubeſcent: leaflets ovate, concave. Petals five, a little longer than the calyx, oblong villoſe on the outſide, ſmooth within, white-tomentoſe at the edge. Filaments eight, villoſe, length of the corolla. Germ tomentoſe. Style ſingle. Capſules three, ſubturbinate, coadunate; each ſubglobular, one or two frequently abortive, covered with denſe yellowiſh hairs: the cells within hirſute at the partitions. Seeds black. Aril none. Allied to the preceding ſpecies, but having narrower ſhorter leaves, very blunt, emarginate, and villoſe beneath.

Native of the Eaſt Indies; where it was obſerved by Koenig [c].

6. Trunk perfectly erect, of conſiderable length and thickneſs. Branches numerous, aſcending. Leaves alternate, abruptly pinnate, about a foot long. Leaflets oppoſite, four to ſix pair, entire, above ſmooth, below downy, about three inches long, and half an inch broad. Petiole round, downy, ending in a downy briſtle. Panicle terminating, large, erect, compoſed of ſimple racemes. Calyx five-leaved. Petals four, placed on the upper ſide. Style ſingle, aſcending, ſhorter than the ſtamens. Capſules three, (when all come to perfection, which is rare,) ſingly oblong, one-celled [d].

It differs from the preceding, in the leaflets being five-paired, longer, acute, not three-paired, emarginate: panicle compoſed of few racemes and divaricate, not ſuperdecompound and contracted: petals ſmooth. Native of the Eaſt Indies [e].

[a] Hort. kew. [a] Vahl. [b] Browne. [c] Vahl. [d] Roxburgh. [e] Willdenow.

It is a large timber tree, growing in the mountainous parts of the Circars; and flowering about the beginning of the hot ſeaſon. Known by the name of Iſhyraſhy among the Telingas. The wood is very uſeful for a variety of purpoſes, being large, ſtraight, ſtrong and durable: towards the centre it is of a chocolate colour [f].

7. Unarmed. Branches round, ſmooth, gray. Leaves alternate, abruptly pinnate, two-paired: the two inner leaflets alternate, the outmoſt oppoſite, three inches long, bluntiſh, veined, very ſmooth, pale green, quite entire, equal at the baſe. General petioles roundiſh: partial ſhort, wrinkled. Racemes ſeveral from the ſame point, having only a branch or two at the baſe, a finger's length, upright. Peduncles of permanent pedicels after the flowers fall toothed, becoming hoary, angular-ſtriated. Pedicels very ſhort. Bractes minute, ovate. Calycine leaflets five, ovate-roundiſh, ſhining like ſilk on the outſide. Petals five, longer than the calyx, oblong, ſmooth. Filaments eight, villoſe.

Native of the Eaſt Indies; where it was found by Koenig.

8. Unarmed. Branches round, gray, ſmooth. Leaves alternate, abruptly pinnate, three-paired: inner leaflets alternate, ſmaller; outer oppoſite, three inches long, ovate-oblong ſometimes ovate-lanceolate, attenuated, on one ſide narrower, quite entire, veined, ſmooth. Petiole equal, roundiſh, pubeſcent: partial ones ſhort. Raceme terminating, ſuperdecompound, a foot long: branches and branchlets ſpreading. Pedicels ſhort. Bractes minute. Flowers ſmall. Calyxes ſcarcely villoſe. Petals roundiſh, concave, ſmooth. Germ ovate, ſmooth [e].

Gærtner calls the fruit berried Drupes, fleſhy, from two to four, ſpherical, coadunate without any intermediate receptacle, having a ſhort upright dagger-point at top, of a red colour. Pulp thin, becoming towards the middle a white ſpungy tomentoſe ſubſtance, cloſely embracing the ſhell or nut; which is of a trigonal-globular form, and a bony ſubſtance, black, compoſed of horny horizontal fibres, two-celled, valveleſs; cells a little unequal, placed one behind the other. Seed in each cell one, obovate, angular, pale, adhering to the top.]

Miller deſcribes it as having a ſtrong woody ſtalk which riſes about twenty feet high, ſending out many ſhort ſtrong branches, covered with a ſmooth gray bark. Leaves compoſed of two pairs of ſpear-ſhaped leaflets, very ſtiff and ſmooth; the inner pair ſmall, ſeldom more than an inch and half long; the two outer near three inches long, and almoſt an inch broad in the middle, drawing to points at both ends; they are oblique to the foot-ſtalk, of a pale green, and ſit cloſe to the midrib. The ends of the branches are divided into two or three foot-ſtalks, each ſuſtaining a looſe ſpike of flowers. Berries roundiſh, generally two, three or four joined together.

[Native of the Weſt Indies. Cultivated in 1759 by Mr. Miller [b]: who ſays that it was diſcovered by Dr. Houſtoun at La Vera Cruz in New Spain; if ſo, he muſt have cultivated it much earlier.

9. A tree, of about ſeven or eight feet in height, and branching at the top: diameter eight or nine inches: bark rough and gray; wood whitiſh: branches knotty, and ſubdivided; ſpreading on all ſides: leaves alternate, winged: leaflets ovate, ending in a long point; ſmooth and of a bright green: midrib ſtrong, concave above, and convex beneath: the number of leaflets on each ſide is three: from the boſoms of the leaves proceed cluſters of flowers, which are very ſmall, and which could not be accurately deſcribed on account of their unadvanced ſtate.—Native of Guiana, where it was obſerved by Aublet.

10. A tree of about eight feet in height with a ſtraight ſtem of about two inches in diameter, and leafy at the top: bark rough and aſh-coloured: wood brittle and whitiſh: leaves alternate, pinnated, large: leaflets ovate-oblong, ſharp, entire; ſtanding ſomewhat alternately on a tough midrib which is concave

[f] Roxburgh. [e] Vahl. [b] Hort. kew.

above

above and convex beneath: the number of leaflets on each ſide the midrib is commonly ſeven; they are of a bright, ſhining green, and are placed on ſhort foot-ſtalks: the fruit is borne from the boſoms of the leaves, and is a dry, coriaceous capſule, of a beautiful red colour.

This ſpecies grows at Cayenne, where it was obſerved by Aublet, who did not ſee it in its flowering ſtate [1].

11. Unarmed. Branches round, ſmooth, with a dotted bark. Leaves abruptly pinnate, three-paired: leaflets petioled, almoſt oppoſite, nearly reſembling thoſe of Laurus Caſſia, three inches long, the inmoſt ſmaller, ſharp at both ends, acuminate, very ſmooth and even, obſcurely veined, glaucous beneath. Petioles flattiſh above, purpliſh, ſmooth. Racemes terminating, decompound; peduncles and pedicels ſlightly tomentoſe [2].

Loureiro ſeparates it from this genus, under the name of *Dimocarpus*, on account of its twin or double fruit; and he is followed by Willdenow. Loureiro deſcribes the Li-chi as a middle-ſized tree, with ſpreading branches. Leaves unequally pinnate, with about four pairs of leaflets, which are lanceolate, ſmooth, almoſt quite entire, glaucous beneath. Flowers pale, terminating, in oblong looſe racemes. Berry heart-ſhaped, with a ſcaly, thin, hardiſh rind, brown-red on one ſide, green on the other, and a white, ſweet, ſubacid, very pleaſant pulp. Seed brown, ſhining, regular, ſubovate, large. Calyx five-cleft, inferior, ſpreading, hairy; the ſegments rounded. Corolla wheel-ſhaped: petals five, oblong, hairy, almoſt equal to the calyx. Nectary one-leafed, whereas in Sapindus it is four-leaved. Filaments ſhorter than the corolla, placed on the receptacle. Anthers two-celled, roundiſh. Germ two-lobed, very hairy. Style thick, bifid, equal to the ſtamens. Stigmas oblong, reflexed. Berries two, one-celled, roundiſh, pulpy.

Gærtner has it under the name of *Scytalia*, and Schreber has followed him. According to Gærtner, the calyx is very ſhort, one-leafed; toothleſs, or very indiſtinctly five-toothed. Corolla five-petalled. Stamens from ſix to eight, with the filaments villoſe at the baſe, and the anthers two-lobed. Style ſimple, with a two-parted ſtigma. The fruit a juiceleſs berry, ſuperior, ovate-globular, of the ſubſtance and colour of parchment, rugged on the outſide all over with ſcutiform angular tubercles having a little point in their centre, ſmooth within, inflated, one-celled, brittle. Seed elliptic-globular, obliquely truncate at the baſe, where it is bare, of a pale red or cheſtnut colour, very ſmooth and ſhining, faſtened widely to the bottom of the berry, where it has a gentle riſing. The *aril is ovate-globular, nearly the ſize of the cavity of the berry, very ſmooth, dark-coloured, fleſhy, thick, faſtened to the ſeed only about the baſe, in other parts looſe both from that and the pericarp*: pulp ſoft, the conſiſtence of a damſon plum.

Native of China, Tunquin and Cochinchina. Introduced in 1786, by Warren Haſtings, Eſq.[3] Loureiro ſays that it is cultivated in great abundance in the ſouthern provinces of China, and the northern provinces of Cochinchina; being equally abhorrent both of cold and heat in the extremes.

The fruit of the Li-tchi is the ſize of a Date. Its ſtone, which is long and hard, is covered with a ſoft juicy pulp, that has an exquiſite taſte. This pulp is incloſed in a tough thin browniſh warty ſkin. This delicious fruit is ſaid to be dangerous when eaten to exceſs, occaſioning an eruption over the whole body. The Chineſe ſuffer it to dry till it becomes black and ſhrivelled like Prunes. Thus it is preſerved all the year, and they uſe it in tea, to which it communicates an acidity, which they preſer to the ſweetneſs of ſugar. To enjoy this fruit in its full perfection of flavour and ſmell, it muſt be eaten in the provinces Fo-ki-en, Quan-tong and Quan-ſi, where it grows. As it will not bear the climate of Pekin, the fruit is carried there for the Emperor's uſe, incloſed in tin veſſels, filled with ſpirits mixed with honey, &c. and thus preſerves an appearance of freſhneſs, but loſes much of its flavour [4]. The trees themſelves are alſo tranſported by water from *Quan-tong to* Pekin for the Emperor, at a conſiderable labour and expenſe to his ſubjects; and being embarked when they begin to flower, the fruit is commonly ripe by the time of their arrival at Pekin [5].

Loureiro has three other ſpecies of *Dimocarpus*, which Willdenow ſuppoſes may be varieties of this.—The firſt of theſe is the *Langan*, *Langkan*, *Long-yen* or *Laong-uhan*, ſignifying Dragon's-eye; which is alſo cultivated in China and Cochinchina, and bears a fruit that is in much eſteem, and if not ſo agreeable to the taſte as the Li-tchi, is however ſaid to be more wholeſome. It is globular, has a yelloviſh ſmooth ſkin; and its pulp is white, tart and juicy [6].

His third ſpecies is the *Rampoſtan* of Bontius, (Jav. l. 6. c. 23. f. 109.) Which bears alſo an eſculent fruit. His fourth, does not bear a fruit that is eatable, but the wood is heavy, hard, of a reddiſh brown colour, and very excellent.

12. The branches, petioles and leaves of this tree are ſmooth. Leaves ſix-paired or thereabouts, a foot long: leaflets when young ſpreading, a finger's length [7]. Berries three, two of which are abortive, ovate, acuminate at both ends, three-ſided; the third very large, globular, with a prominent ſuture in the circumference, attenuated in front; fleſhy, thin, covered on the inſide with a ſmooth papery membrane: ſtone ovate, truncate as it were in front, and having a vertical umbilical cleft, unequally two-celled [8]. Thunberg informs us that the fruit was reported by the Japoneſe phyſicians to be bitter and juicy.

13. This is a large tree, with ſpreading unarmed branches. Leaflets lanceolate, ſmooth. Flowers pale, in large ſubterminating racemes. Calyx and corolla equal, bell-ſhaped, four-leaved and four-petalled. Style one, three-grooved: ſtigmas three. Berries three, connate, ſubglobular, one-ſeeded, rufous.—Native of China about Canton. Not having a thorny ſtem, or laciniate leaves, it muſt either be a diſtinct ſpecies, or thoſe characters are not conſtant [9].]

Mr. Miller has a ſpecies, which he names *Sapindus pinnatus*, and characterizes as having pinnate leaves, with ovate-oblong leaflets, the upper ones alternate. He deſcribes it as riſing with a ſtraight jointed ſtem to the height of twenty feet, ſending out ſome lateral branches at the top, covered with a pale ſmooth bark. The leaves are compoſed of eight or ten pairs of leaflets, each near four inches long, and an inch and half broad at their baſe, of a light green colour, on very ſhort foot-ſtalks; thoſe on the lower part of the midrib are oppoſite, but on the upper they are alternate, and end abruptly.—Native of India.

PROPAGATION AND CULTURE.

Theſe plants are propagated by ſeeds (which muſt be obtained from the countries where they naturally grow, for they have not produced fruit in Europe;) the ſeeds muſt be put into ſmall pots filled with rich freſh earth, and plunged into a hot-bed of tanner's bark. The pots muſt be frequently watered, otherwiſe the berries, whoſe outer cover is very hard, will not vegetate. In five or ſix weeks the plants will appear, when the glaſſes of the hot-bed ſhould be raiſed every day in warm weather to admit freſh air to the plants. In a month or ſix weeks after the plants appear they will be fit to tranſplant, when they muſt be ſhaken out of the pots, and carefully parted, ſo as not to injure their roots, and each planted into a ſeparate ſmall pot filled with light rich earth, and then plunged into the hot-bed again, obſerving to ſhade them from the ſun every day until they have taken new root; after which time they muſt have free air admitted to them every day when the weather is warm, and will require to be frequently watered.

After the plants are well rooted, they will make great progreſs, ſo as to fill theſe pots with their roots in a few weeks time, therefore they ſhould be ſhifted into

[1] Aublet. [2] Vahl. [3] Hort. kew. [4] Groſier. [5] Loureiro. [6] Groſier. [7] Thunberg. [8] Gærtner. [9] Loureiro.

larger pots, and as the plants advance, they ſhould be inured to bear the open air by degrees; for if they are forced too much in ſummer, they ſeldom live through the winter. I have frequently raiſed theſe plants from ſeeds to the height of two feet in one ſummer, and the leaves of theſe plants have been a foot and a half in length, ſo that they made a fine appearance; but theſe plants did not ſurvive the winter, whereas thoſe which were expoſed to the open air in July, and theſeby ſtinted in their growth, continued their leaves freſh all the winter. Theſe were placed in a ſtove upon ſhelves, where the warmth was very moderate, with which theſe plants will thrive better than in a greater heat.

The laſt ſort is much more hardy: this may be placed in a good green-houſe in the autumn, where it will live through the winter, and in ſummer ſhould be expoſed to the open air in a ſheltered ſituation, where it will thrive very well.

[SAPINDUS CHINENSIS. See *Koelreuteria.*

SAPIUM. See *Hippomane.*]

SAPONARIA. (*From* Sapo, *Soap. The leaves lathering with water, like ſoap.*)

Lin. gen. n. 564. *Reich. n.* 613. *Schreb. n.* 769. *Gærtn. t.* 130. *Juſſ.* 302.

Claſs. 10. 2. Decandria Digynia.

Nat. order of *Caryophylleæ. Caryophylleæ*, Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* one-leafed, naked, tubular, five-toothed, permanent.

COR. *Petals* five. *Claws* narrow, angular, length of the calyx: *border* flat, with the plates wider outwards, blunt.

STAM. *Filaments* ten, awl-ſhaped, length of the tube of the corolla, alternately inſerted into the claws of the petals, five later. *Anthers* oblong, blunt, incumbent.

PIST. *Germ* ſubcylindrical. *Styles* two, ſtraight, parallel, length of the ſtamens. *Stigmas* acute.

PER. *Capſule* length of the calyx, covered, one-celled, oblong.

SEEDS numerous, ſmall. *Receptacle* free.

OBS. *The figure of the calyx differs in the different ſpecies.*

ESSENTIAL CHARACTER.

Cal. one-leafed, naked. *Pet.* five, clawed. *Capſ.* oblong, one-celled.

SPECIES.

1. Saponaria officinalis. *Common Soapwort.*
Lin. ſpec. 584. *ſyſt.* 416. *Reich.* 2. 328. *Willd.* 2. 867. *hort. cliff.* 165. *upſ.* 106. *mat. med.* 117. *Woodv. med. bot. ſuppl. t.* 251. *Hudſ. angl.* 183. *Wither. arr. ed.* 3. 408. *Smith, brit.* 459. *Curt. lond.* 2. *t.* 29. *Relh. cant. n.* 316. *Sibth. oxon. n.* 404. *Fl. dan. t.* 545. *Hall. helv. n.* 908. *Hoffm. germ.* 147. *Roth. germ.* 1. 185. 2. 473. *Pollich pal. n.* 407. *Krock. ſilef. n.* 645. *Villars dauph.* 3. 603. *Allion. pedem. n.* 1557. *Gron. virg.* 160. *Ludw. eſſ. t.* 170. *Knorr. del.* 1. *t.* S. 17. *Berg. phyt. t.* 23. 24. *Plenck, ic. t.* 346.
Saponaria. *Dod. pempt.* 179. *Ger.* 360. *emac.* 444. *Raii hiſt.* 999.
S. major lævis. *Baub. pin.* 206.
S. vulgaris. *Cam. epit.* 152. *Baub. hiſt.* 3. 346. *Park. theat.* 641. 1. *Blackw. t.* 113.—ſimplex. *Mor. hiſt. ſ.* 5. *t.* 22. *f.* 52.
Lychnis officinalis. *Scop. carn. n.* 510.
L. ſylveſtris quæ Saponaria vulgo. *Tournef. inſt.* 336.
L. Saponaria dicta. *Raii ſyn.* 339.
Bootia vulgaris. *Neck. gallob.* 193.

2. Saponaria flore pleno. *Corn. canad.* 209. *Raii ſyn.* 339. 6. *Ait. kew.* 2. 86.
Double-flowered Soapwort.

3. Saponaria hybrida. *Mill. dict. n.* 2.
S. concava anglica. *Baub. pin.* 206. *prodr.* 103. *Mor. hiſt. t.* 53.
S. angl. convoluto folio. *Park. theat.* 641. *Raii hiſt.* 999.
Lychnis Saponaria dicta, folio convoluto. *Raii ſyn.* 339.
Gentiana concava. *Ger.* 353. *emac.* 435.
G. folio convoluto. *Baub. hiſt.* 3. 521.
Hollow-leaved Soapwort.
Calyxes cylindrical, leaves elliptic-lanceolate.

1. Saponaria Vaccaria. *Perfoliate Soapwort.*
Lin. ſpec. 585. *Reich.* 2. 329. *Willd.* 2. 668. *hort. cliff.* 166. *upſ.* 107. *Gærtn. fruct.* 2. 234. *Hall. helv. n.* 907. *Hoffm. germ.* 147. *Roth. germ.* 1. 186. 2. 473. *Pollich pal. n.* 408. *Krock. ſilef. n.* 646. *Villars dauph.* 3. 604. *Allion. pedem. n.* 1558.
S. ſegetalis. *Neck. gallob.* 194.
Lychnis Vaccaria. *Scop. carn. n.* 511.
L. ſegetum rubra foliis perfoliatæ. *Baub. pin.* 204. *Raii hiſt.* 999.
L. ſeg. Vaccaria rubra dicta. *Park. theat.* 633. *f.* 12.
Vaccaria. *Dod. pempt.* 104. *Baub. hiſt.* 3. 357. *Ger.* 395. *emac.* 492.
Myagrum Vaccaria quorundam. *Tabern. ic.* 866.

β. S. ampliſſima. *Mill. dict. n.* 4.
Calyxes pyramidal five-cornered, leaves ovate acuminate ſeſſile.

[3. Saponaria cretica. *Cretan Soapwort.*
Lin. ſpec. 584. *Reich.* 2. 329. *Willd.* 2. 668.
Saxifraga altera. *Alp. exot.* 292. *t.* 291.
Calyxes five-cornered ſtriated, ſtem erect ſubdichotomous, leaves awl-ſhaped.

4. Saponaria porrigens. *Hairy Soapwort.*
Lin. ſyſt. 417. *Reich.* 2. 330. *Willd.* 2. 668. *mant.* 239. *Jacqu. hort.* 2. 49. *t.* 109.
Silene porrigens. *Lin. ſyſt.* 3. 230. *Gouan illuſtr.* 29.
Calyxes cylindrical pubeſcent, branches very much divaricate, fruits pendulous.

5. Saponaria illyrica. *Illyrian Soapwort.*
Lin. ſyſt. 417. *Reich.* 2. 330. *Willd.* 2. 669. *mant.* 70. *Ard. ſpec.* 2. 24. *t.* 9.
Calyxes ſubcylindrical, ſtem erect viſcid purpliſh, branches alternate, corollas dotted.

6. Saponaria Ocymoides. *Baſil-leaved Soapwort.*
Lin. ſpec. 585. *ſyſt.* 417. *Reich.* 2. 330. *Willd.* 2. 669. *Hall. helv. n.* 909. *Jacqu. auſtr.* 5. 39. *t. app.* 23. *Cavan. ic.* 2. 29. *t.* 134. *Deſfont. atlant.* 343. *Villars dauph.* 3. 604. *Allion. pedem. n.* 1559. *Curt. magaz.* 154.
S. minor quibuſdam. *Baub. hiſt.* 3. 344.
Lychnis vel Ocimoides repens montanum. *Baub. pin.* 206. *Tournef. inſt.* 337. *Mor. hiſt. ſ.* 5. *t.* 21. *f.* 38.
L. montana repens. *Ger. emac.* 473. 5.
Ocymoides repens. *Park. theat.* 639. *Raii hiſt.* 995.—polygonifolia. *Lob. ic.* 341. *Dalech. hiſt.* 1429.
Calyxes cylindrical villoſe, ſtems dichotomous procumbent.]

7. Saponaria orientalis. *Small annual Soapwort.*
Lin. ſpec. 585. *Reich.* 2. 331. *Willd.* 2. 670. *hort. upſ.* 106. *n.* 2.
Lychnis orientalis. *Scop. carn. n.* 512.—annuo ſupina, antirrhini folio, flore minimo purpuraſcente. *Tournef. cor.* 25. *Dill. elth.* 205. *t.* 167. *f.* 204.
Calyxes cylindrical villoſe, ſtem dichotomous erect, patulous.

[8. Saponaria lutea.
Lin. ſpec. 585. *ſyſt.* 417. *Reich.* 2. 331. *Willd.* 2. 670. *Smith, ſpicil. t.* 5. *Hall. helv. n.* 904. *Allion. pedem. n.* 1560. *t.* 23. *f.* 1. *Reemer europ.* 29. *ic.*
Calyxes round, both they and the ſtem rough-haired, petals obovate quite entire, flowers corymbed, leaves linear-lanceolate channelled.

9. Saponaria bellidifolia.
Lin. ſpec. ed. Willd. 670. *Smith, ſpicil.* 5.
Lychnis lutea montana Globulariæ folio & facie. *Barr. ic.* 498.
L. rubra Globulariæ capite & facie montana. *Becc. muſ.* 2. 75. *t.* 62. *f.* 1.
Globularia lutea montana. *Col. ecphr.* 1. 152. *t.* 153.
Bellis montana, globoſo luteo flore. *Baub. pin.* 262.
Calyxes round rough-haired, ſtem ſmooth, petals linear crenate, leaves ſpatulate.

DESCRIPTIONS, &c.

1. Root perennial, ſtriking deep and ſpreading wide, and creeping by runners. Stems a foot and half in height, upright, round, rigid, jointed, ſmooth, often reddiſh, panicled at top. Leaves oppoſite, connate, quite entire, three-nerved, ſmooth. Panicle hemiſpherical, many-flowered, bracteolate. Corolla fleſh-coloured or roſe-coloured, varying to white, ſmelling ſweet. Petals entire, crowned at the throat. Seeds blackiſh, with a granulated ſurface [a].

Native of Europe, but not in the very northern parts. In England not uncommon, in paſtures and hedges: flowering from july to ſeptember.

It has both the Latin and Engliſh name, from its quality of forming, like ſoap, a lather with water, and taking out ſpots of greaſe, &c. from cloth, in the ſame manner; whence it has alſo been called the *Fuller's herb* [b].

The whole plant is bitter. A decoction of it applied externally cures the itch. The Germans uſe it inſtead of Sarſaparilla, in venereal complaints. M. Aubry of Paris cured violent gonorrhœas, by giving half an ounce of the inſpiſſated juice daily. By the uſe of the extract, and a decoction of the leaves and roots, M. Jurine cured old venereal complaints, ſuch as ulcers, pains and emaciations, which reſiſted the uſe of mercury [c].

According to Dr. Woodville, a fanciful reſemblance of the roots to thoſe of Sarſaparilla, ſeems to have led phyſicians to think them ſimilar in their effects.—Boerhaave, as Haller informs us, entertained an high opinion of its efficacy in jaundice and other viſceral obſtructions.]

β. A variety with double flowers is preſerved in gardens, but has the ſame fault with the ſingle one, of ſpreading very much at the root. [This was obſerved growing wild, by Mr. Lawſon, at Carnforth in Lancaſhire; and by Dr. James Sherard, in the road from Sittingbourn to Rocheſter. I have gathered it frequently on Streatham common in Surry. But in all theſe places it has probably eſcaped from gardens.]

γ. The roots of this do not ſpread like thoſe of the common ſort; the ſtalks are ſhorter, thicker, and do not grow ſo erect; they riſe a foot or more in height; the joints are very near and ſwelling: the leaves are produced ſingly on the lower part of the ſtalks, but towards the top they are often placed by pairs; they are about three inches long and two broad, having ſeveral longitudinal veins or plaits, and are hollowed like a ladle. The flowers are diſpoſed looſely on the top of the ſtalk, have large cylindrical calyxes, only one petal, and ſcarcely any viſible ſtamens; they are of a purple colour, and appear in july.

[I found this ſtrange kind of Gentian, ſays Gerarde, in a ſmall grove of wood called the Spinnie, near unto a ſmall village in Northamptonſhire called Lichbarrow. It was no longer there in Ray and Morton's time, but it has been preſerved in gardens. Mr. Miller, who in 1759 ſays that he had then cultivated it forty years, conſiders it as a diſtinct ſpecies. Ray regards it as a luſus naturæ, or a degeneration of the common Saponaria. Linneus, as a mule plant, like Antirrhinum Peloria; from a Saponaria paſſing into a monopetalous Gentian. Mr. Curtis inclines to Ray's opinion.]

2. This is an annual plant, riſing with an upright ſtalk near a foot and a half high, branching out upwards into ſeveral diviſions; theſe always are by pairs oppoſite, as are alſo the leaves, which are about an inch and a half long, and half an inch broad at their baſe, ending in acute points; they ſit cloſe to the ſtalks, are ſmooth, and of a gray colour. The flowers are produced at the end of the branches, each ſtanding upon a long naked foot-ſtalk; their calyxes are large, ſwelling and pyramidal, having five acute angles; the petals are but ſmall; they have long necks or tails, which are narrow; their upper part is obtuſe, and of a reddiſh purple colour. Theſe appear in june and july, and the ſeeds ripen in autumn.

[Capſule covered with the ſmooth calyx which is five-cornered at the baſe, ovate-conical, one-celled at top, three or four-celled at bottom, formed of a double lamina; the outer papery or cartilaginous, ſmooth, opening at top with four teeth; the inner ſpongy-membranaceous, white, very thin, burſting irregularly at top, but forming incomplete partitions below; theſe partitions are very narrow, and obvious only at the baſe of the capſule. Receptacle columnar, free above, ſlender, rough-haired with umbilical cords, a little longer than half the capſule. Seeds about twenty, ſubglobular, having raiſed indiſtinct dots very thickly ſcattered over them, dark-coloured.—In the preceding ſpecies, the capſule is one-celled, or by means of a very narrow partition viſible only at the baſe of the capſule divided into two incomplete cells. The form of the capſule alſo is more oblong in this and fuſiform-ovate [e].

Native of Germany, Switzerland, France and Italy. Cultivated by Gerarde in 1596 [f].]

β. Mr. Miller has a ſpecies, which probably is a variety of the *Vaccaria*. He deſcribes it thus:—It is an annual plant, with a ſtrong ſmooth ſtalk about two feet high. Leaves ovate-lanceolate, three inches long, and an inch and half broad near their baſe, half embracing the ſtem; the upper part of which divides into many branches, which are again ſubdivided into long naked peduncles, each ſuſtaining a ſingle flower. Calyx large, pyramidal, ſwelling, having five acute angles. Petals obtuſe, red.

Native of Spain. It flowers in june and july; and the ſeeds ripen in autumn.

[3. Stem brachiate or dichotomous, round, villoſe-viſcid, narrow, a foot high. Leaves linear-ſubulate, even. Peduncles axillary, ſolitary, one-flowered, ſtiff. Flower erect. Calyx five-cornered with three ſtreaks at the corners, one-leafed, oblong, acute, membranaceous between the teeth. Petals ſmall, entire.—Native of Candia or Crete, in dry places [g].

4. Stem two feet high, erect, jointed, ſtiffiſh, below ſmooth, above pubeſcent and viſcid. Leaves lanceolate; the lower ones ſmooth, the upper ones under the ramifications pubeſcent and viſcid. Peduncles axillary, ſolitary, one-flowered, capillary, looſe, ſpreading, ſmooth, the length of the leaves, hanging down when in fruit. Calyx oblong, tubular. Petals without any crown, ſlightly fleſh-coloured, emarginate with ſhort ſegments. Stamens white, ſhorter than the tube. Germ ovate. Styles diſtant. Stigmas ſimple [h].

Native of the Levant. Annual.—Introduced in 1777, by Abbé Nolin. It flowers in july and auguſt [i].

5. This is an upright plant, a ſpan high, viſcid and pubeſcent. Leaves linear-lanceolate, ſmooth. Calyxes half-five-cleft, membranaceous at the edge. Petals entire, white with three purple dots. Anthers violet. Obſerved in Illyria by Ardunni [k].

6. This is an elegant plant, with a perennial root, and many proſtrate or procumbent ſtems, which are dichotomous, knotted and pubeſcent. Leaves oppoſite, quite entire, pubeſcent: the lower ones ovate, blunt, petioled; the upper ones lanceolate. Flowers numerous, in terminating corymbs. Peduncles villoſe, filiform. Calyx tubular, with five ſmall erect blunt teeth. Petals roſe-coloured, ſpreading horizontally, oblong-elliptic, gradually wider from the baſe upwards, quite entire but ſometimes ſlightly emarginate, with a claw the length of the calyx, having two little appendages at the top. Capſule ovate-oblong, covered by the calyx, half-four-valved, one-celled, containing many brown kidney-form ſeeds. Receptacle columnar, free [l].

Native of Italy, Auſtria, Switzerland, France and Barbary, on mountains, covering the rocks with beautiful large tufts of flowers. Ray obſerved it by the Arve and Rhone near Geneva, and between Maſſa and Lucca in Italy.—It was introduced here in 1768, by Profeſſor de Sauſſure, and flowers from may to july [m].

[a] Gærtner. [b] Smith, Curtis. [c] Curtis. [d] Withering. [e] Hort. kew. [f] Linn. ſpec. [g] Linn. mant. [h] Hort. kew. [i] Linn. mant. [k] Deſfontaines. [l] Hort. kew. [m] Linn. mant.

I saw it in flower during the month of april (1779) about Chatelaine near Geneva.

7. Like the preceding, but with linear-lanceolate leaves; whereas in that they are lanceolate-ovate. Calyxes of the fruit ovate, with raised dots bearing hairs scattered over them. Petals acutely emarginate, without any crown.]

It is a low annual plant, seldom rising more than four inches high; dividing into spreading branches by pairs from the bottom. Leaves very small. Flowers single from the axils. Calyxes hairy, cylindrical; out of which the petals do but just peep. The whole plant is very clammy.

Native of the Levant, whence Tournefort sent the seeds. [Found since also in Gorizia, according to Scopoli.—Cultivated in 1732, by James Sherard, M.D.[f]

8. Root woody, crooked, branched, forming tufts. Stems several, weak, nearly upright, a finger's length, with three or four joints, leafy, round, downy. Leaves obtuse, entire; those next the root clustered, fading but permanent, smooth; those on the stem opposite, sessile, almost united at their base, slightly hairy. Corymbs terminating, dense, many-flowered. Flower-stalks simple or trifid, short. Bractes like the leaves, but smaller, in pairs at the base of the flower-stalks, hairy. Calyx cylindrical, hairy, purple in the upper part. Petals scarcely marked with a crown, violet at the base; the border obovate, entire, yellow. Five of the stamens as long as the border, and five shorter: filaments dark purple tipped with yellow: anthers yellow. Germ in the bottom of the calyx, oval, small, green, marked with tubercles at the top. Styles as long as the longer stamens, white, permanent. Capsule oval, smooth, four-valved and one-celled. Seeds kidney-shaped, yellowish brown, minutely dotted.

Allioni first described this plant, justly observing that it was distinct from *Globularia lutea montana* of Columna, whose figure of that plant is excellent: nevertheless Linneus and Haller united them under one species. Dr. Smith observed in Vaillant's herbarium such important differences between them, that he had no doubt of their being perfectly distinct.

S. lutea is native of the mountains of Switzerland and Savoy. Dr. Smith found it in the fissures of rocks on mount Cenis, in august 1787; where it was pointed out to him by Dr. Bellardi of Turin.

9. The radical leaves are spatulate, ending in a point very like those of a Globularia. Stems thrice as tall as those of S. lutea, and smooth. Stamens yellow, not purple. Petals, according to Columna's figure, linear, notched at the top. This very rare plant was gathered by Columna on the summits of some mountains in Italy[g].]

PROPAGATION AND CULTURE.

These plants are easily propagated by seeds, sown where they are to remain, kept clean from weeds, and thinned where they are too close. If the seeds are sown in autumn, or are permitted to scatter, the plants will come up of themselves.

The double variety will increase fast enough by its creeping roots, and will thrive in any situation.

The hollow-leaved Soapwort is easily propagated by parting the roots in autumn, and loves a moist shady situation.

[This affords little seed, but may be increased by slips or cuttings. It is a hardy perennial, loves a pure air and dry situation, grows best among stones, or out of a wall, and is one of the best plants for ornamenting rock-work[h].

SAPONARIA. See *Arenaria, Gypsophila, Sapindus, Silene.*

SAPOTA. See *Achras.*

SAPPAN. See *Cæsalpinia.*

SARACA.

Lin. gen. Reich. n. 919. *Schreb. n.* 1153. *Juss.* 422.

Class. 17. 2. Diadelphia Hexandria.

Nat. order of *Lomentaceæ.*

GENERIC CHARACTER.

CAL. none.

COR. one-petalled, funnel-form: *border* five-parted: *segments* ovate, spreading, the upper one more remote: *throat* with an elevated rim.

STAM. *Filaments* fix, setaceous, declined, placed on the throat: three on each side, connate at the base. *Anthers* furnished with a keel.

PIST. *Germ* pedicelled, oblong, compressed, length of the stamens. *Style* awl-shaped, declined, length of the germ. *Stigma* blunt.

PER. *Legume?*

ESSENTIAL CHARACTER.

Cal. none. *Cor.* funnel-form, four-cleft. *Filament,* three on each side the throat. *Legume* pedicelled.

SPECIES.

1. Saraca indica.

Lin. syst. 636. *Reich.* 3. 376. *mant.* 98. *Burm. ind.* 85. *t.* 25. *f.* 2.

DESCRIPTION, *&c.*

This is a tree, with alternate, abruptly pinnate leaves: leaflets three or four-paired, oblong, petioled. Flowers in panicles, composed of alternate racemes or spikes; with subimbricate ovate-lanceolate bractes, opposite by two and two. It is a lomentaceous plant; native of the East Indies[i].

SARCOCOLLA. See *Penæa.*

SARCOMPHALUS. See *Rhamnus.*

SARGASSO or SARGAZO. See *Fucus.*

SARIBUS. See *Caryopha.*

SARISSUS. See *Hydrophylax.*

SAROTHRA. (Σαρωθρον, *a broom.*)

Lin. gen. n. 383. *Reich. n.* 414. *Schreb. n.* 521. *Gærtn. t.* 114. *Juss.* 303.

Class. 5. 3. Pentandria Trigynia.

Nat. order of *Rotaceæ, Caryophylleæ,* Juss.

GENERIC CHARACTER.

CAL. *Perianth* one-leafed, five-parted, erect, permanent: *segments* linear, acute.

COR. *Petals* five (commonly,) lanceolate-linear, obtuse, patulous, a little longer than the calyx, deciduous.

STAM. *Filaments* five, filiform, length of the corolla. *Anthers* roundish.

PIST. *Germ* ovate. *Styles* three, filiform, length of the germ. *Stigmas* simple.

PER. *Capsule* oblong, acute, one-celled, three-valved, coloured.

SEEDS numerous, kidney-form, very small, fastened to the sutures of the capsule.

ESSENTIAL CHARACTER.

Cal. five-parted. *Cor.* five-petalled. *Caps.* one-celled, three-valved, coloured.

SPECIES.

1. Sarothra gentianoides.

Lin. spec. 391. *Reich.* 1. 749. *Willd.* 1. 1515. *amœn.* 3. 11. *Gærtn. fruct.* 2. 161. *Kalm. itin.* 2. 253. *ed. angl.* 1. 126. *Gron. virg.* 29. (Gentiana) *Pluk. mant. t.* 342. *f.* 2. (Centaurium.)

DESCRIPTION, *&c.*

This is an annual plant, and looks extremely like the Whortle-berry bushes (of America) when they first begin to look green, and whilst the points of the leaves are yet red[k]. Stem and branches very much branched (subtrichotomous)[l]; leaves very small, narrow and awl-shaped[l], (or linear.) Flowers axillary, solitary, sessile. Capsule small, membranaceous, ferruginous-red, subcylindrical, but very much attenuated and acuminate at the top, tubercled all over with the impressions of the seeds. Seeds subcylindrical, very finely striated both lengthwise and across, pale sulphur-coloured, hanging from the inner margins of the valves, by setaceous umbilical cords[m].

Native of Virginia, Pennsylvania and Philadelphia, growing abundantly in the fields, and under the bushes, in a dry sandy ground, near the capital of the latter province.

It is reckoned a good traumatic[n]. Introduced here by Mr. John Bartram in 1768. It flowers in july[o].]

[f] Hort. kew. [g] Smith. spicil. [h] Cattis. [i] Linn. mant. [k] Kalm. [l] Gronovius. [m] Gærtner. [n] Kalm. [o] Hort. kew.

SAR-

SARRACENIA. (*So named by Tournefort, in honour of Dr. Sarrazin, regius profeſſor of anatomy and botany, who ſent this plant to him from Canada.*)

Lin. gen. n. 652. *Reich. n.* 708. *Schreb. n.* 885. *Tournef. t.* 476. *Juſſ.* 435.

Claſſ. 13. 1. Polyandria Monogynia.

Nat. order of *Succulentæ*.

GENERIC CHARACTER.

CAL. *Perianth* double: *lower* three-leaved; *leaflets* ovate, very ſmall, deciduous: *upper* five-leaved; *leaflets* ſub-ovate, very large, coloured, deciduous.

COR. *Petals* five, ovate, bent in, covering the ſtamens: *claws* ovate-oblong ſtraight.

STAM. *Filaments* numerous, ſmall. *Anthers* ſimple.

PIST. *Germ* roundiſh. *Style* cylindrical, very ſhort. *Stigma* clypeate, peltate, five-cornered, covering the ſtamens, permanent.

PER. *Capſule* roundiſh, five-celled.

SEEDS numerous, roundiſh, acuminate, ſmall.

ESSENTIAL CHARACTER.

Cal. double, three-leaved and five-leaved. *Cor.* five-petalled. *Capſ.* five-celled, with the ſtyle having a clypeate ſtigma.

SPECIES.

1. Sarracenia flava. *Yellow Side-ſaddle flower.*
Lin. ſpec. 729. *ſyſt.* 491. *Reich.* 2. 577. *Willd.* 2. 1150. *hort. cliff.* 497. *Gron. virg.* 164. *Walt. carol.* 153.
Sarracena foliis longioribus & anguſtioribus. *Cateſb. car.* 2. *t.* 69.
Coilophyllum virginianum, longiore folio erecto, flore luteo. *Mor. hiſt.* 3. 533.
Bucanephyllum elatius, &c. *Pluk. alm.* 72. *amalth.* 46. *t.* 152. *f.* 3. (mala) *t.* 376. *f.* 5. (bona.)
Thuris limpidi folium. *Baub. hiſt.* 1. 307. *Dalech. hiſt.* 1754. *Lob. adv.* 430.
Leaves erect tubular, valves with a contracted neck, top flat erect.

[2. Sarracenia minor. *Small Side-ſaddle flower.*
Lin. ſpec. ed. Willd. 2. 1150. *Walt. carol.* 153.
Leaves ſmaller tubular erect, valve concave nodding.

3. Sarracenia rubra. *Red Side-ſaddle flower.*
Lin. ſpec. ed. Willd. 2. 1150. *Walt. carol.* 152.
Leaves erect tubular, valve flat erect.]

4. Sarracenia purpurea. *Purple Side-ſaddle flower.*
Lin. ſpec. 728. *ſyſt.* 491. *Reich.* 2. 577. *Willd.* 2. 1150. *hort. cliff.* 427. *Gron. virg.* 164. *Walt. carol.* 152. *Mill. fig.* 161. *t.* 241.
Sarracena Canadenſis, foliis cvais & auritis. *Tournef. inſt.* 657.
S. foliis brevioribus latioribus. *Cateſb. car.* 2. *t.* 70.
Coilophyllum virginianum, breviore folio, flore purpuraſcente. *Mor. hiſt.* 3. 533.
Bucanephyllum americanum, &c. *Pluk. alm.* 71. *amalth.* 46. *t.* 376. *f.* 6.
Limonium peregrinum, foliis forma floris Ariſtolochiæ. *Baub. pin.* 192.
Limonio congener. *Cluſ. hiſt.* 2. 82. *Ger. emac.* 412. 4. *Park. theat.* 1335. 7. *Raii hiſt.* 1344.
Leaves cowled bellying patulous bowed.

DESCRIPTIONS, &c.

1. Leaves near three feet high, ſmall at the bottom, but widening gradually to the top: they are hollow, and arched over at the mouth like a friar's cowl. The flowers grow on naked pedicels, riſing from the root to the height of three feet, and are of a green colour.

Native of Carolina, Virginia, &c. upon bogs, and in ſhallow ſtanding waters, [Cultivated in 1752, by Mr. Miller. It flowers in june and july [p].

2, 3. Both natives of Carolina, in bogs and wet places [q].]

4. The fourth ſort grows naturally upon bogs in moſt parts of North America; this has a ſtrong fibrous root, which ſtrikes deep into the ſoft earth, from which ariſe five, ſix, or ſeven leaves, in proportion to the ſtrength of the plant; theſe are about five or ſix inches long, hollow like a pitcher, narrow at their baſe, but ſwell out large at the top; their outer ſides are rounded, but on their inner ſide they are a little compreſſed, and have a broad leafy border running longitudinally the whole length of the tube; and to the rounded part of the leaf there is on the top a large appendage or ear ſtanding erect, of a browniſh colour; this ſurrounds the outſide of the leaves about two thirds of the top; it is eared at both ends, and waved round the border. From the centre of the root, between the leaves, ariſes a ſtrong, round, naked footſtalk, about a foot high, ſuſtaining one nodding flower at the top: the leaflets of the upper calyx are obtuſe, and bent over the corolla, ſo as to cover the inſide of it; they are of a purple colour on the outſide, but green within only having purple edges: the petals are of a purple colour, and hollowed like a ſpoon. Germ large, channelled: ſtigma green, with the five corners ſtretched out beyond the brim, each cut into two points and purpliſh. Anthers target-ſhaped, furrowed, of a pale ſulphur colour. Capſule large, covered by the permanent ſtigma.

The hollow parts of the leaves have always water ſtanding in them, and the top or ear is ſuppoſed in hot dry weather to ſhrink, and fall over the mouth of the tube, and ſerve as a lid to prevent the exhalation of the water. In great droughts birds and other animals repair to theſe plants. In ſpring the leaves are of a dark green colour, but gradually change purpliſh, and towards autumn become dark brown.

The Engliſh, who firſt ſettled in North America, gave this plant the name of Side-ſaddle flower, from the reſemblance of the ſtigma to a woman's pillion [r].

[In the thirteenth edition of the Syſtema Vegetabilium the leaves of this ſingular plant are deſcribed as ſeſſile and cowled, with the tube bellying and widening gradually; the throat contracted a little with the margin in front dilated; the border kidney-ſhaped, ſpreading, emarginate; the belly in front with a membranaceous, ſemielliptic, two-nerved keel. Such is the metamorphoſis of the leaf of Nymphæa into that of Sarracenia, in order that, by receiving and retaining rain water, it may grow out of the water; a wonderful proviſion of Nature!

Introduced before 1640, by Mr. John Tradeſcant, junior [s], who, as Parkinſon informs us, found it in Virginia, brought it home, and cultivated it.]

PROPAGATION AND CULTURE.

Theſe plants are eſteemed for the ſingular ſtructure of their leaves and flowers, which have little reſemblance of any yet diſcovered; but there is ſome difficulty in getting them to thrive in England, when they are obtained from abroad; for as they grow naturally on bogs, or in ſhallow ſtanding waters, ſo unleſs they are conſtantly kept in wet, they will not thrive; and although the winters are very ſharp in the countries where the fourth ſort naturally grows, yet being covered with water and the remains of decayed plants, the plants are defended from froſt.

The beſt method to obtain theſe plants is, to procure them from the places of their natural growth, and to have them taken up with large balls of earth to their roots, and planted in tubs of earth; they muſt be conſtantly watered during their paſſage, otherwiſe they will decay before they arrive; for there is little probability of raiſing theſe plants from ſeeds, ſo as to produce flowers in many years, if the ſeeds do grow; ſo that young plants ſhould be taken up to bring over, which are more likely to ſtand here, than thoſe which have flowered two or three times. When the plants are brought over, they ſhould be planted into pretty large pots, which ſhould be filled with ſoft ſpongy earth, mixed with rotten wood, moſs, and turf, which is very like the natural ſoil in which they grow. Theſe pots ſhould be put into tubs or large pans which will hold water, with which they muſt be conſtantly ſupplied, and placed in a ſhady ſituation in ſummer; but in the winter they muſt be covered with moſs, or ſheltered under a frame, otherwiſe they will not live in this country; for as the plants muſt be kept in pots, ſo if theſe are expoſed to the froſt, it will ſoon penetrate through them, and greatly injure,

[p] Hort. kew. [q] Walter. [r] Mill. fig. [s] Hort. kew.

if not deſtroy the plants; but when they are placed under a common frame, where they may have the open air at all times in mild weather, and be ſheltered from hard froſt, the plants will thrive and flower very well.

[SARSAPARILLA. See *Smilax.*

SASANQUA. See *Camellia.*]

SASSAFRAS. See *Laurus.*

SATTIN, WHITE. See *Lunaria.*

SATUREIA. (*From* Satyrus, *according to Linneus; but Voſſius ſays,* quia ſaturet. A ſaturo ſatureia, *as from* impeto impeteius.)

Lin. gen. n. 707. *Reich. n.* 765. *Schreb. n.* 961. *Juſſ.* 112.

Claſſ. 14. 1. Didynamia Gymnoſpermia.

Nat. order of *Verticillatæ. Labiatæ,* Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* one-leafed, tubular, ſtriated, erect, permanent: *mouth* five-toothed, almoſt equal, erect.

COR. one-petalled, ringent: *tube* cylindrical, ſhorter than the calyx: *throat* ſimple: *upper lip* erect, blunt, acutely emarginate, length of the lower lip: *lower lip* three-parted, ſpreading; *ſegments* blunt, equal, the middle one a little larger.

STAM. *Filaments* four, ſetaceous, diſtant, ſcarcely the length of the upper lip; the two lower a little ſhorter. *Anthers* converging.

PIST. *Germ* four-cleft. *Style* ſetaceous, length of the corolla. *Stigmas* two, ſetaceous.

PER. none. *Calyx* converging, containing the ſeeds in the bottom.

SEEDS four, roundiſh.

ESSENTIAL CHARACTER.

Cor. with ſegments nearly equal. *Stam.* diſtant.

SPECIES.

1. Satureia juliana. *Lineur-leaved Savory.*
Lin. ſpec. 793. *Reich.* 3. 26. *Allion. pedem. n.* 84.
S. ſpicata. *Bauh. pin.* 218.
S. fol. tenuibus ſ. tenuifolia, S. Juliani quorundam. *Bauh. hiſt.* 3. 273.
S. Sancti Juliani. *Ger.* 461. *f.* 3. *emac.* 576. *f.* 3. *Raii hiſt.* 518.
S. ſpicata Sancti Juliani. *Park. theat.* 5. *f.* 3.
S. perennis, verticillis ſpicatim & denſius diſpoſitis. *Mor. hiſt.* 3. 412. *ſ.* 11. *t.* 17. *f.* 4.
Thymbra Sancti Juliani, ſ. Satureia verior. *Lob. ic.* 245.
Whorls faſtigiate, leaves linear-lanceolate.

[2. Satureia Thymbra. *Whorled Savory.*
Lin. ſpec. 794. *Reich.* 3. 26. *Blackw. t.* 318. *Subb. hort.* 3. *t.* 71. *Allion. pedem. n.* 85.
S. cretica. *Bauh. pin.* 218. *Ger. emac.* 576. *f.* 4. *Raii hiſt.* 519. *Mor. hiſt. ſ.* 11. *t.* 17. *f.* 6. *ord.* 3.
Thymus fruteſcens, verticillis fere nudis globoſis, foliis ovato-lanceolatis. *Lin. hort. cliff.* 306.
Thymum creticum pone verticillatum. *Barr. rar.* 279. *t.* 898.
Thymbra legitima. *Cluſ. hiſt.* 1. 358.
T. ſ. Satureia cretica legitima. *Park. theat.* 5. *f.* 4.
Flowers whorled hiſpid, leaves oblong acute.]

3. Satureia græca. *Greek Savory.*
Lin. ſpec. 794. *Juſſ.* 528. *Reich.* 3. 26. *Allion. pedem. n.* 86.
S. annua orientalis tenuior, ad ſingulos nodos florifera. *Mor. hiſt.* 3. 411. *ſ.* 11. *t.* 17. *f.* 2.
Clinopodium creticum. *Alp. exot.* 265. *t.* 264.
C. minus exoticum, thymi folio majore, inodorum. *Pluk. alm.* 110. *t.* 84. *f.* 8.
Peduncles ſubtriflorous lateral, involucres ſhorter than the calyx.

4. Satureia montana. *Winter Savory.*
Lin. ſpec. 794. *Juſſ.* 528. *Reich.* 3. 27. *vir. cliff.* 57. *hort. upſ.* 161. *Scop. carn. n.* 738. *t.* 30. *Villars dauph.* 2. 364. *Allion. pedem. n.* 87. *Zinn. goett.* 313. *Willich, obſ.* 109. *Subb. hort.* 3. *t.* 64. *Bauh. pin.* 218.
S. durior. *Bauh. hiſt.* 3. 272. *Raii hiſt.* 518. *Mor. hiſt. ſ.* 11. *t.* 17. *f.* 3. *ord.* 2.
S. hortenſis. *Ger.* 461. 1. *emac.* 575. 1. *Lob. obſ.* 232.
S. vulgaris. *Park. theat.* 4. *n.* 1.
S. perennis. *Riv. mon.* 41.
Satureia. *Lob. adv.* 182.
Meliſſa foliis linearibus integerrimis. *Lin. hort. cliff.* 308.
Calamintha fruteſcens Satureiæ folio facie & odore. *Tournef. inſt.* 194.
Saxifraga ſecunda. *Camer. epit.* 717.
Peduncles lateral ſolitary, flowers in bundles faſtigiate, leaves mucronate linear-lanceolate.

5. Satureia hortenſis. *Summer Savory.*
Lin. ſpec. 795. *Reich.* 3. 27. *vir. cliff.* 87. *hort. upſ.* 161. *mat. med.* 145. *Sauv. monſp.* 142. *Ger. prov.* 257. *Villars dauph.* 2. 364. *Krock. ſileſ. n.* 905. *Allion. pedem. n.* 88. *Ludw. eſſ. t.* 199. *Kniph. cent.* 3. *n.* 80. *Subb. hort.* 3. *t.* 70. *Regn. bot. Blackw. t.* 419. *Bauh. pin.* 218. *Park. theat.* 5. *f.* 2. *Raii hiſt.* 518. *Lob. adv.* 182.
S. æſtiva hortenſis. *Ger.* 461. *f.* 2. *emac.* 575. 2. *Mor. hiſt. ſ.* 11. *t.* 17. *f.* 1. *ord.* 2.
S. ſativa. *Bauh. hiſt.* 3. 272.
S. altera. *Camer. epit.* 487.
Thymus erectus annuus, foliis lanceolato-linearibus. *Lin. hort. cliff.* 306.
Peduncles two-flowered.

6. Satureia capitata. *Ciliated Savory.*
Lin. ſpec. 795. *Reich.* 3. 27. *mat. med.* 145. *Gron. orient.* 71.
Thymus capitatus qui Dioſcoridis. *Bauh. hiſt.* 219. *Raii hiſt.* 519.
Thymum legitimum. *Cluſ. hiſt.* 1. 357.—capitatum. *Park. theat.* 7. *f.* 1.
T. creticum. *Ger.* 459. 3. *emac.* 574. 3.—incanum capitatum. *Barr. ic.* 897.
Flowers in ſpikes, leaves keeled dotted ciliate.

[7. Satureia ſpinoſa. *Thorny Savory.*
Lin. ſpec. 795. *Reich.* 3. 28. *amoen.* 4. 317.
S. cretica fruteſcens ſpinoſa. *Tournef. cor.* 13.
S. cret. ſpinoſa. *Pona ital.* 21.
Branches thorny, leaves hiſpid.

8. Satureia viminea. *Twiggy Savory.*
Lin. ſpec. 795. *Reich.* 3. 28. *amoen.* 5. 399. *Swartz, obſ.* 226. *Brown. jam.* 258. (Sideritis).
Peduncles axillary three-flowered, involucres linear, leaves lanceolate-ovate quite entire.]

DESCRIPTIONS, *&c.*

1. This has very ſlender woody ſtalks, which grow erect, about nine inches high, ſending out two or three ſlender ſide branches towards the bottom. Leaves oppoſite, ſtiff. Flowers in whorls for more than half the length of the ſtalk, ſeeming as if they were bundled together. Corolla ſmall and white. The whole plant has a pleaſant aromatic ſmell.

[Native of Italy. Cultivated in 1739, by Mr. Miller. It flowers from may to ſeptember[1].]

2. This riſes about two feet high with a woody ſtem, and divides into many branches, ſo as to form a ſmall buſh. Leaves ſomewhat like thoſe of common Savory, having a ſtrong aromatic ſcent when bruiſed.

[Whorls in this ſpecies four or five, whereas in the preceding there are nineteen or twenty[2].

Native of the iſland of Candia. Cultivated in 1739, by Mr. Miller[3]; who has omitted it in the later editions of his Dictionary.

3. In appearance this agrees with S. montana or Winter Savory; from which however it differs in having the leaves leſs mucronate, but eſpecially in the corymbs of flowers, which are not ſingle on each ſide but double; the bractes alſo (or involucre) are very ſmall in this, but in that they are the length of the corymb. The lower leaves are ovate, like thoſe of Thyme, purpliſh beneath, the reſt are rather linear; on the upper ſurface of the leaves appear a ſort of ſparkling atoms, ſhining from a few ſhort ſcattered hairs. Corollas purpliſh on the outſide, on the inſide whitiſh-purple, with three purple ſpots at the baſe, the middle one larger than the others. After the firſt year the corymbs become ſolitary.—Native of the Archipelago[4], and the county of Nice.]

[1] Hort. kew. [2] Linn. ſpec. [3] Hort. kew. [4] Linn. ſpec.

Mr. Miller says it has slender woody stalks which rise near a foot and half high, with small, ovate, stiff, acute-pointed leaves, having reflexed borders. Flowers in roundish whorls upon foot-stalks, by pairs from the axils, small and white, appearing in july.

Cultivated by Mr. Miller in 1759.

4. This is well known under the name of Winter Savory; and is a perennial plant, with a shrubby low branching stalk; the branches rise about a foot high, are woody, and have two very narrow stiff, leaves, about an inch long, opposite at each joint: from the base of these come out a few small leaves in clusters. Flowers axillary upon short foot-stalks, shaped like those of the Summer Savory, but larger and paler. They appear in june, and the seeds ripen in autumn.

[The lower leaves are flattish, those under the flowers keeled. Lower peduncles three-flowered; the upper ones five or seven-flowered. The outer flowers have keeled bractes the length of the tube of the calyx. Throat of the calyx not contracted, hairy within. Corolla twice as large as the calyx and more. Filaments arched in under the upper lip, and of the same length with that lip. It has the same smell with S. hortensis, but weaker[a].

Native of the South of France and Italy. Cultivated here in 1562, as appears from Turner's herbal[b]. That is as far back as we have any printed registers; for there can be no doubt but that this and Summer Savory, with other pot-herbs, were much cultivated in far earlier times, before the spices from the East Indies were known and in common use.]

5. Summer Savory is an annual plant, with slender erect stalks about a foot high, sending out branches at each joint by pairs. Leaves opposite, about an inch long, and one eighth of an inch broad in the middle, stiff, a little hairy, and having an aromatic odour if rubbed. Flowers towards the upper part of the branches, axillary; each peduncle sustaining two flowers. Corolla pale flesh-colour.

[Native of the South of France and Italy. Cultivated here in 1562. Flowers from june to august[b].] Seeds ripen in autumn.

6. This has a low shrubby stalk, which sends out branches on every side, about six inches long and hoary. Leaves stiff, narrow, acute-pointed. Flowers in short roundish spikes at the end of the branches, small and white. The whole plant is hoary and very aromatic. It never produces seeds in England.

[Native of the Levant. Cultivated in 1640, as appears from Parkinson. It flowers from june to october[b].

7. This is a shrubby species, native of Candia or Crete; distinguished by its thorny branches, and shaggy leaves.

8. This is a shrub from two to twelve feet in height, with an upright stem, very much branched and loose. Branches four-sided, strict, subdivided, long; with the branchlets four-cornered, striated, loose, directed one way, ferruginous-pubescent. Leaves opposite, approximating, small, oblong, wedge-shaped, sometimes ovate, convex, sometimes flat, nerved, somewhat rugged, hoary beneath. Petioles short. Leaflets in the axils of the larger leaves. Flowers subsessile at the ends of the branchlets, by threes, the length of the leaves, white. Under the flowers a few linear leaflets, called by Linnæus the involucre. Calyx five-cleft, ten-streaked, five-cornered, hispid, hoary: segments almost equal; the two upper ones approximating, acute, linear, erect. Tube of the corolla scarcely longer than the calyx: upper lip or two upper segments shorter, erect, approximating, less divided, ovate; lower lip or three lower divisions nearly equal; the two lateral ones ovate, the middle one roundish, concave, bent in. Filaments inserted into the middle of the tube, which is villose, two of them shorter than the tube: anthers distant, roundish, black. Germ ovate: style longer than the tube, awl-shaped: stigma simple, acute, bent in.

Native of the cooler mountains of Jamaica; flowering there in autumn.

[a] Willich. [b] Hort. kew. [c] Ibid. [d] Ibid.

There are two varieties: one a shrub, smaller and more rigid, with smaller oblong leaves: the other a little tree, twelve or fifteen feet high, with the branches loose and rounder leaves.

The whole plant is very sweet-scented, even when dry[a].

Introduced in 1783, by Matthew Wallen, Esq.[b]]

PROPAGATION AND CULTURE.

4. Winter Savory may be propagated by seeds in the same way as Summer Savory, or by slips, which, if planted in the spring, will take root very freely. It is very hardy, and will continue several years, especially on a poor dry soil, or on a wall: but when the plants are old, the shoots are short, and not so well furnished with leaves; it will be proper therefore to raise a supply of young plants every other year.

5. Summer Savory is only cultivated by seeds, sown at the beginning of april, upon a bed of light earth, where they are to remain, or for transplanting: if the plants are to stand unremoved, the seeds should be sown thinly. Keep them clean from weeds, and treat them in the same way as Marjoram.

1, 2, &c. The other sorts are too tender to live through the winter in the open air in England. They are generally propagated by slips or cuttings, which take root very readily during any of the summer months. If they are planted in a shady border, or are shaded from the sun with mats, they will be fit to be transplanted in two months, when they should be taken up carefully, and each put into a small pot filled with fresh undunged earth, and placed in the shade till they have taken new root: then place them in a sheltered situation, where they may remain till the end of october, when they should be placed under a common hot-bed frame, where they may be exposed to the open air at all times when the weather is mild; but they must be protected from hard frost.

As these plants seldom live above three or four years, there should be a supply of young ones raised to preserve the species. In winter they should not have much wet, for they are very subject to grow mouldy, especially if the air be excluded from them: or if the branches be drawn up weak, they become mouldy and soon decay.

[SATUREIA. See *Cunila*, *Thymbra*, *Thymus*.]

SATYRIUM. (Σατυριον *of Dioscorides*. Satyrium *of Pliny*. *So named from the supposed libidinous property of the root.*)

Lin. gen. n. 1010. *Reich. n.* 1095. *Schreb. n.* 1368. *Juss.* 65.

Class. 20. 2. Gynandria Diandria.

Nat. order of *Orchidæ*.

GENERIC CHARACTER.

CAL. *Spathes* wandering. *Spadix* simple. *Perianth* none.

COR. *Petals* five, ovate-oblong: three exterior; two interior converging upwards into a helmet.

Nectary one-leafed, annexed to the receptacle by its lower side between the division of the petals: upper lip erect, very short; lower flat, pendulous, prominent behind at the base in a scrotiform bag.

STAM. *Filaments* two, very slender and very short, placed on the pistil. *Anthers* obovate, covered by the two-celled fold of the upper lip of the nectary.

PIST. *Germ* oblong, twisted, inferior. *Style* fastened to the upper lip of the nectary, very short. *Stigma* compressed, obtuse.

PER. *Capsule* oblong, one-celled, three-keeled, three-valved; opening in three parts under the keels, cohering at the top and bottom.

SEEDS numerous, very small, irregular like saw-dust.

ESSENTIAL CHARACTER.

Nectary scrotiform or twin-inflated behind the flower.

SPECIES.

1. Satyrium hircinum. *Lizard Satyrion.*

Lin. spec. 1337. *syst.* 811. *Reich.* 4. 17. *mant.* 487. *Act. upf.* 1740. *t.* 18. *Hudf. angl.* 386. *Wither. arr. ed.* 3. 29. *Engl. bot. t.* 34. *Pollich pal.*

[a] Swartz. [b] Hort. kew.

n. 851. *Jacqu. austr.* 4. 35. *t.* 367. *Villars dauph.* 2. 41.

Orchis hircina. *Scop. carn. n.* 1113. *Allion. pedem. n.* 1824. *Hall. helv. n.* 1368. *t.* 25.

O. barbata fœtida. *Bauh. hist.* 2. 756. *Raii hist.* 1212. *syn.* 376. *Vaill. par. t.* 30. *f.* 6. *Segu. ver. t.* 15. *f.* 1. *Riv. hex. t.* 18.

O. barb. odore hirci, breviore latioreque folio. *Bauh. pin.* 20. *Mor. hist.* 3. 491. *s.* 12. *t.* 12. *f.* 9.— item, longiore angustioreque folio. *Bauh. pin.*

Tragorchis maximus, & T. mas. *Ger.* 160. *f.* 1, 2. *emac.* 210. 1, 2.

T. maxima & T. vulgaris. *Park. theat.* 1348. *f.* 1, 2.

T. Testiculus hirci. *Dod. pempt.* 237. 1.

Testiculus hircinus. *Lob. obs.* 90. 1. *ic.* 1. 177. 1. *Tabern. ic.* 671. *Dalech. hist.* 1553.

Bulbs undivided, leaves lanceolate, lip of the nectary trifid, middle segment linear oblique præmorse.

[2. Satyrium tabulare.
Lin. syst. 811. *suppl.* 402.
Bulbs round, stem leafy, lip trifid, middle segment emarginate.

3. Satyrium triste.
Lin. syst. 811. *suppl.* 402.
Bulbs undivided, helmet one-spurred, lip entire.

4. Satyrium giganteum.
Lin. syst. 811. *suppl.* 402.
Bulbs round, stem naked, lip sagittate.

5. Satyrium aculeatum.
Lin. syst. 811. *suppl.* 402.
Bulbs round, stem leafy, lip entire unarmed prickly.]

6. Satyrium viride. *Frog Satyrion.*
Lin. spec. 1337. *syst.* 811. *Reich.* 4. 18. *mant.* 488. *Act. upf.* 1740. p. 18. *fl. lapp. n.* 313. *suec. n.* 804. *Hudf. angl.* 386. *Wither. arr. ed.* 3. 30. *Engl. bot. t.* 94. *Lightf. scot.* 519. *Relh. cant. n.* 651. *Sibth. oxon. n.* 32 *Abbot, hedf.* 193. *n.* 635. *Fl. dan. t.* 77. *Pollich pal. n.* 852. *Villars dauph.* 2. 41. *Gmel. sib.* 1. 21.
Orchis virens. *Scop. carn. n.* 1122.
O. viridis. *Allion. pedem. n.* 1846. *Hall. helv. n.* 1269. *t.* 26. *Segu. ver.* 2. *t.* 16. *f.* 18.
O. palmata flore viridi. *Bauh. pin.* 86. *prodr.* 30.
O. palm. flore luteo-viridi. *Raii hist.* 1224.
O. palm. minor fl. luteo-viridi. *Raii syn.* 381.
O. palm. batrachites vel myodes. *Park. theat.* 1358. *f.* 9.
O. palm. flore galericulato dilute viridi. *Loef. pruff.* 192. *t.* 59.
Serapias batrachites altera. *Ger. emac.* 224. 9.
β. Orchis palmata batrachites. *Bauh. pin.* 86. *Vaill. par.* 153. *t.* 31. *f.* 6, 7, 8. *Pollich.*
Bulbs palmate, leaves oblong blunt, lip of the nectary linear trifid, the middle segment obsolete.

7. Satyrium nigrum. *Black-flowered Satyrion.*
Lin. spec. 1336. *syst.* 811. *Reich.* 4. 18. *mant.* 488. *Act. upf.* 1740. p. 19. *Fl. suec. n.* 805. *Jacqu. vind.* 293. *austr. t.* 368. *Villars dauph.* 2. 43.
Orchis nigra. *Scop. carn. n.* 1123. *Allion. pedem. n.* 1845. *Hall. helv. n.* 1271. *t.* 27.
O. palmata angustifolia alpina, nigro flore. *Bauh. pin.* 86. *Scheuch. it.* 1. 45. & 4. 339. *Segu. ver.* 133. *t.* 15. *f.* 17.
O. palm. minor odoratissima purpurea s. nigra. *Bauh. hist. Raii hist.* 1225.
O. palm. angustifolia alpina. *Park. theat.* 1361. *n.* 21.
Palma Christi minor. *Matth.* 886. *Camer. epit.* 627. *Tabern. ic.* 681. *Dalech. hist.* 1569.
Bulbs palmate, leaves linear, lip of the nectary resupine undivided.

8. Satyrium albidum. *White Satyrion.*
Lin. spec. 1338. *syst.* 812. *Reich.* 4. 19. *mant.* 488. *Act. upf.* 1740. p. 19. *fl. suec. n.* 806. *Hudf. angl.* 387. *Wither. arr. ed.* 3. 31. *Lightf. scot.* 519. *Jacqu. vind.* 294. *Fl. dan. t.* 115. *Villars dauph.* 2. 24.
Orchis albida. *Scop. carn. n.* 1124. *Allion. pedem. n.* 1838. *Hall. helv. n.* 1270. *t.* 26.
O. palmata, palmis inversis, flore albo. *Loef. pruff.* 182.
O. palmis thyrso speciosо longo densе stipato ex viridi albente. *Raii syn.* 382.
Pseudo-Orchis alpina, flore herbaceo. *Mich. gen.* 30. *t.* 20.

Helleborine Broccenbergense. *Riv. hex. t.* 3.
Limodorum montanum, flore albo dilute virescente. *Chomel act. par* 1705. *p.* 517.
Bulbs in bundles, leaves lanceolate, lip of the nectary trifid acute, the middle segment blunt.

[9. Satyrium epigogium.
Lin. spec. 1338. *syst.* 812. *Reich.* 4. 19. *mant.* 488. *Jacqu. austr. t.* 84. *Weber spicil.* 23. *Villars dauph.* 2. 44. *t.* 1.
Epigogium. *Gmel. sib.* 1. 12. *t.* 2. *f.* 2.
Epipactis caule aphyllo, flore supinato, labello ovato-lanceolato, calcare ovato turgido. *Hall. helv. n.* 128. *alt. bern.* 5. 309.
Bulbs compressed toothed, stem sheathed, lip of the nectary resupine undivided.

10. Satyrium hirtellum.
Swartz prodr. 118.
Bulbs filiform, stem hirsute, leaves ovate [illegible] petioled sheathing, nectary horned, lip three-[illegible]

11. Satyrium plantagineum.
Lin. spec. 1338. *syst.* 812. *Reich.* 4. [illegible] 408. *Jacqu. amer.* 221. *pict.* [illegible] *prodr.* 118. *obs.* 320.
Orchis elatior latifolia, &c. *Sloan. jam.* 1. 250. *t.* 1[illegible] *f.* 2.
Bulbs filiform, stem very smooth, leaves ovate petioled sheathing, horn of the nectary thickened, lip [illegible] middle acuminate.

12. Satyrium adnatum.
Swartz prodr. 118.
Bulbs in bundles, root-leaves oblong on very long petioles, scape sheathed, nectary horned adnate, lip bent down two-lobed emarginate.

13. Satyrium Orchioides.
Swartz prodr. 118.
Satyrium 7. *Brown. jam.* 325.
Bulbs in bundles oblong, leaves broad-lanceolate, scape sheathed, nectary horned, lip lanceolate acuminate.

14. Satyrium spirale.
Swartz prodr. 118.
Bulbs in bundles oblong, leaves linear, scape sheathed, flowers spiral directed one way, lip three-lobed, middle larger crenulate.

15. Satyrium elatum.
Swartz prodr. 119. *Brown. jam.* 324. 2.
Helleborine foliis liliaceis, radice Asphodeli, [illegible]minor. *Plum. spec.* 9. *ic.* 190.
Bulbs in bundles thick tomentose, root-leaves ovate petioled, stem almost naked, nectary subtrilobate.

16. Satyrium repens. *Creeping Satyrion.*
Lin. spec. 1339. *syst.* 812. *Reich.* 4. 20. *mant.* 488. *fl. lapp. n.* 314. *suec. n.* 807. *Act. upf.* 1740. p. 20. *Hudf. angl.* 387. *Wither. arr. ed.* 3. 31. *Engl. bot. t.* 289. *Lightf. scot.* 520. *t.* 22. *Gunn. norv. n.* 321. *t.* 6. *f.* 1. *Fl. dan. t.* 812. *Jacqu. austr.* 4. *t.* 369.
Epipactis foliis petiolatis ovato-lanceolatis, floribus tetrapetalis hirsutis. *Hall. helv. n.* 1295. *t.* 22. *alt. helv.* 4. 114.
E. fol. ovatis radicalibus. *Gmel. sib.* 1. 13.
Orchioides. *Trew. norimb.* 1736. *p.* 409. *t.* 6. *f.* 7.
Orchis minor, flosculis albis, s. radice repente. *Cam. hort.* 111. *t.* 35. *Park. theat.* 1355. 8.
O. radice repente. *Bauh. hist.* 2. 770. 2.
Pseudo-Orchis. *Bauh. pin.* 84. *Raii hist.* 1226.
Pyrola angustifolia polyanthos, radice geniculata. *Loef. pruff.* 210. *t.* 68.
Palma Christi radice repente. *Ger.* 175. 4. *emac.* 227. 4.
β. Orchis radice repente, foliis maculis nigris & albis adspersis. *Mentz. pug.* 1. 3. *f.* 4, 5. *Raii hist.* 1226.
Bulbs fibrous, leaves ovate radical, flowers directed one way.

17. Satyrium capense.
Lin. spec. 1339. *Reich.* 4. 20. *amoen.* 6. *asr.* 93.
Lip of the nectary wider blunt emarginate waved on both sides.

18. Satyrium hians.
Lin. syst. 812. *suppl.* 401.
Helmet of the corolla spurred gaping, nectary ovate, leaves linear radical.

19. Satyrium

19. Satyrium Orobanchoides.
Lin. ſyſt. 812. *ſuppl.* 402.
Helmet of the corolla behind two-lobed and in a manner two-horned, leaves bifarious.
20. Satyrium pedicellatum.
Lin. ſyſt. 812. *ſuppl.* 402.
Scape almoſt naked, raceme with filiform looſe pedicels.
21. Satyrium maculatum.
Desfont. atlant. 319.
Flowers in cloſe ſpikes, ſegments converging acute, lip three-lobed, lobes linear very narrow, the middle one longer.

DESCRIPTIONS, *&c.*

1. Lizard Satyrion or Goat Orchis, called by our old authors the Lizard flower from its ſpotted corolla, and great Goat's-ſtones, from the ſcent of the flower, and the large teſticulated roots, is the talleſt Engliſh plant of this tribe, frequently attaining the height of three feet, and producing from twenty to ſixty or more flowers, remarkable for their fetid goat-like ſmell. The upper part of the lip is downy, and [illegible]d with elegant purple ſpots on a white ground; altogether the flowers are more ſingular than beautiful [a].]

The leaves are near five inches long, and half an inch broad. The ſpike of flowers is ſix inches in length: the corolla of a dirty white, with ſome linear ſtripes and ſpots of a brown colour; the middle ſegment of the lip of the nectary is two inches long.

[Native of Germany, Switzerland, Auſtria, France, Italy, and England in the county of Kent, about Dartford; flowering, according to Ray, from the end of may to the middle of june; others mark july for its month of flowering. It loves a chalky ſoil, at leaſt with us, and a ſhaded ſituation among ſhrubs and tall graſs. It ſeems to have been firſt obſerved by Mr. Bowles, in the way from Crayford to Dartford; afterwards by Mr. Rouſe, an ingenious botaniſt, and eminent apothecary in London, near Dartford [c]. It has ſince been occaſionally met with in that neighbourhood, but the greedineſs of collectors has frequently endangered its total deſtruction, and in ſome ſeaſons none can be found in flower [b].

This plant varying in ſize and the breadth of the leaves, has given occaſion to old authors to make two ſpecies of it. The flowers are ſometimes quite white.

2. Found by Thunberg, at the Cape of Good Hope, on the top of the Table mountain; whence its trivial name.

3. Large and panicled. Found by Thunberg at the Cape.

4. This is a fathom in height, with large orange-coloured flowers.

5. *The lip* is muricate with white and purple prickles. Both theſe were alſo found by Thunberg at the Cape [d].

6. Frog Satyrion, commonly called Frog Orchis, has a ſtem from five to eleven inches high and ſolid, with unequal ſharp angles, formed from the edges of the leaves and bractes. Spike lanceolate, from one to three inches long, looſe with few flowers. Bractes ſubulate-lanceolate, keeled, ſomewhat bowed in. Tube of the calyx inveſting the germ; border with three diviſions; ſegments ovate, nearly equal, with ſharp longitudinal wrinkles, approaching upwards, before flowering glued together, and involving all the parts of fructification, except the nectary; the ſide ones more convex on the outſide, bowed back ſideways at the points, the middlemoſt rather ſmaller, more bent inwards. Theſe, which are clearly an extenſion of the ſkin inveſting the germ, incloſe as a calyx the other parts of fructification, and are of a texture ſimilar to that of the bractes. Corolla of three petals, the two upper linear-lanceolate, concave, upright, of a greeniſh whitiſh hue, as long as the calyx, inſerted at the diviſions at the baſe of the upper lip of the third petal. Theſe are of a different texture from the calyx, are ſituated within it, and exactly reſemble the texture of petals. The third petal gaping, with two lips, ſurrounding the edge of the germ; upper lip roundiſh, concave, reddiſh brown, as ſhort again as the two upper petals, divided within into two cells, each containing one of the ſtamens, compoſed of four valves, marked at the baſe with a fleſhy tooth; lower lip oblong-linear, bent back, ſomewhat longer than the calyx, flat, of a yellowiſh greeniſh hue, the ſides and end tinged with browniſh purple, the edges bent in at the baſe, with a longitudinal ridge running along the middle, cloven into three at the end, the lateral ſegments linear, bluntiſh, the middlemoſt very ſhort, projecting underneath at the baſe into a nectary. This is to be conſidered as a petal, from its ſimilarity to that of the Fumaria, and the whole claſs of Perſonatæ, which it exactly reſembles. Nectary roundiſh, ſlightly furrowed along the middle, concave, hanging down from the baſe of the lower lip of the corolla. In Fumaria and the Perſonatæ, the nectary, as here, is an expanſion of the petals, containing a honey-like juice. Anthers unchanged on being moiſtened with water, and not containing any viſible pollen [e].

The roots have but few diviſions. The lower leaves ſheath the ſtem, are oval, broad, marked with parallel veins, and irregularly reticulated with croſs ones, ſmooth but not ſhining; ſtem-leaves lanceolate, the upper ones ſeſſile. Bractes lanceolate, reſembling the upper leaves, much longer than the germ and flower [f].

Native of many parts of Europe, eſpecially in the northern countries, in meadows and paſtures, chiefly in a gravelly or rocky ſoil with us; alſo in Sibiria. It flowers from the end of may to the beginning of auguſt.—King's-hedges near Cheſterton, and Cherry-Hinton, Cambridgeſhire; Stevington, Thurleigh, Bletſoe, Pertenhall, Liton Hoo, Bedfordſhire; in the way to Glenfield from Leiceſter; Braybrook, and Foſter's Booth in Northamptonſhire; Shotover-hill, South Leigh, Cornbury, and Burford Downs, Oxfordſhire; Thaxted in Eſſex; on Helſſe-fellnap near Kendal; alſo in Dorſetſhire, Yorkſhire and Scotland, not uncommon, but rarely in any quantity together.—It was firſt obſerved in England by Ray before 1660, in cloſes north of Cheſterton near Cambridge [g].

Ray has remarked that the lip of the flower varies to a duſky purple or ſooty colour; hence, and from the middle ſegment varying in ſize, which is a common accident in this tribe, Mr. Hudſon has deſcribed a Satyrium fuſcum [h].—Variety β. of Linneus, figured by Vaillant, is ſaid to have larger flowers, and longer bractes [i].]

7. Stem about nine inches high. Leaves on the lower part about four inches long, but on the upper part ſcarcely an inch, embracing the ſtem at the baſe. Flowers in a thick ſhort ſpike, of a dark purple colour, [ſmelling very ſweet. Petals ſpreading. Lip undivided, ovate-lanceolate, crenulate. Spur very ſhort [k].

Native of the mountains of Lapland, Switzerland, Auſtria, Dauphiné and Savoy.

Said in the Kew catalogue, to be introduced in 1779, by the Rev. Samuel Goodenough, L.L.D. Mr. Miller had cultivated it in 1759, if not before; but this, like its congeners, is a fugitive plant in gardens; and Villars ſays of this ſpecies, that although it is very common in Dauphiné, they have not been able to cultivate it there.

8. Stem nine to fifteen inches high. Lower leaves oval, ſheathing the ſtem; upper lanceolate, acute. Flowers very numerous, in a long (an inch and half, cylindrical,) cloſe ſpike. Bractes lanceolate, very acute, longer than the germ. Petals white, oval-lanceolate, all converging: lip of the nectary ſhort, green, divided into three acute ſegments, the middle one longeſt and more blunt. Spur blunt, about half as long as the germ [l].

Stem ſcarcely a foot high, roundiſh, leafy. Leaves light green, rather glaucous beneath. Flowers ſmall, greeniſh-white, almoſt inodorous. Petals concave, all nearly equal. Lip green, palmate, with three lobes, of which the middle one is larger, and ſometimes

[a] Engl. bot. [b] Ray ſyn. [c] Engl. bot. [d] Linn. ſuppl. [e] Stokes in Withering. [f] WoodwardMſs. [g] Pulteney, Dorſet. [h] Engl. bot. [i] Pollich. [k] Linn. mant. [l] Woodward Mſs.

blunter

blunter than the other. Spur longer than in moſt of the genus, ſo as almoſt to make it an Orchis according to Linneus's rules; and it certainly has great affinity with ſeveral of that genus in other reſpects[1]. Hence Haller ſeems juſtified in not ſeparating theſe plants from the Orchides[2].

Native of Scania, Denmark, Germany, Switzerland, Auſtria, Dauphiné, Piedmont, Piſtoia, England, Scotland and Wales, on elevated expoſed graſſy hills, or dry mountainous paſtures: as upon the mountains north of Helmſley, by Mr. Teeſdale, in Yorkſhire; at the iſthmus of Tarbat, in Cantire, Argyleſhire; in the iſle of Arran, near Loch-Ranſa, &c. in Jura, Iſla, Colonſa and Skye, by Mr. Lightfoot; in the ſame places as Orchis conopſea, by Dr. Hope; Haſod in Cardiganſhire, by Miſs Johnes. It flowers in june and july. Cultivated by Mr. Miller in 1759.

9. Root tender, branched like coral, ſnow-white. Stem very tender, leafleſs, purpliſh in the upper part, covered with ſcales, about half a foot high, terminated by three or four white diſtant flowers. Nectary ſhort, compreſſed, recurved. Lower lip turned upſide down, oval, entire, with two lateral appendages, and two lines villoſe and coloured within. The other five petals linear, lanceolate, and yellowiſh[3].—Native of Auſtria, Dauphiné, and Siberia.

10. Native of Jamaica[4].

11. Roots filiform, long, tomentoſe. Stem a foot high, aſcending, very erect, round, leafy, very ſmooth. Leaves ſharp, entire, very ſmooth, nerved longitudinally, bright green and ſhining. Sheaths ſurrounding the ſtem, cowled, nerved, netted, membranaceous. Spike many-flowered, (fifty) upright. Flowers ſmall, white. Spathes ovate, half-embracing, membranaceous, acute. It has the flower of an Orchis, with the habit of a Satyrium. The horn is not teſticulate, but elongated, obovate, like a bladder and free, by Jacquin and others called the lower lip; but the lip is certainly trifid, with the middle ſegment acuminate[5].

Native of Jamaica and Martinico, in moiſt woods and ſhady places.

12. Native of Jamaica and Hiſpaniola[6].

13. Stem twelve or fourteen inches high, without leaves. Flowers fleſh-coloured, oblong and ſucculent[7]. Native of Jamaica and Hiſpaniola.

14. Native of Jamaica.

15. Native of Jamaica and Hiſpaniola[8].

16. Roots perennial, truly creeping, not bulbous, very ſucculent, downy, running among moſs, and attaching themſelves to decayed fragments and leaves of Fir, in the manner of Fungi. Leaves in tufts at the end of each runner, on broad ſheathing footſtalks, ovate, ſucculent, ſtrongly five or ſeven-ribbed, and reticulated with tranſverſe veins which are often brown, and the leaves are now and then prettily chequered with that colour. Stalks erect, ſix or eight inches high, round, downy upwards, clothed with a few alternate ſheathing bractes, and terminated with an erect ſpike of numerous pale fleſh-coloured fragrant flowers, leaning one way, but turning a little ſpirally round the ſtalk; each being accompanied by a lanceolate, concave, coloured, downy bracte, longer than the germ, which alſo is clothed with viſcid downineſs, as well as the three broader external petals. Haller deſcribes the flower as having only three petals beſides the nectary; but Mr. Sowerby obſerved two internal lanceolate petals, which, like thoſe of Orchis uſtulata, are very difficult to be detected in a dried ſpecimen, being glued as it were to the upper one, which the others are not, though Haller ſays they are[9].

Native of Lapland, Norway, Denmark, Switzerland, Auſtria, Siberia, Scotland; in Alpine Fir foreſts: flowering from june to auguſt.—Roſs-ſhire, two miles from the head of Little Loch-Broom, by Mr. Lightfoot. Oppoſite to Moy-hall, on the ſouth ſide of the road to Inverneſs. In a wood near Gordon caſtle, by Dr. Hope.

[1] Engl. bot. [2] Woodward. [3] Villars. [4] Swartz prodr. [5] Swartz obſ. [6] Swartz prodr. [7] Browne. [8] Swartz prodr. [9] Engl. bot.

Mentzelius mentions a variety, the leaves of which are ſpotted with black and white; which is not uncommon among the Orchideæ.

17. Root-leaves linear-lanceolate, ſlightly ſtriated, ſtrict. Scape-leaves alternate, embracing and ſheathing, acuminate, ſhorter. Raceme looſe. Bractes lanceolate, ſmaller. Pedunclesthe length of the flowers. Petals five, almoſt equal, lanceolate, beſides the lip, which is very blunt and emarginate, with a blunt tooth in the middle on each ſide. Spur very ſhort, blunt.—Native of the Cape of Good Hope[1].

18. Culm a foot high, with a few mucronate ſheaths. All the leaves radical, linear, the length of the culm below the ſpike. Spike oblong, with about ſixteen flowers thinly diſpoſed. Firſt petal cowled, gaping, very broad, finiſhing behind in a very ſhort horn: ſecond and third obovate; the two petals the genitals under the firſt, ſmall, curved in: lip ovate, acute.—Found at the Cape by Thunberg.

19. This plant rather reſembles an Orobus than an Orchis. Leaves linear, cauline. Stem ſhorter than the ſtem, bifarious, denſely imbricated. Corolla of the corolla one-leafed, blunt, two-lobed at the back, putting forth behind two very ſhort blunt ſpurs. Lip obcordate, concave, diſtinct. Receptacle of the ſtamens oblong, under the helmet; at the top with a two-lobed lip, and two teeth at the baſe, which are ſubulate, like a nectary.—Found at the Cape by Sparrmann.

20. Culm a foot high, with a ſingle leaf in the middle. Leaf ſheathing, lanceolate-ſubulate. Spike oblong. Bractes chaffy, ſubulate. Flowers pedunculed. Corolla conſiſting of five nearly equal petals.—Found at the Cape by Sparrmann[2].

21. Leaves lanceolate, ſpotted. Spike denſe, ſhort, blunt. Bractes ovate-oblong, acute, ſhorter than the germ. Flowers ſmall: the upper ſegments converging, acute, pale: lip pendulous, trifid; ſegments linear, very narrow, with the middle one longer and wider. Native of Atlas near Belide[3].]

PROPAGATION AND CULTURE.

Theſe plants are difficult to propagate. The beſt way to obtain them, is to take up their roots and tranſplant them into the garden, with a good ball of earth, putting them into a ſoil as near to that in which they naturally grow as poſſible, and to leave the ground undiſturbed, for if their roots be injured, the plants ſeldom thrive afterwards. For the management of theſe plants, ſee ORCHIS.

[SATYRIUM. See *Haemanthus, Ophrys, Orchis, Serapias.*

SAVANNA FLOWER. See *Echites.*

SAUCE-ALONE. See *Erysimum Alliaria.*]

SAVIN. See *Juniperus.*

——Indian. See *Caeſalpinia.*

SAVORY. See *Satureia.*

SAVOY CABBAGE. See *Braſſica.*

SAURURUS. (*From* Σαυρος *a lizard, and* ουρα *a tail. So named from its long narrow ſpike of flowers.*)

Lin. gen. n. 464. *Reich. n.* 500. *Schreb. n.* 632. *Juſſ.* 19.

Claſs 7. 3. Heptandria Trigynia.—Tetragynia. *Syſt.* Nat. order of *Piperitæ. Naiades*, Juſſ.

GENERIC CHARACTER.

CAL. *Ament* oblong, covered with floſcules.

Perianth proper one-leafed, oblong, lateral, coloured, permanent.

COR. none.

STAM. *Filaments* ſeven, capillary, long, *Anthers* oblong, erect.

PIST. *Germs* four, ovate, acuminate. *Style* none. *Stigmas* oblong, faſtened to the inner apex of the germ.

PER. *Berries* four, ovate, one-celled.

SEED ſingle, ovate.

ESSENTIAL CHARACTER.

Cal. an ament with one-flowered ſcales. *Cor.* none. *Germs* four. *Berries* four, one-ſeeded.

SPECIES.

1. Saururus cernuus. *Lizard's Tail.*

Lin. ſpec. 489. *Syſt.* 353. *Reich.* 2. 138. *Willd.*

[1] Linn. amoen. [2] Linn. ſuppl. [3] Desfontaines.

2. 292. *hort. cliff.* 139. *upſ.* 91. *Gron. virg.* 40. *Mill. illuſtr. Gleditſch. ic.* 1. *n.* 7. *Plak. phyt. t.* 117. *f.* 3. 4. (Serpentaria.)

DESCRIPTION, *&c.*

Root fibrous, perennial. Stalks generally trailing, and ſeldom riſing more than two feet high, having ſome longitudinal furrows. Leaves heart-ſhaped and ſmooth, about three inches long, and two broad at their baſe, ending in obtuſe points, and having ſeveral longitudinal veins, which join at the foot-ſtalk, but diverge from the midrib towards the borders in the middle, and join again at the point; they ſtand upon foot-ſtalks about an inch long, and are alternate. Spikes axillary towards the top of the ſtalk, taper, and about two inches long. They appear in July, but are not followed by ſeeds in England. The ſtalk decays in autumn.

[Scales of the ament petioled, white, when going out of flower greeniſh, with the pedicels curved in to [illegible] and incumbent on the germ. The ſtamens [illegible] be numbered, unleſs they continue after flowering.

Native of Virginia[1]. Mr. Miller ſays it grows naturally in moſt parts of North America. He cultivated it in 1759[2].]

PROPAGATION AND CULTURE.

Part the roots in autumn, ſoon after the ſtalks decay, or in the ſpring, before the roots begin to ſhoot. It loves a moiſt ſoil, and a ſhady ſituation.

[SAURURUS. See *Piper.*

SAUVAGESIA. (*So named by Linnæus, in honour of* Francois Boiſſier de Sauvages, *Profeſſor at Montpellier; author of* Methodus foliorum, 1751.)

Lin. gen. n. 286. *Reich. n.* 308. *Schreb. n.* 401. *Jacqu. amer.* 77. *Juſſ.* 426.

Claſſ. 5. 1. Pentandria Monogynia.

Nat. order of *Gruinales.*

GENERIC CHARACTER.

CAL. *Perianth* five-parted: *leaflets* lanceolate, acute, concave, ſpreading, permanent.

COR. *Petals* five, blunt, equal, rhomb-ovate, length of the calyx.

Nectary, leaflets five, ſmaller, alternate with the petals, oblong, erect, ſurrounded by many ſhorter hairs.

STAM. *Filaments* five, awl-ſhaped, very ſhort. *Anthers* oblong, acute, ſhort.

PIST. *Germ* ovate. *Style* ſimple, length of the ſtamens. *Stigma* ſimple, blunt.

PER. *Capſule* ovate, acuminate, one-celled, three-valved at the top.

SEEDS numerous, very ſmall, faſtened to the ſutures in a longitudinal row.

ESSENTIAL CHARACTER.

Cal. five-leaved. *Cor.* five-petalled, fringed. *Nect.* five-leaved, alternate with the petals. *Capſ.* one-celled.

SPECIES.

1. Sauvageſia erecta.

Lin. ſpec. 294. *ſyſt.* 244. *Reich.* 1. 572. *Willd.* 1. 1185. *Jacqu. amer.* 77. *t.* 51. *f.* 3. *pict.* 41. *t.* 77. *Brown. jam.* 179. *t.* 12. *f.* 2. (Iron.)

S. Adima. *Aubl. guian.* 1. 251. *t.* 100. *f.* 4.

DESCRIPTION, *&c.*

This is an annual plant, having the habit of Hypericum or Corchorus. Stem erect. Leaves alternate, ovate-lanceolate, bluntly ſerrate. Peduncles lateral, one-flowered, upright when in flower, bent down when in fruit. Flowers white. Eaſily diſtinguiſhed by its ciliate ſtipules[3].

Jacquin ſays, it ſcarcely ever exceeds a foot in height. Stems round, branched, herbaceous. Leaves acute, ſmooth, petioled. Stipules lanceolate, acuminate, with briſtly cilia round the edges. Peduncles ſhorter by half than the leaves. The flowers have no ſcent.

According to Browne, this beautiful little plant riſes generally in an oblique direction, and ſeldom ſhoots above ten or twelve inches from the root; the ſtalk is delicate, ſmooth and round, caſting a few ſlender branches on every ſide, without any certain order. Leaves ſmall, oblong, ſmooth on the upper ſide, very ſlightly crenated, and diſpoſed in an alternate but irregular order: they are on ſhort foot-ſtalks, and adorned with remarkably ciliated ears or ſtipules on each ſide, at their inſertions.

Native of St. Domingo, Martinico, Jamaica, Suriname, and Guiana.

SAW-WORT. See *Serratula.*]

SAXIFRAGA, (q. ſaxa frangat: *becauſe ſeveral of the ſpecies grow in the fiſſures of rocks. Some herbs have had this name, from their ſuppoſed property of diſſolving the ſtone in the kidnies and bladder.*)

Lin. gen. n. 559. *Reich. n.* 608. *Schreb. n.* 764. *Tournef. t.* 129. *Juſſ.* 309. *Gærtn. t.* 36.

Geum. *Tournef. t.* 129.

Claſſ. 10. 2. Decandria Digynia.

Nat. order of *Succulentæ. Saxifragæ*, Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* one-leafed, five-parted, ſhort, acute, permanent.

COR. *Petals* five, ſpreading, narrow at the baſe.

STAM. *Filamenis* ten, awl-ſhaped. *Anthers* roundiſh.

PIST. *Germ* roundiſh-acuminate, ending in two ſhort *Styles. Stigmas* blunt.

PER. *Capſule* ſubovate, two-beaked, two-celled, opening between the points.

SEEDS numerous, minute.

OBS. *The Saxifrages of Tournefort have the capſule and germ girt by the receptacle of the flower; that is, they are inferior.*

Geum of *Tournefort*, *has the capſule and germ placed on the receptacle of the flower, or ſuperior.*

ESSENTIAL CHARACTER.

Cal. five-parted. *Cor.* five-petalled. *Capſ.* two-beaked, one-celled, many-ſeeded.

SPECIES.

* *Leaves undivided, ſtem almoſt naked.*

1. Saxifraga Cotyledon. *Pyramidal Saxifrage.*

Lin. ſpec. 570. *ſyſt.* 411. *Reich.* 2. 308. *Willd.* 2. 638. *fl. ſuec. n.* 366. *hort. cliff.* 168. *Gærtn. fruct.* 1. 178. *Hall. helv. n.* 978. *Scop. carn. n.* 489. *Krock. ſilef. n.* 634. *Villars dauph.* 3. 663. *Jacqu. collect.* 4. 291. *Knipb. cent.* 1. *n.* 79. *Pluk. phyt. t.* 222. *f.* 1. (Sanicula.)

a. Sedum ſerratum. *Bauh. biſ.* 3. 689. *Raii hiſt.* 1045. *Mor. hiſt.* 3. 478. *ſ.* 12. *t.* 9. *f.* 19, 20.

Cotyledon media, foliis oblongis ſerratis. *Bauh. pin.* 285.

C. altera Matthioli. *Park. parad.* 332. *t.* 233. *f.* 2. *Long-leaved Pyramidal Saxifrage.*

β. Saxifraga paniculata. *Mill. dict. n.* 3.

S. foliis ſubrotundis ſerratis. *Tournef. inſt.* 252.

Cotyledon minor, fol. ſubr. ſerr. *Bauh. pin.* 285. *prodr.* 133. *Hall. helv. n.* 978. *β. Raii hiſt.* 1046.—item, media fol. ſubr. *Bauh. pin.* 285. *Raii hiſt.* 1045.

C. altera minor. *Park. parad.* 332. *t.* 233. *f.* 3.—folio ſubrotundo. *Park. theat.* 740. *f.* 3.

Sedum ſerratum flore rubente maculato. *Park. parad.* 332. *t.* 233. *f.* 5.

Round-leaved Pyramidal Saxifrage.

γ. Saxifraga ſedi folio, flore albo, multiflorum. *Tournef. inſt.* 252. *Hall. helv. n.* 977.

S. Cotyledon. *Fl. dan. t.* 241. *Allion. pedem. n.* 1517.

Sedum ſerratum, flore albo, multiflorum. *Dod. pempt.* 131.

δ. Saxifraga ſedi folio, pyrenaica ſerrata. *Tournef. inſt.* 252.

ε. Saxifraga pyramidata. *Mill. dict. n.* 4. *fig. t.* 243.

S. montana pyramidata folio longiore. *Tournef. inſt.* 253.

Root-leaves aggregate tongue-ſhaped cartilaginous-toothed, ſtem panicled leafy, calyxes glandular-hairy.

2. Saxifraga Aizoon.

Lin. ſyſt. 411. *ed. Willd.* 2. 639. *Jacqu. auſtr.* 5. *t.* 438. *Allion. pedem. n.* 1516.

[1] Linn. ſpec. [2] Hort. kew. [3] Linn. ſpec. and ſyſt.

S. Cotyledon 1. *Lin. spec.* 570. *fl. lapp. n.* 177. *t.* 2. *f.* 2.

S. Sedi folio anguſtiore ferrato. *Seguier ver.* 448. *t.* 9. *f.* 1.

Cotyledon pyramidalis lato crenato & retuſo folio polyanthos. *Bocc. muſ.* 2. 109. *t.* 86.

Root-leaves aggregate tongue-ſhaped cartilaginous-toothed, ſtem ſimple racemed leafy, calyxes ſmooth.

[3. Saxifraga mutata. *Saffron-coloured Saxifrage.*

Lin. ſpec. 570. *ſyſt.* 411. *Reich.* 2. 309. *Willd.* 2. 640. *Jacqu. collect.* 1. 284. *ic. rar.* 3. 466. *Curt. magaz. t.* 351. *Hall. helv. n.* 979. *t.* 16. *Seguier, ver.* 3. 199. *Villars dauph.* 3. 663. *Allion. pedem. n.* 1518. *Scheuch. it.* 2. 124. (Geum.)

Root-leaves aggregate tongue-ſhaped, at the edge cartilaginous repand, ſtem racemed leafy, calyxes glandular-hairy, petals linear-lanceolate.]

4. Saxifraga penſylvanica. *Penſylvanian Saxifrage.*

Lin. ſpec. 571. *Reich.* 2. 310. *Willd.* 2. 640. *Gron. virg.* 49. *Pluk. phyt. t.* 59. *f.* 1. & *t.* 222. *f.* 5. (Sanicula.)

S. noveboracenſis. *Cold. noveb.* 105.

S. penſyiv. floribus muſcoſis racemoſis. *Dill. elth.* 337. *t.* 253. *f.* 328.

Leaves oblong-lanceolate ſomewhat hairy toothletted, ſtem naked, peduncles alternate, corymb-capitate.

[5. Saxifraga hieraciſolia.

Lin. ſpec. ed. Willd. 2. 641.

Leaves oblong-lanceolate ſmooth repand-toothed, ſtem naked, peduncles one-flowered aggregate.

6. Saxifraga androſacea.

Lin. ſpec. 571. *ſyſt.* 411. *Reich.* 2. 310. *Willd.* 2. 641. *Jacqu. auſtr.* 4. *t.* 389. *Hall. helv. n.* 984. *epuſc.* 292. *t.* 2. *Villars dauph.* 3. 664. *Allion. pedem. n.* 1519. *Pluk. phyt. t.* 222. *f.* 2.

S. pyrenaica. *Scop. carn. n.* 498. *t.* 16.

Sedum alpinum tertium. *Col. ecphr.* 2. 66. *t.* 67. *f. ult.*

Leaves lanceolate blunt hairy, ſtem naked two-flowered.

7. Saxifraga cæſia.

Lin. ſpec. 571. *ſyſt.* 411. *Reich.* 2. 310. *Willd.* 2. 641. *mant.* 382. *Hall. helv. n.* 982. *Scop. carn. n.* 495. *t.* 15. *Jacqu. auſtr.* 4. *t.* 374. *Villars dauph.* 3. 665. *Allion. pedem. n.* 1522.

Sedi ſpecies minima. *Geſn. faſc.* 24. *t.* 11. *f.* 30.

Saxifraga alpina minima, foliis cæſiis deorſum incurvis. *Tournef. inſt.* 253. *Seguier veron.* 449. *t.* 9. *f.* 2.

Sedum alpinum album, foliis compactis. *Bauh. pin.* 284.

S. alp. minimum foliis cinereis flore candido. *Bauh. hiſt. Raii hiſt.* 1040. *Scheuch. it.* 341. 141. *t.* 21. *f.* 1.

S. minus 9. alpinum 3. *Cluſ. hiſt.* 2. 61. *Ger. emac.* 516. *f.* 3.

S. minimum alp. muſcoides. *Park. theat.* 736. *n.* 1. *f.* 1.

Leaves linear perforate-dotted aggregate recurved, ſtem many-flowered.

8. Saxifraga burſeriana.

Lin. ſpec. 572. *ſyſt.* 411. *Reich.* 2. 311. *Willd.* 2. 642. *Jacqu. miſc.* 1. 152. *t.* 17. *f.* 3. *Hall. helv. n.* 983. *add. helv.* 6. *p.* 10. *n.* 39.

S. alpina, foliis glaucis acutis, monanthos, caule folioſo. *Seguier veron.* 3. 201. *t.* 5. *f.* 2.

Sedum alpinum Saxifragæ albæ flore. *Bauh. pin.* 284.

Leaves aggregate imbricate three-ſided ſubulate even.

9. Saxifraga ſedoides.

Lin. ſpec. 572. *ſyſt.* 412. *Reich.* 2. 311. *Willd.* 2. 642. *Jacqu. miſc.* 2. 134. *t.* 21. *f.* 22. *Hall. helv. n.* 985.

S. trichoides. *Scop. carn. n.* 496. *t.* 15.

S. muſcoides. *Allion. pedem. n.* 1528. *t.* 61. *f.* 2.

S. alpina minima, foliis lingulatis in orbem actis, flore ochroleuco. *Seguier veron.* 450. *t.* 9. *f.* 3.

Leaves aggregate alternate and oppoſite ſublanceolate, flower peduncled.

10. Saxifraga tenella.

Lin. ſpec. ed. Willd. 2. 643. *Jacqu. collect.* 3. 144. *t.* 17.

Leaves lanceolate mucronate ciliate at the baſe imbricate, ſtem almoſt naked few-flowered, calyxes mucronate.

11. Saxifraga bryoides. *Bryum Saxifrage.*

Lin. ſpec. 572. *ſyſt.* 412. *Reich.* 2. 312. *Willd.* 2. 643. *mant.* 383. *Hall. helv. n.* 969. *Scop. carn. n.* 497. *t.* 15. *Jacqu. miſc.* 2. 49. *t.* 5. *f.* 1. *Villars dauph.* 3. 665. *Allion. pedem. n.* 1523.

S. pyrenaica minima lutea muſco ſimilis. *Tournef. inſt.* 253.

Sedum muſcoſum. *Bauh. hiſt.* 3. 695. *Raii hiſt.* 1041. 9. *Scheuch. it.* 1. 10. & 2. 142. *t.* 21. *f.* 2.

S. alpinum quartum. *Col. ecphr.* 2. 66. *t.* 67. *f.* 1, 2.

Leaves lanceolate mucronate cartilaginous at the edge and ciliate, ſtem almoſt naked few-flowered, calyxes obtuſe.

12. Saxifraga bronchialis.

Lin. ſpec. 572. *ſyſt.* 412. *Reich.* 2. 312. *Willd.* 2. 644. *Gmel. ſib.* 4. 164. *t.* 65. *f.* 2.

Leaves imbricate ſubulate ciliate ſpiny, ſtem [illegible] many-flowered.

13. Saxifraga ſtellaris. *Starry* or *bare* [illegible] *Kidney-wort.*

Lin. ſpec. 572. *ſyſt.* 412. *Reich.* 2. [illegible] 644. *fl. lapp. n.* 175. *ſuec. n.* 367. 1. 202. *t.* 13. *Hudſ. angl.* 179. [illegible] ed. 3. 402. *Smith, brit.* 448. *engl.* [illegible] *Lightf. ſcot.* 220. *Fl. dan. t.* 23. [illegible] *n.* 973. *Scop. carn. n.* 492. *t.* 13. *Villars dauph.* 3. 662. *Allion. pedem. n.* 1521. *Gmel. ſib.* 4. 163. *n.* 75. *Pluk. phyt. t.* 58. *f.* 2. & *t.* 222. *f.* 4. (Sanicula.) *Mor. hiſt. ſ.* 12. *t.* 9. *f.* 13. (Sedum.)

Saniculæ alpinæ aliquatenus affinis. *Bauh. hiſt.* 3. 708. 1. *Raii hiſt.* 1047.

Sanicula montana minor. *Cluſ. pann.* 441.

Cotyledon aquatica hirſuta. *Raii hiſt.* 1046.

Geum paluſtre minus, foliis oblingis crenatis. *Tournef. inſt.* 252. *Raii ſyn.* 354.

Leaves ſerrate, ſtem naked branched, petals acute, capſule ſuperior.

14. Saxifraga craſſifolia. *Thick-leaved Saxifrage.*

Lin. ſpec. 573. *ſyſt.* 412. *Reich.* 2. 313. *Willd.* 2. 644. *dec.* 2. 27. *t.* 14. *Gmel. ſib.* 4. 166. *t.* 66. *Curt. magaz.* 196. *Krock. ſilef. n.* 673.

Geum laxatile rotundifolium majus flore purpureo. *Amm. ruth. n.* 90.

α. foliis ovalibus. *Oval thick-leaved Saxifrage.*

β. fol. cordatis ſubrotundis *Heart thick-leaved Saxifrage. Ait. kew.* 2. 79.

Leaves oval retuſe obſcurely ſerrate petioled, ſtem naked, paxicle conglomerate.]

15. Saxifraga nivalis. *Snowy* or *cluſtered Alpine Saxifrage* or *Sengreen.*

Lin. ſpec. 573. *ſyſt.* 412. *Reich.* 2. 313. *Willd.* 2. 645. *fl. lapp. n.* 176. *t.* 2. *f.* 5. *ſuec. n.* 368. *Hudſ. angl.* 180. *Wither. arr. ed.* 3. 403. *Smith, brit.* 449. *engl. bot. t.* 440. *Lightf. ſcot.* 221. *t.* 12. *Dickſ. fasc.* 1. 7. *Fl. dan. t.* 28. *Gunn. norv. n.* 545. *Gron. virg.* 160. *Vahl in act. hafn.* 2. 1. 52.

S. foliis oblongo-rotundis dentatis, floribus compactis. *Raii ſyn.* 354. *t.* 16. *f.* 1.

Sempervivum minus dentatum. *Mart. ſpitz.* 43. *t.* F. *f.* A. *Pluk. phyt. t.* 222. *f.* 2.

Leaves obovate ſerrate, ſtem naked, flowers heaped, capſule half inferior.

[16. Saxifraga Bellardi.

Lin. ſpec. ed. Willd. 2. 645. *Allion. pedem. n.* 1536. *t.* 88. *f.* 1.

Stemleſs, leaves roundiſh repand, flower ſeſſile.

17. Saxifraga daurica.

Lin. ſpec. ed. Willd. 2. 645.

S. punctata. *Pallas it.* 3. *app. n.* 91. *t.* P. *f.* 2.

Leaves cuneiform-rhombed toothed at the end ſmooth petioled, ſtem naked.

18. Saxifraga ſarmentoſa. *China Saxifrage.*

Lin. ſyſt. 412. *Willd.* 2. 646. *ſuppl.* 240. *Ait. kew.* 2. 79. *Schreb. monogr. Dianth.* 16. *t.* 2, 3. *Thunb. jap.* 182. *Curt. magaz. t.* 92.

S. Stolonifera. *Meerb. ic.* 23. *Jacqu. miſc.* 2. 327. *ic. rar.* 1. *t.* 80.

S. ligulata. *Murr. in comm. gott.* 1781. *p.* 26. *t.* 1.

Sekika. *Kæmpf. amoen.* 870.

Leaves roundiſh toothed hairy, runners creeping, two petals elongated.

19. Saxifraga

19. Saxifraga punctata.
Lin. ſpec. 574. *Reich.* 2. 313. *Willd.* 2. 646. *Krock. ſilef. n.* 636. *Mor. hiſt.* 3. 478. *ſ.* 12. *t.* 9. *f.* 17. (Sedum.)
Leaves roundiſh toothed on long petioles, ſtem naked.]

20. Saxifraga umbroſa. *London Pride.*
Lin. ſpec. 574. *Reich.* 2. 314. *Willd.* 2. 647. *hort. upſ.* 108, *Wither. arr. ed.* 3. 403. *Smith, brit.* 450. *engl. bot. t.* 663. *Hall* 92. *Retz. obſ.* 2. 17. *n.* 49.
S. punctata. *Mill. dict. n.* 7.
Geum folio ſubrotundo minori, piſtillo floris rubro. *Magnol hort.* 88. *t.* 14.—majori. *Dill. in Raii ſyn.* 355. *Mill. fig. t.* 141. *f.* 2.
Leaves obovate ſubretuſe cartilaginous crenate, ſtem naked panicled, capſule ſuperior.

21. Saxifraga hirſuta.
Lin. ſpec. 574. *Jacq. auſtr.* 412. *Reich.* 2. 314. *Willd.* 2. 647.
Geum folio circinato acute crenato, piſtillo floris rubro. *Magnol hort.* 87. *ic.*
Leaves cordate-oval retuſe cartilaginous-crenate, ſtem naked panicled.

[22. Saxifraga cuneifolia. *Wedge-leaved Saxifrage.*
Lin. ſpec. 574. *Jacq. auſtr.* 413. *Reich.* 2. 314. *Willd.* 2. 647. *Hall. helv. n.* 974. *Scop. carn. n.* 490. *t.* 13. *Villars dauph.* 3. 661.
S. punctata. *Gunn. norv. n.* 1076. *Act. hafn.* 10. 445. *t.* 3. *f.* 10.
Cotyledon altera olim Matthioli. *Bauh. hiſt.* 3. 684.
C. aut Sedi ſpecies quædam. *Geſn. faſc.* 19. *t.* 12. *f.* 37.
Leaves wedge-ſhaped very blunt repand, ſtem naked panicled.

23. Saxifraga Geum. *Kidney-leaved Saxifrage.*
Lin. ſpec. 574. *Jacq. auſtr.* 413. *Reich.* 2. 315. *Pallas it.* 2. 35. *Scop. carn. n.* 491.
Sanicula montana rotundifolia minor. *Bauh. pin.* 243. *Park. parad.* 231. *t.* 233. *f.* 1.
Sedum mont. rotund. minus album non guttatum. *Mor. hiſt.* 3. 478. *ſ.* 12. *t.* 9. *f.* 12.
Leaves kidney-ſhaped toothed, ſtem naked panicled.]

** *Leaves undivided, ſtem leafy.*

24. Saxifraga oppoſitifolia. *Purple-flowered Saxifrage.*
Lin. ſpec. 575. *Jacq. auſtr.* 413. *Reich.* 2. 315. *Willd.* 2. 648. *fl. lapp. n.* 179. *t.* 2. *f.* 1. *ſuec. n.* 369. *Hudſ. angl.* 180. *Wither. arr. ed.* 3. 404. *Smith, brit.* 450. *Engl. bot. t.* 9. *Curt. lond.* 6. *t.* 27. *Dickſ. ſicc.* 2. 6. *Lightf. ſcot.* 222. *Fl. dan. t.* 34. *Gunn. norv. n.* 53. *Hall. helv. n.* 980. *Allion. pedem. n.* 1529. *t.* 21. *f.* 3. *Gmel. ſib.* 4. 168. *Vahl in act. hafn.* 2. 1. 51. *Jacqu. collect.* 2. 286.
S. alpina ericoides flore cæruleo. *Raii ſyn.* 353. *Petiv. brit. t.* 61. *f.* 9.
Sedum alpinum ericoides cæruleum. *Bauh. hiſt.* 3. 694. *pin.* 284. *prodr.* 132. *Mor. hiſt. ſ.* 12. *t.* 10. *f.* 36. *Raii hiſt.* 1040.
β. Saxifraga biflora. *Allion. pedem. n.* 1530. *t.* 21. *f.* 1. *Hall. helv. n.* 981. *Villars dauph.* 3. 668.
γ. S. purpurea. *Allion. pedem. n.* 1531. *t.* 12. *f.* 2.
S. retuſa. *Gouan illuſtr.* 28. *t.* 18. *f.* 1. *Villars dauph.* 3. 669.
S. alpina ericoides flore purpuraſcente. *Tournef. inſt.* 253.
Sedum alp. eric. purpuraſcens. *Bauh. pin.* 284. *prodr.* 132. *n.* 3. *Raii hiſt.* 1040.
Stem-leaves ovate oppoſite imbricate, the upper ones ciliate.

[25. Saxifraga aſpera. *Rough Saxifrage.*
Lin. ſpec. 575. *Jacq. auſtr.* 413. *Reich.* 2. 315. *Willd.* 2. 649. *mant.* 383. *Hall. helv. n.* 970. *Jacqu. auſtr.* 5. 44. *t. app.* 31. *Ger. prov.* 423. 6. *Villars dauph.* 3. 667. *Allion. pedem. n.* 1524.
S. ſedi foliis crenatis aſperis. *Tournef. inſt.* 252. *Schreb. it.* 2. 140. *t.* 20. *f.* 3.
Sedum alpinum, fol. cren. aſp. *Bauh. pin.* 284. *prodr.* 132. *Geſn. faſc.* 22. *t.* 6. *f.* 27. *Raii hiſt.* 1044.
S. alp. hiſpidum fere ſpinoſum, flore pallido. *Bauh. hiſt.* 3. 695. *Raii hiſt.* 1042, *Mor. hiſt.* 3. 479. *ſ.* 12. *t.* 10. *f.* 25.

S. minimum alpinum villoſum alterum. *Park. theat.* 738.
Stem-leaves lanceolate alternate ciliate, ſtems procumbent.

26. Saxifraga Hirculus. *Yellow Marſh Saxifrage.*
Lin. ſpec. 576. *Jacq. auſtr.* 413. *Reich.* 2. 316. *Willd.* 2. 649. *mant.* 383. *fl. ſuec. n.* 370. *Hudſ. angl.* 181. *Wither. arr. ed.* 3. 404. *Smith, brit.* 451. *Curt. lond.* 6. *t.* 26. *Fl. dan. t.* 200. *Hall. helv. n.* 972. *t.* 11. *Hoffm. germ.* 144. *Roth. germ.* 1. 184. 2. 468. *Allion. pedem. n.* 1527. *Weber ſpicil.* 13. *Gmel. ſib.* 4. 165. *t.* 65. *f.* 3.
S. anguſtifolia autumnalis, flore luteo guttato. *Breyn. cent.* 1. 48. *Raii hiſt.* 1048.
Geum paluſtre luteum bicorne, nardi celticæ ſimilis. *Mor. hiſt.* 3. 477. *ſ.* 12. *t.* 8. *f.* 5.
G. ang. aut. flore luteo guttato. *Dill. in Raii ſyn.* 355.
Sedum ang. aut. fl. lut. gutt. *Mor. hiſt. ſ.* 12. *t.* 8. *f.* 6.
S. alpinum floribus luteis maculoſis. *Bauh. pin.* 284.
Chamæciſtus friſicus. *Ger. emac.* 1284.—foliis nardi celticæ. *Bauh. pin.* 466.
Hirculus qui Chamæ Ciſti genus. *Cluſ. cur.* 5.
Stem-leaves lanceolate alternate unarmed, ſtem erect, germ ovate ſuperior.]

27. Saxifraga aizoides. *Yellow Mountain Saxifrage.*
Lin. ſpec. 576. *Jacq. auſtr.* 413. *Reich.* 2. 316. *Willd.* 2. 650. *mant.* 383. *fl. lapp. n.* 178. *ſuec. n.* 371. *Willich illuſtr. n.* 25. *Hudſ. angl. ed.* 1. 158. *Wither. arr. ed.* 3. 404. *Smith, brit.* 452. *engl. bot. t.* 39. *Gunn. norv. n.* 541. *Krock. ſilef. n.* 637. *Allion. pedem. n.* 1526. *Hall. helv. n.* 971.
S. autumnalis. *Hudſ. angl. ed.* 2. 180. *Lightf. ſcot.* 222. *Fl. dan. t.* 72. *Scop. carn. n.* 493. *t.* 14. *Villars dauph.* 3. 667.
S. alpina anguſto folio, flore luteo guttato. *Raii ſyn.* 353. *Petiv. brit. t.* 61. *f.* 10.
Sedum alpinum flore pallido. *Bauh. pin.* 284. *Mor. hiſt.* 3. 477. *ſ.* 12. *t.* 6. *f.* 3.
S. minus 6. *Cluſ. hiſt.* 2. 60. 3.—ſ. alpinum 1. *Cluſ. pann.* 485. *Ger. emac.* 516. 2.
S. parvum montanum luteum. *Bauh. hiſt.* 3. 693. 2.
β. Saxifraga autumnalis. *Lin. ſpec.* 575. *Jacq. auſtr.* 413. *Reich.* 2. 316. *Willd.* 2. 650. *Jacqu. vind. obſ.* 37.
Stem-leaves linear alternate tooth-ciliate, ſtem decumbent at the baſe, germ depreſſed half inferior.

28. Saxifraga rotundifolia. *Round-leaved Saxifrage.*
Lin. ſpec. 576. *Reich.* 2. 317. *Willd.* 2. 651. *hort. cliff.* 167. *Hall. helv. n.* 975. *Scop. carn. n.* 488. *Krock. ſilef. n.* 638. *Villars dauph.* 3. 661. *Allion. pedem. n.* 1532. *Mill. fig. t.* 141. *f.* 1.
Sanicula montana rotundifolia major. *Bauh. pin.* 243. *Raii hiſt.* 1047.
S. alpina. *Camer. epit.* 764. *Geſn. faſc.* 19. *t.* 10. *f.* 25.
S. alp. guttata. *Bauh. hiſt.* 3. 707.
S. guttata. *Ger.* 644. *f.* 1. *emac.* 788. *f.* 1. *Park. theat.* 533. *f.* 3.
Geum rotundifolium majus. *Tournef. inſt.* 251.
Caryophyllata ſ. Geum alpinum recentiorum folio hederaceo. *Lob. adv.* 267.
Stem-leaves kidney-ſhaped toothed petioled, ſtem panicled, corolla inferior.

*** *Leaves lobed, ſtems erect.*

29. Saxifraga granulata. *White Saxifrage.*
Lin. ſpec. 576. *Jacq. auſtr.* 413. *Reich.* 2. 317. *Willd.* 2. 651. *hort. cliff.* 167. *fl. ſuec. n.* 372. *mat. med.* 116. *Woodv. med. bot. ſuppl. t.* 232. *Hudſ. angl.* 182. *Wither. arr. ed.* 3. 405. *Smith, brit.* 453. *engl. bot. t.* 500. *Curt. lond.* 1. *t.* 30. *Lightf. ſcot.* 223. *Relh. cant. n.* 314. *Sibth. oxon. n.* 401. *Abbot, bedf. n.* 313. *Dickſ. hort. ſicc.* 5. 5. *Hall. helv. n.* 976. *Hoffm. germ.* 145. *Roth. germ.* 1. 184. 2. 468. *Pollich pal. n.* 402. *Krock. ſilef. n.* 639. *Fl. dan. t.* 514. *Neck. gallob.* 191. *Villars dauph.* 3. 660. *Allion. pedem. n.* 1533. *Deſfont. atlant.* 341. *Blackw. t.* 56.

t. 46. *Ludw. eff. t.* 120. *Knipb. cent.* 1. *n.* 80. *Berg. phyt.* 2. 47. *Mill. illustr. Regnault. bot.*

S. rotundifolia alba. *Baub. pin.* 309. *Raii syn.* 354. *Tournef. inst.* 252.

S. alba. *Dod. pempt.* 316. 1. *Lob. obs.* 335. 2. *ic.* 612. *Trag.* 525. *Dalech. hist.* 1113. *Ger.* 603. 1. *emac.* 841. 1. *Raii hist.* 1048.

S. alba vulgaris. *Park. theat.* 424. 1, 2.

S. major f. alba. *Fuchs. hist.* 747.

S. alba radice granulosa. *Baub. hist.* 3. 706.

S. 4. *Camer.* 719.

Saxifragia. *Brunf. herb.* 1. 185.—tertia. *Matth.* 978.

Sedum rotundif. erectum, rad. granulosa. *Mor. hist. s.* 12. *t.* 9. *f.* 23.

β. Floribus plenis. *Double White Saxifrage. Ait. kew.* 2. 81.

Leaves kidney-shaped lobed, stem panicled, root granulated, game half inferior.

[30. Saxifraga bulbifera.

Lin. spec. 577. *syst.* 413. *Reich.* 2. 317. *Willd.* 2. 651. *Gunn. norv. n.* 1006. *Fl. dan. t.* 390. *Allion. pedem. n.* 1534.

S. bulbosa altera bulbifera montana. *Col. ecphr.* 1. 318. *t.* 317.

S. ad folia bulbos gerens. *Baub. pin.* 309.

S. alba altera bulbifera. *Park. theat.* 423. *n.* 2. *t.* 424. *f.* 2. *Raii hist.* 1049.

Sedum bicorne rotundifolium erectum, radice granulata, et ad caudem tubercula proferens. *Mor. hist.* 3. 474. *s.* 12. *t.* 9. *f.* 24.

Leaves palmate-lobed, stem-leaves sessile, stem branched bulbiferous, germ half inferior.

31. Saxifraga cernua. *Drooping bulbous Saxifrage.*

Lin. spec. 577. *syst.* 413. *Reich.* 2. 318. *Willd.* 2. 652. *hort. cliff.* 167. *fl. lapp. n.* 172. *t.* 2. *f.* 4. *suec. n.* 373. *Dicks. in transf. linn. soc.* 2. 290. *Wither. arr.* 3. 405. *Smith, brit.* 453. *engl. bot. t.* 664. *Hall* 93. *Gunn. norv. n.* 528. *t.* 8. *f.* 2. *Fl. dan. t.* 22. (390 *sec. Smith.*)

β. *Gmel. sib.* 4. 163. *n.* 74.

Leaves palmate petioled, stem bulbiferous, petals retuse, germ superior.

32. Saxifraga rivularis. *Alpine Brook Saxifrage.*

Lin. spec. 577. *syst.* 414. *Reich.* 2. 318. *Willd.* 2. 652. *fl. lapp. n.* 174. *t.* 2. *f.* 7. *suec. n.* 374. *Smith, brit.* 454. *Gunn. norv. n.* 479. *Fl. dan. t.* 118. *Gmel. sib.* 4. 170.

Leaves palmate petioled, the upper one spatulate, stem few-flowered, root fibrous, germ half inferior.

33. Saxifraga geranioides. *Crane's-bill leaved Saxifrage.*

Lin. spec. 578. *syst.* 414. *Reich.* 2. 318. *Willd.* 2. 652. *mant.* 383. *amoen.* 4. 271. *Gmel. sib.* 4. 171. *n.* 83. *Gouan illustr.* 28. *t.* 18. *f.* 2.

Root-leaves kidney-shaped five-lobed multifid, stem-leaves linear, stem almost naked branched.

34. Saxifraga ajugifolia. *Bugle-leaved Saxifrage.*

Lin. spec. 578. *Reich.* 2. 319. *Willd.* 2. 653. *amoen.* 4. 271.

Root-leaves palmate-five-parted, stem-leaves linear undivided, stems ascending many-flowered.

35. Saxifraga fibirica. *Siberian Saxifrage.*

Lin. spec. 577. *Reich.* 2. 319. *Willd.* 2. 653.

Leaves kidney-shaped palmate hairy, stem and peduncles filiform.

36. Saxifraga rupestris. *Rock Saxifrage.*

Lin. spec. ed. Willd. 2. 653.

S. petræa. *Jacqu. collect.* 1. 200. *ic. rar.* 1. *t.* 81. *Hoffm. germ.* 145.

S. geranioides. *Host. syn.* 231.

Stem-leaves wedge-shaped three-lobed toothed glandular-hairy, peduncles one-flowered very long, stem ascending branched at the base.

37. Saxifraga tridactylites. *Rue-leaved Saxifrage.*

Lin. spec. 578. *Reich.* 2. 319. *Willd.* 2. 654. *hort. cliff.* 168. *fl. lapp. n.* 173. *suec. n.* 375. *Hudf. angl.* 182. *Wither. arr. ed.* 3. 406. *Smith, brit.* 454. *engl. bot. t.* 501. *Curt. lond.* 2. *t.* 28. *Lightf. scot.* 224. *Relh. cant. n.* 315. *Sibth. oxon. n.* 402. *Abbot, bedf. n.* 314. *Dicks. hort. sicc.* 8. 10. *Gunn. norv. n.* 544. *Hall. helv. n.* 986. *Hoffm. germ.* 145. *Relh. germ.* 1. 134. 2. 469. *Pollich pal. n.* 403. *Krock. silef. n.* 640. *Scop. carn. n.* 550. *Villars dauph.* 3. 669. *Allion. pedem. n.* 1535. *Neck. gallob.* 191. *Berg. phyt.* 21. *Blackw.* 212.

S. verna annua humilior. *Tournef. inst.* 252. *Raii syn.* 354. *Petiv. brit. t.* 61. *f.* 8.

Sedum tridactylites tectorum. *Baub. pin.* 285. *Mor. hist. s.* 12. *t.* 9. *f.* 31. *Raii hist.* 1043.

Tridactylites tectorum flore albo. *Bauh. hist.* 3. 762.

Paronychia altera. *Dod. pempt.* 113.

P. tertia. *Tabern.* 805.

P. rutaceo folio. *Dalech. hist.* 1214. *Ger.* 499. *emac.* 624.—foliis incisis. *Park. theat.* 556.

Leaves wedge-shaped trifid or quinquefid alternate, the upper ones undivided, stem panicled, germ inferior.

38. Saxifraga petræa. *Stone Saxifrage.*

Lin. spec. 578. *syst.* 414. *Reich.* 2. 319. *Willd.* 2. 654. *Willich obs.* 59. *Vahl in act. hafn.* 2. *p.* 10. *Gunn. norv. n.* 427. *t.* 9. *f.* 1. *Fl. dan. t.* 680. *Retz. obs.* 1. 18.

S. tridactylites β. *Lin. spec. ed.* 1. 404. *fl. lapp. suec. n.* 375.

S. adscendens. *Jacqu. collect.* 1. 197. *t.* 11. *f.* 1, 2. *Allion. pedem. n.* 1537. *t.* 22. *f.* 3. *spec. pedem.* 17. *t.* 3. *f.* 1. *Hall. helv. n.* 987.

S. hypnoides. *Scop. carn. n.* 499. *t.* 16.

S. Scopolii. *Villars dauph.* 3. 670.

S. pyrenaica tridactylites latifolia. *Tournef. inst.* 253.

Sedum tridactylites alpinum caule folioso. *Bauh. pin.* 284.

Leaves wedge-shaped, root-leaves entire and three-toothed, stem-leaves five-toothed, upper ones trifid, peduncles subtriflorous.

39. Saxifraga adscendens.

Lin. spec. 579. *syst.* 414. *Reich.* 2. 320. *Willd.* 2. 655. *mant.* 384. *Vahl in act. hafn.* 2. 1. *p.* 12. *Hall. helv. n.* 990.

S. petræa. *Gouan illustr.* 29. *t.* 17. *f.* 3.

S. decipiens. *Ehrh. beitr.* 6. 31. *Hoffm. germ.* 145.

S. alba petræa. *Pon. bald. in Clus. hist.* 2. 337.

Sedum tridactylites alpinum majus album 1. *Bauh. prodr.* 131. *Raii hist.* 1043. *Mor. hist.* 3. 479. *s.* 12. *t.* 9. *f.* 28.

Sanicula alcoides alpina trifido folio major alba. *Pluk. phyt. t.* 202. *f.* 3.

Leaves palmate-three-parted, segments subtrifid, stem branched ascending.

40. Saxifraga moschata. *Musky Alpine Saxifrage.*

Lin. syst. 414. *Willd.* 2. 656. *Wither arr. ed.* 3. 406. *Smith, brit.* 456. *Jacqu. misc.* 2. 128. *t.* 21. *f.* 2? *Holl. helv. n.* 985. *epist. it. helv. t.* 1.

S. exarata. *Villars prosp.* 47. *dauph.* 3. 674. *t.* 45. *Allion. pedem. n.* 1539. *t.* 88. *f.* 2.

Sedulum quod Moschatella alpina lutea vocari potest. *Gesn. fasc.* 25. *t.* 6. *f.* 31.

Tridactylites alpina. *Baub. hist.* 3. 754.

Root-leaves aggregate membranaceous linear-lanceolate entire or trifid triple-nerved, stem almost naked subbifloruous.

41. Saxifraga cæspitosa. *Tufted Alpine Saxifrage.*

Lin. spec. 578. *syst.* 414. *Reich.* 2. 320. *Willd.* 2. 656. *mant.* 383. *fl. suec. n.* 376. *Smith, brit.* 455. *Gunn. norv. n.* 1047. *t.* 7. *f.* 3, 4. *Hall. helv. n.* 989. *Scop. carn. n.* 494. *t.* 14. *Jacqu. collect.* 1. 290. *Krock. silef. n.* 642. *Villars dauph.* 3. 672. *Allion. pedem. n.* 1541.

Sedum tridactylites alpinum minus. *Bauh. pin.* 284. *prodr.* 131. *Raii hist.* 1043.

β. Saxifraga muscoides. *Lin. spec. ed. Willd.* 2. 656. *Jacqu. misc.* 2. 123. *Hall. helv. n.* 988. *epitoc.* 292. *t.* 1. *Segnier veron.* 3. 205. *et* 1. 451. *t.* 9. *f.* 4.

γ. Saxifraga groenlandica. *Lin. spec.* 578. *syst.* 414. *Reich.* 2. 321. *Gunn. norv. n.* 689. *t.* 7. *f.* 1. *Hall. helv. n.* 990. *Dill. elth.* 337. *t.* 253. *f.* 3. 9.

δ. Sax. pedemontana. *Allion. pedem. n.* 1540. *t.* 21. *f.* 5, 6.

S. hypnoides. *Allion. pedem. n.* 1538. *t.* 21. *f.* 4.

Root-leaves aggregate fleshy linear entire or trifid nerved beneath, stem almost naked subbifloruous.

42. Saxifraga palmata. *Palmate Saxifrage.*
Smith, brit. 456. engl. bot. t. 455. Fl. dan. t. 71.
S. petræa. *Wither. arr. ed. 3. 890.*
Leaves hairy palmate quinquefid or trifid, ſtem leafy panicled, petals roundiſh.

43. Saxifraga tricuſpidata.
Lin. ſpec. ed. Willd. 2. 657. Retz. prodr. ſcand. ed. 2. n. 522. Roth, act. hafn. 10. 446. t. 6. Fl. dan. t. 976. Gunn. norv. n. 1046.
Root-leaves aggregate wedge-ſhoped ciliate acutely three-toothed, ſtem aſcending racemoſe, petals lanceolate three times as long as the calyx.

**** *Leaves lobed; ſtems procumbent.*

44. Saxifraga Cymbalaria.
Lin. ſpec. 579. Reich. 2. 321. Willd. 2. 657. Buxb. cent. 2. 40. t. 45. f. 2.
Geum orientale Cymbalariæ folio molli & glabro, flore magno albo. *Tournef. cor. 18. itin. 3. 221. ic. ed. in-fol. 3. 348. t. 32. ed. germ.*
Stem-leaves cordate three-lobed and entire, ſtems procumbent.

45. Saxifraga hederacea. *Ivy-leaved Saxifrage.*
Lin. ſpec. 579. Reich. 2. 321. Willd. 2. 658.
S. cretica annua minima, hederaceo folio. *Tourn. cor. 18.*
Stem-leaves ovate lobed, ſtem filiform flaccid.

46. Saxifraga orientalis.
Lin. ſpec. ed. Willd. 2. 658. Jacqu. obſ. 2. 9. t. 34.
Geum orientale rotundifolium ſupinum flore aureo. *Tournef. cor. 18.*
Leaves roundiſh five-lobed, ſtem very much branched procumbent.

47. Saxifraga cuneata.
Lin. ſpec. ed. Willd. 2. 658.
S. cuneifolia. *Cavan. ic. 3. 25. t. 248.*
Lower leaves petioled wedge-ſhaped five-lobed, ſtem-leaves ſeſſile lanceolate, ſtem aſcending panicled.]

48. Saxifraga hypnoides. *Moſſy Saxifrage*, or *Ladies Cuſhion.*
Lin. ſpec. 579. ſyſt. 414. Reich. 2. 321. Willd. 2. 658. hort. cliff. 168. Hudſ. angl. 182. Wither. arr. ed. 3. 407. Smith, brit. 457. engl. bot. t. 454. Lightf. ſcot. 224. Fl. dan. t. 348. Sauv. monſp. 208. Gort. gelr. 248.
S. muſcoſa trifido folio. *Raii ſyn. 354.*
Sedum alpinum trifido folio. *Baub. pin. 284. Raii hiſt. 1043. Mor. hiſt. 3. 479. ſ. 12. t. 9. f. 26.*
S. alpinum 7. *Cluſ. pann. 491.*
Tridactylites alpina. *Baub. hiſt. 3. 754.*
β. Saxifraga procumbens, foliis linearibus integris trifidis & quinquefidis. *Ray. lugdb. 454. Sauv. monſp. 208.*
Leaves linear entire or trifid, runners procumbent, ſtem almoſt naked, petals elliptic-oblong.

[49. Saxifraga globulifera.
Deſfont. atlant. 342. t. 96. f. 1.
Stem bulbiferous; leaves nerved, the lower ones ſpatulate quite entire, the upper ones palmate three or five-cleft, in the flowering-branch remote linear.

50. Saxifraga ſpathulata.
Deſfont. atlant. 342. t. 96. f. 2.
Leaves ſpatulate obtuſe ciliate undivided, ſtem proſtrate, pedicels axillary one-flowered.

DESCRIPTIONS, *&c.*

1. Panicle very much branched many-flowered, or branched a little with few flowers. Petals unſpotted or ſpotted and that conſtantly [i].

There are numerous varieties of this ſpecies; Barrelier has figured five: they all approach by their fleſhy, oblong ſpatulate leaves, ciliated by little teeth turned towards the point, moſtly whitiſh on the upper ſurface by ſcales in ſhape of little creſcents, as Scopoli has remarked. The petals are white, oblong and blunt, often ſtained with yellow at the baſe [k].

Scopoli obſerves that there are white ſcales (ſcutella) placed at the edges of the leaves, which are waxen, roundiſh, on very ſhort pedicels, which are concealed within little pores: that the younger ſcales have this little pore in their middle, and that there is one of theſe at each notch of the leaf: that the younger leaves are oval, the older ones oblong and lanceolate, with the edges bent back: the ſtem more or leſs leafy and panicled: the petals white variegated with many little red dots: and the capſule quite two-celled, with a receptacle in each cell having more than five ſeeds adhering to it.—Gærtner deſcribes the capſule as ſubglobular, covered with the calyx which is looſe from it; the partition membranaceous, thickened in the middle, deeply divided when mature, having no receptacle except the thickened part of the partition, to which the ſeeds are faſtened: theſe are ovate-acuminate, angular, rugged with very minute pointed dots, and of a blackiſh colour.

This author remarks that Saxifraga, Heuchera and Hydrangea do not differ eſſentially in the parts of fructification; and that Heuchera might be denominated a pentandrous, Hydrangea an arboreous Saxifrage.

Varieties α and β are certainly not diſtinct. γ may poſſibly be a different ſpecies, the ſtem being conſtantly more compound, and the petals unſpotted. Haller's plant (n. 977.) ſeems however to be different from the norwegian figured in Flora danica, t. 241. The petals in the former being linear and ſubciliate at the baſe; but in the latter roundiſh [l].

Mr. Miller has made three ſpecies out of theſe varieties.] The roots of all are perennial and fibrous, and the leaves are gathered into circular heads, embracing each other at the baſe, like the common Houſeleek. Thoſe of his n. 2. (variety α) are tongue-ſhaped, about two inches long, and a quarter of an inch broad. Stem about a foot high, purpliſh, a little hairy, and ſending out ſeveral horizontal branches the whole length. Flowers in ſmall cluſters at the end of the branches; white with ſeveral red ſpots on the inſide.

In n. 3. (variety β) the leaves are not more than half an inch long, and wedge-ſhaped. Stem ſeldom more than ſix inches high, in the wild ſtate, but in gardens often more than a foot, having ſmall leaves ſitting cloſe to it the whole length. Flowers in looſe panicles at the top of the ſtem, white ſpotted with red.

In n. 4. (which ſeems to be the ſame with variety γ) the leaves are two inches long, and half an inch broad and tongue-ſhaped. Stem a foot and half high, branching out near the ground, and forming a pyramid to the top. Petals white, wedge-ſhaped.

When theſe plants are ſtrong, they produce very large pyramids of flowers, which make a fine appearance; and being kept in the ſhade, and ſcreened from wind and rain, will continue in beauty a conſiderable time. They all flower in june. The two firſt are natives of the Alps, and the third of the Pyrenees.

[It appears from Parkinſon that the Pyramidal Saxifrage was cultivated here in 1629 [m]. This author calls it *Navelwort*, and one variety *Princes Feather*.

2. This differs from the preceding in having a racemoſe leafy ſtem, and a ſmooth calyx [n]. Linneus had made it a variety of that, and it probably is ſo. Native of the Alps.

3. This has the appearance of being a hybridous or male plant, allied to S. Cotyledon, yet diſtinct from it. Root-leaves ciliate-villoſe towards the baſe. Stem firmer, ſimple and more abundant in leaves, alſo more viſcid. Racemes alternate, ſhort. Flowers four times as large; with the petals lanceolate, long, ſaffron-coloured [o].

Though in the general form of its foliage, it is as nearly related to S. Cotyledon as moſt of the varieties, yet from four of them it is perfectly diſtinct, having inſtead of the ſerrate cartilaginous edge, only fine ſoft hairs, more eſpecially towards the baſe: towards the extremity there is ſome appearance of little teeth, but widely differing from thoſe of the others. The whole plant is covered with viſcid hairs; the ſtalk, about a

[i] Lian. ſyſt. [k] Villars. [l] Willdenow. [m] Hort. kew. [n] Willdenow. [o] Linn. ſpec.

foot high, is much branched; but the great peculiarity of this plant conſiſts in its flowers, the petals being long, narrow and pointed, of a deeper colour when they firſt ripen, but gradually changing from ſaffron to a pale yellow; the beauty of the flowers is heightened by a glandular ſubſtance in the centre of each, which when the flower expands, is of a bright purple colour [p].

Notwithſtanding theſe peculiarities, Haller ſays it ſufficiently reſembles S. Cotyledon; and Villars doubts whether it be really a diſtinct ſpecies.

Native of the mountains of Switzerland, Carniola and Italy. Mr. Curtis raiſed it from ſeed ſent him by the much to be lamented Mr. Daval, of Orbe in Switzerland.]

4. Root perennial, fibrous. Leaves ſeven or eight inches long, and two broad towards the top, of a deep green and thick conſiſtence, ſpreading near the ground. Stem a foot and half high, branching at top in form of a panicle, and ſuſtaining very ſmall herbaceous flowers, collected into little heads.

[The leaves on the upper ſurface and at the edge, are covered, as is alſo the ſtem, with ſhort, jointed hairs [q].

Native of North America. Cultivated in 1732, by James Sherard, M. D. It flowers in may and june [r].

5. This reſembles the preceding ſo much, that it ſeems at firſt ſight hardly to be different, but it is really diſtinct in its manner of flowering. The leaves are ſmooth on both ſides, very finely ciliate at the edge, with ſhort jointed hairs. Stem a foot high, quite ſimple, round, pubeſcent. Peduncles four or ſix together alternately by intervals, and ſupported by a lanceolate bracte. The upper flower ſubſeſſile and more cluſtered.—Native of the Carpathian mountains [s].

6. Leaves cluſtered next the ground, free, elliptic, hirſute, not thick, commonly blunt at the end, ſeldom three-toothed. Stem three inches high, with ſmall leaves or ligules ſcattered over it, commonly few-flowered; but ſometimes it has only one flower. Petals greeniſh white marked with lines [t].

It is a very ſmall plant, and its ſhort, blunt, villoſe, entire leaves (ſeldom three-toothed) reſemble thoſe of *Androſace villoſa*, whence Linneus's trivial name. Stems from one to three inches high, terminated by one or two unequal flowers. Petals ſmall and whitiſh. Fruit large in proportion to the plant [u].

S. pyrenaica of Scopoli which Jacquin, Reichard and Willdenow refer to this ſpecies, is referred by Villars to S. cæſpitoſa: from which Scopoli affirms it to be totally different. He deſcribes the leaves as being never trifid, and yet they are all ſo in his figure.

Native of Switzerland, Auſtria, Dauphiné, Piedmont, Siberia.

7. Root creeping, long, branched, covered with brown ſcales. Tufts very cloſe, formed of hard, oblong, acute leaves, grooved along the middle, bluntly lanceolate, bent downwards at the end, glaucous, ciliated next the petiole, irregularly dotted underneath when examined with a magnifier. Stem naked (except a few ligules) four inches high, bearing one, three or five milk-white flowers, with round petals marked with lines [x].

Villars remarks, that it reſembles *Diapenſia helvetica* in its habit; that the leaves are whitiſh, entire, with ſome pores on the upper ſurface, that they are heaped one upon another, and form ſolid tufts; that the little ſtems are one or two inches high, ſimple, ſtraight, villoſe, having two or three narrower leaves at bottom, and two or three biggiſh white flowers at top.

There is a variety from the high mountains of Italy, the ſtem of which is double the ſize of the other, hirſute and viſcid. Calyxes large, hirſute. Leaves four times as large, ſpreading, nearly as in S. Cotyledon, diſtinguiſhable by the dots punched through them [y].

[p] Curtis. [q] Willdenow. [r] Hort. kew. [s] Willdenow. [t] Haller. [u] Villars. [x] Haller. [y] Linn. mant.

Native of the Alps and Pyrenees, Auſtria and Monte Baldo.

8. This has the appearance of a ſmall Sedum. Leaves like thoſe of Juniper, cloſely imbricate, acute, keeled, ſmooth. Stem ſcarcely a finger's length, ruſeſcent-hiſpid or glutinous, with three or four alternate, linear leaflets. Flowers milk-white with pale lines.

Vandelli has a variety from Italy with five-flowered ſtems and faſtigiate flowers [z]: and to this belongs Haller's n. 983. which he ſays has three, four and even ſix flowers, whereas Linneus's *burſeriana*, deſcribed by Wulfen in Jacquin's *miſcellanea*, has only one flower.

Native of Carinthia.

9. Stem very much branched, filiform, depreſſed. Leaves aggregate, linear, even. Peduncle often one-flowered, more ſeldom two or three-flowered. Flower ſuperior [a].

This is deſcribed at length by Wulfen in the ſecond volume of Jacquin's *miſcellanea*. He found him in Carinthia in 1768; but Seguier obſerved it forty years before in the mountains near Trent, afterwards Haller in ſeveral places of Switzerland and the Valais, and Scopoli in Carniola, both of them ſuſpecting it to be Seguier's plant, and the latter referring it to the *S. aizoides*, though Linneus had given Seguier's name to his *ſedoides* without heſitation.

It varies much, according to Wulfen, in its habit, height and leaves.

10. This approaches to the next ſpecies, but the flowers are only one-fourth of the ſize, the calyx is mucronate, the germ inferior and glandular-hairy.—Native of the mountains of Carinthia [b].

11. Leaves ſerrate, ciliate at the baſe, with the ſerratures often calloſe at the tip. Root-leaves in a ring: ſtem-leaves five or ſix, alternate, tender. Stem pubeſcent. Flowers one or few. Petals pale yellow with tawney or orange ſpots [c].

Native of the Alps and Pyrenees, Auſtria, Carniola, Dauphiné, Piedmont. Introduced in 1775, by the Doctors Pitcairn and Fothergill [d].

12. Runners oblong imbricate in cluſters. Leaves flat, mucronate-ſpined, ſpiny-ciliate. Stem high, almoſt naked, with a few very ſmall mucronate leaves even at the edge. Panicle ſmall.

Native of Siberia [e].

13. Roots perennial, long, fibrous, crowned with flat ſtellate tufts of obovate-cuneiform leaves, which are hairy above, eſpecially about the edge, paler and ſmooth ſometimes purple beneath, pointed and groſsly ſerrate towards the end. From each tuft ariſes one naked ſtem, rooting a little at the baſe, from two to ſix inches high, erect, round, clothed with ſcattered divaricating hairs, divided at top into a ſort of corymb or panicle of from three to ſeven or nine flowers, each on a ſeparate pedicel, having a lanceolate entire or ſometimes trifid bracte at the baſe. Calyx reflexed. Petals ovate, clawed, three-nerved, white with two yellow tranſverſe ſpots near the baſe. Stamens connected at the baſe, all nearly equal: anthers purple. Germ quite ſuperior, ovate, purple. Capſule membranaceous, nerved, ſmooth, green with a purple ring near the baſe. Seeds rugged with raiſed tubercled longitudinal lines [f].

Native of the mountains of Spitzbergen, Lapland, Switzerland, Styria, Dauphiné, Piedmont, Siberia, and Britain. In our northern counties, Weſtmoreland, Cumberland, Lancaſhire, Yorkſhire; in Wales, and in Scotland, abundantly, on the black turfy margins of rills, on the north ſides of the mountains, towards their ſummits; where it flowers in june and july [g]. Alſo in Ireland, in moiſt places about Slieve Cavclagh, one of Mourne mountains.

14. Root ſuperficial, black, ſcaly with the relics of dead leaves, the thickneſs of a finger or thumb, round, ſending down filiform fibres from the lower ſurface. Stems from the axils of the leaves of the year pre-

[z] Linn. ſpec. and ſyſt. [a] Linn. ſyſt. [b] Willdenow. [c] Linn. mant. [d] Hort. kew. [e] Linn. ſpec. [f] Smith brit. Engl. bot. Woodw. Mſs. [g] Engl. bot.

ceding

ceding at the tops of the roots alternate, very ſhort, almoſt upright, covered with the ſheaths of the leaves, quite ſimple, but branched in autumn. Leaves three or four, alternate, ſpreading very much, obovate-oblong, crenulate, ſubretuſe, very ſmooth, veined, a ſpan long, flat, coriaceous. Petioles ſhorter by half than the leaves, roundiſh, channelled, ſmooth, with a wide membrane at the baſe, of an ovate form, embracing, and in the winter ſeaſon ſerving for a gem. Scape or peduncle terminating, ſolitary, erect, a ſpan high, the thickneſs of the little finger, roundiſh, very ſmooth, purpliſh, almoſt naked, many-flowered. Panicle contracted, naked, blood-red, compoſed of pedate racemes. Flowers inferior, drooping, pedicelled. Pedicels ſhort, round, rugged. Calyx ſhorter by half than the corolla, angular, ſhining, with the receptacle of the flower yellow, five-cleft to the middle; ſegments oblong, erect, quite entire, rounded at the top, ſomewhat wrinkled, green. Corolla funnel-form, purple: petals incumbent, inſerted into the middle of the calyx, wedge-ſhaped, erect, very blunt. Filaments ſhorter by half than the corolla, alternately leſs, inſerted into the calyx with the petals. Anthers erect, cordate, blunt. Piſtil the length of the corolla, yellowiſh green. Germs two, half round, ovate, ſmooth: ſtyles compreſſed, linear: ſtigmas kidney-ſhaped, blunt.

The root is white within, and very ſtiptic or aſtringent when chewed. The ſtem changes every year into root; that which flowers one year loſing its leaves during the winter, turning to the ground, becoming black, and putting forth fibres.

After the plant has flowered, the ſtem puts forth branches from the axils of the leaves, which have the panicle of flowers for the next year included in their gems. When the flowers fade they turn blue [h].

Mr. Curtis remarks, juſtly enough, that the term *grandifolia* would have been more applicable to this ſpecies than *craſſifolia*, for it is not ſo much diſtinguiſhed for the thickneſs as the largeneſs of its leaves; which are almoſt equal in ſize to thoſe of our broad-leaved Dock; they are red on the under, and of a fine ſhining green on their upper ſurface, and may be ranked among the more handſome kinds of foliage. The flowering ſtems, according to the richneſs and moiſture of the ſoil in which they are planted, riſe from one to two or even three feet high; at top ſupporting a large bunch of purple pendulous flowers, expanding in april and may, and if the ſeaſon prove favourable, making a fine appearance [i].

Native of Siberia, whence living plants were ſent to Linneus in 1760, by David de Gorter, phyſician to the Empreſs of Ruſſia [k]. It was introduced here in 1765, by Daniel Charles Solander, LL.D. [l]

β. There is another Saxifrage in our gardens, exceedingly like this in appearance, but differing, in producing larger bunches of flowers, and in having larger, rounder and more heart-ſhaped leaves. In the Kew catalogue this is ſet down as a variety of the *craſſifolia*. Mr. Curtis is inclined to conſider it as a ſpecies under the name of *cordifolia*. He remarks, that the parts of fructification in *craſſifolia* are apt to be preternaturally increaſed [m].

15. Root perennial, black, ſending down long fibres into the black moiſt ground. Leaves radical, ſpreading, fleſhy, lengthened out at the baſe, dark green above, purpliſh beneath, eſpecially near the edges and tips, hairy about the margin. Stem for the moſt part ſolitary, erect, three or four inches high, ſimple, leafleſs, round, clothed in the upper part with fine hairs tipped with viſcid moiſture, terminating in a cluſter of ſeveral flowers, on ſhort, ſometimes branched flower-ſtalks, the lower moſt often accompanied by a ſimple entire bracte. Teeth of the calyx fleſhy, purple. Petals ovate, obtuſe, white ſpotted with pale green, frequently purpliſh. Piſtils white or purpliſh [n].

This ſpecies has the habit of *S. ſtellaris*, but the leaves are wider and more fleſhy, reddiſh beneath; the petals are ſpotted with green; the piſtils are purpliſh; and eſpecially the germ is half inferior, not ſuperior, as in that [o].

Ray's figure is better than Lightfoot's, but neither is good. A luxuriant branched ſpecimen is repreſented in Flora Danica [p].

Scarcely any plant is ſubject to more variations, in appearance as well as ſize. Sometimes it is exceedingly ſmall, with heart-ſhaped leaves, flowers collected into a ſingle head, and a ſtrap-ſhaped leaf at the baſe. Sometimes it produces only a ſingle flower on a ſtalk, and ſometimes two of theſe riſe from one root. At other times it bears a number of flowers at the top of the ſtalk, on fruitſtalks, forming an umbel, and ſometimes it appears twice as large, with a ſpike compoſed of ſmaller ones, as figured by Ray [q].

Native of Britain, Spitzbergen, Lapland, Virginia, and Canada.—This is the moſt alpine of our Britiſh Saxifrages, and is found only on the ſummits of the higheſt mountains in Scotland and Wales, as Ben Lomond, Snowdon, &c. Flowering in auguſt [r]. J. W. Griffith, Eſq. of Garn, near Denbigh, has ſeen the ſame plant flower thrice in one ſummer [s].

16. From a fibrous root proceed tufts of leaves, which are hirſute, not marked with lines, dark green, wedge-ſhaped, three or five-lobed, with the middle lobe larger and bluntiſh. From the centre of each tuft iſſues one flower, ſeldom two or three; they are ſeſſile, and the petals are elliptic and pure white.

Native of the Piedmont alps on moiſt moſſy rocks. Found by Bellardi [t].

17. Native of the higheſt alps of Dauria, under the ſnow.

18. The ſtature of the plant is altogether that of *Heuchera*. Root-leaves petioled, cordate-ſuborbicular, hairy, crenate, with blunt lobules, oleraceous, having white veins on the upper ſurface, beneath liver-coloured. Petioles roundiſh, longer than the leaf. Stipules none. Stem herbaceous, round, a foot and half high, almoſt leafleſs, pubeſcent, as the whole herb is, with hairs ſtanding out; the whole raceme compound, the partial racemes drooping at the end before they flower. Branched runners proceed in abundance from the axils of the root-leaves, terminating in rooting offſets. Three of the petals are ſmaller, whitiſh ſtained with red; two larger, white. Nectary yellow. Stamens white, thicker above, the length of the ſmaller petals. Styles the ſame length. Two of the ſtamens, when they have ejected their pollen, turn back behind the corolla [u]. Capſule rounded-ovate, two-beaked, one-celled, two-valved, ſmall, faſtened to the calyx only by the baſe [x].

Its round variegated leaves, and ſtrawberry-like runners, with the uncommon magnitude of the two lower pendant petals, joined to the very conſpicuous glandular nectary, in the centre of the flower, half ſurrounding the germ, render this ſpecies ſtrikingly diſtinct [y].

Mr. Curtis remarks, that it differs ſo widely from the other Saxifrages, as to create a doubt in the minds of ſome, whether it ought not to be conſidered as a diſtinct genus. Thunberg is of opinion, that it can ſcarcely conſtitute a new genus, although the petals be unequal.

Native of China and Japan. Introduced in 1771, by Benjamin Torin, Eſq. It flowers in june and july [z]. Jacquin ſays (in 1781) that he had this elegant plant many years ſince from Spielmann. The younger Linneus ſeems to have had it from our Gordon of Mile-end.

Loureiro has a ſpecies, which he names *S. chinenſis*. He deſcribes it as an herbaceous ſtemleſs plant. Leaves aggregate, cordate-roundiſh, fleſhy, interruptedly crenate, hairy, reddiſh beneath, on long petioles. Scape naked, ſix inches high. Panicle diffuſed. Corolla white, wheel-ſhaped, five-petalled, the two outer petals double the ſize of the others. Capſule two-beaked, two-celled.—Notwithſtanding the two cells, it agrees in all other circumſtances with *Saxifraga*;

[h] Linn. jun. dec. [i] Hort. kew. [k] Magaz. [l] Curt. magaz. [m] Linn. dec. [n] Engl. bot. [o] Smith brit. [p] Engl. bot. [q] Griffith in Withering. [r] Engl. bot. [s] Withering. [t] Allioni. [u] Linn. ſuppl. [x] Jacqu. miſc. [y] Curtis. [z] Hort. kew.

and

and although it be not ſarmentoſe, yet it approaches very nearly to Linneus's *S. ſarmentoſa*.—Native of China, about Canton[a].

The Loo-Foo Yee (Tyger-ear) which the Chineſe plant in their artificial rock-work, is probably one of theſe. They alſo uſe the juice of the bruiſed leaves to eaſe the tooth-ach. The Chineſe name of Loureiro's plant is *Ho agi ſiao*.

19. Leaves roundiſh, gaſh-toothed ſo as to be almoſt lobed, without any cartilaginous border, by no means retuſe, but the teeth acute. Petioles even, three times as long as the leaves, gradually widening into the leaf. Flowers ſmaller than in *S. Geum*, almoſt inferior.

Native of Siberia[b].—Mr. Miller has miſtaken this for the next ſpecies.

20. Leaves all radical, aggregate in tufts, ſpreading, running down into the petiole, even and quite ſmooth, often purple beneath. Scape a ſpan high, erect, red, hairy, many-flowered, with a few ſmall alternate bractes. Flowers upright. Calyx finally reflexed. Petals obovate-lanceolate, white or fleſh-coloured, moſt beautifully dotted with yellow and dark red. Germ altogether ſuperior, roſe-coloured. Capſule ventricoſe, tipped with purple[c].

Native of Ireland and England. Found in the former on a mountain called the Mangerton, two miles from Killarney, by Dr. Molyneux; on the mountains near Sligo, by Mr. Lhwyd; on Croagh Patrick in the county of Mayo, by A. B. Lambert, Eſq.: in the latter, in Thorp Arch woods, near Weatherby, Yorkſhire, by Sir T. Frankland and Dr. White; and between Arncliffe and Horton in Craven, Yorkſhire, by Mr. W. Bingley. It flowers in june and july.

Mr. Hudſon omitted this plant in his Flora Anglica. It was long cultivated in England before it was known to be indigenous; and was a favourite for the elegance of the flowers, on which account it was named None-ſo-pretty; as alſo for its thriving in London better than moſt plants, whence it had the name of London Pride.]

21. Leaves thick, kidney-ſhaped, crenate, deep green above, pale green beneath, on long thick hairy foot-ſtalks. Corolla white marked with red ſpots. Stamens longer than the petals. It flowers in june.

[Linneus remarks both of this and the preceding, that they are too nearly allied to *S. Geum*. That however has the leaves by no means cordate at the baſe, with angular notches, and ciliate-villoſe petioles: the flowers are inferior. This has the leaves oval, not kidney-ſhaped, and the calyx reflex.—Native of the Pyrenees.

22. Leaves in ſpreading tufts, producing other little tufts, thick, ſolid, white and cartilaginous at the edge, in form nearly reſembling thoſe of *Leucanthemum*, but more obtuſe, ſlightly and bluntly crenate all round, red underneath and becoming more ſo as they advance in age. The upper ſurface, according to Scopoli, appears to have very minute ſilvery ſcales ſcattered over it, when it is examined with a microſcope; the lower part is gradually leſſened and converges into a flat petiole. Stem very brittle, a long ſpan in height. Panicle thin, with the flowers on long tender branched pedicels. Calyx reflexed. Petals white, thinly marked with yellow dots[d]; according to Scopoli, having a yellow ſpot at the claw.

This ſpecies very much reſembles *S. umbroſa*, the margin of the leaves however is not crenate, but very bluntly repand; the leaves alſo are much ſmaller[e].

Native of Switzerland, Styria, Dauphiné. Introduced in 1768, by Profeſſor de Sauſſure. It flowers here in may[f].

23. Diſtinct from the preceding ſpecies in having the leaves erect, not forming little roſes, ovate not wedge-ſhaped, ſubcordate at the baſe, and of the ſame width there as at the end, not ſo thick, but in drying corrugated at the margin, not red beneath, or ſcaly above, or running down into the petiole. Petioles villoſe. Petals dotted below the middle[g]. Calyx reflexed[h].

Native of the Alps of Europe. Cultivated here in 1629[i].

24. Stems very long, trailing, either forming tufts or hanging down from the crevices of rocks, branched, leafy; the flowering branchlets erect[k]. The leaves, which are ovate and ſomewhat decurrent, grow in oppoſite pairs, alternately from each ſide of the ſtalk, giving it an appearance of being imbricated quadrangularly, and are all ciliate at the edges, of a glaucous green, frequently tinged with purple[l]; they are blunt, fleſhy, concave and keeled: the floral leaves are more remote. Flowers terminating, ſolitary, purple, large and handſome[m]. Calyx purpliſh, ciliate at the edges. Petals obovate, very obtuſe, nerved. Anthers purple. Germ half inferior[n]. This beautiful plant inſinuates its roots into every crevice, and with its numerous trailing branches cloaths the rocks with a rich tapeſtry[o]; during the months of april and may. It garden it flowers in february and march. As the flowers go off they incline to blue, and it is ſaid to [illegible] with white flowers.

The plant is very liable to vary from ſituation: when it grows expoſed, the whole plant aſſumes a more compact appearance, the ſtalks are ſhorter, the leaves more cloſely imbricate, the flowers more numerous; in ſhady and more ſheltered ſituations, the ſtalks ſhoot to a greater length, the leaves are placed at longer intervals, aſſume a greener hue, and reſemble ſomewhat thoſe of wild Thyme; in ſuch ſituations few or no flowers are produced[p].

β. The leaves are more diſtinct and blunt: the little ſtem is only two inches high, and is terminated by one or two flowers of a beautiful red colour[q]. According to Allioni, the ſtem is only an inch high; the flower large of a beautiful roſe colour: the leaves hirſute, ciliate, ſeſſile, ovate, not reflexed, alternate even on the flowering branches. The whole plant is commonly very clammy.

γ. Calyx and corolla ſpread out. Stamens and ſtyles equal and higher than the flower. Anthers three-cornered, greeniſh yellow. Leaves acuminate, reflexed, ſmooth, ſometimes ciliate towards the baſe, cloſely imbricate on the ſtems, but conjugate and more apart on the flowering branches[r].

Native of Spitzbergen, Lapland, Britain, Switzerland, Dauphiné, Piedmont, Siberia; on alpine rocks: flowering in april. On Ingleborough and Pennigent; on Snowdon; on Ben Lomond, and other Scottiſh mountains; iſles of Rum and Skye.

25. This has tufts of leaves forming dark roſes cloſe to the ground, and younger ſtalks, as it were gems, ſeſſile in the axils of the ciliate leaves. From the creeping ſtalk riſe up flowering-ſtalks, a long ſpan in height, weak, trifid or quadrifid. Leaves oblong, acute, rigidly ciliate at the edges. Flowers on long, naked, one-flowered branches, three or four in the whole, on the top of the plant. Calyx green with white edges. Petals duſky white with a yellow claw. Anthers ſcarlet. It reſembles *S. bryoides* very much[s].

Native of the mountains of Switzerland, Auſtria, Provence, Dauphiné, and Piedmont. Cultivated in 1748 by Mr. Miller[t]. Omitted in the later editions of his Dictionary.

26. Stems upright, about a ſpan high, round, ſimple, leafy, beſet thinly with browniſh crooked hairs, reddiſh beneath the flowers, branched at bottom; the branches ſhort and decumbent. Leaves bluntiſh, quite entire, ſmooth on both ſides, ſometimes ciliate at the edge with ſoft hairs. Flowers one or two (ſometimes three) large. Calyx reflexed, ſometimes edged with hairs. Petals obovate, nerved, appendiculed at the baſe, of a golden colour, ſpotted with ſaffron up to the middle[u].

Mr. Woodward remarks, that the almoſt parallel nerves on the calyx and petals, clearly diſtinguiſh this

[a] Lour. cochinch. 281. ed. Willd. 345. [b] Linn. ſpec. [c] Smith, brit. & engl. bot. [d] Haller and Villars. [e] Linn. ſpec. [f] Hort. kew.

[g] Scopoli. [h] Linn. ſyſt. [i] Hort. kew. [k] Smith. [l] Woodw. Mſs. [m] Smith. [n] Smith and Woodw. [o] Woodward. [p] Curtis. [q] Villars. [r] Allioni. [s] Haller. [t] Hort. kew. [u] Smith, Curtis, Woodw. Mſs.

from

from the other ſpecies.—And Mr. Curtis, that it obviouſly differs from *autumnalis* in the ſuperior ſize and in the form of the petals, by the beautiful orange ſpots on the lower half of them, and by the two very ſingular pointed projections towards the baſe of each. It is indeed very different from all the European Saxifrages. It derives the trivial name, from its ſimilitude in foliage to *Valeriana celtica*, which is called *Hirculus* by ſome old authors [a].

Native of Lapland, Sweden, England, Germany, Switzerland, Piedmont, Siberia, in bogs: flowering in july and auguſt. Firſt found in England by Dr. Kingſtone, on Knutsford moor in Cheſhire, and ſhowed by him to Dr. Richardſon: and ſince by Mr. Howard, ſurgeon of Knutsford, Mr. Benjamin Haley, gardener to Mr. Egerton of Tatton-park, and others.

27. The roots creep very far. Root-leaves matted. Stems aggregate, decumbent at the baſe and branched, leafy, round, ſmoothiſh, the flowering extremities erect and panicled: the leaves on them much more ſcattered and larger. Leaves ſeſſile, blunt, edged with ſuch ſtrong and remote ciliæ, that they might almoſt be called dentated: theſe ciliæ are nevertheleſs ſometimes wanting, whence Linnæus deſcribes his *S. aizoides* as having naked, not ciliate leaves. Even his own ſpecimen however has traces of them; and in fact the number and denſity of theſe ciliæ are very variable. Mr. Woodward remarks, that the leaves have ſometimes a few ciliæ, but are oftener naked. From the upper part of the ſtem ariſe many peduncles, each from the axil of a leaf, of various lengths, the lower ones longeſt, each clothed with two ſmall leaves, and generally bearing one flower. They often form a ſmall corymb, are extremely beautiful when cloſely examined, and thoſe that appear earlieſt are moſt deeply coloured. Calyx as long as the corolla, from upright ſpreading, even in the fruit. Petals tongue-ſhaped, nerveleſs, gold ſpotted with red. Germ depreſſed. Capſule ovate, half inferior [b].

Haller and Jacquin, and after them Lightfoot, ſuppoſe the Linnean *S. autumnalis* not to be ſpecifically diſtinct from this plant; and Linnæus himſelf thought the hint worth noticing in his ſecond mantiſſa. His own herbarium has no ſpecimen to ſhow what he intended by *S. autumnalis*: probably he took up the plant from other authors. Dr. Stokes's conjecture is perhaps neareſt the truth, that Linnæus's *S. autumnalis* is a ciliated variety of *S. Hirculus*.—Mr. Afzelius informed Dr. Withering, that *S. aizoides* and *autumnalis* of Linnæus are the ſame plant: that when the leaves are fringed, it had been called by the latter, and when without fringe, by the former name [c].

Willdenow remarks, that the leaves are mucronate in *autumnalis*, which they are not in *aizoides*; and that the former varies with purple flowers.

Native of Lapland, Sweden, Norway, Britain, Switzerland, Carniola, Dauphiné, Sileſia, Piedmont. With us it is found in bogs and by rills, on moſt of the mountains in the north of England, and in Scotland; flowering in july and auguſt.]

28. Lower leaves almoſt round, reſembling thoſe of Golden Saxifrage (Chryſoſplenium,) on long foot-ſtalks, deeply divided, hairy and green above, pale beneath. Stems erect, about a foot high, channelled and hairy, with kidney-ſhaped leaves. The ſtem puts out a few ſlender foot-ſtalks from the upper part, which together with the ſtem itſelf are terminated by ſmall cluſters of flowers, white ſpotted with red. According to Haller, it is a cubit in height. Leaves hirſute; the lower on very long petioles, bluntly ſerrate; ſtem-leaves few, on ſhorter petioles, more ſharply ſerrate; at top dwindling into mere ſtraps. Flowers axillary, two or three on a peduncle: the outer dots on the petals red, but the inner ones yellow.—Stem pubeſcent with capitate villoſe hairs. Panicle dichotomous, looſe; with two narrow leaflets under each branch. Petals lanceolate, with ſhort truncate claws. Seeds ovate, up to eighty in a cell [d].

Of this numerous and beautiful genus, we know of none, ſays Mr. Curtis, whoſe flowers, in point of preciſeneſs, can vie with thoſe of the preſent ſpecies: they are marked with numerous fine dots, like thoſe of *umbroſa*, but in a ſuperior ſtyle of beauty, and appear to great advantage when viewed with a magnifier.

Native of Switzerland, Auſtria, Sileſia, Dauphiné, Piedmont. Cultivated by Gerarde, in 1597 [e].

29. Root compoſed of ſeveral little grains or knobs, attached to one main fibre, and throwing out ſmall fibres from their baſe. Stem erect, round, pubeſcent, leafy, ſomewhat viſcid, branched and panicled at top, of a brown or reddiſh hue, with which colour the leaves and calyx-teeth are alſo tinged, giving the whole herb a rich glowing appearance: theſe parts are alſo clothed with the ſame kind of hairs, eſpecially the calyx, which is very clammy to the touch. Leaves ſomewhat fleſhy, lobed and cut; thoſe next the root on long foot-ſtalks; thoſe on the ſtem alternate, ſubſeſſile. Calyx erect. Petals obovate, much longer than the calyx, marked with three branched veins, white, undotted. Stamens all nearly equal. Stigmas blunt and pubeſcent [f].

Native of Europe, in dry paſtures and on banks, where the ſoil is gravelly. In Britain it is not very common, but where it does occur it is found in plenty: flowering in may, and ſeeding in june.—As a medicine it is of no efficacy.

β. It varies with double flowers, and in this ſtate is cultivated. I preſume that this is the variety, which Mr. Miller ſays] was found wild by Mr. Joſeph Blind, gardener at Barnes, who tranſplanted it into his garden, and afterwards diſtributed it to ſeveral curious perſons; ſince which time it has become a very common plant in moſt gardens near London, where it is commonly planted in pots to adorn court-yards in the ſpring, and is very ornamental at that ſeaſon in the borders of the flower-garden.

[30. This is rather a variety of the preceding than a diſtinct ſpecies, according to Seguier. The germ is inferior. This character is what principally diſtinguiſhes it from *S. cernua*. Other characters are not to be depended upon [g].

Native of Italy, in ſhady rocky paſtures; and of Norway. The Biſhop of Drontheim gathered it in 1762 and 1767 at Tromſoen in Norland, &c.; and Koenig in Iſland.

31. Root a ſmall ſcaly bulb, throwing out branched black fibres. Stem four or five inches, or a ſpan high, erect, round, leafy, moſtly ſmooth, generally ſimple and one-flowered, ſometimes branched. Leaves alternate, kidney-ſhaped, lobed in a palmate manner, a little ſucculent, ſmoothiſh; the upper ones undivided and ſeſſile, bearing in their axils little purple ſcaly bulbs, which falling to the ground become new plants. Flower terminating, ſolitary, white, nodding: ſegments of the calyx elliptical, erect, clothed with glandular hairs: petals clawed, retuſe and ſubemarginate, three-nerved, the nerves united above the baſe, branched and diſappearing before they reach the top. Germ entirely ſuperior.

Native of the mountains of Lapland. Mr. Dickſon firſt detected it on the ſummit of Ben Lawers in Scotland. It flowers in july or auguſt.—Figure 390 of Flora Danica ſeems to repreſent this plant: figure 22 having acute petals, and always a ſimple ſtem. This may perhaps be another ſpecies [h].

32. Root fibrous. Stem for the moſt part ſolitary, two inches high, erect, ſimple, two-flowered, ſometimes five-flowered. Leaves on long petioles, alternate, ſomewhat kidney-ſhaped, palmate, three or five-lobed, ſmooth, the upper ones ſpatulate and undivided. Flowers erect, ſmall, white. Calyx hairy-viſcid at the baſe. Petals acute, one-nerved. Germ ovate, half-inferior.

Native of the Lapland mountains; Finmark and Norland; Siberia; Scotland, found on Ben Nevis, by rills and in the wet fiſſures of rocks, by Dr. Townſon, flowering in june and july [i]. [a] Linnæus marks it as annual, Smith as perennial.

[a] Curtis. [b] Smith. brit. & engl. bot. Woodw. Mſ. [c] Eng. bot. [d] Botan. arr. 405. [e] Scopoli. [f] Hort. kew. [g] Smith, brit. & engl. bot. [h] Gunner. [i] Smith, brit. & engl. bot. [k] Smith, brit.

33. Root ſtoloniferous. Stem half a foot high, pubeſcent, viſcid. Leaves five-lobed, with the lobes acutely trifid, the two ſide lobes ſo united, that they appear to be three-lobed, with the ſide-lobes five-toothed: the younger leaves are often cordate, five or ſeven-lobed, with the lobes quite entire and equal. There is ſeldom more than one ſtem leaf, and ſometimes there is none: when there is one only, it is three-lobed, either with the middle lobe quite entire and the ſide-lobes one-toothed, or with all the lobes two-toothed or three-toothed: the middle ſtem-leaf, when there are two, is petioled, and the upper one ſeſſile. Pedunces axillary, alternate, commonly three-flowered, ſometimes but ſeldom five-flowered. Pedicels alternate, ſeparated by awl-ſhaped leaves; the lower flower has two others and opens firſt, then the middle one, and laſtly that at the end. Calyxes pitcher-ſhaped, almoſt as in the Roſe, with long acute ſegments. Petals white, lanceolate, bluntiſh, the ſame ſize as in *S. ceſpitoſa*, *hypnoides*, and *granulata*. Filaments ſtiffiſh, the length of the calyx. Capſule very much forked, with diverging points. After flowering-time the calyxes ſwell very much, and their ſegments are ſo enlarged, that they emulate in a manner thoſe of Roſes.

Native of the Pyrenees, by rills and on ſhady rocks [b]: alſo of Siberia. Introduced in 1770, by Monſ. Richard. It flowers in april and may [i].

34. Root-leaves palmate and five-parted, with ovate-lanceolate lobes, and petioled. Stems aſcending, filiform, with two or three linear acute undivided leaves. Flowers at the top from three to five, pedunculed. Runners before they put out leaves hirſute.—Native of the mountains of Provence [k].

35. Radicles capillary. Root-leaves petioled, ſeven-lobed: lobes ovate, with hairs thinly ſcattered over them: petioles hirſute. Stem aſcending, half a foot high, weak, having two or three ſeſſile palmate leaves on it. Peduncles terminating and lateral, very long, filiform, bifid, naked. Flower biggiſh, white, inferior.—Native of Siberia [l].

36. This is an annual plant, very diſtinct from *S. geranioides* and *adſcendens* in the form of the leaves, peduncles and petals: ſo it is alſo from *S. tridactilites* and *petræa*, although there be a ſort of agreement in the form of the leaves and petals.—Native of the mountains of Carinthia [m].

37. Root annual, ſmall, entirely fibrous. The whole herb is ſuculent, pubeſcent with projecting hairs which are clammy from the globules which terminate them, and turning red after flowering. Stem erect, round, leafy, ſomewhat flexuoſe, dichotomous. Leaves palmate in three ſegments, or pedate in five, tapering down into a wedge-ſhaped baſe, their margin entire, their ſubſtance tumid and fleſhy; the uppermoſt lanceolate, undivided, and ſeſſile. Panicle erect, with ſmall leaves at the forks. Flowers ſmall, white, on ſolitary peduncles. Calyx urn-ſhaped, with ſmall teeth. Petals obovate, one-nerved, ſcarcely exceeding the calyx. Germ quite inferior. Styles greatly divaricated.

Common in moſt parts of Europe, on walls, thatched roofs, and in dry barren places, flowering in april and may. When it grows in ſhady places, it is green, more ſlender, and longer lived. In very dry ſituations, the ſtem is ſometimes unbranched, and all the leaves entire.

This little herb has been taken for the *Paronychia* of Dioſcorides, which was uſed to cure whitlows; and hence its Engliſh name of Whitlow-graſs; to diſtinguiſh it from *Draba verna*, which is alſo ſo called, the epithet *rue-leaved* is added to this [n].

38. This is alſo an annual plant, very nearly allied to the preceding, and viſcid as that is; but the ſtem is very much branched, the leaves wide palmate three-parted and cut, the corolla three times as large [o]. Willich ſays, it is perennial, that it grows in tufts, compoſed of palmate five-cleft leaves, not very cloſe, expanding more when the plant is in flower, and even reflexed, that the flowering-ſtem puts out numerous barren branches at bottom, the lower leaves of which reſemble thoſe in the tufts, but the others are three-toothed and widely petioled, that it is hairy and viſcid, branched again at top, with a ſeſſile leaf under each branch which is commonly trifid, but ſometimes though rarely ſimple, that the calyx is half-five-cleft cloſely ſurrounding the germ, that the petals are milk white ovate entire marked half way with green lines, and as large as in *Sax. granulata*.

According to Retzius, the *petræa* of Gunner and the Flora Danica is quite a different plant from this of Linneus, Willich and Gouan. The *petræa* of the latter is referred by Willdenow to Linneus's *adſcendens*, together with Pona's *S. alba petræa*; but ſurely Pona's plant is the ſame with Linneus's *petræa*.

Native of the mountains of Lapland, Norway, Switzerland, Savoy, Carinthia, Dauphiné.—Cultivated in 1748, by Mr. Miller [p]; but omitted in the later editions of his Dictionary. It flowers in april and may.

39. This is a viſcid plant, leafy all over, with the flowering ſtems only from the top, and not as in *petræa*, to which it is very nearly allied, branched very much every way into a bundle [q].

Vahl remarks, that there are always runners in this ſpecies, which he has never obſerved in *petræa*, that it is alſo much ſtouter, with a greater abundance of larger flowers, which are moſt commonly on ſhorter peduncles.

Native of the Alps and Pyrenees, monte Baldo, the Hartz foreſt, &c.

40. This has the habit of *ceſpitoſa*, but the leaves are much more ſlender, almoſt all of them undivided, triple-nerved beyond the middle. Petals yelloviſh, triple-nerved. Germ inferior. The herb is ſweet-ſmelling and viſcid [r].—Haller remarks that the roots have a pleaſant aromatic flavour; that the leaves are particularly tender, like Chineſe ſilk paper; the ſtem three inches high or a little more, hirſute, bearing two or three flowers; the petals white with a tinge of yellow.

Native of Switzerland, the Pyrenees, Carniola, &c. Its place in England, (mountains above Ambleſide, Weſtmoreland,) reſts on the authority of Dr. Withering.

41. Root in tufts. Stem two inches high, erect, not very leafy, round, hairy. Root-leaves heaped, numerous, ciliate, blunt; ſtem-leaves alternate, commonly undivided, but ſometimes three-parted. Flowers terminating, pedunculed, erect, yelloviſh. Calyx hemiſpherical, hairy-viſcid, with the ſegments blunt and denudated. Petals obovate, quite entire, triple-nerved. Capſule almoſt inferior [s].

In Linneus's mantiſſa it is ſaid to be a ſmooth plant, with the upper branchlets viſcid; the corolla white, drying yellow, and marked with lines.

Scopoli deſcribes it as truly tufted, with a ſhort ſtem, an inch or a little more in height, having a few one-flowered peduncles at the top, and a trifid leaf at the baſe of the lower peduncle. The lower leaves are ſemitrifid, with equal ciliate blunt ſegments. Segments of the calyx oval. Petals yellow, with three lines, of which the ſide ones being united at top and bottom incloſe an oval ſpace.

Native of Sweden, Norway, Switzerland, Auſtria, Carniola, Sileſia, Dauphiné, Piedmont.—Found on alpine rocks above lake Idwell in Caernarvonſhire, Wales, by J. W. Griffith, Eſq. flowering in june.

β. Willdenow, following Jacquin, makes this a diſtinct ſpecies from *ceſpitoſa*, although it reſembles that very much, on account of the greater ſlenderneſs of the leaves, the filiform ſtem, and the ſmallneſs of the flower. It is deſcribed at length by Wulfen in Jacquin's miſcellanea.—Native of the mountains of Carniola and Switzerland, alſo of the Pyrenees.

γ. Stems ſeveral, ſcarcely exceeding two inches in height, thickiſh, covered with many trifid leaves. Flow-

[b] Gouan. [i] Hort. kew. [k] Linn. amoen. [l] Linn. ſpec. [m] Willdenow. [n] Smith, brit. engl. bot. Withering. [o] Linn. ſpec. [p] Hort. kew. [q] Linn. mant. [r] Smith, brit. [s] Idem.

ering-

ering-ſtems ſhort, with one or two leaves, and three or four ſmall whitiſh flowers on them.—Native of Groenland; found in Mackel Cow bay, flowering in july, by Francis Soldan, a ſurgeon, and preſented by him to Dr. James Sherard, who cultivated it in his garden at Eltham[a]. It is alſo a native of Norway.

3. Root-leaves forming a tuft, from a narrow baſe widening into a triangle, and deeply cut into three linear lobes, which are three-toothed or ſometimes but rarely four-toothed. The ſtem has one leaf on it about the middle, divided into five lobes; the flowers on the top form a ſort of umbel, and there is a five-cleft or three-cleft leaf at the origin of the peduncles. Pedicels one-flowered, naked, three times as long as the flowers. Calyx deeply cut into lanceolate ſegments. Corolla ſpreading: petals white, twice as long as the calyx. Filaments with their anthers greeniſh-yellow, not higher than the calyx. The whole plant is viſcid and hirſute. It varies with leaves not deeply trifid, but rather five-lobed, the middle lobe often bifid or trifid, and the white petals roſe-coloured at the claws.—Native of the Piedmont Alps[b].

42. Root-leaves numerous, in tufts, from the centre of which ariſes a ſimple erect flowering-ſtem, a hand high, round, hairy, ſurrounded at the baſe with ſeveral nearly upright, ſhortiſh, leafy ſhoots or branches. All the leaves are palmate, narrowed and lengthened out at their baſe, clothed with long white woolly ſcattered hairs; the radical ones, as well as one or two on the lower part of the ſtem, are in five (rarely ſeven) ſegments; the others on the ſtem and thoſe on the ſide ſhoots in three: all the ſegments are inclined to be elliptical, not linear. Panicle erect, terminating, viſcid, not very ſpreading, compoſed of five to ſeven or eight greeniſh-white flowers. Bractes trifid or undivided. Segments of the calyx ovate, pointed, hairy, viſcid. Petals roundiſh, a little pointed, with three nerves united at their baſe, yellow white with a greeniſh tinge. Germ half-inferior. Styles club-ſhaped[c].

Dr. Withering, who has deſcribed it under the name of *petræa*, in the additions to his Arrangement of Britiſh plants, remarks that the ſtem is about two inches high, that the root-leaves are moſtly three-cleft, that the petals are thrice as long as the calyx, each marked with three pale green lines, that the whole plant is hairy, the hairs being long, tranſparent, tapering to a fine point, jointed like a Conferva, and ſecreting a glutinous liquid. In other reſpects this own deſcription agrees with Dr. Smith's; but what he has ſet down from Linnæus, belongs to the true *petræa*. None of his ſynonyms ſeem to appertain to this ſpecies.—Dr. Smith ſays that we cannot refer our *palmata* to any ſpecies of Haller, Allioni, Scopoli or Villars, though it comes in ſome points near the *exarata* of the laſt.

Native of Denmark and Wales. We are indebted to the indefatigable reſearches of J. Wynne Griffith, Eſq. for this beautiful addition to our Flora. He found it on the rocks of Cwm Idwell, above Llyn Idwell, near Twll dû, in North Wales, at the end of may. It flowers from april to june[f].

43. This approaches a little in the form of the leaves to *caſpitoſa*, but it bears a flower like that of *Hirculus*[g]. It is ſufficiently diſtinguiſhed by the three cuſps or prickly points at the end of the leaves.

Native of Groenland, where it was found by Rottboell[h].

44. Root-leaves greatly reſembling thoſe of *Autirrhinum Cymbalaria*, whence its trivial name, nine or ten lines wide, and ſeven or eight lines long, ſeven-lobed, ſhining, on petioles from an inch to two inches and a half in length. Stem a long ſpan in height, feeble, almoſt procumbent on the rocks. Stem-leaves few, having the lobes or notches more pointed. The leaves next the flowers are entire and ſeſſile. The ſtem and branches are villoſe towards the top. Petals half an inch long, three lines wide at the top, white veined with green at the baſe. Filaments two lines long: anthers greeniſh and minute. Calyx cut to the centre into narrow villoſe ſegments. Piſtil pale green. Capſule brown, three lines high. Seeds blackiſh.—Native of the Levant, on mount Ararat[i].

45. This is a ſmall annual plant, native of the Levant. It was introduced in 1789, by the late John Sibthorp, M. D. Regius Profeſſor of Botany at Oxford, and flowers in july[k].

46. This bears ſome ſimilitude to *S. Cymbalaria*, but differs from it in the ſhining ſmoothneſs of all the parts, in the colour, ſmallneſs and expanſion of the flowers, in the greater length of the ſtamens, and in having the flowering branches more elongated[l].—Native of the Levant.

Willdenow remarks, that it is different from *S. Cymbalaria*, though they are alike; but he doubts whether it be diſtinct from *S. hederacea*. I cannot help ſuſpecting that the ſpecies of Saxifrage have been too much multiplied.

47. Corolla white. Germ inferior. Native of Spain, in the mountains near Caſtell-fort[m].

48. Roots fibrous, long and ſlender, throwing out many procumbent leafy ſhoots, which grow matted together, forming thick tufts; from the common origin of theſe ariſes a ſolitary erect round ſtem, bearing two or three ſtraggling linear undivided leaves, and terminating in an upright paniele of a few large white flowers. Leaves alternate, linear, acute, pale green, ſmooth, their edges only often hairy with ſoft white woolly threads: the leaves on the ſhoots ſimple and undivided; thoſe at the bottom of the ſtem all deeply three-cleft, with the ſegments divaricate. Bractes ſolitary at each ſubdiviſion of the panicle, lanceolate, and clothed with ſhort viſcid hairs. Segments of the calyx lanceolate, acute. Petals elliptic-oblong, obtuſe, greeniſh-white, with three green lines, all united for ſome diſtance above their origin, and the central one moſtly branched near the top. Five of the ſtamens rather ſhorter than the other five. Styles ſtill ſhorter, nearly erect. Stigmas blunt. Germ half-inferior[n].

Dr. Withering remarks, that the ſtem, fruitſtalks and calyx are thickly ſet with ſhort hairs terminated by red globules, and that the reſt of the plant is thinly ſet with fine white hairs.

S. aizoides is very like this, but has all the leaves three-cleft or five-cleft; as well as more numerous, though much ſmaller and yellower flowers, with blunt petals not having the midrib branched at the top[o].

Native of Britain, Denmark, Switzerland, Auſtria, and France. Tufts of it often clothe rocks, where the inequalities are filled with black turfy earth, on the mountains of Wales, Scotland and the north of England, as on Snowdon, Ben Lomond, and Arthur's Seat near Edinburgh, Weſtmoreland, Yorkſhire, Malham, Settle, &c. Derbyſhire in Dovedale and Middleton-dale. Alſo on Cheddar rocks in Somerſetſhire: flowering in may, and often again ſparingly in july and auguſt.

49. This has the appearance of the preceding, and is ſcarcely diſtinct from it. Stems in tufts, branched, proſtrate at the baſe; from the top of theſe ariſe flowering-branches, which are erect and ſimple. Stem leaves in cluſters, ſmooth or ſcarcely pubeſcent. In the axils are ovate or roundiſh villoſe bulbs. The leaves on the flowering-branches are few and entire. Flowers in corymbs; the primary one ſeſſile or ſubſeſſile, the lateral ones pedicelled. Calyx pubeſcent, with ovate blunt ſegments. Petals obovate, twice as long as the calyx. Stamens ſhorter than the corolla. Capſule ovate.—On the top of mount Atlas.

50. Stems in tufts, branched, ſlender, proſtrate. Leaves alternate, cluſtered, ſmall, ſpatulate or ſometimes linear, running down along the petiole. Pedicels filiform, ſhort. Segments of the calyx ovate, ciliate. Corolla white, twice as long as the calyx. Petals obovate.—On the ſummit of mount Atlas near Belide. They both flower very early in the ſpring[p].]

PROPAGATION AND CULTURE.

1. Pyramidal Saxifrage is eaſily propagated by offſets, which are put out from the ſide of the old plants

[a] Dillenius. [b] Allioni. [c] Smith, brit. & Engl. bot. [d] Withering & Engl. bot. [e] Willdenow. [f] Gunner. [g] Tournefort. [h] Hort. kew. [i] Jacquin. [k] Willdenow. [l] Smith, brit. & Engl. bot. [m] Engl. bot. [n] Desfontaines.

in

in plenty. Plant them in pots filled with fresh light earth, placing them in the shade during summer, but exposed to the sun in winter. Take off all the offsets, leaving the plants single, which will cause them to produce a much stronger stem for flowering. Plant these offsets in separate halfpenny pots, to succeed the old plants, which generally perish after flowering. They will produce flowers the second year.

2. 3. Are to be treated in the same way: —*mutata* (n. 3.) must be sheltered from much wet and severe frosts.

4. May be increased by parting the roots: it loves a moist soil and a shady situation; and is never injured by cold.

[12. Increased readily by parting the roots, either in spring or autumn. It flowers early, and if cold winds prevail at that time, the plant should be covered with a hand-glass; or, if in a pot, may be removed into the greenhouse[1].]

15. This must have a shady situation and a loamy soil.

[18. This increases so fast by runners, as to be even troublesome. It is properly a greenhouse plant; in mild winters indeed it will bear the open air, especially if placed at the foot of a wall, or among rock-work; but in such situations it is frequently killed in severe seasons[2].]

20. 21. Like many of the other species, these may be propagated by offsets taken off in autumn, and planted in a shady situation.

24. [At the end of march divide a plant which has filled a pot the preceding year, into many small pieces, taking care that each piece has a few fibres to it; plant about six of these in the middle of a small pot, filled with a composition of loam and rotten leaves or bog earth, in equal parts, water them and set them by in a shady place for about a week, then plunge them in an open border, exposed not more than half the day to the sun; in dry weather water them once a day; the ensuing spring each pot will be covered with a profusion of bloom: to continue this plant in perfection it must be thus treated yearly. It is very hardy, and dislains all tender treatment.

26. Plant it in a pot of bog earth, and keep the pot in a pan of water, so that the earth shall be constantly moist: in winter set it under a frame, to guard against severe frost. It will thrive very well in an open border, if moist and formed chiefly of bog earth, and throw out shoots which will take root. It may also be increased by cuttings of the shoots, which will strike root under a close glass towards the close of summer. If the plant be kept in a pot, it must be renewed every two or three years[1].]

27. This species, growing upon bogs, is difficult to propagate in gardens, unless it be planted in loose rotten earth, and kept constantly moist.

[This difficulty has been in great measure overcome by having a shady moist border filled with bog-earth. In such a border many elegant plants of this and various other genera thrive tolerably well. Some of the Alpine Saxifrages require a pure air, and will not thrive within the reach of smoke.]

28. Part the roots early in autumn, that the plants may be well rooted before the dry weather in spring. It succeeds best in a moist shady situation, and a stiffish loamy soil.

29. The double White Saxifrage is increased by offsets, which the old roots put forth in great plenty. Transplant them in july, after the leaves are decayed, into fresh undunged earth, placing them in the shade until autumn, but in winter exposing them to the sun. These plants will flower in april, and if they are in large tufts will make a handsome appearance. In the full ground they must have a shady situation.

48. This sort propagates fast enough by its trailing branches, provided it be planted in a moist soil and a shady situation, but it will not thrive on dry ground, or where it is much exposed to the sun. The best time to remove this or any of these plants is in autumn, that they may have the benefit of the winter's rain to

[1] Curtis. [2] Idem. [1] Idem.

establish them well before the dry weather of the spring comes on.

[The above directions will suffice for the culture of all the other species of this numerous and elegant genus. They are mostly perennial, and to be increased by offsets or parting the roots; many of them not growing very readily from seed. The few annual sorts, which are to be increased by seed, are particularly specified at the foot of the descriptions.

SAXIFRAGA. See *Æthusa, Arenaria, Ligusticum, Pimpinella, Sagina, Saponaria, Satureia, Seseli, Silene.*

Saxifraga aurea, } See *Chrysosplenium.*
Saxifrage, Golden. }

SCABIOSA. (*This is a modern name, which some derive from* scaber, *rough or rugged; but others with more reason from* scabies, *the itch, which disorder the common sort is said to cure.*)

Lin. gen. n. 115. *Reich. n.* 121. *Schreb. n.* 149. *Tournef. t.* 263, 264. *Vaill. act. gall.* 1722. *Juss.* 194. *Gærtn. t.* 86. Asterocephalus. *Vaill. ibid.* Succisa. *Vaill. ibid.* Pterocephalus. *Vaill. ibid.*

Class. 4. 1. Tetrandria Monogynia.

Nat. order of *Aggregatæ, Dipsaceæ*, Juss.

GENERIC CHARACTER.

CAL. *Common Perianth* many-flowered, spreading, many-leaved: *leaflets* in various rows surrounding the receptacle and placed upon it, the inner ones gradually less.

Proper Perianth double, both superior:—*outer* shorter, membranaceous, plaited, permanent; *inner* five-parted, with the *segments* subulate-capillaceous.

COR. *universal* equal, often from unequal ones.

Proper one-petalled, tubular, four or five-cleft, equal or unequal.

STAM. *Filaments* four, subulate-capillary, weak. *Anthers* oblong, incumbent.

PIST. *Germ* inferior, involved in its proper sheath as in a calycle. *Style* filiform, length of the corolla. *Stigma* obtuse, obliquely emarginate.

PER. none.

SEEDS solitary, ovate-oblong, involute, crowned variously with proper calyxes.

REC. common convex, chaffy or naked.

OBS. *Exterior corollets often larger, more unequal. Crowns of the seeds various in the different species.*

The primary distinction of the species is to be taken from the division of the flowers into four-cleft and five-cleft.

ESSENTIAL CHARACTER.

Cal. common many-leaved: proper double, superior.

Recept. chaffy or naked.

SPECIES.

* *With four-cleft Corollets.*

1. Scabiosa alpina. *Alpine Scabious.*
Lin. spec. 141. *fyst.* 143. *Reich.* 1. 276. *Willd.* 1. 543. *hort. cliff.* 30. *upf.* 26. *Gærtn. fruct.* 2. 39. *Villars dauph.* 2. 290. *Allion. pedem. n.* 503. *Lob. adv.* 273. *ic.* 537.

S. alp. folius centaurii majoris. *Bauh. pin.* 270. *Mor. hist. s.* 6. *t.* 13. *f.* 10. *Tournef. inst.* 465.

S. alp. centauroides. *Besl. eyst. æst.* 122. *ord.* 9. *t.* 8. *f.* 1.

S. montana & Centaurium nothum. *Dalech. hist.* 1108. 1291.

S. mont. maxima. *Ger. emac.* 721. 7. *Park. theat.* 487. *f.* 1. *Raii hist.* 374.

Dipsacus fol. pinnatis, pinnis ferratis, capitulis globosis. *Phil. transf. n.* 337. *Hall. helv. n.* 300.

Corollets four-cleft equal, calyxes imbricate, flowers drooping, leaves pinnate, leaflets lanceolate serrate.

[2. Scabiosa uffulata.
Lin. spec. ed. Willd. 1. 545. *Thunb. prodr.* 29.
Corollets four-cleft equal, scales of the calyx acute, leaves lyrate toothed.

3. Scabiosa rigida. *Rigid-leaved Scabious.*
Lin. spec. 142. *fyst.* 143. *Reich.* 1. 276. *Willd.* 1. 546. *mant.* 328. *amœn.* 6. *afr.* 4. *Thunb. prodr.* 28. *Comm. hort.* 1. 185. *t.* 93. *Raii suppl.* 237. *n.* 39.

Corollets

Corollets four-cleft subradiant, calyxes imbricate obtuse, leaves lanceolate serrate eared.

4. Scabiosa attenuata. *Narrow-leaved Scabious.*
Lin. syst. 144. *ed. Willd.* 1. 546. *suppl.* 118. *Ait. kew.* 1. 134.
S. trifida. *Thunb. prodr.* 28.
Corollets four-cleft equal, calyxes imbricate, scales oblong obtuse, leaves linear smooth entire and pinnatifid at the base.

5. Scabiosa scabra. *Rugged-leaved Scabious.*
Lin. syst. 144. *ed. Willd.* 546. *suppl.* 118. *Thunb. prodr.* 29.
Corollets four-cleft equal, scales of the calyx obtuse, leaves bipinnatifid rugged rigid.]

6. Scabiosa transylvanica. *Transylvanian Scabious.*
Lin. spec. 141. *syst.* 143. *Reich.* 1. 276. *Willd.* 1. 547. *hort. upsf.* 26. *Jacqu. hort.* 2. 50. *t.* 111. *Mor. hist.* 3. 46. *s.* 6. *t.* 13. *f.* 13.
Corollets four-cleft equal, calyxes and chaffs awned, root-leaves pyrate, stem-leaves pinnatifid.

[7. Scabiosa syriaca. *Syrian Scabious.*
Lin. spec. 141. *syst.* 144. *Reich.* 1. 277. *Willd.* 1. 547. *hort. cliff.* 30.
S. fruticans latifolia alba. *Baub. pin.* 269. *Mor. hist. s.* 6. *t.* 14. *f.* 14.
β. S. perficæ folio, flore amethystino. *Vaill. act.* 1722. *p.* 233.
Corollets four-cleft equal, calyxes imbricate and chaffs awned, stem dichotomous, leaves lanceolate.]

8. Scabiosa leucantha. *Snowy Scabious.*
Lin. spec. 142. *syst.* 144. *Reich.* 1. 277. *Willd.* 1. 547. *hort. cliff.* 30. *Gærtn. fruct.* 2. 39. *Villars dauph.* 2. 290. *Allion. pedem. n.* 505. *Scop. carn. n.* 137.
S. rigida. *Mill. dict. n.* 7.
S. flore globoso niveo. *Baub. pin.* 270.
S. fruticans angustifolia alba. *Baub. pin.* 270.
S. glabra fol. rigidis viridibus. *Baub. hist.* 3. *p.* 2. 8. *Raii hist.* 377. *Mor. hist. s.* 6. *t.* 14. *f.* 11.
β. S. trenta. *Hacquet. pl. alp.* 13. *t.* 4. *f.* 1.
Corollets four-cleft almost equal, calycine scales ovate imbricate, leaves pinnatifid.

9. Scabiosa Succisa. *Devil's-bit Scabious.*
Lin. spec. 142. *syst.* 144. *Reich.* 1. 277. *Willd.* 1. 548. *hort. cliff.* 30. *fl. suec. n.* 119. *Hudf. angl.* 62. *Wither. arr. ed.* 3. 183. *Smith, brit.* 170. *engl. bot. t.* 878. *Curt. lond.* 3. *t.* 10. *Relh. cant. n.* 112. *Sibth. oxon. n.* 173. *Fl. dan. t.* 279. *Hoffm. germ.* 45. *Roth. germ.* 1. 58. 2. 163. *Pollich pal. n.* 140. *Leers herborn. n.* 104. *Scop. carn. n.* 138. *Krock. files. n.* 203. *Villars dauph.* 2. 291. *Allion. pedem. n.* 506. *Gmel. sib.* 2. 210. *Blackw. t.* 142. *Ludw. ell. t.* 193. *Knorr hort.* 1. *t.* T. 7. *Plenck, ic. t.* 51. *Hall. helv. n.* 201. (Succisa.)
S. folio integro glabro, flore cæruleo. *Tournef. inst.* 466.
S. radice succisa, flore globoso. *Raii syn.* 191.
Succisa. *Fuchs. hist.* 715.—glabra. *Baub. pin.* 269. *Mor. hist. s.* 6. *t.* 13. *f.* 7.
Succ. f. Morsus diaboli. *Camer. epit.* 397. *Matth.* 623. *Dod. pempt.* 124. 1. *Bauh. hist.* 3. 11. *Raii hist.* 380.
Morsus diaboli. *Ger.* 587. *emac.* 726.—vulgaris flore purpureo. *Park. theat.* 491. *t.* 492. *f.* 1.
β. Succisa hirsuta. *Baub. pin.* 269.
Corollets four-cleft equal, stem-leaves toothed, flowers subglobular.

[10. Scabiosa integrifolia. *Red-flowered annual Scabious.*
Lin. spec. 142. *syst.* 144. *Reich.* 1. 278. *Willd.* 1. 548. *Hoffm. germ.* 45. *Roth. germ.* 1. 58. 2. 164. *Hall. helv. n.* 205. *Ger. prov.* 220. *Sauv. monsp.* 150. *Magn. monsp.* 231. *Allion. pedem. n.* 507.
Corollets four-cleft radiant, leaves undivided, root-leaves ovate serrate, branch-leaves lanceolate, stem herbaceous.

11. Scabiosa amplexicaulis. *Blue-flowered annual Scabious.*
Lin. syst. 144. *Reich.* 1. 278. *Willd.* 1. 549. *mant.* 195.
S. capitulo globoso minor var. 3. *Baub. pin.* 270?
Corollets four-cleft radiant, leaves embracing lanceolate quite entire, root-leaves trifid crenate.

12. Scabiosa humilis. *Humble Scabious.*
Lin. spec. ed. Willd. 649. *Thunb. prodr.* 28.
Corollets four-cleft unequal, scales of the calyx obtuse, leaves linear tooth-pinnatifid.

13. Scabiosa decurrens. *Decurrent-leaved Scabious.*
Lin. spec. ed. Willd. 1. 649. *Thunb. prodr.* 28.
Corollets four-cleft unequal, scales of the calyx ovate, leaves pinnatifid with the pinnas decurrent.]

14. Scabiosa tatarica. *Giant Scabious.*
Lin. spec. 143. *syst.* 144. *Reich.* 1. 279. *Willd.* 1. 550. *Gmel. it.* 1. 159. *Act. upsf.* 1744. *p.* 11. *t.* 1.
S. altissima. *Mill. dict. n.* 6.—segetum Triumfetti. *Raii suppl.* 236?
Corollets four-cleft radiant, stem hispid, leaves lanceolate pinnatifid, lobes subimbricate.

15. Scabiosa arvensis. *Field Scabious.*
Lin. spec. 143. *syst.* 144. *Reich.* 1. 279. *Willd.* 1. 550. *hort. cliff.* 31. *fl. suec. n.* 118. *mat. med.* 49. *Hudf. angl.* 62. *Wither. arr. ed.* 3. 183. *Smith, brit.* 170. *Curt. lond.* 4. *t.* 13. *Relh. cant. n.* 113. *Sibth. oxon. n.* 172. *Dickf. hort. fic.* 12. 6. *Fl. dan. t.* 447. *Hall. helv. n.* 126. *Hoffm. germ.* 46. *Roth. germ.* 1. 59. 2. 164. *Pollich pal. n.* 142. *Leers herborn. n.* 105. *Krock. files. n.* 205. *Scop. carn. n.* 135. *Villars dauph.* 2. 292. *Allion. pedem. n.* 508. *Desfont. atlant.* 119. *Gmel. sib.* 2. 210. *n.* 3. *Gouan illustr.* 5. *Ludw. ell. t.* 21. *Knipb. orig.* 3. *n.* 82. *Plenck, ic. t.* 52. *Blackw. t.* 185.
Scabiosa. *Trag.* 242. *Fuchs. hist.* 716.
S. pratensis hirsuta quæ officinarum. *Baub. pin.* 269. *Mor. hist. s.* 6. *t.* 13. *f.* 1. *Tournef. inst.* 464.
S. arvensis, s. segetalis. *Tabern. ic.* 159. *hist.* 422.
S. vulgaris major. *Dod. pempt.* 122. 1. *Ger.* 583. 4. *emac.* 720. 4.
S. vulg. pratensis. *Park. theat.* 485. 1.
S. major communior hirsuta folio laciniato. *Baub. hist.* 3. 2. 1. *Raii hist.* 374. *syn.* 191. 1.
[β. Sc. calyce dilatato flore longiore. *Willd. spec.*
γ. Sc. dubia. *Moench. hass. n.* 116. *t.* 3.
Corollets four-cleft radiant, leaves pinnatifid gashed, stem hispid.

16. Scabiosa parviflora. *Small-flowered Scabious.*
Desfont. atlant. 119.
S. ficula Cardiacæ folio. *Tournef. inst.* 465.
S. alpina Hieracii folio. *Bocc. mus. t.* 120.
Asterocephalus annuus, foliis imis Senecionis retusis. *L. fl. acad.* 1722. *p.* 181.
Corollets four-cleft almost equal, in ovate heads, interior proper calyx very short, lower leaves obovate crenate, stem dichotomous.

17. Scabiosa uralensis. *Uralian Scabious.*
Lin. syst. 144. *Willd.* 1. 550. • *Murr. comm. gott.* 1782. *p.* 13. *t.* 4.
Corollets four-cleft radiant, root-leaves simple, stem-leaves decussively pinnate, chaffs dry reflexed at the tip.

18. Scabiosa sylvatica. *Broad-leaved Scabious.*
Lin. spec. 142. *syst.* 144. *Reich.* 1. 280. *Willd.* 1. 551. *mant.* 329. *Hall. helv. n.* 204. *Hoffm. germ.* 46. *Roth. germ.* 1. 39. 2. 165. *Pollich pal. n.* 141. *Krock. files. n.* 204. *Scop. carn. n.* 136. *Jacqu. austr.* 4. 32. *t.* 362. *obs.* 1. 28. & 3. 20. *t.* 72. *Villars dauph.* 2. 291. *Allion. pedem. n.* 509. *Pallas it.* 2. 316.
S. pannonica. *Jacqu. vind.* 22.
S. maxima dumetorum, folio non laciniato. *Baub. hist.* 3. 10. *Fabric. helmst.* 162. 163. *Raii hist.* 379.
S. latifolia Pan. rubro flore s. 3. *Clus. hist.* 2. 1. *f.* 1. *in p.* 2.—item, purp. flore s. 4. *Ej. ib. p.* 2. *Raii hist.* 378. *n.* 16.
β. S. montana non laciniata rubra 1. *Baub. pin.* 270. *Mor. hist. s.* 6. *t.* 13. *f.* 5.
Corollets four-cleft radiant, all the leaves undivided ovate-oblong serrate, stem hispid.

** *With five-cleft Corollets.*

19. Scabiosa gramuntia. *Cut-leaved Scabious.*
Lin. spec. 143. *syst.* 145. *Reich.* 1. 280. *Willd.* 1. 551. *Sauv. monsp.* 268. *Gouan monsp.* 62. *Ger.*

Ger. prov. 220. *Villars dauph.* 2. 294. *Allion. pedem. n.* 511. *Desfont. atlant.* 120.

S. capitulo globoſo minor. *Baub. pin.* 270. *ſec. Gouan. Mor. hiſt. ſ.* 6. *t.* 14. *f.* 21.

S. cap. glob. foliis in tenuiſſimas lacinias diviſis. *Baub. pin.* 271. *Magn. monſp.* 231. *Mor hiſt. ſ.* 6. *t.* 15. *f.* 25.

Aſterocephalus ſubincanus Sophiæ foliis. *Vaill. acad.* 1722. *p.* 179.

Corollets five-cleft, calyxes very ſhort, ſtem-leaves bipinnati-ſiſſora.

20. Scabioſa columbaria. *Small Scabious.*

Lin. ſpec. 143. *ſyſt.* 145. *Reich.* 1. 280. *Willd. hort. cliff.* 31. *ſt. ſuec. n.* 118. *Hudſ. [illegible] Wither. arr. ed.* 3. 184. *Smith, brit.* 1. *Relh. cant. n.* 114. *Sibth. oxon. n.* 173. *Fl. dan. t.* 314. *Hoffm. germ.* 46. *Roth. germ.* 1. 59. 2. 166. *Pollich pal. n.* 143. *Krock. ſileſ. n.* 206. *Scop. carn. n.* 140. *Sauv. monſp.* 242. *Villars dauph.* 2. 293. *Allion. pedem. n.* 510. *Gmel. ſib.* 2. 211. *Desfont. atlant.* 120. *Kniph. orig.* 12. *n.* 85. *Knorr. del.* 2. *t.* S. 13.

Succiſa, *n.* 202. *Hall. helv.*

Scabioſa minor. *Camer. epit.* 711. *Matth.* 970. *Tabern.* 161. 162.—vulgaris. *Baub. hiſt.* 3. 4. *Raii hiſt.* 374. *ſyn.* 191.

S. capitulo globoſo major & minor. *Baub. pin.* 270. *Mor. hiſt. ſ.* 6. *t.* 14. *f.* 20. *Tournef. inſt.* 465.

S. minor ſ. Columbaria. *Lob. ic.* 535. *Ger.* 582. 2. *emac.* 719. 2.

S. minor campeſtris. *Park. theat.* 484. 1.

S. media. *Dod. pempt.* 122. 3.

S. montana ſ. 5. *Cluſ. hiſt.* 2. *f.* 2.

S. glabra foliis carnoſis virentibus. *Herm. par. t.* 221. Phyteuma. *Col. phyt. t.* 22.

Aſterocephalus vulgaris, flore cæruleo. *Vaill. acad.* 1722. *p.* 179.

Corollets five-cleft radiant, root-leaves ovate or lyrate crenate, ſtem-leaves pinnatifid, ſegments linear.

21. Scabioſa pyrenaica. *Pyrenean Scabious.*

Lin. ſpec. ed. Willd. 1. 552. *Allion. pedem. n.* 512. *t.* 25. *f.* 2. *t.* 26. *f.* 1. *Hall. helv. n.* 207.

S. grandiflora. *Scop. inſubr.* 3. 29. *t.* 14. *Desfont. atlant.* 123.

S. pyren. cinerea villoſa, magno flore. *Tournef. inſt.* 465.

S. multifida alpina repens. *Bocc. muſ.* 22. *t.* 6.

Corollets four-cleft radiant, leaves tomentoſe entire toothed and pinnatifid, ſtem one-flowered.

22. Scabioſa ſicula. *Sicilian Scabious.*

Lin. ſyſt. 145. *Reich.* 1. 281. *Willd.* 1. 553. *mant.* 196.

S. divaricata. *Jacqu. hort.* 1. *p.* 5. *t.* 15.

Corollets five-cleft equal ſhorter than the calyx, leaves lyrate-pinnatifid.

23. Scabioſa rutæfolia. *Rue-leaved Scabious.*

Lin. ſpec. ed. Willd. 1. 553. *Vahl ſymb.* 2. 26.

S. urceolata. *Desfont. atlant.* 122?

S. marina rutæ caninæ folio. *Bocc. ſic.* 95. *t.* 52.

Corollets five-cleft, leaves pinnate the upper ones linear, calyxes one-leafed five-cleft.

24. Scabioſa maritima. *Sea Scabious.*

Lin. ſpec. 144. *ſyſt.* 145. *Reich.* 1. 282. *Willd.* 1. 554. *mant.* 329. *amoen.* 4. 304. *Murr. prodr.* 139. *Villars dauph.* 2. 295. *Thunb. jap.* 38.

S. maritima parva. *Baub. hiſt.* 3. 7. *Raii hiſt.* 378.

Corollets five-cleft radiant ſhorter than the calyx, leaves pinnate, the upper ones linear quite entire.]

25. Scabioſa ſtellata. *Starry Scabious.*

Lin. ſpec. 144. *ſyſt.* 145. *Reich.* 1. 282. *Willd.* 1. 554. *mant.* 329. *hort. cliff.* 31. *upſ.* 26. *Gærtn. fruct.* 2. 39. *Allion. pedem. n.* 513. *D'Aſſo arag. n.* 111. *Desfont. atlant.* 124.

S. ſtellata folio laciniato major. *Baub. pin.* 271. *Tournef. inſt.* 465. *Mor. ſ.* 6. *t.* 15. *f.* 39.

S. major hiſpanica. *Cluſ. hiſt.* 2. 1. *Tabern. ic.* 159. *Lob. ic.* 539. *Ger.* 585. 9. *emac.* 722. 9. *Park. theat.* 489. 1. *t.* 490. *Raii hiſt.* 377.

S. peregrina. *Dod. pempt.* 122.

β. S. ſtellata folio laciniato minor. *Baub. pin.* 271.

γ. S. ſtell. minima. *Baub. pin.* 271. *prodr.* 126. *Mor. hiſt. ſ.* 6. *t.* 14. *f.* 42.

Corollets five-cleft radiant, leaves cut, receptacles of the flowers roundiſh.

[26. Scabioſa prolifera. *Prolific Scabious.*

Lin. ſpec. 144. *ſyſt.* 145. *Reich.* 1. 282. *Willd.* 1. 554. *mant.* 329. *Desfont. atlant.* 121.

S. ſtellata humilis integrifolia prolifera. *Herm. parad. t.* 125. *Raii ſuppl.* 236.

S. ſtell. prolifera annua. *Act. gall.* 1666—98. *t.* 4. *Dodart. ic.*

Corollets five-cleft radiant, flowers ſubſeſſile, ſtem proliferous, leaves undivided.]

27. Scabioſa atropurpurea. *Sweet Scabious.*

Lin. ſpec. 144. *ſyſt.* 145. *Reich.* 1. 283. *Willd.* 1. 555. *hort. cliff.* 31. *upſ.* 26. *Gærtn. fruct.* 2, 38. *Curt. magaz. t.* 247.

S. peregrina rubra, capite oblongo. *Baub. pin.* 270. *Mor. hiſt. ſ.* 6. *t.* 14. *f.* 26.

S. 6. indica. *Cluſ. hiſt.* 2. 3. *f.* 1. *Beſ. cyſt. aſt.* 9. *t.* 10. *f.* 1, 2.

S. rubra indica. *Park. parad.* 324. *n.* 3. *t.* 325. *f.* 3. *Ger. emac.* 724. 16. *Raii hiſt.* 375.

Corollets five-cleft radiant, leaves cut, receptacles of the flowers ſubulate.

28. Scabioſa argentea. *Silvery Scabious.*

Lin. ſpec. 145. *ſyſt.* 145. *Reich.* 1. 283. *Willd.* 1. 555. *Desfont. atlant.* 121.

S. orientalis argentea, foliis inferioribus inciſis. *Tournef. cor.* 34.

Aſterocephalus perennis argenteus laciniatus, caule tenui eburneo. *Vaill. act. gall.* 1722. *p.* 181.

β. S. orient hirſuta tenuiſſime laciniata, flore parvo purpureo & albicante. *Tournef. cor.* 34. *Desfont.* 122. *var.* A.

Corollets five-cleft radiant, leaves pinnatifid, ſegments linear, peduncles very long, ſtem round.

[29. Scabioſa daucoides. *Carrot-like Scabious.*

Desfont. atlant. 123.

Corollets five-cleft radiant, leaves bipinnate, common calyx villoſe pinnatifid.

30. Scabioſa indurata.

Lin. ſyſt. 146. *Reich.* 1. 283. *Gmel.* 230. *Willd.* 1. 555. *mant.* 196.

S. altiſſima. *Jacqu. hort.* 2. *t.* 185.

S. africana β. *Gmel. ſyſt.* 230.

Corollets five-cleft radiant, leaves ovate-lanceolate gnawn toothed at the baſe, ſtem rigid.]

31. Scabioſa africana. *African Scabious.*

Lin. ſpec. 145. *ſyſt.* 146. *Reich.* 1. 284. *Willd.* 1. 556. *hort. cliff.* 31. *Berg. cap.* 32. *Kniph. cent.* 7. *n.* 82.

S. africana fruteſcens. *Herm. parad. t.* 219.

β. S. afr. frut. maxima, fol. rugoſis & crenatis, minor. *Herm. parad.* 220. *Raii ſuppl.* 237. *n.* 38.

γ. S. inciſa. *Mill. dict. n.* 18.

S. afr. frut. max. foliis tenuiſſime inciſis. *Boerh. lugdb.* 1. 128.

δ. S. minor æthiopica fruteſcens, fol. lanuginoſis. *Breyn. ic.* 33. *t.* 26.

Corollets five-cleft equal, leaves ſimple gaſhed, ſtem ſhrubby.

[32. Scabioſa monſpelienſis. *Montpellier Scabious.*

Lin. ſyſt. 146. *Willd.* 1. 556. *Jacqu. miſc.* 2. 320. *ic. rar.* 1. *t.* 24.

Corollets five-cleft equal ſhorter than the calyx, all the leaves pinnate ciliate.

33. Scabioſa pumila. *Dwarf Scabious.*

Lin. ſyſt. 146. *Reich.* 1. 284. *Willd.* 1. 556. *mant.* 196. *Burm. prodr.* 4.

S. acaulis. *Thunb. prodr.* 29?

Corollets five-cleft radiant, almoſt ſtemleſs, leaves very hairy, root-leaves lyrate, ſtem-leaves pinnate gaſhed.]

34. Scabioſa cretica. *Cretan Scabious.*

Lin. ſpec. 145. *ſyſt.* 146. *Reich.* 1. 284. *Willd.* 1. 557. *hort. cliff.* 31.

S. ſtellata folio non diſſecto. *Baub. pin.* 271. *Mor. hiſt. ſ.* 6. *t.* 15. *f.* 31.

S. fruticoſa folio non diſſecto peregrina. *Baub. hiſt. Raii hiſt.* 378.

S. peregrina. *Ger.* 585. 10. *emac.* 722. 10.

S. arborea cretica. *Park. theat.* 486. *n.* 7.

β. S. cretica fruteſcens, auriculæ urſi folio. *Tournef. cor.* 34.

Aſtero-

Afterocephalus frutescens, leucoii folio longiore angusto. *Vaill. act. par.* 1722. *p.* 247.

Corollets five-cleft radiant, leaves lanceolate almost quite entire, stem shrubby.

[35. Scabiosa limonifolia.

Lin. spec. ed. Willd. 1. 557. *Vahl symb.* 2. 27.

S. cophanosis frutescans laureolæ folio crasso rotundo lucido molli subtus incano. *Hort. cathol.* 196. *Raii suppl.* 238. *n.* 53.

S. sicula frut. laureolæ folio subtus incano. *Tournef. inst.* 465.

Corollets five-cleft equal, leaves wedge-shaped quite entire, wrinkled and hoary underneath.]

36. Scabiosa graminifolia. *Grass-leaved Scabious.*

Lin. spec. 145. *syst.* 146. *Reich.* 1. 285. *Willd.* 1. 558. *mant.* 329. *amoen.* 4. 267. *Scop. carn. n.* 139. *Allion. pedem. n.* 515. *Villars dauph.* 2. 296. *Krock. sil. n.* 207. *Desfont. atlant.* 124. *Hall. helv. n.* 202. (Succisa.)

S. argentea angustifolia. *Bauh. pin.* 270. *prodr.* 127. *ic. Park.* 1. 487. *n.* 5. *Raii hist.* 380. *n.* 22.

S. graminea argentea. *Bauh. hist.* 3. 12.

S. stellata argentea angustifolia. *Mor. hist. s.* 6. *t.* 15. *f.* 36.

Afterocephalus argenteus graminifolius, flore cærulco. *Vaill. acad. par.* 1722. *p.* 183.

Corollets five-cleft radiant, leaves linear-lanceolate quite entire, stem herbaceous.

[37. Scabiosa lyrata. *Lyrate-leaved Scabious.*

Lin. spec. ed. Willd. 1. 558. *Vahl symb.* 2. 27. *Forsk. descr.* 203.

Corollets five-cleft radiant, segments entire, lower leaves oblong serrate, upper pinnatifid at the base.

38. Scabiosa palæstina. *Palestine Scabious.*

Lin. syst. 146. *Reich.* 1. 285. *Willd.* 1. 558. *mant.* 37. *Jacqu. hort.* 1. 42. *t.* 96.

Corollets five-cleft radiant, all the segments trifid, leaves undivided subserrate, upper pinnatifid at the base.

39. Scabiosa stetensis.

Lin. syst. 146. *Reich.* 1. 285. *Willd.* 1. 559. *mant.* 37. *Gmel. sib.* 2. 214. *t.* 88. *f.* 1.

Corollets five-cleft radiant longer than the calyx, leaves bipinnate linear.

40. Scabiosa ucranica. *Ukraine Scabious.*

Lin. spec. 144. *Reich.* 1. 286. *Willd.* 1. 559. *Gmel. sib.* 2. 213. *t.* 87. *it.* 1. 138. *Allion. pedem. n.* 514.

Corollets five-cleft radiant, root-leaves pinnatifid, stem-leaves linear-lanceolate at the base.]

41. Scabiosa ochroleuca. *Pale Scabious.*

Lin. spec. 146. *syst.* 146. *Reich.* 1. 286. *Willd.* 1. 559. *Jacqu. obs.* 3. 20. *t.* 73. 74. *austr.* 5. 19. *t.* 439. *Gmel. it.* 1. 138. *Hoffm. germ.* 46. *Krock. sil. n.* 208. *Sauv. monsp.* 221. *Villars dauph.* 2. 296.

S. tenuifolia. *Hoth. germ.* 1. 59. 2. 167.

S. multifido folio, flore flavescente. *Bauh. pin.* 270. *Mor. hist. s.* 6. *t.* 13. *f.* 23. *Tournef. inst.* 464.

S. angustifolia alba altera. *Bauh. pin.* 270. *Barr. ic.* 770. *f.* 2.

S. ochroleuco flore f. 7. *Clus. hist.* 2. 3. *f.* 2.

S. flore pallido. *Ger. emac.* 723. *f.* 14.

S. multifido folio, albo flore vel potius ochroleuco. *Bauh. hist.* 3. 8. *Raii hist.* 376.

Corollets five-cleft radiant, leaves bipinnate linear.

[42. Scabiosa papposa. *Downy-headed Scabious.*

Lin. spec. 146. *syst.* 146. *Reich.* 1. 286. *Willd.* 1. 560. *Willich illustr. n.* 62. *Gærtn. fruct.* 2. 38.

S. cretica, capitulo pappos mentiente. *Tournef. cor.* 34. *Boerh. lugdb.* 1. 130.

Corollets five-cleft unequal, stem herbaceous erect, leaves pinnatifid, seeds awned and feather-downed.

43. Scabiosa pterocephala. *Wing-headed Scabious.*

Lin. spec. 146. *Reich.* 1. 287. *Willd.* 1. 560.

Pterocephalus perennis humilis laciniatus & incanus. *Vaill. act. par.* 1722. *p.* 184.

Corollets five-cleft, stem procumbent shrubby, leaves laciniate hirsute, down feathered.]

DESCRIPTIONS, &c.

1. Root perennial, composed of many strong fibres which run deep in the ground. Stems several, strong, channelled, upwards of four feet high. Leaflets four or five pairs, unequal in size and irregularly placed, ending in acute points. Flowers on naked peduncles at the ends of the branches, of a whitish yellow colour, and appearing at the end of june.

[Calyx shorter than the flower. Fruit half-ovate. Receptacle globular, with lanceolate channelled permanent chaffs. Seeds quadrangular, crowned with eight teeth, four larger and four smaller alternately. Pappus having twenty patulous rays[m].

Involucre oblong, four-cornered, membranaceous-chaffy, striated, subvillose, ending in eight setaceous ruggedish unequal teeth. Seed ovate, striated, pale, narrowed into a short stipe. Pappus silky-ash-coloured, very short, one-leafed at the base, divided at top into several villose or plumose rays. Albumen fleshy. Embryo greenish yellow[n].

Villars says it is the largest of all their species, growing to the height of five or six feet, and that it is frequently mistaken for the Great Centaury, from the similitude of its leaves to those of that plant.

According to Haller it is three or four feet high, with a hollow branched stem resembling that of Sambucus Ebulus; the root-leaves are elliptic, the rest pinnate with six or seven pairs of leaflets, the outmost of which is very large. He makes it a *Dipsacus* from the form of the seed-crown.

Native of the Alps of Switzerland, Dauphiné and Italy. Ray found it abundantly on Thuiri, one of the highest parts of the Jura chain. Haller says it is common about Aigle.

Ray calls it *Great Mountain Scabious*. Gerarde, who names it simply *Mountain Scabious*, says that the root grew in his garden to the bigness of a man's body. It was cultivated here in 1570, by Mr. Hugh Morgan, as appears from Lobel[o].

2. Native of the Cape of Good Hope, where it was found by Thunberg.

3. Stem suffruticose, rugged. Leaves ovate, serrate, with two teeth at the base. Peduncles terminating, very long[p].

In the *amœnitates* it is said to resemble *leucantha* very much; the stem to be shrubby and naked; the leaves naked, the lower ones obovate ending in the petiole, the rest lanceolate, sessile; two linear stipules from the axils, scales from the calyx roundish; corollets tomentose on the outside, with the outmost segment a little larger than the others.

Native of the Cape of Good Hope. Cultivated by Mr. Miller in 1731[q]. Omitted, with several other species, in the later editions of the Dictionary. It has been long known in the Dutch gardens.

4. This is a smooth plant, with grooved filiform branches, the younger ones subpubescent. Leaves quite entire, long, narrow, bluntish, sometimes pinnatifid at the base, the segments solitary, linear, shorter by half than the leaf. Peduncle filiform, terminating the branches, one-flowered. Calyx-scales very blunt, subpubescent. Common corolla few-flowered. Corollets white, pubescent on the outside[r].

Native of the Cape of Good Hope, where it was found by Thunberg and Masson. Introduced by the latter in 1774. It flowers from july to september[s].

5. This is an herbaceous plant, of the stature and with the stem and flowers of *Sc. rigida*. Stems round, simple, rugged. Leaves sessile; leaflets linear, acute, with leafy rudiments of branches from the axils. Flowers terminating, on long peduncles solitary. Florets between the scales of the calyx, white[t]. They are said in the description to be unequal, but in the specific character to be equal.—Native of the Cape of Good Hope.]

6. This is an annual plant, with stems rising four or five feet high, and dividing into several branches. Leaves hairy, cut almost to the midrib. Flowers small, of a pale purplish colour.

[Calyx and chaffs mucronate-awned, as in *Sc. syriaca*[u].

Native of Transylvania; and cultivated in the Ox-

[m] Linn. spec. [n] Linn. mant. [o] Hort. kew. [p] Gærtner. [q] Hort. kew. [r] Linn. suppl. [s] Hort. kew. [t] Willdenow. [u] Linn. spec.

ford

ford Botanic garden by Jacob Bobart in 1699 [s]. from seeds which were sent by the celebrated Hermann [t].

7. Root annual. Stem hairy. Leaves ferrate. Flowers subsessile in the forks of the stem. Calyx scarcely any, but the chaffs collected into an ovate cone, imbricate, awned, and ovate themselves. Pappus hemispherical, with twenty toothlets [u].

Native of Syria. Cultivated in 1699, by Jacob Bobart [s], from seeds sent to him from Aleppo. This, and the preceding are very lofty for annual plants, attaining the height of a man, and that even more [s].

8. Root perennial. Lower leaves almost entire, ferrate. Stem stiff, two feet high, bifid at top, spreading; in the division arises a naked peduncle, which, as the division, are each terminated by a single flower, composed of many white florets.

[Leaves linear, pinnate: leaflets decurrent; the lowest rugged. Flowers subglobular, white. Calyx hemispherical, imbricate. The lower segments of the corollets bent down and a little longer than the rest [x].

Involucre four-cornered, oblong, membranous-coriaceous, striated, terminated by four acuminate larger toothlets, and as many shorter blunt ones. Seed shorter than its involucre, ovate-oblong, rhomb-compressed, attenuated into a very short pappigerous stipe. Pappus very short, with about ten converging rays, feathered or villose. Albumen thin. Embryo inverted [x].

Native of the South of France and Piedmont.—Cultivated in 1739, by Mr. Miller [s]; who has it under the name of *rigida*.

9. Root perennial, oblong, blackish, near the thickness of the little finger, often growing obliquely, stumped at the lower end so as to appear as if bitten off, whence its trivial name, and furnished with long whitish fibres. Stem from a foot to eighteen inches in height, upright, branched at top, round, rough with hair, and often of a reddish colour: the branches are lengthened out, and each bears one flower. Root-leaves ovate, quite entire, blunter than the others; stem-leaves lanceolate, the lower ones remotely toothed, but the upper ones entire; all dark-green, rather coriaceous, harsh and hairy. Flowers in nearly globular heads. Calyx hairy. Corolla violet or dark purplish blue, varying to flesh-coloured and milk-white, nearly regular, but the uppermost segment somewhat longer than the other three. Outer perianth four-cornered, with four shallow clefts fringed with white hairs: the inner, which Withering calls the nectary, inclosing the germ, crowned with a concave glandular receptacle, armed with four or five strong reddish-black bristles. Besides this apparatus, each floret is furnished with a green spear-shaped floral leaf, terminated by a white taper bristle. Filaments almost twice the length of the corolla: anthers violet, with white pollen. Germ very small, whitish; style, whilst the anthers are shedding their pollen, the same length with the lower lip of the corolla; stigma round, flat, with a depression in the middle. Seed oblong, angular, grooved, beset with rough hairs and crowned with five bristles [y].

Native of Europe, in pastures; flowering from august to the end of october. It varies much; according to Haller, the flowers are sometimes proliferous, and the leaves are sometimes gashed: the flowers not only vary in colour but are also double: with us the plant is commonly hirsute, but it is more often described as smooth by foreign authors.

Mr. Curtis remarks, that in the garden it grows more branched.

In days of superstition it was fabled, that the Devil, envying the good this herb might do to mankind, bit away a part of the root. This appearance of a stumped root is not peculiar to Succisa, but is found in Plantain and many other herbs, when full grown.

According to Bergius, the root is astringent, and the infusion of it bitterish, but not unpleasant [z]. A strong decoction of it, continued a good while together, is an empirical secret for gonorrhoeas. Linneus says, that the dried leaves are used to die wool yellow or green [a].

10. Root annual. Stem not hirsute. Branches patulous. Root-leaves like those of the Daisy, ovate, bluntish, rugged, more acutely ferrate; stem-leaves few; branch-leaves lanceolate, embracing, ciliate at the base, seldom toothed or pinnatifid, very long. Calyx ten-leaved, shorter than the flower. Corolla purple: corollets two-lipped, the inner lip undivided, the outer three-parted, linear. Pappus with a toothletted crown [b].

Haller compares it with the *sylvatica*, and doubts whether this be different from that.

Allioni at first had considered it as a new species: he remarks, that the leaves are sometimes quite entire, but more frequently somewhat toothed; that the calyx is ciliate, with the ten leaflets alternately larger and smaller; that the florets are often eight, four-cleft and two-lipped; and the seeds silky crowned with toothlets.

Native of Germany, Switzerland, the South of France and the county of Nice. Cultivated in 1748, by Mr. Miller. It flowers from june to august [s].

11. Stem a foot high, rugged, brachiate. Root-leaves oblong, somewhat rugged: stem-leaves whitish at the base. Panicle dichotomous. Peduncles very long. Corolla blue. Calyx the length of the corolla.—It differs from the preceding in the root-leaves not being undivided, the stem-leaves being wider at the base, and in the calyx not being shorter by half than the corolla. It is not known from what country it comes [c].

12. Native of the Cape of Good Hope, where it was found by Thunberg.

13. This also is a native of the Cape, and was found there by Thunberg.]

14. This rises with a strong branching stalk four or five feet high, closely armed with stiff prickly hairs; lower hairs spear-shaped; about seven inches long, and near four broad in the middle, deeply cut on the sides; stem-leaves more entire, some of them sharply serrate; those at the top linear and entire. Flowers from the sides and at the top of the stalks, white and each sitting in a bristly calyx. Root biennial.

[Chaffs linear, longer than the seeds, deciduous. The plant is twelve feet high; and, according to Gmelin, the flowers are yellow [d].

Native of Tartary; and perhaps of Italy.

According to the Kew catalogue, it was introduced in 1779, by Chevalier Thunberg; but if it be the *altissima* of Miller, he cultivated it before 1759.

15. Root perennial, long, spindle-shaped, mostly branched, running deep into the ground. Stem from one or two feet to near a yard in height, branched, rough with bristles which rather point downward, towards the bottom spotted with dark purple. Leaves for the most part hairy; radical ones numerous, lanceolate, more or less ferrate; stem-leaves pinnatifid, often gashed; the upper ones are entire: the stem-leaves are embracing. Branches spreading, each terminated by a single flower, composed of very numerous pale-purple florets, of which the outmost are larger, labiate, and give the whole a radiate figure; they are a little villose within. The outer perianth is four-cornered and hairy, with four small teeth; the inner incloses the germ, and is crowned with a concave receptacle, set with shining glands on the inside, and armed with eight or twelve spear-shaped ferrate greenish bristly substances, hairy at the base. Filaments of the same length with the corolla, with flesh-coloured or pale purple anthers, which in the outer florets are abortive. Germ four-cornered, covered with numerous stiffish hairs, and crowned with a bell-shaped pappus formed of numerous ash-coloured bristles. Style longer than the corolla. Receptacle beaded with hairs shorter than the germs. Seed quadrangular, crowned by the perianth, which forms a bristly villose pappus [e].—Linneus, in his Species plantarum,

[s] Hort. kew. [t] Hist. oxon. [u] Linn. syst.
[x] Hort. kew. [y] Hist. oxon. [z] Linn. syst.
[a] Gaertner. [b] Hort. kew.
[c] Smith, brit. engl. bot. Curtis, Withering. [d] Curtis.
[e] Withering. [f] Linn. spec. [g] Hort. kew.
[h] Linn. mant. [i] Linn. spec.
[k] Smith, brit. & engl. bot. Curtis, Withering.

remarks,

remarks, that the fruit is very like that of *S. tatarica*, but without chaffs.

Native of Europe, both in paſtures and corn fields, but more commonly in the latter: flowering in july and auguſt. The flowers and whole plant are much larger than *S. Succiſa*; the leaves are more jagged; it flowers earlier, and affects a drier ſituation [a].

The flowers, held over the ſmoke of tobacco, in a few minutes become of a moſt beautiful green [b]. The plant is ſlightly aſtringent, bitter and ſaponaceous. This ſpecies, as well as the *Succiſa* has been recommended internally in coughs, aſthmas, malignant fevers, fluxes, venereal, epilepſy, &c. and externally in the ſcurvy, itch, tetters, &c.: but woe be to him who truſts on ſuch broken reeds.

In corn-fields it is undoubtedly a troubleſome weed, but in graſs, being a hardy plant, and producing a large quantity of foliage, which is not refuſed by kine, horſes or ſheep, it muſt perhaps be conſidered rather as uſeful [c].

It varies much in the diviſions of the leaves, and ſometimes they are all entire. The whole plant is ſometimes ſmooth. It occurs with white flowers:—with the calyx widened and longer than the flower:—and with the corollas five-cleft and equal, with a four-leaved involucre [d].

In Yorkſhire, the common Field Scabious is known by the name of *Great Blue-caps*.

16. Stem villoſe, upright. Leaves ſubvilloſe: the lower obovate, crenate or crenate-gaſhed, with wide, unequal, blunt notches; the upper pinnatifid at the baſe, with the outer lobe larger. Heads of flowers ſmall, cloſe, oblong when the fruit is ripe, one in each forking; the lower ſeſſile, the upper peduncled. Calyx many-parted, compoſed of linear leaflets, ſhorter than the head, bent down after the flowering is over. Corollets ſmall, ſubvilloſe. Outer perianth membranaceous ſmall; inner very ſmall, radiate. Seed grooved, ſubvilloſe. Receptacle ſlender, elongated, briſtly.—Native of Algiers [e]; alſo of Sicily.

17. This is an annual plant, native of Siberia.

18. Root perennial. Stem herbaceous, green, rotund, hollow, hiſpid with ſtiffiſh hairs ſpringing from black (or deep purple) dots, ſubdichotomous, ereſt, from one foot to two feet high. Leaves veined, acute, hirſute on both ſides; the lower ovate-tooth-ſerrate, never laciniate or gaſhed, three, four or five inches long; the upper linear-lanceolate and quite entire: thoſe by the ground and the next above them often attenuated into a very long winged petiole; the reſt ſeſſile. Peduncles very long ſupporting purple flowers, longer than the leaflets of the common calyx, which are lanceolate and ciliate below. The difference between the outer and inner corollets is not very great; the former however have the ſegments ſo much longer as to give the flower a title to be called radiant. Between the florets are villuſe and very ſhort briſtles inſtead of ſcales, as in *S. arvenſis*. Fruit-convex, ſcarcely to be diſtinguiſhed from that. Seeds pale brown, ſomewhat hairy, crowned with the outer perianth, which is only a very ſhort irregular rim, and alſo with the inner, which is bell-ſhaped, commonly ten-toothed, with the teeth ending in an awl-ſhaped briſtle, but caducous [f].

Villars remarks, that this plant varies much: that the leaves are either entire at bottom, but towards the middle of the ſtem cut with large teeth, or elſe toothed at bottom and laciniate or pinnatifid at the baſe in the upper part of the plant; that the ſtems are two feet high, and in ſome places even three or four; that the corollets are more or leſs irregular, the outer ones having the lower ſegments long enough to place this plant among the radiant Scabiouſes, though improperly, and that the colour of them is more or leſs red.

Native of Germany, Switzerland, Auſtria, Carniola, and Piedmont, in woods, among buſhes, and ſometimes in fields; flowering the greater part of the ſummer.—It was cultivated in 1748, by Mr. Miller [g].

19. Root-leaves villoſe, aſh-coloured, deeply pinnatifid, with the pinnules blunt, diſtinct, the lower ones linear and entire, the upper gradually wider, blunt, gaſh-toothed. Stem-leaves bipinnate, with the leaflets linear, narrow, unequal, ſcarcely pubeſcent. Common calyx ſhorter than the corollas, many-parted: the leaflets linear, acute. Seeds gathered into a ſmall round head, deeply grooved. Outer perianth ſhort, membranaceous; inner five-briſtled, brown. Receptacle chaffy. Allied to *S. Columbaria*, and perhaps only a variety of it. The ſtem is ſhorter, the lower leaves villoſe and aſh-coloured, and the head of flowers only half the ſize [h].

According to Villars, the ſtems are a foot and half in height: the lower leaves villoſe and pinnate: the ſtem-leaves leſs villoſe, narrower, and bipinnate: the peduncles very long: calyx-leaves linear, unequal, the length of the flowers: theſe are hemiſpherical, deep blue: ſeeds villoſe, marked with eight ſtreaks, crowned with a little open raved membrane, of the ſame length with the five ſtarry rays which almoſt adhere to the centre. It flowers very late, even in november, and is perennial.

Native of the South of France, the county of Nice, and Barbary. Cultivated in 1739, by Mr. Miller [i].

20. This is eaſily diſtinguiſhed from the other Britiſh ſpecies by its five-cleft corollas, much more radiant than they, that is, having the outer ſegments of the outer corollets much larger than the inner. It has the habit of *arvenſis*, but is lower and much more ſlender in all its parts. The ſtem-leaves are ſometimes bipinnatifid. The flowers are of a bluiſh lilac colour. The pappus or crown conſiſts of five brown briſtles as long as the corollet. Root perennial, tapering to a point [k].

Native of Europe, Barbary and Siberia, on hilly paſtures in a gravelly or calcareous ſoil; flowering from june to ſeptember.

Weigel unites this to *St. ochroleuca*, under the name of *Scabioſa polymorpha* [l].

21. All the leaves are tomentoſe, the bottom ones ovate, crenate, like thoſe of the Daiſy; the next ſemipinnate with the pinnas ſhort and bluntly lanceolate, ſemipinnate alſo, or toothed, with the extreme pinna larger. Stem, except one pair of pinnate leaves, naked, half a foot or a long ſpan in height. Flower ſingle, radiate, purple, with the ſcales of the calyx ovate-lanceolate, not longer than the flower [m].

Allioni does not altogether inſiſt that this is a different ſpecies from the *columbaria*. He has given a figure of it, as it commonly appears; and alſo of a variety, with the leaves more deeply pinnatifid, having the extreme pinna roundiſh of a ſilky ſubſtance, the ſtem naked and one-flowered.

Scopoli deſcribes it under the name of *grandiflora*. Deſfontaines has adopted his name, and remarks, that it is allied to *columbaria*, but differs in having the ſtem-leaves ſimply pinnate or pinnatifid, with the terminating lobe lanceolate: the corollas are a third part larger.

Native of the Pyrenees, Switzerland, Savoy, Lombardy, Barbary. Allioni marks both this and *columbaria* as biennials [n].

22. Root annual. Stem herbaceous, a foot high, dichotomous, divaricating, red, weak. Leaves petioled, almoſt naked, a little hairy: the lower ones lyrate; the upper ſubpinnate, linear. Peduncles from the forkings, long, ſcarcely pubeſcent, purple. Calyx eight-leaved: leaflets lanceolate, reflexed, much longer than the corolla. Corolla equal (by no means radiate) red. Corollets ſmall, irregular but equal in ſize, much narrower than the calycle. Stamens whitiſh, longer than the corollets. Pappus a bell-ſhaped crown, plaited, many-toothed, with eight calluſes in the centre. Star ſhaped, conſiſting of five dark-purple briſtles, longer than the floret. It differs principally from *Sc. maritima* in the flowers not being radiate.—Native of Sicily [o]. Introduced in 1732, by Abbé Pourret [p].

[a] Curtis. [b] Engl. bot. [c] Curtis. [d] Haller and Willdenow. [e] Deſfontaines. [f] Jacq. obſ. [g] Hort. kew.

[h] Deſfontaines. [i] Hort. kew. [k] Smith, brit. and Withering. [l] Willdenow. [m] Haller. [n] Linn. mant. [o] Hort. kew.

23. Root perennial, woody, divided at top. Stems ſeveral, erect, a foot high, ſtiff, ſcarcely ſtriated, ſmooth except at bottom where they are villoſe, ſimple, covered at the baſe with imbricate ovate acuminate ciliate embracing ſcales, being the permanent baſe of the leaves. Leaves thickiſh, connate at the baſe, ſubciliate, an inch long: on each ſide are five pinnas, narrow-linear, longer outwards, the end one four times as large as the reſt: ſtem-leaves few, the uppermoſt linear, undivided, far remote. Peduncles oppoſite above, ſomewhat branched, elongated, one-flowered. Common perianth turbinate, ſomewhat hairy, five-leaved, five-cleft, with the ſegments awl-ſhaped. Proper perianth four-toothed. Corollets nearly equal, ſcarcely longer than the calyx, few, villous. Chaffs lanceolate, only half the length of the corollets.

Vahl gathered it at Cape Zebibo, in the kingdom of Tunis, flowering in the middle of July. He ſays it is Boccone's plant as it appears in Vaillant's herbarium.

Deſfontaines deſcribes a plant under the name of *S. arceolata*, which he found on the ſea ſhore of Barbary, which he ſays is certainly Boccone's; but that Vaillant's herbarium has a different ſpecies under the ſame name. He refers to the *divaricata* of Lamarck (illuſtr. n. 1311.) His deſcription differs from the above in ſome reſpects.—Branches numerous, oppoſite, divaricating, ſlender, dichotomous. Leaves ſmooth, ſhining: root-leaves lanceolate, toothed; the lower and middle ones deeply pinnatifid, with the pinnules linear, entire or toothed; upper branch-leaves linear-ſubulate, quite entire. Flowers ſmall, on long, leafleſs, ſtriated peduncles. Common calyx ſimple, goblet-ſhaped, ſhorter than the corolla, half ſix or eight-cleft, the ſegments narrow and acute, often alternately larger and ſmaller. Corollets radiant, funnel-ſhaped, pale-yellow, irregular in the ray, regular in the diſk. Proper perianth double: outer ſhort, with four blunt teeth; inner ſmall, five-briſtled. Seed oblong, four-cornered, ſmooth, grooved. Chaffs convex on one ſide, mucronate.

24. Calyx imbricate, hemiſpherical, with the ſcales ovate obtuſe [f].

Stem upright, branched, round, ſtriated, villoſe, a foot and half high. Branches in threes, long, like the ſtem. Lower leaves lyrate-pinnate, entirely villoſe: lower pinnas about three pairs, remote, linear, blunt, unequal; the lower of theſe ſmaller, more alternate, entire, the upper gradually larger, more oppoſite, toothed, decurrent: terminating pinna very large, very blunt, gaſhed, toothed. Stem-leaves embracing, linear, pinnate with ſolitary linear lobes, entire: the upper ones altogether lanceolate and quite entire. Peduncles elongated. Common involucre many-leaved, longer than the head of flowers: leaflets lanceolate, entire, villoſe [g].

Villars doubts whether his maritima be the ſame with that of Linneus's mantiſſa. Linneus, in his ſpecies, ſuppoſed it to be Boccone's plant, which is now referred to the preceding ſpecies, but he corrected that error in his mantiſſa.

Native of Italy, France and Japan.—It was cultivated in 1683, by Mr. James Sutherland, flowers here in july, and is an annual [h]. Thimberg found it flowering about Nagaſaki, in ſeptember and october.]

25. This is an annual plant. Stems three feet high, hairy. Leaves oblong, deeply notched; the upper ones cut almoſt to the midrib into fine ſegments. Flowers on long peduncles. Receptacles globular. Florets large, ſpreading open like a ſtar, of a pale purple colour.

[The lower leaves obovate-oblong, gaſh-ſerrate: the upper ones lyrate. Corollets of the diſk regular; thoſe of the ray have the three outer ſegments larger. Head of fruit globular. Seeds hairy, engraved at top with eight cavities. Pappus with the border of the ſtar wheel-ſhaped, membranaceous, rayed with forty briſtles: the central ſtarlet is five-rayed [i].

[a] Vahl. [b] Linn. mant. [c] Thunberg. [d] Hort. kew. [e] Linn. mant.

According to Gærtner, the involucre of the ſeed is turbinate, fungous, woolly, white, near the top very deeply eight-plaited, terminated by a wide rounded, membranaceous diſk, ſtriated in rays and toothletted at the edge. The reſt as in *atropurpurea*.

Native of Spain and Barbary; cultivated in 1596, by Gerarde. It flowers in july and auguſt [k].

Variety γ has the flowers ſcarcely radiate; the leaves linear and pinnate: the leaflets of the calyx have an elongated tooth on each ſide [l].

26. Stem herbaceous, dichotomous or proliferous. Leaves lanceolate, ſubpubeſcent, connate at the baſe; the lower ones ſubferrate. Flowers axillary, ſubſeſſile. Calyx looſe, the length of the corolla. Corolla yellow, radiate, with the three outer ſegments larger [m].

Stem erect, villoſe, ſtriated. Outer perianth large, membranaceous, bell-ſhaped, ſtriated, toothletted; inner five-briſtled, villoſe at the baſe, pedicelled, ſcarcely longer. Seed deeply grooved, villoſe. Receptacle roundiſh. Chaffs lanceolate, villoſe at the top [n].

It is an annual plant, native of Barbary and Egypt, in corn fields.—Cultivated by Mr. Miller in 1768 [o].

27. Calyx twelve-leaved, linear, recurved, the length of the corolla. Flower very dark purple, with white anthers. Fruit ovate. Receptacle ſubplate, with briſtle-ſhaped chaffs. Seeds four-cornered, terminated by an involute plaited præputium. Pappus compoſed of five briſtle-ſhaped rays [p].

Involucre of the ſeed from a globular baſe, which is eight-grooved, ending in a dome which is inverſely conical, membranaceous, terminated by an inflexed crenulate margin, and inſcribed on the ſides with eight raiſed opaque bows, incloſing oblong ſubdiaphanous areas. Seed ſubglobular, ſmall, ending in a filiform ſtipe, terminated by a briſtle-ſhaped, five-rayed pappus. Albumen thin. Embryo inverted, white [q].]

It is an annual (biennial) plant, and the flowers are very ſweet. There is a great variety in their colour, ſome being of a purple approaching to black, others of a pale purple, ſome red and others variegated. It alſo varies in the leaves, ſome being finer cut than others: and ſometimes from the ſide of the calyx come out many ſlender peduncles ſuſtaining ſmall flowers; like the (proliferous or) hen-and-chicken Daiſy.

[We have no certain account of what country the Sweet Scabious is a native. Cluſius relates, that he received the ſeeds of it from Italy, under the name of Indian Scabious, that the ſeeds which he gave to ſome friends produced paler-coloured flowers, and that ſeeds were ſent him from Vienna which came from Spain, and alſo produced flowers of a paler red. Parkinſon ſays, that this reputed Indian Scabious is verily thought to grow naturally in Spain and Italy. Cluſius does not affirm that, nor does Parkinſon give any authority. Linneus mentions it as a native of India with a note of doubt. Miller gives it expreſsly as a native of that country. But in the Kew catalogue its place of growth is left unſettled [r]. In all probability it is not a native of India, but of the South of Europe. If however the S. cochinchinenſis of Loureiro ſhould turn out to be the ſame with this, it would determine the matter.

It flowers from june to october. Parkinſon, in 1629, ſays, "if it be carefully defended from the extremity of winter, it will flower the ſooner the next year, as I myſelf have often found by experience." It flowered firſt with Cluſius in 1591.

It is remarkable that Parkinſon deſcribes it as having no ſcent; but perhaps he meant to ſpeak only of that which has paler flowers, and has certainly not ſo much of the muſky ſmell. Cluſius however, makes no mention of the ſweetneſs of theſe flowers.]

28. This is a low perennial plant, with a branching ſtalk ſpreading wide on every ſide; the leaves are of a ſilvery colour; the flowers are ſmall, pale, and have no ſcent.

[The ſtem has white hairs thinly ſcattered over it.

[k] Hort. kew. [l] Linn. mant. [m] Idem. [n] Deſfontaines. [o] Hort. kew. [p] Linn. ſpec. & ſyſt. [q] Gærtner. [r] Cluſ. hiſt. 2. p. 2. Park. parad. Curt. magaz.

Root-

Root-leaves somewhat toothed; ſtem-leaves undivided, ciliate towards the baſe. Calyx very hairy at the baſe, eight-leaved, recurved, length of the corolla. Corollas whitiſh with a blueiſh border. Corollets of the ray ſix, larger, with the upper lip very ſhort and biſid, the lower wide trifid blunt ſomewhat plaited equal. Corollets of the diſk white, regular, hirſute on the outſide. Stamens white[1].

Native of the Levant. Cultivated in 1713, by Mr. Thomas Fairchild. It flowers from june to october[1].

β. Leaves villoſe: root-leaves ſpatulate, narrow, blunt, toothed, running down into the petioles: ſtem-leaves deeply pinnatifid, with the ſegments linear-lanceolate, diſtinct, quite entire or ſometimes but more rarely toothed. Stem rough, villoſe, erect, dichotomous. Peduncles filiform, elongated, one-flowered. Common calyx hirſute, longer than the flowers, deeply many-parted: ſegments unequal, linear, creſt, bent down when the fruit is ripe. Corollets ſilky, white or roſe-coloured. Seeds in a roundiſh head. Outer perianth ſcarious, wheel-bell-ſhaped, toothletted, ſtriated; inner five-briſtled, longer, the briſtles ruſeſcent. Seed cylindrical, villoſe below, having eight or nine little holes in it.—It varies with a ſmooth ſtem and leaves. Native of Algiers[2].

29. Stem creſt, ſtriated, ſubvilloſe, rough, ſimple or with a few upright branches. Leaves pubeſcent: thoſe next the root ovate or ovate-oblong, toothed, blunt, pinnatifid at the baſe, petioled; lower ſtem-leaves pinnatifid, with the terminating lobe ovate, blunt, toothed; middle ſtem-leaves bipinnate, with the ſegments unequal, lineal, acute; upper ones pinnate, with the pinnules linear-ſubulate. Peduncles long, ſtriated. Common calyx ſhorter than the corolla, hirſute, with the leaflets pinnatifid. Flowers the ſame ſize with thoſe of the Sc. columbaria. Corollets blue or violet, irregular in the ray, regular in the diſk. Outer perianth ſubcampanulate; inner five-awned. Germ oblong, ſlightly four-cornered. Receptacle convex. Chaffs membranaceous, awl-ſhaped, convex on one ſide. It is allied to S. columbaria, but differs in having a villoſe pinnatifid calyx.—Native of Algiers, on hills[3].

30. Leaves ſeſſile, a ſpan long, ſerrate or gnawn, the upper ones more ſharply, ſubtomentoſe but green, deeply toothed at the baſe with from one to three teeth on each ſide. Panicle dichotomous; the firſt diviſion pedunculiferous, the others floriferous at the top. Peduncles very long. Calyx ten-leaved, ſpreading, ſhort, almoſt equal, by no means imbricate. Corolla pale blue, longer than the calyx. Chaffs briſtle-ſhaped. Seeds oblong, eight grooved; crown membranaceous and with ſtars of five longer briſtles[4].

It is ſo nearly allied to S. africana, that it may be doubted whether it is not a variety[4].—Native of Africa.]

31. This has a weak ſhrubby ſtalk, which divides into ſeveral branches, and riſes about five feet high. Leaves ovate-lanceolate, three inches long, and an inch and half broad, deeply crenate, of a light green, and a little hairy. Peduncle terminating, ſuſtaining one pale fleſh-coloured flower.

[This ſpecies varies in the leaves: that variety with the leaves very finely cut, is diſtinguiſhed by Miller, under the name of *S. inciſa*. He thus deſcribes it.] The ſtalks are hairy, and divide into ſeveral branches. The bottom leaves are lanceolate crenate and entire, but thoſe on the upper part of the ſtalk are bipinnate. The flowers are produced upon long naked foot-ſtalks from the end of the branches; they are of a pale fleſh-colour and large, but have no ſcent.

[Native of Africa. Introduced in 1690, by Mr. Bentick. It flowers from july to october[5].

32. Plant a foot and half high, hirſute all over, biennial, flowering from may to july. Stem round, weak, purpliſh at bottom. All the leaves pinnate, petioled and oppoſite: pinnas diſtant, oblong, acute, ſome quite entire, others here and there gaſhed at the top. Peduncles terminating. Leaflets of the common calyx hirſute, acute, entire. Corollets purple, ſomewhat hairy on the outſide, funnel-ſhaped, with the ſegments almoſt equal and blunt. Filaments ſcarcely exceeding the corolla. Anthers purple. Seeds hirſute, crowned by the outer perianth which is membranaceous wide ſhaped like a baſin and ſtriated, alſo by the inner perianth which is pedicelled and ends in five awl-ſhaped and very ſpreading briſtles[1].—Native of France about Montpellier.

33. The whole plant is extremely hirſute. It has ſcarcely any ſtem.—Native of the Cape of Good Hope[1].]

34. This riſes with a ſhrubby ſtalk three feet high, and divides into ſeveral woody knotty branches. Leaves narrow, ſilvery, entire, four inches long and a quarter of an inch broad. The flowers ſtand upon very long naked peduncles at the end of the branches, and are of a fine blue colour.

[Linnæus remarks, that the leaves are ſo cloſely cluſtered on the ſtem as to be almoſt imbricate, and that the calyxes are obtuſe. Wilkdenow informs us, that in the wild plant the leaves are ciliate at the edge with white hairs.

Native of Candia and Sicily. Mr. Miller diſtinguiſhes them, and ſays that the plant from Candia has] ſhorter and much broader leaves, not ſo white as thoſe of the Sicilian; that the flowers are not ſo large, and are of a pale purple colour.

[Gerarde cultivated it in 1596[6].

35. Root divided above. Stems ſrutеſcent at the baſe, erect, ſimple: flowering-ſcape among the leaves, grooved-angular, almoſt leafleſs, a foot high. Leaves at bottom almoſt like thoſe of Statice Limonium but ſmaller, aggregate, ſcarcely an inch in length, oblong, ending in the petiole, thick, above ſmooth and veinleſs, beneath veiny-wrinkled, with the margin reflexed, emarginate: on the flowering-ſcapes at bottom two under the loweſt peduncles, lanceolate, acute, with a ſingle tooth at the baſe on each ſide, the upper ones linear. Peduncles two at bottom from the axils of the leaves of the ſcape; three above, very remote, terminating; the lateral ones branched a little. Leaflets of the common calyx lanceolate, bluntiſh, tomentoſe, hoary. Outer perianth ſhort, unequally toothletted; inner twice as long with five purple briſtles. Corollets equal, tomentoſe on the outſide. Chaffs linear, narrower at the baſe, length of the florets, tomentoſe.—Native of Sicily[7].]

36. This has a perennial root, from which ariſe three or four ſtalks, the lower parts of which have linear leaves about four inches long, and the eighth of an inch broad, of a ſilvery colour, ending in acute points. The upper part of the ſtalk is naked for ſix or ſeven inches in length, and ſuſtains at the top one pale-blue flower.

[Stems branching at the baſe, procumbent, knobbed. Leaves cluſtered, oppoſite, reſembling thoſe of graſs, quite entire, drawn to a point at each end, connate or ſheathing at the baſe, ſilvery, ſhining, with villoſe hairs preſſed cloſe to the leaf. Peduncle terminating, long, leafleſs, pubeſcent, round not ſtriated, one-flowered. Common calyx villoſe, with linear ſegments, nearly equal, almoſt as ſhort again as the flower. Head of flowers flat. Corollets blue, longer and irregular in the ray, the ſegments toothletted. Outer perianth membranaceous, bell-ſhaped, ſtriated; inner five-briſtled, ſcarcely longer. Seed villoſe, cylindrical. Receptacle oblong, with concave, mucronate chaffs[4].

Native of the mountains of Dauphiné, Carniola, Italy, Switzerland, Sileſia, Barbary. Cultivated in 1683, by Mr. James Sutherland. It flowers in july[8].

37. Stem herbaceous, erect, a foot high, ſimple, ſtriated, ſomewhat hairy. Leaves an inch and half long, ſmooth above, hairy on the veins underneath; the lower ones oblong, undivided, grooſly and bluntly ſerrate, ending in a petiole ſhorter by half than the leaf: the upper ones ſeſſile, pinnatifid; ſegments lanceolate, wider outwards, gaſh-toothed, the end one

[1] Linn. ſyſt. [2] Hort. kew. [3] Deſfontaines. [4] Idem. [5] Linn. mant. [6] Linn. ſyſt. [7] Hort. kew. [8] Jacqu. miſc. [9] Linn. mant. [10] Hort. kew. [11] Vahl. [12] Deſfontaines. [13] Hort. kew.

very large, and oblong. Peduncles terminating, solitary, elongated, leafless, hairy, one-flowered. Common calyx eight-leaved; leaflets lanceolate, tomentose at the base, length of the corolla. Outer perianth grooved, angular, short, having twelve or fourteen teeth, erect, with a purple mouth: inner having five bristle-shaped segments, a little shorter than the corollets and purple. Corollets hairy on the outside. Chaff lanceolate, the length of the calyx.—*S. palæstina* differs from this in having the segments of the corollets on the ray equal; the calycle of the seeds is spread out like a star. *Stellata*[1].—Native of the shore of the Dardanelles.

2. Stem four feet high, round. Leaves broad-lanceolate, serrate, with a few gashes, and pubescent: the uppermost linear-lanceolate, pinnatifid at the lower base. Petioles very long. Flowers white, or lemon-colored; the length of the calyx. Corollets in the ray very beautiful, all its segments, as well the two upper large ones, as the three outer ones, subdivided into three segments. The fruit is the same as in *Sc. stellata*.

Native of Paleſtine, where it was found by Haſſelquiſt[1]. Introduced in 1771, by Monſ. Richard[2].

39. Stems a foot high, aſcending, ſubtomentoſe. The leaves have ſtiffiſh hairs ſcattered over them: the upper ones ſimply pinnate. Branches very few, often none. Flower white, not ſhorter than the calyx; which is many-leaved and ſpreading. Seeds as in *Sc. ſtellata*.—Native of Siberia, on rocks[3].

40. The ſtem-leaves are not always ciliate at the baſe, Linnæus's ſpecific character therefore is not accurate in that reſpect.

Native of the Ukraine[4]. Allioni ſays it is found alſo in Piedmont.

41. Root perennial, whitiſh brown, the thickneſs of a finger and woody. Stem round, equal, either wholly ſhining, or wholly or only at bottom pubeſcent, pale green, but moſt frequently tinged with purple at the baſe and at the axils of the leaves, frequently the colour is very dark; it is from a foot to three feet in height, and erect. The primary diviſion is dichotomous; the other diviſions are by elongated peduncles. Root-leaves in plants of the firſt year, and lower ſtem-leaves obverſely lanceolate, entire, unequally ſerrate, ſometimes pinnatifid, attenuated into a very long petiole, ſubtomentoſe or ſmoothiſh on both ſides. As the plants advance the leaves are more cut, and become pinnatifid or ſubbipinnatifid, and more ſmooth. Stem-leaves ſmooth, the upper ones quite ſimple, the next pinnate, the lower bipinnatifid; the pinnules are linear acute and confluent. Petioles connate at the baſe. In larger plants the leaves are much more divided; and ſometimes they are all pinnatifid gaſhed, except the uppermoſt. The inner perianth has five briſtles. The corollets are conſtantly of a pale ſulphur-colour. Fruit ovate. Seed, or rather its involucre, ovate, eight-grooved, villoſe at the baſe, crowned with a membraneceous margin[5].

Linnæus remarks, that it is allied to *Sc. columbaria*. It is a biennial plant, native of Germany; and was cultivated in 1739, by Mr. Miller. It flowers in july and auguſt[6].

42. Root annual. Stem filiform, brachiate, with a ſubdichotomous panicle. Peduncles axillary, filiform, long. Calyx-leaflets ovate, very acuminate. Seeds crowned with a feathered down, and a thicker longer awn cloſe to it. Peduncles and calyxes tomentoſe[7]. Proper involucre of the flower cylindric-pitcher-ſhaped, fungous, eight-plaited, truncate at the top, and terminated by twelve or more very ſhort, briſtle-ſhaped toothlets. Receptacle ſlightly convex. Seed ovate-acuminate, attenuated into a ſhort pappigerous ſtipe. Pappus feathered, white, longer than the ſeed[8].

Native of the iſland of Crete or Candia:—of the South of Europe. Cultivated in 1739, by Mr. Miller. It flowers in july[9].

43. Suppoſed to be a native of Greece.]

[1] Vahl. [2] Linn. mant. [3] Hort. kew.
[4] Linn. mant. [5] Gmelin. [6] Jacquin obſ.
[7] Hort. kew. [8] Linn. [9] Gærtner. [10] Hort. kew.

PROPAGATION AND CULTURE.

1. This may be propagated either by ſeeds or parting the roots. It loves a loamy ſoil.

6. Sow the ſeeds in a ſhady moiſt border; keep the ground clean, and allow the plants room to ſpread.

8. Part the roots in autumn, and ſet the plants in a light loamy ſoil.

14. Riſes from ſcattered ſeeds, and requires no care.

25. Sow the ſeeds in a bed of light loamy earth, where the plants are to remain, when they come up, thin them and keep them clean from weeds.

27. Sow the ſeeds of the Sweet or Muſk Scabious at the end of may or beginning of june, upon a ſhady border of freſh earth; for if they are too much expoſed to the ſun, and the weather ſhould prove dry, few of them will grow. And if they are ſown early in the ſpring, they will flower the autumn, and the winter coming on, will prevent the ſeeds from ripening; beſides which, the flowers will be few and weak. Whereas if they are left to ſtand all ſtrong root and leaves in the autumn, they will produce their flower-ſtems early in the next ſummer, branching out on every ſide, producing a great number of flowers, continuing in ſucceſſion from june to ſeptember, and producing good ſeeds in plenty.

When the plants ſown in may come up, tranſplant them into a bed or border of freſh earth, watering and ſhading them till they have taken root; and, having kept them clean from weeds, tranſplant them at michaelmas into the middle of the borders in the pleaſure-garden. It is very hardy, being rarely injured by cold, unleſs it ſhoots up to flower before winter; but it does not continue after ripening the ſeeds.

31. This, with the other African ſpecies, may be increaſed by cuttings, planted in a ſhady border, during any of the ſummer months. When theſe have put out good roots, plant them in pots filled with light loamy earth, and placed in the ſhade till they have taken new root; then remove them to a ſheltered ſituation till froſts come on, when they muſt be put into the dry ſtove or a glaſs-caſe for the winter, giving them as much free air as poſſible in mild weather. In the middle or end of april they may be removed into the open air in a warm ſituation.

34. This alſo may be increaſed by cuttings or by ſlips. When theſe have taken good root, plant ſome on a dry border near a ſouth wall, where they will live in common winters. But as ſevere froſt frequently deſtroys them, put ſome of the plants in pots, placing them under a frame in winter, giving them air in mild weather.

36. This, not producing ſeeds in England, may be increaſed by ſlips, planted on a ſhady border the beginning of april. When theſe have put out good roots, take them up with balls of earth, and tranſplant them where they are to remain. It loves a ſoft loamy ſoil, and a ſhady ſituation.

41. May be propagated by ſeeds, and will thrive any where.

[The above directions are ſufficient for the propagation and treatment of the other ſpecies, which are either hardy annuals, to be increaſed by ſeeds, or hardy perennials, to be increaſed by parting the roots.

SCABIOSA. See *Centaurea, Cephalanthus, Cenyza, Echinops, Eclipta, Eriocaulon, Globularia, Knautia, Spermacoce, Sphæranthus.*

Scabioſæ Affinis. See *Brunia, Clinopodium.*

Scabious, Sheep's. See *Jaſione.*

SCABRITA. See *Nyctanthes.*

SCÆVOLA.

Lin. gen. Reich. n. 244. Schreb. n. 300. Juſſ. Lobelia. *Plum. gen. t. 31. Vaqua. Gærtn. t. 25.*

Claſſ. 5. 1. Pentandria Monogynia.

Nat. order of *Campanulaceæ*, Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* ſuperior, very ſhort, five-cleft, permanent.
COR. one-petalled, unequal. *Tube* long, with a longitudinal fiſſure. *Border* five-cleft, aſcending; *ſegments* directed

directed one way, lanceolate, membranaceous at the edge.

STAM. *Filaments* five, short, capillary, inserted into the receptacle. *Anthers* distinct, erect, oblong, obtuse.

PIST. *Germ* inferior, ovate. *Style* filiform, thicker above, longer than the stamens, issuing from the fissure, curved in towards the border. *Stigma* flatted, obtuse, with the mouth open.

PER. *Drupe* roundish, umbilicate with a dot, one-celled.

SEED. *Nut* ovate, wrinkled, acute, two-celled.

OBS. *It differs from the* Lobelias *in fruit, in having no milkiness, &c. according to Jacquin.*

ESSENTIAL CHARACTER.

Cor. one-petalled, with the tube cloven longitudinally, the border five-cleft and lateral. *Drupe* inferior, containing one two-celled *Nut*.]

SPECIES.

1. Scævola Lobelia.
Lin. fil. 213. *Prich.* 1. 476. *Willd.* 1. 955. *Vahl symb.* 2. 36. *Lamarck encycl.* 1. 124. *f.* 1. *Swartz obs.* 70. *Jacqn. amer. pict.* 36. *t.* 199.
Lobelia Plumieri. *Lin. spec.* 1317. *fl. zeyl. n.* 313. *Oss. it.* 275. *ed. angl.* 2. 57. *Jacqn. amer.* 219. *t.* 179. *f.* 88.
L. Taccada. *Gærtn. fruct.* 1. 119.
L. frutescens. *Mill. dict.*—pomiliacæ folio. *Plum. gen.* 21. *ic.* 165. *f.* 1. *Catesb. car.* 1. *t.* 79.
Bugloſſum littoreum. *Rumph. amb.* 4. 116. *t.* 54.
Taccada. *Zeylon.*
Leaves obovate smooth quite entire.

[2. Scævola Koenigii.
Lin. spec. ed. Willd. 1. 956. *Vahl symb.* 3. 36. *Lamarck encycl.* 1. 124. *f.* 2.
Leaves obovate smooth tooth-subrepand at top, calyx five-toothed.

3. Scævola ſericea.
Lin. spec. ed. Willd. 1. 956. *Vahl symb.* 2. 37. *Forſt. prodr. n.* 304.
Leaves obovate villoſe very ſoft, toothed at top.

DESCRIPTIONS, *&c.*

1. Stem ſuffrutescent, two feet high, almoſt ſingle, thick, round, ſmooth. Leaves petioled, ſcattered, oblong, entire, fleſhy, veinleſs, very ſmooth. Racemes axillary, dichotomous, terminating. Pedicels one-flowered. Under the flowers or in the forkings of the racemes are little, oppoſite, awl-ſhaped bractes, villoſe beneath[1].

Jacquin deſcribes it as a brittle diffuſed ſhrub, branched at the baſe and decumbent, frequently covering the ſandy ſea ſhores very thick; the leaves thick, ſhining and ſucculent; the flowers whitiſh; and the drupe dark.

Linneus remarks, that the corolla is villoſe within.]

Mr. Miller ſays that this plant riſes with a ſucculent ſtalk five or ſix feet high; that the leaves are ovate-oblong, ſucculent, ſeſſile, alternate; that the pedunckes are long, lateral, and ſuſtain two or three white flowers, which are ſucceeded by two oval berries as large as Bullace, containing a ſtone with two cells, in each of which is lodged a ſingle ſeed.

[The above are deſcriptions of the American plant. Oſbeck deſcribes that which he found in Java, to be a little tree growing on the ſea ſhore, with wrinkled pendulous branches; obovate, mucronate, ſmooth, petioled leaves, without inciſions, and almoſt without nerves; the petioles of equal thickneſs all the way: the flowers white and axillary; the nut almoſt round and the ſize of a pea.

Willdenow ſuſpects the plant of the Eaſt Indies to be different from that of America; and remarks, that in the latter the calyx is ſuperior with the margin quite entire ſcarce apparently toothed; with two bractes at the baſe of the germ: whereas in the former the calyx is obtuſely five-toothed.

Gærtner obſerves, that Rumphius's figure agrees very well with the fruit which he deſcribes; and that the figure of Bela-modagam in the Hortus Malabaricus (4. t. 59.) does not much differ from it, except that the calyx is contracted into too narrow a tube: whereas in the American plant, the corolla is diffe-

[1] Swartz.

rently divided, the calyx of the fruit is only a very ſhort margin unequally five-toothed, the drupe oval ſmooth and black, the ſhell ovate-acuminate muricated all over with larger tubercles. Hence he concludes that the Eaſt Indian plant, if not a different ſpecies, is at leaſt a remarkable variety. He deſcribes the fruit as a berried Drupe, inferior, crowned with the permanent calyx, ſubglobular, tranſverſely a little thicker, groſsly ſtriated with from ſeven to ten grooves, fleſh-coloured becoming the colour of ſmoke: pulp fungous, thick: ſhell bony, ſpherical, tubercled and wrinkled, having a ſpurious raiſed ſuture, two-celled. Seed in each cell one, rounded or obovate, ſlightly acuminate towards the baſe, plano-convex, whitiſh, faſtened to the bottom of the cell.

Native of both Indies. That from America was cultivated by Mr. Miller in 1724.] Mr. Cateſby, who gathered the ſeeds on the ſea ſhore of the Bahama iſlands, having that year ſent them to England. Dr. Houſtoun afterwards gathered them at La Vera Cruz; [Jacquin found the plant in the iſland of St. Martin, Herman in Ceylon, and Oſbeck in Java: but it ſeems to grow very generally within the Tropics.

2. Branches round, ſmooth, warted, the thickneſs of a gooſe quill. Leaves alternate, by pairs remote, ſubſeſſile, three inches long, very ſmooth, even and almoſt veinleſs, quite entire below, above and at the tip tooth-ſubrepand: axils woolly. Pedunckes axillary, an inch long, bifid. Flower in the firſt forking pedicelled, as the reſt of the flowers, but not ſeſſile as in Plumier's plant; none in the ſecond diviſion. Pedicels ſhort, ſuboppoſite. Bractes lanceolate, ſhorter than the pedicel, at the baſe of each pedicel, woolly within at the bottom. Calyx with five awl-ſhaped teeth. Corolla ſmooth, divided on one ſide almoſt to the baſe: tube hirſute within at bottom: ſegments of the border ſmooth, lanceolate. Filaments ſhorter by half than the tube of the corolla. Anthers diſtinct. Style villoſe at the baſe. Stigma ſhaped like a drinking glaſs, the inſide hirſute with a great abundance of white villoſe hairs. Fruit (which is here called a capſule) five-cornered with five raiſed lines, obovate, crowned with the calyx, ſmooth.

Native of the Eaſt Indies, where it was found by Koenig.

3. Branches brown, villoſe, muricated with the remains of fallen leaves. Leaves ſcattered, three inches long, veinleſs, ſoftly villoſe yet green. Petiole inſerted obliquely. Axils bearded. Panicle few-flowered, dichotomous, axillary. Bractes oppoſite, at the baſe of the pedicels, lanceolate, a little recurved. Calyx five-parted, ſuperior, with lanceolate ſegments. Corolla villoſe on the outſide: tube very ſhort, coriaceous: ſegments of the border lanceolate, obtuſe, having a thin membrane at the ſide. Filaments inſerted into the baſe of the ſide, filiform, the length of the ſtyle. Anthers oblong, cohering a little under the ſtigma, rounded at the baſe, tranſverſe at the tip. Style ſhort, linear, three times as thick as the filaments. Stigma ſhaped like a drinking-glaſs, three times as wide as the ſtyle, green, pellucid, very finely toothletted at the edge. Pericarp globular, villoſe, the ſize of a pea, crowned with the calyx[1].

Native of Botany iſland by New Caledonia[2]. Savage iſland[3].—Forſter mentions another ſpecies, as a native of New Caledonia, under the name of *Scævola ſaligna.*]

PROPAGATION AND CULTURE.

1. It is propagated by ſeeds, which muſt be procured from the countries of its natural growth, for the plants will not produce them in Europe; theſe ſeeds ſhould be ſown in pots filled with light ſandy earth, and plunged into a hot-bed of tanner's bark, where the plants will come up in about a month or five weeks, provided the bed is warm, and the earth often watered. When the plants are up, they ſhould be kept in a temperate hot-bed, and frequently refreſhed with water, but it muſt not be given them in large quantities, for they are very ſucculent, and ſubject to periſh with much moiſture, eſpecially while they are young.

[1] Vahl. [2] Forſter. [3] Willdenow.

When the plants are about two inches high, they ſhould be carefully taken out of the pots in which they were ſown, and each planted in a ſeparate ſmall pot filled with freſh light ſandy earth, and then plunged into the hot-bed again, obſerving to ſhade them in the heat of the day until they have taken new root. In this hot-bed the plants may remain until the middle, or latter end of ſeptember, when they muſt be removed into the ſtove, and plunged into the tan-bed, in the warmeſt part of the ſtove, for they are very tender plants while young, therefore muſt be kept very warm, otherwiſe they will not live through the firſt winter in this country. In the ſpring following the plants may be potted into ſomewhat larger pots, and then plunged into a freſh hot-bed to forward their growth; for if they are not ſupported on while they are young, they ſeldom grow to any ſize, nor will they ever flower; ſo that in order to have them in any beauty, they muſt be carefully managed. The leaves of this plant are very ſubject to contract filth, by being conſtantly kept in the ſtove, therefore they ſhould be waſhed with a ſponge frequently, to keep them clean, otherwiſe they will appear unſightly.

[SCALLION. See *Allium*.

SCAMMONEA. See *Cynanchum*.

SCAMMONIA and SCAMMONY. See *Convolvulus*.

Scammonitæ affinis. See *Cynanchum*.]

SCANDIX (*of Pliny, Σκανδὶξ of Theophraſtus and Dioſcorides.*)

Lin. gen. n. 357. *Reich. n.* 387. *Schreb. n.* 489. *Tournef. t.* 173. *Juſſ.* 220. Chærophyllum. *Tournef. t.* 166. *Gærtn. t.* 23. Myrrhis. *Tournef. t.* 166. *Gærtn. t.* 23.

Claſſ. 5. 2. Pentandria Digynia.

Nat. order of *Umbellatæ* or *Umbelliferæ*.

GENERIC CHARACTER.

CAL. *Umbel univerſal* long, with few rays: *partial* more abundant.

Involucre univerſal none: *partial* five-leaved, length of the umbellet.

Perianth proper obſolete.

COR. *univerſal* difform, radiate: *florets of the diſk* abortive.

Proper Petals five, inflex-emarginate: *the inner ones* ſmaller; *outmoſt* larger.

STAM. *Filaments* five, capillary. *Anthers* roundiſh.

PIST. *Germ* oblong, inferior. *Styles* two, awl-ſhaped, length of the leaſt petal, diſtant, permanent. *Stigmas* in the radiant florets obtuſe.

PER. none. *Fruit* very long, awl-ſhaped, bipartile.

SEEDS two, awl-ſhaped, convex and grooved on one ſide, cloſe on the other.

OBS. *The florets of the diſk are abortive in ſome ſpecies. The involucrets vary in the number of leaves.*

Pecten Veneris *has the ſeeds ſubuliform, hiding the nucleus at the baſe.*

Cerefolium, *Rivi. has ovate-ſubulate ſtriated ſeeds, a green permanent involucre, and all the florets hermaphrodite.*

Odorata *has angular ſeeds, and a caducous involucre.*

In the true Scandix *the nucleus is ſcarcely a fourth part of the length of the ſeed; in* Chærophyllum (*or* Cerefolium) *three quarters; in* Myrrhis (Scandix odorata) *it is the full length of the ſeed.* Gærtner.

ESSENTIAL CHARACTER.

Flowers of the diſk moſt commonly male. *Cor.* radiate. *Pet.* emarginate. *Fruit* awl-ſhaped.

SPECIES.

1. Scandix odorata. *Sweet Cicely* or *great Chervil.*

Lin. ſpec. 368. *ſyſt.* 287. *Reich.* 1. 705. *Willd.* 1. 1449. *hort. cliff.* 101. *ſp.* 64. *Huds. angl.* 124. *Wither. arr. ed.* 3. 366. *Smith brit.* 323. *engl. bot. t.* 697. *Lightf. ſcot.* 166. *Sibth. oxon. n.* 306. *Hoffm. germ.* 103. *Jacqu. auſtr.* 5. 48. *ſpp. t.* 37. *Krock. ſilef. n.* 449. *Blackw. t.* 243. *Knipb. cent.* 4. *n.* 74. *Pleneck, ic.* 206.

Myrrhis odorata. *Scop. carn. n.* 341. *Roth. germ.* 1. 122. 2. 314. *Allion. pedem. n.* 1371. *Hall. helv. n.* 753.

Myrrhis. *Ded. pempt.* 701. 1. *Lob. obſ.* 423. 2. *ic.* 1. 734. 1. *Camer. epit.* 898.

M. major vel Cicutaria odorata. *Bauh. pin.* 160. *Tournef. inſt.* 315.

M. perennis alba odorata. *Mor. hiſt.* 3. *ſ.* 9. *t.* 10. *f.* 1. *tab. t.* 1. *f.* 34.

M. magno ſemine longo ſulcato. *Bauh. hiſt.* 3. 77. *Raii hiſt.* 431.

M. major vulgaris, ſ. Cerefolium majus. *Park. theat.* 935. 1. *parad.* 494.

Odorata. *Rivin. pent. t.* 57.

Chærophyllum odoratum. *Villars dauph.* 2. 646. *Crantz, umb.* 75.

Cerefolium magnum ſ. Myrrhis. *Ger.* 882. 2. *emac.* 1039. 3.

Seeds grooved angular.

2. Scandix Pecten Veneris. *Needle Chervil, Shepherd's Needle* or *Venus's Comb.*

Lin. ſpec. 368. *ſyſt.* 287. *Reich.* 1. 705. *Willd.* 1. 1449. *hort. cliff.* 101. *ſp.* 64. *Huds. angl.* 123. *Wither. arr. ed.* 3. 367. *Smith brit.* 324. *Curt. lond.* 5. *t.* 21. 249. *Ru.* 233. *Sibth. oxon. n.* 307. *Dicks. hort. ſic.* 15. 3. *Fl. dan. t.* 844. *Jacqu. auſtr.* 3. *t.* 2[illegible] *Scop. carn. n.* 349. *Pollich pal. n.* 296. *Roth. germ.* 1. 122. 2. 315. *Hoffm. germ.* 103. *Krock. ſilef. n.* 446. *Villars dauph.* 2. 647. *Neck. gallob.* 150. *Lers herborn. n.* 209. *Fl. ruſſ. t.* 38.

Scandix. *Ded. pempt.* 502. *penup.* 701. 2. *Riv. pent. t.* 38.

S. ſemine roſtrato vulgaris. *Bauh. pin.* 152. *Tournef. inſt.* 326. *Raii ſyn.* 207. *Mor. hiſt. ſ.* 9. *t.* 11. *f.* 1. *ord.* 2.

S. vulgaris ſ. Pecten Veneris. *Park. theat.* 916. 1.

Pecten Veneris. *Camer. epit.* 304. *Bauh. hiſt.* 3. 71. 2. *Lob. obſ.* 419. 2. *ic.* 1. 726. 2. *Matth.* 527. *Raii hiſt.* 428.—ſ. Scandix. *Ger.* 884. *emac.* 1040. 1.

Myrrhis Pecten Veneris. *Allion. pedem. n.* 1375. *Hall. helv. n.* 754.

Chærophyllum Pecten Veneris. *Crantz auſtr.* 189. *umb.* 75.

Seeds with very long ruggediſh beaks, leaflets linear-multifid.

[3. Scandix chilenſis. *Chili Chervil.*

Lin. ſpec. ed. Willd. 1. 1449. *Molina chil. ed. germ.* 103.

Seeds with very long beaks, leaflets entire ovate-lanceolate.]

4. Scandix Cerefolium. *Garden Chervil.*

Lin. ſpec. 368. *ſyſt.* 287. *Reich.* 1. 706. *Willd.* 1. 1450. *hort. cliff.* 110. *fl. ſuec. n.* 255. *mat. med.* 83. *Gron. virg.* 32. *Jacqu. auſtr.* 4. 47. *t.* 390. *Hoffm. germ.* 103. *Krock. ſilef. n.* 447. *Pleneck, ic. t.* 205. *Wither. arr. ed.* 3. 307.

Cerefolium. *Matth.* 526.—ſativum. *Park. theat.* 915. *f.* 1. *Mor. hiſt. ſ.* 9. *t.* 11. *f.* 1. *umb. t.* 1. *f.* 40. *Riv. pent. t.* 43. *Blackw. t.* 296.—vulgare. *Ger.* 882. *f.* 1.—Vulg. ſativum. *Ger. emac.* 1038. *f.* 1. *Trag.* 471.

Chærefolium. *Ded. pempt.* 700. *f.* 2.

Chærephyllon. *Bauh. hiſt.* 3. 75.

Chærophyllum n. 5. *Mill. dict. ed.* 7. & *abr. ed.* 3.

Ch. ſativum. *Bauh. pin.* 152. *Gærtn. fruct.* 1. 107. *Hall. helv. n.* 747. *Raii hiſt.* 430. *Knorr. del. hort.* 2. *t.* C. 8.

Ch. Cerefolium. *Crantz auſtr.* 191. *umb.* 75.

Seeds ſhining ovate-ſubulate, umbels ſcarce lateral.

5. Scandix Anthriſcus. *Rough Chervil.*

Lin. ſpec. 368. *ſyſt.* 287. *Reich.* 1. 706. *Willd.* 1. 1450. *hort. cliff.* 101. *fl. ſuec. n.* 256. *Huds. angl.* 124. *Smith brit.* 325. *Curt. lond.* 1. *t.* 19. *Roth. cant. n.* 234. *Sibth. oxon. n.* 308. *Dicks. hort. ſic.* 15. 3. *Jacqu. auſtr.* 2. *Pollich pal. n.* 297. *Hoffm. germ.* 10[illegible] *herborn. n.* 211. *Krock. ſilef. n.* 448. *ruſſ. t.* 75.

Caucalis Scandix. *Scop. carn. n.* 312. *Fl. n.* 743.

C. ſcandicina. *Wigg. hollat.* 23. *Wither. arr. ed.* 289. *Fl. dan. t.* 863. *Roth. germ.* 1. 121. 2. 3[illegible]

C. folio chærophylli. *Riv. pent. t.* 35.

Myrrhis ſylveſtris ſeminibus aſperis. *Bauh. pin.* [illegible] *Raii ſyn.* 220. *Petiv. hrit. t.* 37. *f.* 12.

M. æquicolorum nova. *Column. ecphr.* 110. *t.* 112. *Ger. emac. n.* 5.

Chærophyllum Anthriſcus. *Crantz, umb.* 76. *Villars dauph.* 2. 643.

C. ſilveſtre ſemin. brevibus hirſutis. *Tournef. inſt.* 314. *Vaill. bot.* 33. *Tournef. par.*

Cereſolium ſylveſtre annuum, ſemine villoſo brevi. *Mor. hiſt. ſ.* 9. *t.* 10. *f.* 2.

Seeds ovate biſpid, cerollas uniform, ſtem even.

6. Scandix auſtralis. *Radiated Chervil.*

Lin. ſpec. 369. *Reich.* 1. 707. *Willd.* 1. 1450. *Sauv. monſp.* 260. *Villars dauph.* 2 647. *Ger. prov.* 251. 2. *var.*

S. cretica minor. *Bauh. pin.* 152. *Raii hiſt.* 428.

S. ſemine roſtrato, italica. *Bauh. prodr.* 78.

S. cret. minor ſ. Anthriſcus. *Park. theat.* 916. *f.* 3.

S. minor ſ. Anthriſcus. *Ger. emac.* 1040. *f.* 2.

Chærophyllum auſtrale. *Crantz, umb.* 76.

Myrrhis auſtralis. *Allion. pedem. n.* 1.77.

Aniſomarathrum. *Labill. cenſpr.* 1. 89. 90.

Seeds awl-ſhaped biſpid, flowers radiate, ſtems even.

[7. Scandix nodoſa. *Knobbed Chervil.*

Lin. ſpec. 369. *ſyſt.* 287. *Reich.* 1. 707. *Willd.* 1. 1451. *mant.* 336. *hort. cliff.* 102. (Chærophyllum.) *Jacqu. hort.* 3. *t.* 25.

Chærophyllum nodoſum. *Crantz, umb.* 76.

Cereſolium annuum nodoſum, ſemine aſpero majore. *Mor. hiſt.* 3. 303. *ſ.* 9. *t.* 10. *f.* 4.

Myrrhis nodoſa annua, ſem. aſpero. *Mor. blaſ.* 288.

Seeds ſubcylindrical biſpid, ſtem biſpid, joints ſwelling.

8. Scandix trichoſperma. *Hair-ſeeded Chervil.*

Lin. ſyſt. 287. *Reich.* 1. 707. *Willd.* 1. 1451. *mant.* 57.

Seeds extremely hirſute with hairs double the length of the ſeed.

9. Scandix infeſta.

Lin. ſyſt. 287. *Reich.* 1. 707. *Willd.* 1. 1451. *Willich illuſtr.* 54. *Forſk. deſcr.* 53 ?

Outer ſeed biſpid, umbellets very much cluſtered hemiſpherical.]

10. Scandix grandiflora. *Great-flowered Chervil.*

Lin. ſpec. 369. *Reich.* 1. 708. *Willd.* 1. 1452.

S. orientalis flore maximo. *Tournef. cor.* 23.

Chærophyllum grandiflorum. *Crantz, umb.* 77.

Seeds ſhorter than the villoſe peduncle.

[11. Scandix procumbens. *Trailing Chervil.*

Lin. ſpec. 369. *Reich.* 1. 708. *Willd.* 1. 1452. *Gron. virg.* 14.

Cereſolium virginianum procumbens, ſumaræ foliis. *Mor. hiſt.* 3. 303 *ſ.* 9. *t.* 11. *f. ult.*

Chærophyllum procumbens. *Crantz, umb.* 77.

Seeds ſhining ovate-ſubulate, leaves decompound.]

DESCRIPTIONS, &c.

1. Root perennial, very thick, branched, of a ſweet aromatic taſte, like Aniſeed. Leaves large, branching, ſomewhat like thoſe of Fern, whence it has been called *Sweet Fern*. Stems four or five feet high, hairy and fiſtulous. Flowers white, with a ſweet aromatic ſcent; the outer petal large, the two ſide ones middle-ſized, the two inner ones ſmall. The ſeeds have the taſte and ſcent of Aniſeed.

[Root fuſiform, aromatic. Stems a foot and half high, almoſt equal, ſtriated, leafy. Leaves ſeſſile, ſubtripinnate; leaflets pinnatifid, acute, ſerrate, hairy, pale green. Umbels terminating, erect, many-rayed. Involucrets lanceolate, acuminate, membranaceous, whitiſh, bent down. Flowers ſmall, ſnow-white; in the diſk very numerous, male with abortive piſtils. Seeds very large, erect, almoſt an inch long, lanceolate, acute, not beaked, deeply grooved, of a ſhining brown, ſweet and aromatic, crowned with the two divaricating ſtyles[t].

Dr. Stokes remarks that the umbels are lateral as well as terminating:—Mr. Woodward, that the leaves are almoſt quadruplicate pinnate. They are often ſpotted with white.

Native of Germany, Switzerland, Auſtria, the South of France, and the north part of Italy. Ray has not recorded it as indigenous of Britain: nor did Dillenius inſert it in the third edition of the Synopſis. It appears however by Buddle's herbarium, that Dr. Richardſon found it in meadows betwixt Morton and Ruſhworth, in the weſt riding of Yorkſhire. He affirms it to be certainly a native. It is frequent, as Hudſon remarks, in Weſtmoreland, Cumberland and Lancaſhire; but generally near houſes. Mr. Wood informs us that it is pretty common near Leeds, and certainly wild[u]. Mr. Whitely found it on the banks of the Derwent above Chatſworth: Mr. Ballard, in an orchard at the top of Sculſton's Roche, near Shelſley Walſh, Worceſterſhire. Mr. Dickenſon, at White Ladies, near Boſcobel, Shropſhire: Dr. Withering, at Tixall, near Stafford[x]: Dr. Sibthorp, in Roſe-lane, Oxfordſhire: Dr. Smith, behind a farm-houſe about a mile weſt of Haſod, Cardiganſhire: and Mr. Dickenſon, at Llangollen monaſtery in Denbighſhire. Mr. Lightfoot ſays it is frequent in the low-lands of Scotland, in orchards and waſte places, but always near houſes, ſo that it is probably not indigenous but naturalized[y]—and Mr. Miller, that of late years the ſeeds have been thrown out of gardens, ſo that the plants are frequently found growing naturally in their neighbourhood.] Indeed had it been as common in Ray's time as it is now, one can ſcarcely conceive how ſo large a plant could have eſcaped the ſearching eyes of ſo indefatigable a botaniſt.

It has been long cultivated in England: Gerarde (in 1597) ſays, "it groweth in my garden, and in "the gardens of other men, who have been diligent "in theſe matters."

This was one of the old medicinal plants, but it is now diſuſed. Formerly the young leaves were put into ſalads; and the roots were boiled and eaten cold or in tarts, and in a variety of ſauces—"Sweet Chervil, gathered while it is young," ſays Parkinſon, "and put among other herbs for a ſallet, adderh a marvellous good reliſh to all the reſt. Some commend the green ſeeds ſliced and put in a ſallet of herbs; and eaten with vinegar and oyle, to comfort the cold ſtomacke of the aged. The roots are uſed by divers, being boyled, and after eaten with oyle and vinegar, as an excellent ſallet for the ſame purpoſe. The preſerved or candid rootes are of ſingular good uſe to warm and comfort a cold flegmaticke ſtomack, and is thought to be a good preſervative in the time of the plague."

In Germany it is ſaid to be ſtill uſed in ſoups. It no longer appears at the table with us; but in the north of England the ſeeds are employed in poliſhing and perfuming oak floors and furniture[z].

2. Root annual, ſmall. Stem from ſix inches to a foot in height, branched, ſpreading, round and ſcarcely thickened at the joints, villoſe, at bottom purple or ſtriped with purple lines. Leaves finely cut like thoſe of wild Carrot, ſpringing from a ſheath and tripinnate: leaflets many-parted; ſegments alternate, linear, ſmoothiſh: if viewed with a microſcope thinly edged with hairs. The univerſal umbel generally conſiſts of two rays, ſometimes three: the partial of about ſeven to ten. The leaflets of the involucret are uncommonly large, ribbed, ciliate or rugged at the edge, and at the end bifid, trifid or pinnatifid. Flowers white: ſome in the middle regular and male; others in the circumference female and irregular, having the outer petals largeſt. Seeds cylindrical, ſomewhat rugged, running out into a very long beak, which is ſtarred, and has fine prickles pointing upwards at the angles[a].

Dr. Withering remarks, that the glandular receptacle crowning the germ is of a fine purple: and that by carefully dividing the germ after it has ſhot out an inch or more in length, a tube continued from the ſtyles down to the ſeeds may be diſcovered.

This plant may eaſily be known by its fine-cut leaves, its ſingular large cloven involucres, and particularly by the beaks to the ſeeds, which are two inches in length, and ſo much reſemble thoſe of Crane's-bill, that it might be miſtaken at firſt ſight for one of that genus by a novice in botany. Theſe beaks have given occaſion to the names *Pecten Veneris*, *Venus's Comb*, and *Shepherd's Needle*. In Yorkſhire it is called *Crake Needle*.

Native of Europe. With us a very common weed among

[t] Smith brit.

[u] Smith. [x] Withering. [y] Woodward, MS.

[z] Smith brit. Curtis, Fl. rust.

among corn; and though a small annual plant, it is sometimes in such abundance as to be injurious to the crop. It flowers in June, and the seeds ripen before harvest.

This plant has never been applied to any use. It is of the same genus with Chervil, and having something of the same smell and taste, might perhaps be put to the same use. But we should be cautious what substitutions we make in this natural order of umbellate plants, in which many species are poisonous. One even of this genus, *Scandix Anthriscus*, is of a suspicious character [a].

3. Native of Chili.

4. Root annual. Leaves of an exceedingly delicate texture, smooth, shining, tripinnate; with the segments deeply bipinnate; and the lobules lanceolate, shortly two-toothed or three-toothed. Stem smooth, from a foot to two feet in height, hairy only under the origin of the branches, whence always are produced two branches and a single leaf [b]. Umbels sometimes from the forks of the stem; often on peduncles from a line to an inch in length. Rays woolly, generally four, but sometimes three or five: those of the umbellets ten or twelve. Leaf of the involucret linear [c], red; sometimes there are two leaflets. Flowers white: those in the ray difform; petals emarginate, the outmost very large, the two inmost very small: those of the disk almost regular, most of them male [d]. Fruit from an ovate and transversely thicker base extending to an awl-shaped beak terminated by the two short clawed styles, elongated, smooth, blackish. Seeds smooth, having scarcely perceptible dots scattered over them, very obscurely angular, having a longitudinal groove on the inner part [e].

Native of many parts of Europe. Dr. Withering has set it down as indigenous of England, it having been found by Dr. Stokes near Worcester, in considerable plenty, on the S. E. side of the Bristol road; and in the hedges in upper and lower Old Swinford. But Dr. Smith has not admitted it into his Flora.

It flowers in may.—Gerarde cultivated it in 1597 [f]; and it was formerly much more cultivated in the English gardens than at present.

The leaves are frequently used in soups, especially by the Dutch; but whoever makes use of it should be cautious not to take the leaves of the Annual Myrrhis (Scandix Anthriscus) instead of this, as some of the Dutch soldiers did, who were in England in 1745, and were poisoned with it.

[Chervil is described as grateful to the palate and stomach, slightly aromatic, gently aperient and diuretic. Geoffroi relates, that he has found it from experience of remarkable service in the dropsy, that it acts mildly and without irritation, and abates inflammatory symptoms. He observes that it is to be used with caution where the patient is troubled with a cough or a spitting of blood, as being liable to aggravate those complaints, in consequence of a nitrous salt, by virtue of which he supposes this juice to act. The extract is manifestly saline, but more pungent than nitre, and does not visibly deflagrate in the fire. (Linneus says, sicca, in igne fulgurat, nitri instar.) Of the aromatic flavour little or nothing accompanies the juice; though water or spirit extracts the greater part of it by infusion. The aromatic part is very volatile; in distillation with water there separates a small portion of essential oil, resembling in taste, as Hoffmann observes, that of fennel seeds [g].

Haller, who is copious on the properties of Chervil, has no opinion of it in the dropsy; but thinks it may be of service in obstructions of the bowels, in external hæmorrhoids, and a stoppage of urine.

Chervil is not admitted into our practice; and has almost disappeared from our kitchens and tables.—Cows are said to be extremely fond of it; sheep and goats to eat it; and horses to refuse it [h].

5. Root annual. Stem commonly a foot or eighteen inches in height; but two or three feet or even higher in moist situations, upright, branching, cylindrical, smooth, swelled and slightly striated at the joints, generally of a green colour. Leaves tripinnate, soft and tender, hairy especially underneath and along the midrib, of a yellowish green colour: leaflets ovate, lobed. Petioles channelled, villose, embracing with a large sheath; shortening as the leaves are higher up the stem. Peduncles axillary, opposite to a leaf. The general umbel has commonly four or five rays; the umbellets five (or from two to six or seven.) General involucre wanting, though sometimes there is a single leaflet: involucret small, ovate, consisting of four or five pointed, ciliate, permanent leaflets. Flowers small, regular, almost all fertile; petals white, heart-shaped and bent in. Seeds ovate or lanceolate, dark brown, with stiff hairs or prickles curved upwards on the convex side, and a very short smooth beak [i].

The prickly fruit induced Haller, Scopoli, Wiggers, Roth, Rivinus and Withering to consider this plant as a *Caucalis*. Tournefort, Vaillant, Gmelin, Gærtner and Villars make it a *Chærophyllum*. But it is undoubtedly a species of *Scandix*, as evidently appears from the character, habit and whole structure [k].

Rough Chervil is however very distinct from Needle Chervil in the roughness of its fruit, and shortness of the beaks. In habit it approaches nearer to the true Chervil, but may be easily distinguished from it by the want of that pleasant smell which Chervil possesses when rubbed; but especially by the seeds, which in Chervil are black, smooth and glossy, longer and narrower, with two blunt ridges. This rough Chervil can scarcely be confounded with true Hemlock (Conium maculatum,) that being a much taller plant, with a spotted stalk, the leaves perfectly smooth, not so finely divided, and of a darker green; having a general involucre and smooth seeds: the strong hircine smell also betrays the Hemlock.

This rough Chervil, or Hemlock Chervil, as our older writers call it, is common by way sides, on banks, in hedges, and under walls: flowering in may and june [l].

Mr. Miller relates, that there have been some instances of the ill effects of this plant when taken inwardly; some who have eaten this herb in soups, by mistaking it for Garden Chervil, having narrowly escaped with their lives. He mentions a case of the Dutch soldiers who were in England in 1745. [I have not seen his account of its poisonous quality confirmed by any other writer.]

6. This is an annual plant with long spreading stalks, and very narrow fine-cut leaves, placed thinly. The flowers are small, white, in terminating umbels. Seeds awl-shaped and rough.

[Gerard and Villars consider it as a variety of Pecten Veneris, with finer cut leaves; the plant is lower, and the seeds are sensibly villose [m].

Native of the South of France, Italy and Candia. Cultivated in England in 1713 [n].

7. Root annual. Stem rugged with soft reflexed prickles: the joints thickened above. Leaves triternate, gashed, rugged, patulous. Umbel of two or three rays: umbellet of five or six. Involucre none: involucrets two or three-leaved, awl-shaped, small. Fruits long, cylindrical, blunt at both ends, rugged, hispid with ascending hairs.—Native of Sicily [o].

8. Root annual. Stems several, oblique, half a foot high, branched, flexuose, almost smooth. Leaves bipinnate, smooth, paler beneath: leaflets ovate-lanceolate, gash-serrate, rugged at the edge: petioles somewhat hairy. Peduncles opposite to a leaf. Umbel general umbel of three or four unequal rays: umbellets three or twelve, almost equal. Involucrets of four awl-shaped leaflets, the length of the umbellets. Flowers regular, flesh-coloured, fertile.—Native of [illegible]

9. Root annual. Stem erect, about a foot [illegible] a pot,) rugged. Leaves like those of Sc. Cerefolium. Umbel five-cleft: umbellets hemispherical, crowded. Involucrets seven-leaved, awl-shaped, not reflexed.

[a] Curtis, Fl. rust. [b] Haller. [c] Stokes in Withering. [d] Haller. [e] Gærtner. [f] Hort. kew. [g] Lewis mat. med. [h] Withering. [i] Smith brit. Curtis, Fl. rust. [k] Smith brit. [l] Fl. rust. [m] Villars. [n] Hort. kew. [o] Linn. spec. and mant. [p] Linn. mant.

Flowers subradiate, white: florets about six fertile, the reſt male. Stamens longer than the florets, with purpliſh anthers. Outer ſeed hiſpid with jointed ſpines: inner rugged only, like both ſeeds of the central floret[1]. It is doubtful whether this be the ſame with *Sc. infeſta* of Foſkahl. According to Reichard it is not *Sc. infeſta* of Jacquin.—We do not know where it is a native.]

10. This is an annual plant with fine-cut leaves. The ſtalks riſe eight inches high, have at each joint a fine-cut leaf, and are terminated by an umbel of white flowers, with large heart-ſhaped petals. The horns (beaks) of this are longer than any of the other ſorts, and the peduncles are very hairy.

Native of the Levant, where it was found by Tournefort. [Cultivated by Mr. Miller in 1759.]

11. This is a low trailing plant, native of Virginia. [Cultivated by Mr. Miller in 1768.]

PROPAGATION AND CULTURE.

1, 2, 5, 6, 10, 11. Theſe will increaſe faſt by ſeeds, which, if permitted to ſcatter, will produce plenty of plants; theſe may be left in their place, or tranſplanted to any part of the garden, for they will grow in any ſoil or ſituation, and require no care.

4. Sow the ſeeds of Chervil in autumn, ſoon after they are ripe, either in drills or broad-caſt. Seeds ſown in the ſpring rarely come up, and if they do, the plants never thrive, for as ſoon as the warm weather ſets in, they ſoon wither and decay; whereas the plants which riſe in autumn, continue green all the winter, and in april they flower; ſoon after which the ſeeds ripen, and the whole plants decay. [This ſpecies will alſo maintain itſelf by ſcattered ſeeds.

SCANDIX. See *Aphanes*, *Caucalis*, *Chærophyllum*.

SCARIOLA. See *Lactuca*.

Scarlet Bean. See *Phaſeolus*.

——— Cardinal Flower. See *Lobelia Cardinalis*.

——— Convolvulus. See *Ipomœa*.

——— Horſe Cheſtnut. See *Pavia*.

——— Jaſmin. See *Bignonia*.

——— Lupin. See *Lathyrus*.

——— Lychnis. See *Lychnis*.

——— Oak. See *Quercus*.

SCEMBRA VALLI. See *Vitis indica*.

SCEPTRUM CAROLINUM. See *Pedicularis*.

SCEURA MARINA. See *Avicennia tomentoſa*.

SCHADAVELI KELANGU. See *Aſparagus*.

SCHADIDAGALLI. See *Euphorbia*.

SCHÆFFERA. (*So named by Jacquin, in honour of Jacob Chriſtian Schæffer, ſuperintendant of the church at Ratiſbon; author of* Studii Botanici Methodus, 1758.—Isagoge in Botanicam, 1759.—Fungi, 1759. Botanica expeditior. 1760.

Lin. gen. Schreb. n. 1507. Scheefferia. *Swartz prodr.* 38. *deſcr. t.* 7. *f.* B. *Jacqu. amer.* 259. *Juſſ.* 426.

Claſs 22. 4. Dioecia Tetrandria.

GENERIC CHARACTER.

* *Male.*

CAL. *Perianth* four or five-leaved: *leaflets* ovate, concave, ſpreading.

COR. *Petals* four, lanceolate-ovate, ſpreading; or in place of theſe a four-cornered, convex *Nectary*, in the middle of the flower.

STAM. *Filaments* four, ſubulate, erect. *Anthers* roundiſh, erect.

PIST. Rudiment of a *Germ*, without ſtyle or ſtigma.

* *Female.*

CAL. *Perianth* one-leafed four or five-parted, inferior: *ſegments* obtuſe, ſpreading.

COR. *Petals* four, lanceolate-ovate, concave, wider at the end, ſpreading, deciduous; or in place of theſe a *Nectary*, which is a fleſhy rim about the germ.

PIST. *Germ* roundiſh. *Styles* two, very ſhort, reflexed. *Stigmas* bifid or entire compreſſed-headed.

PER. *Berry* roundiſh, two-celled.

SEEDS ſolitary, hemiſpherical.

ESSENTIAL CHARACTER.

MALE. *Cal.* four or five-leaved. *Cor.* four-petalled or none.

[1] Linn. ſyſt.

FEM. *Cal.* four or five-parted. *Cor.* four-parted or none. *Berry* two-celled. *Seeds* ſolitary.

SPECIES.

1. Schæfferia completa.
Swartz prodr. 38. *deſcr.* 327.
S. fruteſcens. *Jacqu. amer.* 259.
Buxi folio majore acuminato, arbor baccifera, fructu minore croceo dipyreno. *Sloan. jam.* 2. 102. *t.* 209. *f.* 1.*
Flowers four-petalled axillary.
2. Schæfferia lateriflora.
Swartz prodr. 38. *deſcr.* 329.
Flowers lateral apetalous.

DESCRIPTIONS, &c.

1. This is a ſmall tree or a ſhrub. Trunk upright, with a ſmooth aſh-coloured bark. Branches almoſt upright, unequal, rigid, ſmooth. Leaves on ſhort petioles, alternately ſmaller, ovate acute, almoſt entire or very ſlightly crenate, veined, rigid, with the end recurved a little, green, ſhining. Peduncles ſeveral crowded many times ſhorter than the leaves, one-flowered, deciduous, having ſmall calyx-form ſcalelets at their baſe. Flowers white*.

Jacquin, who firſt diſcovered and named this ſpecies, ſays it is a ſhrub ten feet high; in thick copſices frequently throwing out very long branches like the vine. Leaves lanceolate-ovate or ovate-rouniſh, acute or obtuſe, quite entire, greaſy to the touch, deciduous, coming out afreſh after the flowers burſt forth, one, two or three from the ſame tubercle in alternate order. Flowers ſmall. Berries the ſize of a ſmall pea, yelloviſh red.

Native of the Weſt Indies. Diſcovered by Jacquin about Carthagena in New Spain, flowering in july, and ripening its fruit in ſeptember. Sloane found it in Jamaica. Swartz in the ſame iſland and in Hiſpaniola. The latter ſaw it flowering twice in the year, in january and june.

2. This is a ſmall tree, with the trunk a fathom high or more, upright and ſmooth; and the branches round, ſmooth, aſh-coloured. Leaves alternate, ovate-acuminate, membranaceous, ſtiffiſh, brownish-green, beautifully veined and ſomewhat reticulate. Peduncles lateral, aggregate on the branches below the leaves, ſubſeſſile or on very ſhort pedicels, whitiſh green. Calyx, in the male, ſometimes but ſeldom five-leaved, white-ciliate, two ſmaller. Inſtead of the petals a ſmall yellow ſubvilloſe body in the middle of the calyx, which may be called a nectary. Filaments four or five, longer than the calyx, villoſe at the baſe. Anthers twin, yellow, villoſe. Calyx, in the female, four or five-parted, ciliate. A compreſſed fleſhy yellow rim at the baſe of the germ inſtead of petals. Berry the ſize of a large pepper-corn, pubeſcent, ſcarlet when ripe. It flowers in february; and was diſcovered in the iſland of Hiſpaniola by Swartz; who thinks it may perhaps be of a different genus from the preceding ſpecies*.

SCHAGERI-COTTAM. See *Grewia*.

SCHEFFLERA. (*So named by Forſter, in honour of Scheffler, phyſician and botaniſt at Dantzic, who inſerted many new plants in Royger's* Flora Gedanenſis.)

Lin. gen. Schreb. n. 537. *Forſt. gen. t.* 23. *Juſſ.* 429.

Claſs 5. 6. Pentandria Decagynia.

GENERIC CHARACTER.

CAL. *Perianth* very ſmall, five-toothed, ſuperior, permanent: *ſegments* awl-ſhaped.

COR. *Petals* five, oblong.

STAM. *Filaments* five, filiform, ſcarcely longer than the petals. *Anthers* roundiſh.

PIST. *Germ* globular-depreſſed, inferior. *Styles* eight or ten, round, ſhort, permanent. *Stigmas* ſimple.

PER. *Capſule* globular-depreſſed, eight or ten-celled.

SEEDS ſolitary, ſemicircular, compreſſed.

ESSENTIAL CHARACTER.

Cal. five-toothed. *Cor.* five-petalled. *Capſ.* eight or ten-celled. *Seeds* ſolitary, ſemicircular.

* Swartz. * Idem.

SPECIES.

1. Schefflera digitata.
Forſt. gen. 46. prodr. n. 146.
Native of New Zealand.

SCHERUBALA. See *Illecebrum.*

SCHERUNAM-COTTAM. See *Clutia* and *Cleytia.*

SCHERU-PARITTI. See *Hibiſcus Roſa-ſinenſis.*

SCHETTI. See *Ixora* and *Plumbago.*]

SCHEUCHZERIA. *(So named by Linnæus, in memory of the two brothers, John James, profeſſor of mathematics at Zurich, author of* Itinera Alpina; *and John Scheuchzer, profeſſor of phyſics at Zurich, author of a famous treatiſe on Graſſes.)*
Lin. gen. n. 452. Reich. n. 487. Schreb. n. 615. Fl. lapp. t. 10. f. 1. Juſſ. 46.
Claſſ. 6. 3. Hexandria Trigynia.
Nat. order of *Tripetaloideæ. Juncі*, Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* ſix-parted: *leaflets* oblong, acute, reflex-ſpreading, rude, permanent.
COR. none.
STAM. *Filaments* ſix, capillary, very ſhort, flaccid. *Anthers* erect, obtuſe, very long, compreſſed.
PIST. *Germ* three, ovate, compreſſed, ſize of the calyx. *Styles* none. *Stigmas* oblong, blunt at top, faſtened outwardly to the germ.
PER. *Capſules* as many as there are germs, roundiſh, compreſſed, inflated, reflex-diſtant, two-valved.
SEEDS ſolitary, oblong.
OBS. *Number of the germs and capſules varying from three to ſix; but three is the moſt natural number.*

ESSENTIAL CHARACTER.

Cal. ſix-parted. *Cor.* none. *Styles* none. *Capſ.* three, inflated, one-ſeeded.

SPECIES.

1. Scheuchzeria paluſtris.
Lin. ſpec. 482. Jyſt. 348. Reich. 2. 125. Willd. 2. 263. fl. lapp. n. 133. ſuec. n. 320. Hall. helv. n. 1310. Gmel. ſib. 1. 73. Fl. dan. t. 76. Pollich pal. n. 363. Hoffm. germ. 130. Roth. germ. 1. 159. 2. 419. Kœck. ſilef. n. 474. Villars dauph. 2. 227.
Juncus floridus minor. *Bauh. pin. 12. prodr. 43. theat. 160. Rudb. elyſ. 1. 110. f. 2. Raii hiſt. 1913.*
Juncoid affinis paluſtris. *Scheuch. gram. 336.*
Gramen junceum aquaticum, ſemine racemoſo. *Leeſ. pruſſ. 114. t. 28.*

[DESCRIPTION, &c.

Root perennial, creeping, jointed, covered at top with ſcales, which are the relics of departed leaves, among which it puts forth fibres. Stem upright, ſimple, a ſpan high, round. Root-leaves few: ſtem-leaves two, one involving the baſe of the ſtem with its ſheath, the other a little higher, each ſhorter than the ſtem. Villars remarks, that there are two or three joints on the ſtem, with a leaf at each, which is firm, rolled back, a little recurved, pointed and cylindrical. The floral leaves come out above the middle of the ſtem alternately, moſt frequently five in number, the lower ones longer, each proceeding from a ſheath, which is looſe and does not invert the upper part of the culm. Flowers from each axil of the floral leaves ſolitary, on upright pedunculs, of a yelloviſh-green colour. Germs commonly three, but frequently four or five in a flower[y]. Pollich ſays, from three to ſix capſules to a flower; and one or two, ſometimes but ſeldom three ſeeds in a capſule.

Native of Lapland, Sweden, Denmark, Germany, Switzerland, Pruſſia, Dauphiné, Siberia, in marſhes.

SCHEUCHZERIA. See *Antherieum.*

SCHINOIDES. See *Fagara.*]

SCHINUS. (Σχῖνος *of Athenæus. From* σχίζω, *findo, to cleave.*)
Lin. gen. n. 1130. Reich. n. 1234. Schreb. n. 1539. Juſſ. 371. Gærtn. t. 140. Molle. Tournef.
Claſſ. 22. 9. Dioecia Decandria.
Nat. order of *Dumoſæ. Terebinthaceæ*, Juſſ.

GENERIC CHARACTER.

* *Male.*
CAL. *Perianth* one-leafed, five-parted, ſpreading, acute.
COR. *Petals* five, oval, ſpreading, petioled.
STAM. *Filaments* ten, filiform, length of the corolla, ſpreading. *Anthers* roundiſh.
PIST. Rudiment without a ſtigma.

* *Female.*
CAL. *Perianth* one-leafed, five-parted, acute, permanent.
COR. *Petals* five, oblong, ſpreading, petioled.
PIST. *Germ* roundiſh. *Style* none. *Stigmas* three, ovate.
PER. *Berry* globular, three-celled.
SEEDS ſolitary, globular.

ESSENTIAL CHARACTER.

Cal. five-parted. *Pet.* five.
FEM. *Berry* three-celled?

SPECIES.

1. Schinus Molle. *Peruvian Maſtick Tree.*
Lin. ſpec. 1467. Jyſt. 891. Reich. 4. 269. hort. cliff. 483. Gærtn. fruct. 2. 276. Mill. fig. 246.
Lentiſcus peruana. *Bauh. pin. 399. Raii hiſt. 1582. Park. theat. 1525.*
L. per. ſ. Molle arbor. *Jonſt. dendr. t. 84. f. 1.*
L. africana. *Seb. muſ. 2. t. 4. f. 5.*
Molle. *Cluſ. cur. poſt. 50. monard. 322. Ger. 1346. emac. 1530.*
Leaves pinnate, leaflets ſerrate with the end one very long, petioles equal.
2. Schinus Areira. *Braſilian Maſtick Tree.*
Lin. ſpec. 1467. Jyſt. 891. Reich. 4. 269.
Molle foliis non ſerratis. *Feuill. peruv. 3. 43. t. 30.*
Piperodendron Heiſt. *Fabric. helmſt. 397.*
Leaves pinnate, leaflets quite entire equal, petioles equal.

DESCRIPTION, &c.

1. This riſes with a woody ſtem eight or ten feet high, dividing into many branches, covered with a brown rough bark. Leaves alternate on the branches, compoſed of ſeveral pairs of leaflets from ten to fifteen, each about an inch and half long, and a quarter of an inch broad at the baſe, leſſening gradually to the point, and having a few ſerratures on their edges; they are of a lucid green, and emit a turpentine odour when bruiſed. The flowers are produced in looſe bunches at the end of the branches; they are very ſmall, white, and have no odour.

[Linneus remarks, that the female flowers have ſtamens, but that they are barren.

Gærtner deſcribes the berry as ſpherical, the ſize of a pea, ſucculent, one-celled, one-ſeeded: cuticle papery, very ſmooth, ſhining, whitiſh: pulp fugacious: ſhell cartilaginous, hard, but it may be cut when ſoftened, ovate-turbinate, very obſcurely angular, ſomewhat wrinkled, divided into ſeveral cells, the central cell larger and having a ſeed in it, the outer ones (ſix at moſt) ſpurious, narrow, abounding in a fragrant aromatic oil. Seed one in each ſhell, of the ſame ſhape with the central cavity, or obovate, irregularly and deeply angular, acuminate downwards, pale.

The number of ſeeds is variouſly given by different authors. Adanſon and Gærtner ſaw only one ſhell. Feuillée mentions two ſeeds having the taſte of pepper, in the middle of a bright red berry filled with a gummy ſubſtance. All other authors aſcribe three ſeeds to Schinus[z].

Native of Peru.] Mr. Miller ſays, he has received the ſeeds both from Peru and Mexico. [The Maſtick tree was cultivated by Gerarde before 1597[a]. As alſo by Mr. Nicholas Lete, merchant of London, and Mr. James Garret, a moſt ſkilful apothecary, who received the ſeeds from Lord Hunſdon, Lord High Chamberlain of England; worthy (ſays Gerarde) to triumph honour for his care in getting, as alſo [illegible] keeping rare things brought from the [illegible] the world: which ſeeds we have ſown in our gar[illegible] where they have brought forth plants of a foot hi[illegible] and alſo their beautiful leaves: but notwithſtan[illegible] our care, diligence and induſtry, they have perish[illegible] at the firſt approach of winter, as not being able by

y Linn. lapp.

z Gærtner. a Hort. kew.

reaſon

reaſon of their tenderneſs to indure the cold of our winter blaſts[a]. And yet we have them now in our greenhouſes.]

2. This differs from the preceding only in having the leaflets entire and all equal in ſize. [Auſtroemer remarks, that the fructification is quite the ſame as in the other:—Fabricius, that the ſtamens are from eight to eleven in number.—Native of Braſil and Peru.]

PROPAGATION AND CULTURE.

This plant is propagated beſt by ſeeds, which muſt be procured from the countries where they naturally grow: theſe ſhould be ſown in pots filled with freſh earth, and plunged into a moderate hot-bed. If the ſeeds are good, the plants will appear in about five or ſix weeks: and if they are properly managed by admitting freſh air daily to them, according to the warmth of the ſeaſon, and are duly refreſhed with water, they will be fit to tranſplant in about five or ſix weeks after, when they ſhould be carefully turned out of the pots and their roots ſeparated: then they muſt be each planted in a ſmall pot filled with ſoft loamy earth, and plunged again into a moderate hot-bed, ſhading them from the ſun till they have taken freſh root; then they muſt be gradually inured to the open air, into which they ſhould be removed ſoon after, placing them in a ſheltered ſituation, where they may remain till autumn, but they muſt be removed into ſhelter before the firſt froſts, otherwiſe their tops will be killed, and thereby the plants are frequently deſtroyed.

Theſe plants being tender when young, require a little warmth in winter; but after two or three years growth, they will live in a good green-houſe, where, as they retain their leaves all the year, they will make a good variety. It may alſo be propagated by layers and cuttings; the layers ſhould be put down in the ſpring, and by the following ſpring they will be rooted; the cuttings ſhould be planted in april, which will put out roots in about two months, and may afterwards be treated as the ſeedling plants.

2. The ſecond ſort may be propagated in the ſame manner; but the young plants being much more tender, will require to be placed in a moderate ſtove for four or five winters, after which they may be kept in a good green-houſe, giving them little water in winter.

[SCHINUS. See *Fagara* and *Lixunia*.

SCHIT-ELU. See *Seſamum*.

SCHMIDELIA. (*So named by Linnæus, in honour of Caſimir Chriſtopher Schmidel, profeſſor of botany at Erlang, author of* Icones et Analyſes Plantarum, *1747 and 1763.—*Gelneri Botanica, *and various diſſertations.*)

Lin. gen. Reich. n. 533. *Schreb. n.* 672. *Juſſ.* 247. Uſubis. *Burm. ind.* 81. Toxicodendrum. *Gærtn. t.* 44. Rhus Cobbe. *Lin. ſpec.*

Claſſ. 8. 2. Octandria Digynia.

Nat. order of *Sapindi*, Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* two-leaved: *leaflets* roundiſh, coloured, permanent.

COR. *Petals* four, roundiſh, ſeſſile, erect.

STAM. *Filaments* eight, ſimple, length of the flower. *Anthers* roundiſh.

PIST. *Germs* two, pedicelled, compreſſed, longer than the flower. *Styles* filiform, bifid at the top. *Stigmas* ſimple.

PER. *Berries* two, ſubglobular.

SEEDS ſolitary.

ESSENTIAL CHARACTER.

Cal. two-leaved. *Cor.* four-petalled. *Germs* pedicelled, longer than the flower.

SPECIES.

1. Schmidelia racemoſa.

Lin. ſyſt. 375. *Reich.* 2. 201. *Willd.* 2. 435. *mant.* 67. 514.

Rhus Cobbe. *Lin. ſpec.* 382.

Uſubis triphylla. *Burm. ind.* 81. *t.* 32. *f.* 1.

[a] Gerarde herb.

Toxicodendrum Cobbe. *Gærtn. fruct.* 1. 207.

Kobbæ. *Zoſt. Linn. ſyſt. n.* 441.

DESCRIPTION, *&c.*

This is a tree in appearance reſembling *Rhus trifoliata*, with flexuoſe branches as in *Rhus Toxicodendron*. Leaves alternate, ternate: leaflets petioled, ovate-oblong, acuminate, ſubſerrate, naked. Common petioles round, ſubtomentoſe, the length of the leaves. Racemes axillary, ſimple, with many ſcattered flowers at each point[a].

Berry ſuperior, oblong-ſphæroidal, produced at the baſe into a point faſtened to the calyx, fleſhy, ſmooth, black, one-celled. Seed ſingle, ovate, large, adhering all round to the pulp of the berry. It differs from Rhus in having the ſeed erect, and the radicle of the embryo not bent in[a].

Native of the Eaſt Indies.

SCHOENANTHUS. See *Andropogon* and *Apluda*.

SCHOENOIDES. See *Scirpus*.

SCHOENOPRASUM. See *Allium*.

SCHOENUS. (Σχοινος of *Dioſcorides*. *From* σχοινος, *funis, a rope; in making which this plant is adapted: from* σχω, *retinere.*)

Lin. gen. n. 65. *Reich. n.* 71. *Schreb. n.* 92 *Juſſ.* 27. Cyperella. *Mich.* 31. Pſeudocyperus. *Mich.* 31. Melanoſchoenus. *Mich. gen.* 31.

Claſſ. 3. 1. Triandria Monogynia.

Nat. order of *Calamariæ*. *Cyperoideæ*, Juſſ.

GENERIC CHARACTER.

CAL. *Glumes* chaffy, one-valved, heaped.

COR. none.

STAM. *Filaments* three, capillary. *Anthers* oblong, erect.

PIST. Germ ovate-three-ſided, obtuſe. *Style* briſtle-ſhaped, length of the corolla. *Stigma* bifid or trifid, ſlender.

PER. none.

SEED ſingle, roundiſh, among the glumes.

OBS. *There are ſome ſpecies in which a few very ſmall briſtles ſpringing from the proper receptacle ſurround the ſeed.*

ESSENTIAL CHARACTER.

Glumes chaffy, (one-valved,) heaped, the outer ones barren. *Cor.* none. *Seed* one, roundiſh among the glumes.

SPECIES.

* *With a round culm.*

1. Schoenus Mariſcus. *Prickly or long-rooted Bog-ruſh.*

Lin. ſpec. 62. *Reich.* 1. 117. *Willd.* 1. 259. *fl. ſuec. n.* 38. *Smith brit.* 43. *Hudſ. angl.* 14. *Wither. arr. ed.* 3. 79. *Relh. cant. n.* 30. *Roth. germ.* 1. 19. 2. 46. *Hoffm. germ.* 14. *Neck. gallich.* 21. *Krock. ſilef. n.* 62. *Villars dauph.* 2. 185. *Allion. pedem. n.* 2372. *Jacqu. collect.* 3. 72. *Deſfont. atlant.* 42.

Mariſcus paniculâ ramoſâ foliorum oris dorſoque ſerrato. *Hall. helv. n.* 1343.

Cyperus longus inodorus germanicus. *Bauh. pin.* 14. *theat.* 221.

C. longus inodorus ſylveſtris. *Lob. ic.* 76. 1. *Bauh. hiſt.* 2. 504. 1. *Ger. emac.* 29. 3. *Raii hiſt.* 1300. *ſyn.* 426.—vulgaris. *Park. theat.* 1264. 1.

C. longus major & elatior, foliis & carina ſerratis. *Mor. hiſt. ſ.* 8. *t.* 11. *f.* 24.

Pſeudo-cyperus paluſtris, foliis & carina ſerratis. *Schwenck. gram.* 375. *t.* 8. *f.* 7—11.

Scirpus paluſtris altiſſimus, fol. & carina ſerratis. *Tourn. inſt.* 528.

Gramen cyperoides altiſſimum, foliis et carina ſerratis. *Bocc. ſic.* 72. *t.* 39.

Culm round, leaves prickly along the edge and back.

2. Schoenus junceus. *Ruſhy Bog-ruſh.*

Lin. ſpec. ed. Willd. 1. 259. *phyt.* 1. 2. *n.* 9. *t.* 1. *f.* 4.

Culm round almoſt naked, umbel ſeſſile lateral.

3. Schoenus mucronatus. *Dagger-pointed* or *cluſtered Bog-ruſh.*

Lin. ſpec. 63. *ſyſt.* 95. *Reich.* 1. 117. *Willd.* 1. 259. *Allion. pedem. n.* 2373. *Deſfont. atlant.* 41.

[a] Linn. mant. [a] Gærtner.

Cyperus ægyptiacus. *Glexin obſ.* 20. *t.* 3.
Juncus maritimus. *Leb. ic.* 87.—panicula ſubrotunda glumoſa. *Barr. ic.* 203. *f.* 1.
Melanoſchoenus maritimus humilis, cyperi effigie. *Mich. gen.* 46.
Scirpus culmo tereti, foliis tribus patulis floſculiſque congeſtis terminato. *Sauv. monſp.* 9.
S. maritimus, capite glomerato. *Tournef. inſt.* 528. *Scheuch. gram.* 367. *t.* 8. *f.* 1.
Gramen cyperoides maritimum. *Baub. pin.* 6. *theat.* 91. *Baub. hiſt.* 2. 498.
Gr. juncеum, marit. capite ſquamoſo foliaceo. *Mor. hiſt.* 3. 227. *ſ.* 8. *t.* 9. *f.* 6.
Culm round naked, ſpikelets ovate in bundles, involucre ſix-leaved, leaves channelled.
4. Schoenus piloſus. *Hairy Bog-ruſh.*
Lin. ſpec. ed. Willd. 1. 260. *phyt.* 1. 3. *n.* 10. *t.* 1. *f.* 3.
Culm round, ſheaths of the leaves hairy, flowers in bundles.
5. Schoenus filiformis. *Slender-ſtalked Bog-ruſh.*
Lin. ſpec. ed. Willd. 1. 260. *Thunb. prodr.* 16. *Pluk. amalth. t.* 416. *f.* 1.
S. indicus. *Lamarck encycl.* 1. 733.
Culm round capillary, head oblong, involucre three-leaved.
6. Schoenus ſtriatus. *Striated Bog-ruſh.*
Lin. ſpec. ed. Willd. 1. 260. *Thunb. prodr.* 16.
Culm round, head ovate, involucre three-leaved.
7. Schoenus Capitellum.
Lin. ſpec. ed. Willd. 1. 260. *Thunb. prodr.* 16.
Culm round, head ovate, involucre two-leaved.
8. Schoenus ſcariosus.
Lin. ſpec. ed. Willd. 1. 261. *Thunb. prodr.* 16.
S. deuſtus. *Berg. cap.* 10.
S. trigynus. *Lin. mant.* 180.
S. bulboſus. *Roſtb. gram.* 46. *t.* 16. *f.* 2.
Culm round, head oblong, involucre one-leafed, glumes ſcariose at the edge.
9. Schoenus nigricans. *Black Bog-ruſh.*
Lin. ſpec. 64. *Reich.* 1. 118. *Willd.* 1. 261. *fl. ſuec. n.* 39. *Hudſ. angl.* 15. *Smith brit.* 43. *Relh. cant, n.* 31. *Sibth. oxon. n.* 63. *Dickſ. hort. ſicc.* 1. 1. *Roth. germ.* 1. 19. 2. 47. *Hoffm. germ.* 14. *Pollich pal. n.* 37. *Krock. ſileſ. n.* 64. *Villars dauph.* 2. 185. *Allion. pedem. n.* 2374. *Thunb. prodr.* 19. *Desfont. atlant.* 41. *Lamarck illuſtr. n.* 626. *t.* 38. *f.* 1.
Cyperus. *Hall. helv. n.* 1347.
Scirpus floſculis ſpicatis. *Act. ſtock.* 1741. *p.* 182.
Juncus lævis minor, panicula glomerata nigricante. *Raii hiſt.* 1305. *ſyn.* 430. *Mor. hiſt.* 3. 233. *ſ.* 8. *t.* 10. *f.* 28.
J. lithoſpermi ſemine. *Magn. monſp.* 145. *t.* 144. *Mor. hiſ.* 106.
J. paluſtris panic. glom. ex rubro nigricante. *Raii cant.*
Junco affinis capitulo glomerato nigricante. *Scheuch. gram.* 349. *t.* 7. *f.* 13, 14, 15.
Gramen ſpicatum junci facie, Lithoſpermi ſemine. *Tourn. inſt.* 518.
Culm round naked, head ovate, involucre two-leaved with one of the valves awl-shaped and longer.
10. Schoenus compreſſus. *Compreſſed Bog-ruſh.*
Lin. ſpec. 65. *ſyſt.* 95. *Reich.* 1. 121. *Hudſ. angl.* 15. *Wither. arr. ed.* 3. 80. *Smith brit.* 44. *Engl. bot. t.* 791. *Relh. cant. n.* 32. *Dickſ. hort. ſicc.* 3. 2. *Leers herborn. n.* 32. *t.* 1. *f.* 1. *Pollich pal. n.* 38. *t.* 1. *f.* 2. *Krock. ſileſ. n.* 65. *t.* 9. *Villars dauph.* 2. 186. *Allion. pedem. n.* 2375. *Reliqu. Rudb.* 3. *f.* 2. *Hall. helv. n.* 1342. (Scirpus.) *Mich. gen.* 53. *t.* 31. (Cyperella 3.)
Carex uliginoſa. *Lin. ſpec.* 1381. *fl. ſuec. n.* 325.
Scirpus Caricis. *Lin. ſpec. ed. Willd.* 292.
Gramen cyperoides ſpica ſimplici compreſſa diſticha. *Pluk. phyt. t.* 34. *f.* 9. *Raii hiſt.* 1910. *ſyn.* 425. *Mor. hiſt.* 3. 245. *Scheuch. gram.* 490. *t.* 11. *f.* 6.
Culm roundiſh naked, ſpike diſtich ſhorter than the one-leafed involucre, ſpikelets many-flowered, leaves flat.
11. Schoenus ferrugineus. *Ruſt-coloured Bog ruſh.*
Lin. ſpec. 64 *Reich.* 118. *Willd.* 1. 261. *Fl. ſuec. n.* 40. *Hoffm. germ.* 14. *Villars dauph.* 2. 186.

Culm round naked, ſpike double, larger valve of the involucre equal to the ſpike.
12. Schoenus ruſus. *Brown Bog-ruſh.*
Hudſ. angl. 15. *Wither. arr. ed.* 3. 80. *Smith brit.* 45. *Dickſ. hort. ſicc.* 10. 6.
S. brunеus. *Soland. Miſs. in herb. Lightf.*
S. ferrugineus. *Hudſ. angl.* 15. *Wither. arr. ed.* 2. 42. *Lightf. ſcot.* 86.
S. compreſſi varietas. *Lightf. ſ.ot.* 1138. *t.* 24. *f.* 2.
Culm round naked, ſpike diſtich longer than the one-leafed blunt involucre, ſpikelets few-flowered, leaflets channelled.
13. Schoenus fuſcus. *Duſky Bog-ruſh.*
Lin. ſpec. 1664. *ſyſt.* 95. *Reich.* 1. 119. *Willd.* 1. 262. *Hoffm. germ.* 15. *Roth. germ.* 1. 19. 2. 48. *Pollich pal. n.* 40. *Mich. gen.* 53. (Cyperella 2.) *Mor. hiſt. ſ.* 8. *t.* 11. *f.* 40. (Cyperus.)
Culm round leafy, ſpikelets ſubſeſcicled, leaves filiform channelled.
14. Schoenus triſtachyos. *Three-ſpiked Bog-ruſh.*
Lin. ſpec. ed. Willd. 1. 262. *Thunb. prodr.* 16.
Culm round jointed even, heads three terminating.
15. Schoenus cuſpidatus. *Cuſped Bog-ruſh.*
Lin. ſpec. ed. Willd. 1. 262. *Thunb. prodr.* 16. *Roth. germ.* 66. *t.* 18. *f.* 3.
Culm round, ſpikes panicled ſhorter than the involucres.
16. Schoenus ariſtatus. *Awned Bog-ruſh.*
Lin. ſpec. ed. Willd. 1. 262. *Thunb. prodr.* 16.
Culm round leafleſs, ſpikes aggregate, involucre one-leafed, glumes cuſped.
17. Schoenus compar. *Equal-ſpiked Bog-ruſh.*
Lin. ſyſt. 95. *Reich.* 1. 119. *Willd.* 1. 263. *mant.* 127. *Thunb. prodr.* 16. *Roth. gram.* 65. *t.* 18. *f.* 4.
Culm round leafleſs, ſpikes aggregate, involucres one-leafed ſhorter, glumes acute.
18. Schoenus flexuoſus. *Flexuoſe Bog-ruſh.*
Lin. ſpec. ed. Willd. 1. 263. *Thunb. prodr.* 16.
S. involucratus. *Roth. gram.* 64. *t.* 19. *f.* 5?
Culm round leafy, ſpikes panicled, glumes mucronate.
19. Schoenus capillaceus. *Hair-leaved Bog-ruſh.*
Lin. ſpec. ed. Willd. 1. 263. *Thunb. prodr.* 16.
Culm round leafy, ſpikes ſubracemed, glumes cuſped, leaves capillary.
20. Schoenus uſtulatus. *Burnt Bog-ruſh.*
Lin. ſyſt. 95. *Reich.* 1. 119. *Willd.* 1. 263. *mant.* 178. *Thunb. prodr.* 16. *Roth. gram.* 63. *t.* 18. *f.* 1.
Culm round leafy, ſpikes peduncled pendulous oblong awned.
21. Schoenus ſpicatus. *Spiked Bog-ruſh.*
Lin. ſpec. ed. Willd. 1. 264. *Thunb. prod.* 16.
Culm round capillary, heads ſpiked involucred.
22. Schoenus Bobartiæ.
Lin. ſpec. ed. Willd. 1. 264. *Retz. obſ.* 4. 9.
Culm compreſſed, head terminating, involucre five-leaved.
23. Schoenus ſtellatus. *Starry Bog-ruſh.*
Lin. ſpec. ed. Willd. 1. 264. *Schwartz prodr.* 19. *deſcr.* 102. *Lamarck encycl.* 1. 733. *Sloan. jam.* 1. 119. *t.* 78. *f.* 1. *Raii hiſt.* 3. 624.
Culm ſubtriquetrous, ſpikelets conglomerate, with a leafy involucre coloured at the baſe.
24. Schoenus bulboſus. *Bulbous Bog-ruſh.*
Lin. ſyſt. 95. *Reich.* 1. 120. *Willd.* 1. 264. *mant.* 178. *Thunb. prodr.* 16.
Scirpus capenſis. *Roth. gram.* 53. *t.* 16. *f.* 3.
Culm round ſiſtrous, ſpikes racemed divided one way, involucres ſolitary.
25. Schoenus inanis.
Lin. ſpec. ed. Willd. 1. 265. *Thunb. prodr.* 16.
Culm round leafleſs, ſpikes panicled, glumes awned.

** *With a three-ſided culm.*

26. Schoenus cephalotes.
Lin. ſpec. ed. Willd. 1. 265. *Roth. t.* 20.
Culm leafy three-ſided, involucre four-leaved, [illegible] head oblong terminating.
27. Schoenus cyperoides.
Lin. ſpec. ed. Willd. 1. 265. *Swartz prodr.* 19. *deſcr.* 110.
Culm three-ſided leafy, umbel terminating, ſpikelets glomerate.

28. Schoenus

28. Schoenus cymoſus.
Lin. ſpec. ed. Willd. 1. 265.
Culm three-ſided leafy, umbel terminating compound, ſpikelets ovate ſtriated glomerate.

29. Schoenus glomeratus.
Lin. ſpec. 65. *ſyſt.* 96. *Reich.* 1. 121. *Willd.* 1. 266. *Swartz obſ.* 29. *Gron. virg.* 131. *Thunb. prodr.* 17 ?
Culm three-ſided leafy, flowers in bundles, leaves flat, peduncles lateral in pairs.

30. Schoenus Cladium.
Lin. ſpec. ed. Willd. 1. 266. *Swartz prodr.* 19. *deſcr.* 97. *Brown. jam.* 114. (Cladium.)
Culm bluntly three-ſided leafy even, leaves prickly in front, panicles diffuſed, ſpikelets one-flowered ſeſſile two-ſtamened.

31. Schoenus effuſus.
Lin. ſpec. ed. Willd. 1. 266. *Swartz prodr.* 19.
Culm leafy bluntly three-ſided even, leaves prickly in front, panicles more erect, ſpikelets one-flowered ſeſſile two-ſtamened.

32. Schoenus Reſtioides.
Lin. ſpec. ed. Willd. 1. 266. *Swartz prodr.* 19. *deſcr.* 104.
Culms at bottom compreſſed-ancipital and very ſmooth, flowers panicled, ſheath lanceolate at the top.

33. Schoenus ſuriname nſis. *Surinam Bog-ruſh.*
Lin. ſpec. ed. Willd. 1. 266. *Swartz prodr.* 19. *deſcr.* 99. *Roth. gram.* 68. *t.* 21. *f.* 1. *Pluk. amalth.* 112 (Gramen cyperoides indianum, &c.)
Scirpus corymboſus. *Lin. ſyſt.* 100. *ſec. Swartz. Willd.* 1. 308.
Culm leafy three-ſided, peduncles corymbed, the lower ones alternate diſtant, the upper ones crowded.

34. Schoenus thermalis. *Warm-bath Bog-ruſh.*
Lin. ſyſt. 96. *Reich.* 1. 121. *Willd.* 1. 267. *mant.* 179. *Thunb. prodr.* 17. *Roth. gram.* 63. *n.* 83.
Culm three-ſided leafy, heads lateral compound ſubſeſſile, leaves enſiform keeled.

35. Schoenus lævis.
Lin. ſpec. ed. Willd. 267. *Thunb. prodr.* 17.
Culm three-cornered leafy, heads lateral, glumes mucronati, ſpikes ovate.

36. Schoenus lanceus.
Lin. ſpec. ed. Willd. 1. 267. *Thunb. prodr.* 17.
Culm three-cornered leafy, ſpikes panicled lateral, glumes and ſpikelets lanceolate.

37. Schoenus albus. *White-headed Bog-ruſh.*
Lin. ſpec. 65. *ſyſt.* 96. *Reich.* 1. 122. *Willd.* 1. 267. *fl. lapp. n.* 17. *ſpec. n.* 41. *hort. cliff.* 22. *Huds. angl.* 16. *Wither. arr. ed.* 3. 81. *Smith brit.* 48. *Relh. cant. n.* 33. *Abbot lecſ.* 10. *n.* 29. *Dickſ. hort. ſicc.* 1. 2. *El. dan. t.* 320. *Hoffm. germ.* 15. *Roth. germ.* 1. 20. 2. 49. *Pallas pal. n.* 79. *Scop. carn. n.* 52. *Krock. ſileſ. n.* 66. *t.* 10. *Allion. pedem. n.* 2376. *Hall. helv. n.* 1341. (Scirpus.) *Mich. gen.* 53. (Cyperella 1.) *Pluk. phyt. t.* 34. *f.* 11.
Cyperus minor paluſtris hirſutus, paniculis albis paleaceis. *Mor. hiſt. ſ.* 8. *t.* 9. *f.* 39. *Raii ſyn.* 427.
Gramen junceum leucanthemum. *Get. emac.* 30.
Gr. cyperoides paluſtre leucanth. *Scheuch. gram.* 503.
β. Schoenus fuſcus. *Lin. ſpec.* 1664. *Huds. angl.* 16. β. *Wither. arr. ed.* 3. 80. *Smith brit.* 46.—*v. n.* 13.
Cyperus minor anguſtifolius paluſtris, capitulis fuſcis paleaceis. *Mor. hiſt. ſ.* 8. *t.* 11. *f.* 40. *Raii ſyn.* 427.
Culm three-ſided leafy, flowers in bundles, leaves briſtle-ſhaped.

38. Schoenus gracilis. *Slender Bog-ruſh.*
Lin. ſpec. ed. Willd. 1. 268. *Swartz prodr.* 19. *deſcr.* 109.
Culm three-ſided leafy very long filiform, ſpikes lateral peduncled.

39. Schoenus ſetaceus. *Briſtle-ſtalked Bog-ruſh.*
Lin. ſpec. ed. Willd. 1. 268. *Swartz prodr.* 20. *deſcr.* 107. *Roth. gram.* 62. *t.* 21. *f.* 2. *Berg. act. helv.* 7. 130. *t.* 9.
Culm three-ſided almoſt naked, leaves briſtle-ſhaped, ſpikelets aggregate, flowers two-ſtamened.

40. Schoenus puſillus. *Dwarf Bog-ruſh.*
Lin. ſpec. ed. Willd. 1. 268. *Swartz prodr.* 20. *deſcr.* 112. *icon.* 1. 7. *t.* 6.
Culm three-ſided naked filiform, ſpikelets terminating ſubfaſcicled ſeſſile, with a leaflet beneath equalling the ſpike.

41. Schoenus capillaris.
Lin. ſpec. ed. Willd. 1. 268. *Swartz prodr.* 20. *deſcr.* 106.
Culm three-ſided naked capillary, leaves capillary, ſpikelets faſcicled reflex involucred, involucret two-leaved.

DESCRIPTIONS, &c.

1. Root perennial. Culm three or four feet high, ſmooth and even, leafy, branched at top. Leaves linear-lanceolate, very long, acuminate, ſheathing at the baſe, entire, very ſharply ſerrulate along the edge and keel. Flowers ferruginous, in terminating and lateral corymbs, with ſheathing alternate bractes[m]. Glumes ovate-acuminate. Stigma trifid. Capſule ſubtriquetrous, mucronate, with a roundiſh ſeed[f].—According to Scheuchzer, this ſpecies has only two ſtamens.

Native of Europe and Africa, in fens and ditches. In the moors near Cambridge, the Iſle of Ely, and the great level of the fens. On St. Faith's Newton bogs near Norwich, and Ellingham fen in Norfolk. By the Thame at Dorithill near Tamworth, Warwickſhire. By the ſea ſide between Penſance and Marketjeu, Cornwall. Hell-kettles near Darlington. In a large pool called Cars y Crom-Llyn, between Breton-ferry and Swanſea, &c. It is ſo common in the Iſle of Ely, &c. that it is brought up to Cambridge for lighting fires and heating ovens. In the fen towns it is frequently uſed inſtead of ſtraw for thatching; and in pools often grows in ſuch quantities as to form floating iſlands.

2. Native of Guinea.

3. Root perennial, creeping. Leaves very many, radical, collected into a bundle, very long, rugged at the edge, neither fleſhy nor flat. Culm firm, even, thicker and much ſhorter than the leaves. Involucre three-leaved, like the leaves but ſhorter: within this there are alſo three other leaflets ſtill ſhorter. Spikes very many, ſeſſile and forming a head, ſharpiſh, imbricate with ovate concave acute ſcales. Filaments three, linear. Germ obovate. Style ſingle. Stigmas three, oblong[g].

Native of the South of France, Spain, Italy, Barbary, Smyrna, on ſandy ſea coaſts.

4. Native of Guinea.

5, 6, 7. Natives of the Cape of Good Hope.

8. This has the appearance of *Scirpus paluſtris*. Radical leaves abundant, crowded, filiform, channelled on the inner ſide, having a wide white lateral membrane at the baſe. Culm naked, ſtriated, without any knot, a ſpan high. Spike terminating, cylindrical, an inch long; with lanceolate acuminate ſcales, the lower ones membranaceous. Stamens three. Styles three[b].

Native of the Eaſt Indies and the Cape of Good Hope.

9. Root perennial. Culm a foot high, quite ſingle, ſmooth. Leaves linear, half-round, ſomewhat rugged, widening at the baſe, brown, ſhining, thinner at the edge, ſheathing, ſhorter than the culm. Head roundiſh or ovate, compoſed of ſeveral ſpikelets, which are blackiſh-brown and ſhining. Involucre double, membranaceous; the inner one very ſhort; the outer ending in a leafy ſtraight point, three times as high as the head[f].

The numerous leaves form a thick tuft compoſed of ſmall bundles, each bundle covered with many broad ſcales of a blackiſh brown colour[k]. The ſpike-ſtalk is flexuoſe; and the ſeeds are roundiſh, approaching to three-ſided, of a pearly luſtre[l]. Each ſeed lies within the correſponding curvature of the ſpike-ſtalk[m].

Native of Europe and Barbary, in bogs and marſhes. In England not uncommon; flowering in June.

[a] Smith. [f] Relhan. [g] Linn. ſyſt. [b] Linn. mant.
[l] Smith. [k] Linn. [l] Hallier.
[m] Stokes in Withering.

16. Root perennial, fibrous, a little creeping. Culm half a foot high, roundiſh a little flatted on one ſide, ſmooth, ſtriated, with a ſingle ſheathing leaf at the baſe, the reſt naked. Leaves almoſt all radical, alternate, ſhorter than the culm, linear, flat, keeled with the dorſal nerve, ſomewhat rugged at the edge. Spike terminating, almoſt upright, of a ſhining brown colour, compoſed of from five to twelve diſtich ſpikelets, the loweſt more remote from each other. Bracte ſolitary, leafy, with a triangular ſharpiſh top, roughiſh along the edges, moſtly longer than the ſpike. Flowers hermaphrodite. Seed ſurrounded with ſix rough briſtles at the baſe; which is alſo the caſe in Sc. glomeratus, an American ſpecies: hence they have both a great affinity to *Eriophorum*, in their character [a].—The two-rowed ſpike, ſays Dr. Withering, would almoſt induce one to refer *Sc. compreſſus* to the genus *Cyperus*, did not a more accurate examination ſupport its preſent arrangement.

Linneus has placed this among the ſpecies with a three-ſided culm; and Leers remarks, that although it is round and ſomewhat flattened, yet that below the ſpike it is triquetrous.

Native of Europe, in bogs. On Hinton moor, and between Little Shelford and Whittleſford in Cambridgeſhire. Near Daſſingham-Bath, Norfolk. Chiſelhurſt in Kent. Baſford Scottum, Nottinghamſhire. Not uncommon in other counties of England: flowering in july.

11. This is very nearly allied to *Sc. nigricans*, but it is ſix times ſhorter and narrower. Head ferruginous as in that, but compoſed of a double ſpike, and hence very narrow. Each of theſe ſpikes conſiſts of two flowers, very like thoſe of *nigricans*. The univerſal involucre is a two-valved ferruginous glume, the outer or larger valve mucronate, exactly the length of the whole ſpike, but the ſmaller valve is far ſhorter [b].—Native of Gothland.

Linneus himſelf confounded this with the next ſpecies. Our Engliſh botaniſts were miſtaken about it, till Dr. Smith ſet them right in his *Flora Britannica*. It has not been found in England: but whether the *ferrugineus* of Germany and Dauphiné be the ſame with that of Sweden, I am not able to determine. Villars compares it with *nigricans*, and ſays it is not ſo high, that the leaves are ſmaller, and one of them embraces the ſtem: that the ſpike is blacker, and in a manner ſeparate, more ſenſibly, into two or three lobes; the two leaves which ſupport it are ſhorter than the ſpike.

12. Root perennial, creeping, horizontal. Culm from four to ſix inches high, ſeldom higher, quite round, ſtriated, ſmooth, naked except at the baſe, where it has two ſhort leaves. Leaves half-round, even, channelled above, not keeled on the back, widening at the baſe, membranaceous, ſheathing: the radical leaves equalling the culm, twice as long as the ſtem-leaves. Spike terminating, ſhining brown, compoſed of five or ſix diſtich, approximating ſpikelets, with a ſubtriangular rachis. Bracte ſolitary, leafy, blunt, channelled, even, ſcarcely equalling the ſpike, but commonly much ſhorter, and ſometimes there is none. Spikelets uſually two-flowered, with the glumes ſwelling a little, even not ſtriated. Anthers linear, ſtanding out. Stigmas revolute. Seed briſtly at the baſe. Hudſon and Solander (from Yalden's manuſcript deſcription) have aſcribed to it a double row of glumes, under the name of calyx and corolla, which perhaps are the *glumæ exteriores* of Linneus.—Yalden obſerved two ſtigmas; Hudſon three.

Native of Scotland in marſhes: doubtful if in Weſtmoreland.—Iſles of Mull and Skye. Dunglas Caſtle. It flowers in july [c].

Lightfoot has figured it, very indifferently, as a variety of *Sch. compreſſus*.

13. Very like *Sch. albus* in ſtature, ſize, appearance and place, yet different in its glomerate brown ſpikelets, not faſtigiate and white: it alſo flowers earlier [d].

Linneus firſt inſerted this in the appendix to his *Species Plantarum*; and it has been continued ſince, even by Willdenow. Dr. Smith has aſcertained that it is no more than a variety of *Sch. albus*, *n.* 37. which ſee.

14, 15, 16. Natives of the Cape of Good Hope.

17. Culms even, a foot high. Spike terminating, compoſed of ſeveral, commonly ſix, heaped together. Spikelets two at each tooth of the rachis, ſeſſile, equal, ovate, ferruginous. Calyx diſtich imbricate with ſeveral barren ſcales: the inmoſt pair bearing two flowers. Petals two, very ſmall, awl-ſhaped, with diſtant valves. Stamens three, white, longer than the calyx. Germ with a filiform ſemitrifid ſtyle. Floral leaf under the loweſt pair of ſpikelets, linear or awl-ſhaped, erect, longer than the whole ſpike.—Native of the Cape of Good Hope [e].

18, 19. Natives of the Cape of Good Hope.

20. Culm two feet high, without joints. Stem-leaves few, filiform, even, a foot long, looſe, channelled, acute, with a ſtriated ſheath brownith at top. Floral leaves two, alternate, not exceeding the culm, with a widening ferruginous ſheath. Pedunculs from each ſheath commonly two, looſe and almoſt membranaceous, length of the ſpike. Spikes compound, dark-ferruginous, oblong, awned, with an awned bracte of the ſame colour, commonly exceeding the ſpike. It differs manifeſtly from *Sch. glomeratus*, by its oblong ſpikes.—Native of the Cape [f].

21. Native of the Cape of Good Hope.

22. Roots many, heaped, appearing to be bulbous with brown inflated coats, putting forth long perpendicular fibres. Leaves linear, looſe, often exceeding the culm; which is about a foot high. Head ſpiked, ſhort, with a round rachis. Spikelets ſeveral, with about five ovate, hollow, ſcarioſe ſcales. Involucre five-leaved; the leaflets decreaſing, the longeſt being nine lines, and the ſhorteſt being ſix lines in length. Suppoſed to be native of Ceylon; found by Koenig [g].

23. Root perennial. Plant a foot high or leſs. Culm ſingle, upright, ſtriated, ſmooth, ſheathed with leaves at the baſe, roundiſh but bluntly three-cornered towards the top. Leaves almoſt the length of the culm, erect, linear, acuminate, entire, ſtriated, ſmooth. Sheaths ſurrounding the culm, hirſute or ciliate at the neck. Involucre manifold or three-fold. Leaflets very long, ternately alternate, ſpreading, linear-lanceolate, ſeſſile, ſtriated, ſmooth, towards the baſe ſnow-white or white coloured. Spikes terminating, cluſtered, ſeſſile, ſmall, oblong, acuminate, whitiſh. Chaffs or glumes in bundles, imbricate, ovate, acute, concave, ſcarcely keeled, entire, one-flowered. Filaments three, the length of the glumes, upright. Germ roundiſh. Style longer than the glumes, cloven to the middle. Stigmas ſhort, erect. Seed roundiſh, flatted a little, large. It reſembles the *Kyllingias*, and is probably claſſed with them by authors, eſpecially with *Kyllingia triceps*.—Native of the Weſt Indies [h].

24. Root bulbous, covered with the rudiments of fallen leaves. Leaves numerous, briſtle-ſhaped, ſtriated, erect, almoſt the length of the culm, ſeparated at the baſe by white membranaceous ſcales. Culms a ſpan high, leafleſs, ſubtriquetrous, ſcarcely longer or wider than the leaves. Flowers red, glomerate, ſmall, in three or four little ſeſſile alternate balls towards the top of the culm. Under each little ball is a briſtle-ſhaped leaf longer than the ball. It has the appearance of *Juncus bulboſus*.—Native of the Cape of Good Hope [i].

25. Native of the Cape of Good Hope [k].

26. Diſtinct from *Scirpus capholates*. Native of Surinam.

27. Two feet high. Culm ſtriated, [illegible] leaves ſheathing, half a foot long, linear, [illegible] ſmooth, with the keel of the leaves ſubſcabrous. Spikes terminating, umbelled. Pedunculs from the bracts of the terminating leaves ſeveral, unequal, three-ſided. Involucre none, but only the two alternate leaflets from the ſheaths of which the pedunculs riſe. Spike-

[a] Smith. [b] Linn. ſpec. [c] Smith. [d] Linn. ſpec. [e] Linn. mant. [f] Idem. [g] Retzius. [h] Swartz. [i] Linn. mant. [k] [illegible]

lets

lets in little terminating balls (sometimes compound) very much crowded, sessile, acuminate, spreading, ferruginous. Glumes chaffy, heaped, unequal, subimbricate; the inner ones more tender, narrower, less, one-flowered. Filaments three, very short. Germ extremely small. Style longer than the glumes, trifid at the top, permanent. Stigmas capillary, cirrhose. At the base of the germ are two bristles the length of the glumes. Seed inclosed within the glumes, obovate, mostly obcordate, bluntly three-cornered, ferruginous, smooth.

It is not a *Cyperus*, because the chaffs are not distich, and the seed is not three-sided. It is very different from the *umbellatus*, figured by Jacquin in his *Icones rariores*, and described by him in the first volume of his *Collectanea*: that having altogether the appearance of a *Cyperus*, and a many-leaved terminating involucre[1].—Native of Jamaica.

28. Root perennial. Culm a foot high, erect. Leaves linear, smooth, keeled, numerous on the culm; the upper ones longer than the umbel. Branches of the umbel unequal. Spikelets the size of Mustard seed, three always glomerate sessile. Scales ovate acuminate nerved brown. Universal involucre many-leaved, unequal, with one leaflet longer than the umbel, but the rest much smaller. It has no partial involucre. It is difficult to decide from a short description how far it differs from the preceding: but it is certainly very different from Jacquin's *umbellatus*[2].—Native of North America.

29. Native of Jamaica and North America. Thunberg's plant seems, in Willdenow's opinion, to be different from Linnæus's.

30. Culm eight or ten feet high, single, jointed, smooth, striated. Leaves sheathing, very long, keeled, half an inch wide, cartilaginous-serrate along the back and edge, striated, smooth, rigid: sheaths closed in front, serrate. Flowers in lateral panicles from the sheaths. Pedunculs solitary, short, compressed, sheathed; sheaths numerous, crowded, alternate, from which spring some partial pedunculs, which are elongated, loose, diffused, towards the top next the sheathlet subdivided into many unequal umbelled pedicels, frequently terminating in an umbellet, with the ultimate pedicels three-flowered. Spikelets three or four, ovate, acuminate, small, ferruginous. Glumes or scales oblong, acute, unequal: at the side of the inner glume surrounding the germ are capillary bristles the length of the glume. Filaments very short. Germ linear-oblong. Style longer than the glumes, trifid. Stigmas reflexed, convolute, permanent. Seed ovate, acute, shining brown.

It is allied to Sch. Marisc us, and was formerly taken for a variety of it by Linnæus: but the culm is higher and bluntly three-sided; the panicle very large, with pedunculs and pedicels longer and filiform; the spikelets smaller and ferruginous.

Native of Jamaica, in sea marshes[3].

31. This also is a native of Jamaica, and it was gathered by Houstoun in the salt marshes near La Vera Cruz. Swartz gave it as a distinct species in his Prodromus, being intermediate between the preceding and *Marisc us*. But in his descriptions he says that it resembles the latter so nearly, that he dares not any longer to propose it as a distinct species.

32. Almost a fathom in height. Culm jointed, erect, striated: joints swelling. Leaves sheathed at the base, long, wide, linear, quite entire, very finely striated longitudinally, rigid: sheaths ancipital, finely striated. Panicles bursting from ancipital-lanceolate cowled sheaths, subdivided into dichotomous subfastigiate diffused branchlets, having sheathlets underneath at all the divisions, of a red-ferruginous colour. Spikelets solitary or in pairs, sessile, two-flowered, polygamous, on prickly-serrate pedunculs. Glumes four-valved, two-flowered: valves decussated, ovate, acute, concave, slightly keeled, sometimes serrate, brown. Filaments none. Germ three-cornered. Style long, trifid at top. Stigmas cirrhose. Serrate bristles are placed upon the pistil. One of the florets is small, interior and two-valved; the valves equal and lanceolate. Filaments two or three minute. Pistil small.—Native of the West Indies.

Though it approach very near to this genus, and particularly to *Marisc us*, yet it is so singular, and so different in habit, that it might make a distinct genus if sufficient characters could be found.

33. From one to four feet high, growing in tufts. Culms simple, sharply three-sided, rugged, leafy below. Leaves sheathed, very long, equal to the culm or longer, flattish, slightly keeled, striated, linear, serrate-prickly along the keel and edge, stiffish; the upper ones shorter and distant: sheaths alternate, crowded, keeled, with a blunt dagger-point in front. Corymbs pedunculed, lateral, compound, shorter than the leaves, before flowering crowded, nodding, afterwards divaricating: pedunckles elongated, from the sheaths of the upper leaves, solitary, remote, loose; the upper ones crowded. Spikelets cylindrical-subulate, very shortly pedicelled, patulous, ferruginous. Bractes capillary, longer than the florets, at the base of the pedicels. Lower glumes shorter, ovate, imbricate: upper a little longer, and between them a middle flower male and solitary, between the outer ones females or an hermaphrodite. Filaments three very short. Anthers linear. Germ ovate, margined, blackish, surrounded at the base with from two to four jointed bristles. Style long, undivided. Stigma linear. Seed roundish, black-rust-coloured.—Most commonly many of the spikelets are male, without any females. Rottboell's figure is but indifferent, but the parts of fructification are accurately drawn. The habit, and affinity of this species to *Sch. Marisc us*, place it rather in this genus than in that of *Scirpus*, where it stands in *Systema Vegetabilium*.

Native of the West Indies, in Jamaica and Surinam: also in the East Indies and China[4].

34. Root perennial. Culms six feet high, the thickness of a swan's quill, stiff, somewhat woody, even. Leaves sheathed, strict, even, erect. Heads alternate, towards the top of the culm, subsessile, each from a leafy sheath scarcely longer than the head. Each head is composed of smaller heads, and these of smaller yet till we come to the proper flower, divided by a leafy mucronate scale. Glume four-leaved: leaflets in pairs, opposite, oblong, membranaceous: the inner pair very thin and blunt. Stamens three, filiform, membranaceous, with anthers standing out the length of the flower. Germ very small. Style filiform. Stigmas three, filiform.

Native of the Cape of Good Hope, where it was found by Koenig[5].

35, 36. Natives of the same Cape.

37. Root perennial, creeping. Culms half a foot high, ascending, striated, smooth, divided at top into upright flowering-branches, sheathed at the base by wide concave scales. Almost all the leaves on the stem, alternate, sheathing, linear, bluntish, a little recurved, smooth, never exceeding the stem: sheath entire. Flowers in terminating erect bundles, subcorymbed, pedicelled, snow-white, becoming brownish after flowering. In the variety, which Linnæus and others made a species under the name of *fuscus*, always brown. Bractes like the leaves, but short[6]. Dr. Stokes remarks, that it has two stamens, seldom three.

β. Dr. Smith, in comparing the original specimens in the Linnean herbarium, has not been able to discover the least difference between the white and brown-headed Bog-rush. He remarks, that they have both three-sided culms, though Linnæus has placed his *fuscus* among the round ones.

Native of Europe, in bogs. Near Gamlingay park in Cambridgeshire. Ampthill moor, Potton and Aspley, Bedfordshire, *Mr. Abbott*. Felthorpe bogs, and near Haydon, Norfolk, *Mr. Bryant*. Birmingham heath. New Forest. About Kendal. Bagshot heath. Between Wickham and Croydon in Surry. Near Tunbridge in Kent. Common in Cornwall, Lancashire, Westmoreland, Cumberland, and Scotland. It flowers in july and august.

[1] Swartz. [2] Willdenow. [3] Swartz. [4] Lin. mant. [5] Smith.

38. Height from three to six feet. Culm very long, simple, loose, ſtriated. Leaves linear, very long, ſeſſile, keeled, ſtriated, ſerrate. Spikes axillary. Pedunclesſolitary, elongated, filiform. Spikelets in bundles, ſmall, ſix to ten, unequal, round and linear, ſeſſile, ferruginous, ſmooth. Glumes chaffy, many, unequal: the loweſt ſmall; the reſt convex, acuminate, imbricate; the interior ones more tender, ſmaller, one-flowered. Filaments three, very ſhort. Germ roundiſh. Style awl-ſhaped, ſcarcely longer than the glumes, trifid. Stigmas capillary, reflexed. Seed three-cornered, very ſmall, ferruginous.—Native of Jamaica, in the woods on the higheſt mountains.

39. Height about a foot. Culm ſimple, ſetaceous, weak. Leaves moſtly ſhorter than the culm, ſomewhat ſtriated, erect. Culms towards the upper part ſimply two-parted or ſubdichotomous, into axillary, peduncled, aggregate ſpikelets, three to ſix in number, awl-ſhaped and ſmall. Lower peduncles often ſolitary, an inch long: upper crowded, bundled, very ſhort. Lower glumes ſmaller, ovate, acute, keeled, terminated by a very ſhort awn: upper glumes lanceolate, awnleſs, convolute at the top. Filaments two, very ſhort. Style bifid. Stigmas capillary. At the ſides of the germ are two capillary briſtles, the length of the glume. Seeds roundiſh, compreſſed at the edge, acuminate, tranſverſely wrinkled.

Native of the Weſt Indies, in dry paſtures. Jamaica. Found at Surinam by Rolander; from whoſe collection Bergius and Rottboell had their ſpecimens.

40. Height about an inch. Roots capillary, ſimple. Culms almoſt upright, capillary. Leaves radical, equalling the culm, filiform, keeled at the baſe, ſheathing, ciliate at the edge, ſtriated, ſmooth. Spikelets three or four, very ſmall, one above another, ovate, acuminate. Under the loweſt ſpike is an awl-ſhaped leaflet, ſheathed at the baſe. Glumes chaffy, heaped, imbricate, ſeparating the flowers, ovate, keeled, awnleſs, one-flowered. Filaments three, the length of the chaffs. Anthers linear. Germ roundiſh. Style filiform, three-ſided at the baſe, trifid at top. Stigmas capillary, reflexed. Seed roundiſh, bluntly three-cornered, rugged, ferruginous, appearing as it were echinate, when examined by a microſcope; without which the parts of fructification are not viſible.—Native of Jamaica in the ſouthern parts.

41. About a foot high. Roots filiform, creeping a little. Culms in bundles, crowded, filiform. Leaves equalling the culm, ſheathing at the baſe, linear with convolute margins, looſe, lightly ſtriated. Spikelets terminating, three-ſided, awl-ſhaped, from reflex ſpreading. Involucret two or three-leaved: upper leaflet much the longeſt; the third very ſmall and often wanting. Glumes imbricate, ovate acuminate keeled, ferruginous, almoſt equal, ſtriated. Stamens one, two or three very ſmall. Style trifid. Stigmas very ſhort, reflexed. Seed ovate-three-cornered, ſmooth, ferruginous. Receptacle or rachis permanent, warted from the ſpikelets that have fallen off.—Native of Hiſpaniola; flowering in ſpring*.

Five new ſpecies of *Schoenus* are deſcribed in Vahl's *Eclogæ Americanæ*.

Schoenus. See *Carex*, *Cryptis*, *Cyperus*, *Kyllingia*, *Reſtio*, *Scirpus*, *Sclerio*.

Schoenus coloratus. See *Kyllingia monocephala*.

—— odoratus. *Gmel.* is *Kyllingia triceps*.

Loureiro has a *Schoenus* under the name of *coloratus*, which Willdenow thinks to be a different ſpecies from the *coloratus* of Linneus. He alſo has a *Schoenus ruber*. Both are natives of Cochinchina.

SCHOEPFIA. (*So named by Schreber, in honour of Johann David Schoepf, Preſident of the medical college at Anſpach, author of* Materia medica Americana, &c.) *Lin. gen. Schreb. n.* 325. Codonium. *Vahl.*

Claſſ. 5. 1. Pentandria Monogynia.

Nat. order of *Aggregatæ*. *Caprifolia*, Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* incruſting the germ at bottom, turbinate-angular indiſtinctly five-toothed.

COR. one-petalled, bell-ſhaped, ten-grooved at the baſe, five-cleft: *ſegments* triangular, acute, reflexed.

STAM. *Filaments* five, very ſhort. *Anthers* twin, erect, in the mouth of the corolla.

PIST. *Germ* turbinate, half inferior, within the corolla, crowned with a ſemiglobular porous *gland*. *Style* ſhorter than the corolla, cylindrical, erect. *Stigma* capitate, trifid.

PER. *Drupe*, with a one-celled nut.

SEED one.

ESSENTIAL CHARACTER.

Cal. double; outer bifid, inferior; inner ſuperior, quite entire. *Cor.* bell-ſhaped. *Stigma* capitate. *Drupe* one-ſeeded.

SPECIES.

1. Schoepfia americana.
Lin. ſpec. ed. Willd. 1. 986.
Codonium arboreſcens. *Vahl ſymb.* 3. 36. *act. hafn.* 2. 1. 206. *t.* 6.

DESCRIPTION, *&c.*

It is a ſmall tree eight or ten feet in height, with round ſmooth branches. Leaves petioled, alternate, ovate, very ſmooth, attenuated, blunt, quite entire. Peduncles axillary, often in pairs, one-flowered, but ſometimes two or three-flowered. Calyx double; one inferior, one-leafed ſubbifid, the other half-ſuperior entire. Sometimes there are only four ſtamens. The genus is allied to *Lonicera* and *Loranthus*.

Native of Santa Cruz and Monſerrat, where it was found by von Rohr†.

SCHONGA-CUSPI. See *Cliteria*.

SCHORIGERAM. See *Cliteria*.

SCHOTIA. (*So named by Jacquin, from Richard van der Schot, his companion in his travels.*)
Lin. gen. Schreb. n. 705. *Jacq. collect.* 1. 93. *Juſſ.* 347. Theodora. *Medic. monogr.* 1786. Guajaci ſpecies. *Linn.*

Claſſ. 10. 2. Decandria Monogynia.

Nat. order of *Lomentaceæ*. *Leguminoſæ*, Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* one-leafed, coloured: *tube* turbinate, ſubcompreſſed, fleſhy, permanent: *border* half-five-cleft; *ſegments* ovate, concave, blunt, erect, equal.

COR. *Petals* five, placed on the tube of the calyx, oblong, concave, blunt, erect, equal, lying over each other at the ſides, ſeſſile, twice as long as the ſegments of the calyx.

STAM. *Filaments* ten, awl-ſhaped, erect, a little longer than the petals, inſerted in a ring into the tube of the calyx. *Anthers* oblong, incumbent.

PIST. *Germ* oblong, compreſſed, pedicelled. *Style* filiform, length of the ſtamens. *Stigma* ſimple, blunt.

PER. *Legume?* pedicelled.

SEEDS two. *Medicus*.

ESSENTIAL CHARACTER.

Cal. five-cleft. *Petals* five, inſerted into the calyx, cloſed by the ſides lying over each other. *Legume* pedicelled.

SPECIES.

1. Schotia ſpecioſa. *Leatheſcus-leaved Schotia.*
Lin. ſpec. ed. Willd. 2. 537. *Jacqu. ic. var.* 1. *t.* 75. *collect.* 1. 93. *Ait. hort.* 2. 56.
Schotia afra. *Thunb. prodr.* 79.
Theodora ſpecioſa. *Medic. monogr.* 16. *t.* 1.
Guajacum afrum. *Lin. ſpec.* 547. *Mill. dict. n.* 3. *Diſſ. noſtr. n.* 3.
It is found to be a native of Senegal, as well as of the Cape of Good Hope.
For the Deſcription and Culture, ſee *Guajacum afrum*.

Schouanna-Adamboe. See *Convolvulus Pes capræ*.

—— Modela Muccu. See *Pelargonium ſcirrhoſe*.

SCHRADERA. (*So named by Vahl, in honour of Henry Adolph. Schrader, author of* Specilegium Floræ Germanicæ. Hann. 1794. oct.)
Vahl ecl. 2. 36. Fuchſia. *Swartz.*

Claſſ. 6. 1. Hexandria Monogynia.

GENERIC CHARACTER.

CAL. A ſuperior rim, quite entire, cloſely ſurrounding the baſe of the corolla.

COR. thick, one-petalled: *tube* half an inch long, gradually widening upwards, within ſmooth below, hairy above: *border* five or ſix-parted; *ſegments* fleſhy,

* Swartz.

† Vahl.

lanceolate, a little reflexed, above towards the throat flat; in front triangular, on the compreſſed ſides keeled; at the baſe of the keel a triangular fleſhy toothlet; beneath flat.

STAM. *Filaments* ſcarcely any. *Anthers* five or ſix, linear, between the ſegments of the border, three times ſhorter than the border.

PIST. *Germ* inferior, four-cornered at the baſe, the ſides a little preſſed in, the corners acute. *Style* one, ſhorter than the tube of the corolla. *Stigmas* two, thick, oblong.

PER. *Berry* one celled.

SEEDS very many, minute.

ESSENTIAL CHARACTER.

Cal. a ſuperior rim, quite entire. *Cor.* five or ſix-cleft. *Stigmas* two. *Berry* one-celled, many-ſeeded; *or*

Involuc. univ. many-flowered. *Cal.* ſuperior, pitcher-ſhaped. *Cor.* five or ſix-cleft, bell-ſhaped, hairy at the throat. *Berry* many-ſeeded. *Willd.*

SPECIES.

1. Schradera capitata.

Lin. ſpec. ed. Willd. 2. 238. *Vahl ecl.* 1. 35. *t.* 5. Urceolaria. *Coth. diſp. veg.* 10. *n.* 74.

Involucre toothed, calyx quite entire, leaves blunt.

2. Schradera cephalotes.

Lin. ſpec. ed. Willd. 2. 238.

Fuchſia involucrata. *Swartz prodr.* 62. *deſcr.* 2. 674. *Diſt. noſtr.*

Involucre quite entire, calyx toothed, leaves acuminate.

DESCRIPTIONS, *&c.*

1. This is a climbing paraſitical ſhrub, with ſquare branches covered by an aſh-coloured bark. Leaves oppoſite [a] roundiſh-elliptic quite entire coriaceous bluntiſh petioled. Peduncle terminating, an inch and half long. Flowers in heads. Involucre coriaceous one-leafed five-cleft containing about fifteen flowers, ſegments roundiſh blunt. Calyx bell-ſhaped coriaceous permanent, with the margin truncate and quite entire. The number of ſegments in the corolla and of the ſtamens varies from five to ſix [b].

Diſcovered in the high mountains of the iſland of Montſerrat, by Ryan [c].

2. Involucre one-leafed truncate four-cornered ſmooth thick containing from four to eight aggregate flowers. Perianth one-leafed ovate-campanulate erect, a little longer than the involucre undivided ſubtruncate, with eight very ſmall toothlets. The leaves are thinner and much more acute. The number eight is more frequent in this, five, ſeven, nine, ten more rarely.—Native of Jamaica [d].

SCHRANCKIA *quinqueſaria* of Gmelin, *ſyſt.* 515. *Scop. introd.* 1043. is Goupia of Aublet [e]: which ſee under *Gloſſopetalum.*

SCHREBERA. (*So named in honour of Jo. Chriſtian Dan. Schreber, Profeſſor of Phyſic, &c. at Erlang, editor of Linnæus's* Genera Plantarum, *and author of many works in Botany.*)

Roxb. corom. 2. 101.

Claſſ. 2. 1. Diandria Monogynia.

GENERIC CHARACTER.

CAL. inferior, tubular, ſomewhat two-lipped with the lips nearly equal, emarginate: often two lateral toothlets, one on each ſide, in the diviſions of the lips.

COR. one-petalled, ſalver-form: *tube* cylindric, three times longer than the calyx: *border* ſpreading, divided into five, ſix or ſeven wedge-form truncate ſegments.

STAM. *Filaments* two, ſhort, inſerted below the middle of the tube. *Anthers* oblong, hid within the tube of the corolla.

PIST. *Germ* ſuperior oval. *Style* a little longer than the tube. *Stigma* bifid.

PER. *Capſule* pear-ſhaped, ſcabrous, two-celled, two-valved.

SEEDS ſew, in each cell, irregularly oval, compreſſed, with a long membranaceous wing.

ESSENTIAL CHARACTER.

Cal. two-lipped. *Cor.* from five to ſeven-cleft. *Capſ.* pear-ſhaped, two-celled, two-valved. *Seeds* from eight to ten, membranaceous-winged.

[a] Willdenow. [b] Vahl. [c] Swartz and Willdenow. [d] Dryander in Linn. tranſ. 2. 229.

SPECIES.

1. Schrebera ſwieteniоides.

Roxb. corom. 2. *p.* 2. *t.* 101.

DESCRIPTION, *&c.*

Trunk erect, with a ſcabrous bark. Branches numerous, ſpreading in every direction, ſo as to form a large beautiful ſhady head. Leaves nearly oppoſite, on round ſmooth petioles; pinnate with an odd leaflet, about a foot long. Leaflets three or four pairs, oppoſite, on ſhort pedicels; the loweſt largeſt and obliquely ovate, whilſt thoſe towards the apex become more lanceolate: all are entire, pointed, ſmooth on both ſides, and three or four inches long. Panicles terminating, thin, trichotomous. Bractes ſmall, falling. Flowers white and brown variegated, very fragrant during the night. Capſule large, the ſize of a pullet's egg.

It is a large timber tree, a native of vallies in the mountainous parts of the Rajahmundry Circar; flowering about the beginning of the hot ſeaſon. The wood is of a gray colour, very cloſe-grained, heavy and durable. It is reckoned leſs ſubject to crack and warp than any other; on which account it is employed by weavers in many parts of their looms, particularly for the beam: it ſerves alſo for a great variety of other uſes; and probably would anſwer well for ſcales to mathematical inſtruments. Though not ſo handſome as Box, it is leſs ſubject to warp.

SCHREBERA SCHINOIDES of Linnæus, is a ſpecies of *Cuſcuta*, growing on *Myrica ethiopica.*

——— ALBENS of Retzius (*obſ.* 6. 25.) *Celaſtrus glaucus* of Vahl (*ſymb.* 2. 42.) is a ſpecies of *Elæodendrum.*

——— SCHINOIDES of Thunberg's prodromus, is Hartogia capenſis. *Linn. ſuppl.* 128. *Thunb. nov. gen.* 87 [f].

SCHUNDA PANA. See *Caryota.*

SCHUNUMPI VALLI. See *Ciſſus.*

SCHWALBEA. (*So named by Linnæus, from Schwalbe, a phyſician.*)

Lin. gen. n. 744. *Reich. n.* 802. *Schreb. n.* 1001. *Gron. virg.* 71. *Walth. carol.* 167. *Gærtn. t.* 55. *Juſſ.* 123.

Claſſ. 14. 2. Didynamia Angioſpermia.

Nat. order of *Perſonatæ. Scrophulariæ*, Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* one-leafed, tubular-ventricoſe, ſtriated: *mouth* four-cleft, oblique: *upper ſegment* very ſhort; *lateral* ones longer; *loweſt* ſtill longer, wider, emarginate.

COR. one-petalled, ringent: *tube* length of the calyx: *border* erect: *upper lip* erect, concave, quite entire: *lower lip* of the ſame length, trifid, blunt, the little ſegments equal.

STAM. *Filaments* four, filiform, length of the corolla, of which two are a little ſhorter. *Anthers* incumbent.

PIST. *Germ* roundiſh. *Style* in the ſame ſituation and of the ſame form and length with the ſtamens. *Stigma* thickiſh, recurved.

PER. *Capſule* ovate, compreſſed, two-celled, two-valved: *partitions* folded.

SEEDS very many, chaffy, lanceolate, ſmall. *Gærtn.*

ESSENTIAL CHARACTER.

Cal. four-cleft; the upper lobe very ſmall; the loweſt very large and emarginate.

SPECIES.

1. Schwalbea americana.

Lin. ſpec. 844. *ſyſt.* 551. *Reich.* 3. 114. *mant.* 414. *Gron. virg.* 92. *Pluk. mant. t.* 348. *f.* 2 [g]. (Euphraſia.)

DESCRIPTION, *&c.*

Stem quite ſimple, four-cornered, pubeſcent. Leaves lanceolate, pubeſcent. Flowers alternate, ſeſſile. Calyx pubeſcent. Corolla dark-red, inclining. The fructification wants to be farther examined, Gronovius's ſpecimen not being ſufficient for that purpoſe [h].—Native of North America.

Gærtner deſcribes the capſule as elliptic-acuminate, ſmooth, with an indiſtinct groove on each ſide, two-celled,

[f] Roxburgh. corom. [g] Linn. mant.

two-valved; the valves when ripe sometimes bifid at the top: partition doubled, formed of the margins of the valves bent in. Receptacle oblong, narrow, compressed a little, not fastened to the partition, but falling when ripe. Seeds very numerous, small, chaffy, acuminate towards the umbilicus, widening outwards with the end rounded. Nucleus a little turgid in the middle of the seed on one side of it.

SCHWENKFELDIA. (*So named by Schreber, in memory of Caspar Schenckfelt, a Silesian physician, author of a catalogue of the plants and fossils in Silesia. Lipf.* 1601. *He died in* 1609.)

Lin. gen. Schreb. n. 306. & *p.* 822. Sabicea. *Aublet. t.* 75, 76. *Swartz prodr.* 46. *Juff.* 207.

Claſſ. 5. 1. Pentandria Monogynia.

Nat. order of *Rubiaceæ*.

GENERIC CHARACTER.

CAL. *Involucre* four-leaved.

Perianth one-leafed, five-parted, ſuperior, permanent: *ſegments* lanceolate, acute.

COR. one-petalled, funnel-form: *tube* long, ſlender: *throat* hirſute: *border* five-parted: *ſegments* lanceolate, acute.

STAM. *Filaments* five, inſerted into the tube of the corolla. *Anthers* parallelopiped, incumbent.

PIST. *Germ* inferior, ovate. *Style* filiform. *Stigmas* five, oblong.

PER. *Berry* globular, crowned with the calyx, five-celled.

SEEDS very many, very ſmall, faſtened to ſemilunar receptacles.

ESSENTIAL CHARACTER.

Involucre four-leaved. *Cor.* funnel-form. *Stigmas* five. *Berry* five-celled, many-ſeeded. (*Cor.* ſalver-form. *Stigma* five-parted. *Willd.*)

SPECIES.

1. Schwenkfeldia hirta.

Lin. ſpec. ed. Willd. 1. 982. *Swartz defcr.* 1. 450. Sabicea hirta. *Swartz prodr.* 46.

Leaves ovate-lanceolate acuminate, flowers peduncled.

2. Schwenkfeldia cinerea.

Lin. ſpec. ed. Willd. 1. 982. *Swartz defcr.* 1. 452. Sabicea cinerea. *Swartz prodr.* 46. *Aubl. guian.* 1. 192. *t.* 75.

Leaves oblong acute tomentoſe hoary beneath, flowers ſubſeſſile.

3. Schwenkfeldia aſpera.

Lin. ſpec. ed. Willd. 1. 982.

Sabicea aſpera. *Aubl. guian.* 1. 197. *t.* 76.

Leaves elliptic acuminate rough hoary beneath, flowers ſeſſile.

DESCRIPTIONS, *&c.*

1. This is a climbing ſhrub, branched, with the ſtem and branches ſtriated and hirſute. Leaves oppoſite, nerved, hirſute, on ſhort, round, hirſute petioles. Stipules large, interpoſed between the petioles, wide, cordate-ovate, membranaceous, whitiſh. Pedumcles axillary, from the boſom of the ſtipules, ſhorter than the petioles, umbelliferous. Umbellets three-flowered. Involucret one-leafed four-cleft; ſegments ovate, ſpreading, rough-haired. Flowers pedicelled, white, void of ſcent. Segments of the perianth long, creſt, ſtriated, rough-haired, permanent. Corolla funnel-form, with the tube twice as long as the calyx, and the border flat and five-cleft, with lanceolate patulous ſegments. Anthers linear, the length of the filaments. Style the length of the corolla. Stigma five-parted. Berry ſnow-white when ripe.

Native of Jamaica, in the weſtern parts of the iſland, in mountain woods, flowering in april.

2. This alſo is a climbing ſhrub, with the ſtem and branches round and hiſpid; the branchlets ſcattered, ſpreading, tomentoſe. Leaves oppoſite, decuſſated, ſoft beneath, nerved and veined. Petioles ſhort, tomentoſe. Stipules between the petioles, wide, ovate, membranaceous, villoſe. Flowers axillary, from three to five, ſubſeſſile, crowded, with a few ſmall whitiſh bractes between the flowers. Involucret four-parted, with the ſegments ovate and whitiſh-tomentoſe. Perianth villoſe. Corolla white: tube hirſute on the outſide: border five-cleft, with oblong acute ſegments. Filaments ſhort. Anthers oblong. Germ hoary. Stigmas five oblong. Berry villoſe, according to Aublet red when ripe.—Native of Cayenne and Guiana, in hedges *.

3. The corolla of this is ſometimes four-cleft, accompanied by four ſtamens, and the berry three or four-celled *.—Native of Guiana, on the banks of rivers.

SCHWENKIA. (*So named by van Royen, from Martin Wilhelm Schwencke, phyſician and profeſſor of botany at the Hague, who died in* 1785, *aged* 78.)

Lin. gen. Reich. n. 31. *Schreb. n.* 38. *Juſſ.* 153.

Claſſ. 2. 1. Diandria Monogynia.

Nat. order of *Luridæ*. *Scrophulariæ*, Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* one-leafed, tubular, ſtriated, ſtraight, five-toothed, permanent.

COR. one-petalled: *tube* cylindrical, length of the calyx: *border* almoſt regular, length of the calyx, inflated at the throat, five-plaited: plaits cloſing the orifice in form of a ſtar; with a glandular body growing upon the exterior angles of the plaits; the two upper ones longer than the glands.

STAM. *Filaments* five: *three* ſhorter, briſtle-ſhaped, caſtrated; *two* upper, longeſt, fertile. *Anthers* two, ovate, acute, two-celled.

PIST. *Germ* globular. *Style* ſimple, length of the ſtamens. *Stigma* obtuſe.

PER. *Capſule* compreſſed like a lens, ſmooth, longer than the enlarged calyx, two-celled, two-valved.

SEEDS very many, very ſmall, ſomewhat angular. *Receptacle* ſubglobular.

OBS. *In a natural order it approaches very near to* Browallia.

ESSENTIAL CHARACTER.

Cor. almoſt equal, with the throat plaited and glandular. *Stam.* three barren. *Caſſ.* two-celled, many-ſeeded.

SPECIES.

1. Schwenkia americana. *Guinea Schwenkia.*

Lin. ſyſt. 64. *Reich.* 1. 48. *Willd.* 1. 106. *Schwenk. hort. med. Hag.* 1766. *edit. p.* 328. *t.* 1. *Ait. kew.* 1. 29.

DESCRIPTION, *&c.*

1. It is a biennial plant, with alternate leaves *: and axillary flowers. Native of Guinea. Introduced in 1781, by Meſſ. Kennedy and Lee. It flowers in auguſt and ſeptember *.

SCHYBUM. See *Gundelia*.

SCIATICA CRESS. See *Iberis*.]

SCILLA (*of Pliny.* Σκιλλα, *or rather* σκιλλα *of Theophraſtus and Dioſcorides.*)

Lin. gen. n. 419. *Reich. n.* 452. *Schreb. n.* 567. *Juſſ.* 53. Lilio-Hyacinthus. *Tournef. t.* 196. B. F. G. Hyacinthus ſtellaris. *Rutt meth.* 119.

Claſſ. 6. 1. Hexandria Monogynia.

Nat. order of *Coronariæ*. *Aſphodeli*, Juſſ.

GENERIC CHARACTER.

CAL. none.

COR. *Petals* ſix, ovate, ſpreading very much, deciduous.

STAM. *Filaments* ſix, awl-ſhaped, ſhorter by half than the corolla. *Anthers* oblong, incumbent.

PIST. *Germ* roundiſh. *Style* ſimple, length of the ſtamens, deciduous. *Stigma* ſimple.

PER. *Capſule* ſubovate, ſmooth, three-grooved, three-celled, three-valved.

SEEDS many, roundiſh.

ESSENTIAL CHARACTER.

Cor. ſix-petalled, ſpreading, deciduous. *Filam.* filiform.

SPECIES.

1. Scilla maritima. *Officinal Squill.*

Lin. ſpec. 442. *Reich.* 2. 57. *Willd.* 2. 125. *hort. cliff.* 123. *upſ.* 89. *mat. med.* 94. *Woodv. med. bot.* 322. *t.* 118. *Alſton. pedem. n.* 59. *atlant.* 297. *Blackw. t.* 591. *Pluk. alm.* 373. Scilla. *Fuchſ. hiſt.* 782. *Dalech. hiſt.* 457. *a. S.* vulgaris radice rubra. *Bauh. pin.* 77. *Mor. hiſt.* 2. 395. *ſ.* 4. *t.* 16. *f.* 1. *ord.* 3.—major radice rubra. *Matth.* 454.—rubentibus radicis tunicis. *Lob. ic.* 152.

* Swartz. * Juſſieu. * Linn. ſyſt.
* Hort. kew.

S. rufa

S. rufa magna vulg. *Bauh. hiſt.* 2. 615. *Raii hiſt.* 1164.
S. rubra. *Park. parad.* 133.
Pancratium. *Cluſ. hiſt.* 171. *Dod. pempt.* 691. *Tabern. ic.* 630. *Ger.* 136. 1. *emac.* 172.
Ornithogalum maritimum ſ. Scilla rad. rubra. *Tournef. inſt.* 381.
Red-rooted Squill or *Sea Onion.*
β. Scilla radice alba. *Bauh. pin.* 73. *Raii hiſt.* 1164. 2. *Boſc. eyſt. vern.* 2. p. 3. *f.* 1. *Seba muſ.* 1. 44. *f.* 4. 5.
S. alba. *Park. parad.* 132.
S. hiſpanica. *Cluſ. hiſt.* 1. 171. *Dod. pempt.* 690. *Lob. ic.* 151. *Dalech. hiſt.* 1576, 1577. *Matth.* 453.
S. hiſp. vulgaris. *Ger. emac.* 171.
Scillæ magnæ albæ. *Bauh. hiſt.* 2. 618.
Ornithogalum maritimum ſ. Scilla rad. alba. *Tournef. inſt.* 381.
White-rooted Squill or *Sea Onion.*
Naked-flowered with refracted bractes.
2. Scilla Lilio-Hyacinthus. *Lily-rooted Squill.*
Lin. ſpec. 442. *Reich.* 2. 57. *Willd.* 2. 126. *hort. cliff.* 123.
Hyacinthus ſtellaris folio & radice lilii. *Bauh. pin.* 46. *Mor. hiſt.* 2. 375. *ſ.* 4. *t.* 12. *f.* 21.
H. ſtellatus lilifolius cæruleus & albus. *Park. parad.* 130. *t.* 131. *f.* 7.
Raceme few-flowered, peduncles without bractes, leaves lanceolate, preſſed cloſe to the ground, bulb ſcaly.
3. Scilla italica. *Italian Squill.*
Lin. ſpec. 442. *Jacq. auſtr.* 2. 11. *t.* 117. *Villars dauph.* 2. 264. *Allion. pedem. n.* 1895. *Hall. helv. n.* 1211. (Phalangium.)
Anthericum bifolium. *Scop. carn. n.* 414.
Ornithogalum bifolium. *Neck. act. palat.* 2. 46.
Hyacinthus ſtellaris bifolius germanicus. *Bauh. pin.* 45. *Rudb. elyſ.* 2. 33. *f.* 1. *Mor. hiſt. ſ.* 4. *t.* 12. *f.* 15.
H. ſtellatus, bifolius vernus dumetorum, flore cæruleo. *Bauh. hiſt.* 2. 679.
H. Fuchſii. *Dod. cor.* 181. *pempt.* 219. 2.
H. ſtellatus Fuchſii. *Ger.* 97. *emac.* 106. *f.* 1.
H. cæruleus max minor. *Fuchſ. hiſt.* 837.
H. ſtell. vulgaris, ſ. bifolius Fuchſii. *Park. parad.* 126. *Petiv. brit.* 1. 67. *f.* 5.
β. H. ſtellatus albo flore. *Cluſ. hiſt.* 1. 184. *Park. parad.* 126.
H. ſtellaris albicans. *Ger. emac.* 106. *f.* 2.
H. albicans ſ. fœminea. *Fuchſ. hiſt.* 838.
Root ſolid, flowers corymb-racemed without bractes almoſt upright, leaves lanceolate by twos.
[11. Scilla verna. *Vernal Squill.*
Lin. ſpec. 443. *ed. Willd.* 2. 129. *Ait. kew.* 1. 445. *Huſſ. angl.* 142. *Withr. arr. ed.* 3. 338. *Smith brit.* 364. *engl. bot. t.* 23. *Dickſ. hort. ſicc.* 10. 8.
S. bifolia. *Lightf. ſcot.* 181. *Fl. dan. t.* 568.
Hyacinthus n. 1. *Raii hiſt.* 1155. *ſyn.* 372. *fine ſynonymis.*
H. ſtellaris vernus pumilus. *Dill. in Raii ſyn. indic. pl. dub.*
Ornithogalum hiſpanicum minus. *Cluſ. hiſt.* 1. 188. *Park. parad.* 139. *Ger. emac.* 166. *Raii hiſt.* 1153?
Root ſolid, corymb hemiſpherical few-flowered, bractes lanceolate obtuſe, leaves linear channelled.
12. Scilla luſitanica. *Portugal Squill.*
Lin. ſyſt. 329. *Reich.* 2. 58. *Willd.* 2. 129.
Hyacinthus ſtellaris cæruleus, ſtaminibus e viridi luteis. *Bauh. pin.* 46. *Rudb. elyſ.* 2. 34. *f.* 4.
Raceme oblong conical, petals marked with lines.
13. Scilla orientalis. *Oriental Squill.*
Lin. ſpec. ed. Willd. 2. 129. *Thunb. in Linn. tranſ.* 2. 334.
S. bifolia. *Thunb. jap.* 158.
Flowers erect racemed, leaves elliptic-enſiform.
14. Scilla hyacinthoides. *Hyacinth Squill.*
Lin. ſyſt. 329. *Reich.* 2. 59. *Willd.* 2. 130. *Ait. kew.* 1. 445. *Gouan illuſtr.* 26.
Bulbus eriophorus orientalis. *Bauh. pin.* 47.
Ornithogalum eriophorum orientale. *Tournef. inſt.* 381.
Raceme cylindrical many-flowered, petals half as long again as the germ, peduncles coloured, leaves lanceolate.
15. Scilla lingulata. *Tongue-leaved Squill.*
Deſfont. atlant. 298. *t.* 85. *f.* 1. *Poiret. itin.* 2. 151.
Leaves lanceolate flat, raceme denſe conical, bractes awl-ſhaped equalling the pedicels.

[8. Scilla præcox. *Early Squill.*
Lin. ſpec. ed. Willd. 2. 128.
Scape angular, raceme ſubcorymbed, peduncles twice as long as the flower, bractes obſcure.]
9. Scilla campanulata. *Spaniſh Squill.*
Lin. ſpec. ed. Willd. 2. 128. *Ait. kew.* 1. 444. *Curt. magaz.* 128.
S. hiſpanica. *Mill. dict. n.* 8.
S. hyacinthoides. *Jacqu. collect.* 1. 61. *ic. rar.* 1. *t.* 65.
Hyacinthus ſtellaris ſatiure cæruleus. *Bauh. pin.* 46. *Raii hiſt.* 1157.
H. hiſpanicus ſtellato flore. *Cluſ. cur. poſt.* 20.
H. hiſp. ſtellaris flore ſatiure cæruleo. *Ger. emac.* 109. 12.
Ornithogalum hiſp. ſatiure cæruleum. *Tournef. inſt.* 381.
Bulb ſolid, raceme many-flowered oblong-ſubconical, corollas bell-ſhaped erect, bractes two-parted longer than the peduncle, leaves lanceolate.
10. Scilla bifolia. *Two-leaved Squill.*
Lin. ſpec. 443. *ſyſt.* 329. *Reich.* 2. 58. *Willd.* 2. 128. *hort. cliff.* 123. *Retz. obſ.* 6. 27. *n.* 37. *Withr. arr. ed.* 3. 338. *Smith brit.* 365. *engl. bot. t.* 24. *Huſſm. germ.* 120. *Jacqu. auſtr.* 2. 11. *t.* 117. *Villars dauph.* 2. 264. *Allion. pedem. n.* 1895. *Hall. helv. n.* 1211. (Phalangium.)
Anthericum bifolium. *Scop. carn. n.* 414.
Ornithogalum bifolium. *Neck. act. palat.* 2. 46.
Hyacinthus ſtellaris bifolius germanicus. *Bauh. pin.* 45. *Rudb. elyſ.* 2. 33. *f.* 1. *Mor. hiſt. ſ.* 4. *t.* 12. *f.* 15.
H. ſtellatus, bifolius vernus dumetorum, flore cæruleo. *Bauh. hiſt.* 2. 679.
H. Fuchſii. *Dod. cor.* 181. *pempt.* 219. 2.
H. ſtellatus Fuchſii. *Ger.* 97. *emac.* 106. *f.* 1.
H. cæruleus max minor. *Fuchſ. hiſt.* 837.
H. ſtell. vulgaris, ſ. bifolius Fuchſii. *Park. parad.* 126. *Petiv. brit.* 1. 67. *f.* 5.
β. H. ſtellatus albo flore. *Cluſ. hiſt.* 1. 184. *Park. parad.* 126.
H. ſtellaris albicans. *Ger. emac.* 106. *f.* 2.
H. albicans ſ. fœminea. *Fuchſ. hiſt.* 838.
Root ſolid, flowers corymb-racemed without bractes almoſt upright, leaves lanceolate by twos.
[11. Scilla verna. *Vernal Squill.*
Lin. ſpec. 443. *ed. Willd.* 2. 129. *Ait. kew.* 1. 445. *Huſſ. angl.* 142. *Withr. arr. ed.* 3. 338. *Smith brit.* 364. *engl. bot. t.* 23. *Dickſ. hort. ſicc.* 10. 8.
S. bifolia. *Lightf. ſcot.* 181. *Fl. dan. t.* 568.
Hyacinthus n. 1. *Raii hiſt.* 1155. *ſyn.* 372. *fine ſynonymis.*
H. ſtellaris vernus pumilus. *Dill. in Raii ſyn. indic. pl. dub.*
Ornithogalum hiſpanicum minus. *Cluſ. hiſt.* 1. 188. *Park. parad.* 139. *Ger. emac.* 166. *Raii hiſt.* 1153?
Root ſolid, corymb hemiſpherical few-flowered, bractes lanceolate obtuſe, leaves linear channelled.
12. Scilla luſitanica. *Portugal Squill.*
Lin. ſyſt. 329. *Reich.* 2. 58. *Willd.* 2. 129.
Hyacinthus ſtellaris cæruleus, ſtaminibus e viridi luteis. *Bauh. pin.* 46. *Rudb. elyſ.* 2. 34. *f.* 4.
Raceme oblong conical, petals marked with lines.
13. Scilla orientalis. *Oriental Squill.*
Lin. ſpec. ed. Willd. 2. 129. *Thunb. in Linn. tranſ.* 2. 334.
S. bifolia. *Thunb. jap.* 158.
Flowers erect racemed, leaves elliptic-enſiform.
14. Scilla hyacinthoides. *Hyacinth Squill.*
Lin. ſyſt. 329. *Reich.* 2. 59. *Willd.* 2. 130. *Ait. kew.* 1. 445. *Gouan illuſtr.* 26.
Bulbus eriophorus orientalis. *Bauh. pin.* 47.
Ornithogalum eriophorum orientale. *Tournef. inſt.* 381.
Raceme cylindrical many-flowered, petals half as long again as the germ, peduncles coloured, leaves lanceolate.
15. Scilla lingulata. *Tongue-leaved Squill.*
Deſfont. atlant. 298. *t.* 85. *f.* 1. *Poiret. itin.* 2. 151.
Leaves lanceolate flat, raceme denſe conical, bractes awl-ſhaped equalling the pedicels.

16. Scilla villosa. *Villose-leaved Squill.*
Desfont. atlant. 299. *t.* 85. *f.* 2.
Leaves lanceolate flat villose, flowers corymbed.

17. Scilla obtusifolia. *Blunt-leaved Squill.*
Desfont. atlant. 299. *t.* 86. *Poiret itin.* 2. 149.
Scape lateral, leaves tongue-shaped waved, flowers racemed without bractes.

18. Scilla parviflora. *Small-flowered Squill.*
Desfont. atlant. 300. *t.* 87.
S. numidica. *Poiret itin.* 2. 150.
Leaves linear-lanceolate acute smooth shorter than the scape, flowers racemed crowded, bractes very short.

19. Scilla undulata. *Waved-leaved Squill.*
Desfont. atlant. 300. *t.* 88.
Leaves lanceolate waved, flowers loosely racemed, bractes very short.]

20. Scilla autumnalis. *Autumnal Squill.*
Lin. spec. 443. *Juss.* 329. *Reich.* 2. 59. *Willd.* 2. 130. *Hudf. angl.* 142. *Wither. arr. ed.* 3. 338. *Smith brit.* 366. *engl. bot. t.* 78. *Curt. lond.* 6. *t.* 25. *Villers dauph.* 2. 265. *Allion. pedem.* 2. 1897. *Desfont. atlant.* 301. *Cavan. ic.* 38. *n.* 300. *t.* 274. *f.* 2. *Guett. stamp.* 131. *Sauv. monsp.* 19.
Anthericum autumnale. *Scop. carn. n.* 415.
Hyacinthus stellaris autumnalis minor. *Bauh. pin.* 47.
H. autumn. minor. *Clus. hist.* 1. 185. 2. *Lob. obs.* 53. 3. *ic.* 102. *Dod. pempt.* 219. 1. *Dalech. hist.* 1513. *Ger.* 98. 4. *emac.* 110. 1. *Park. parad.* 132. *Bauh. hist.* 2. 574. *Raii hist.* 1157. *syn.* 373. *Mor. hist. s.* 4. *t.* 12. *f.* 18. *Besl. cast. aut.* 3. 5. *f.* 2.
Ornithogalum autumnale minus flore dilute purpureo. *Tournef. inst.* 381.
Leaves linear, flowers corymb-racemed, peduncles without bractes ascending length of the flowers.

[21. Scilla anthericoides. *Anthericum-like Squill.*
Desfont. atlant. 301. *Poiret itin.* 2. 150.
Raceme long, bractes awl-shaped, pedicels shorter than the corolla.

22. Scilla unifolia. *One-leafed Squill.*
Lin. spec. 443. *Juss.* 329. *Reich.* 2. 59. *Willd.* 2. 131.
Ornithogalum spicatum unifolium, flore niveo odorato. *Griss. instit.*
Bulbus monophyllus flore albo. *Bauh. hist.* 2. 622.
Leaf subcylindrical subspiked at the side.]

DESCRIPTIONS, *&c.*

1. Root very large, somewhat pear-shaped, composed of many coats as in the Onion, and having several fibres coming out at the bottom, and striking deep in the ground. From the middle of the root arise several shining leaves, a foot long, and two inches broad at their base, lessening all the way to the top, where they end in points; they continue green all the winter, and decay in the spring: then the flower-stalk comes out, rising two feet high, naked about half way, and terminated by a pyramidal thyrse of flowers, which are white.

[Leaves lanceolate, erect. Scape before the leaves, very long, many-flowered. Bractea linear-lanceolate, bent with a knee-joint in the middle, turned upwards, and having a spur beneath[1].

Bulb almost as big as the human head. Leaves ovate-oblong, blunt. Scape round, as thick as the little finger, upright. Raceme dense, almost the length of the scape: each flower on a filiform pedicel, twice or thrice the length of the flowers. Bractea membranaceous, awl-shaped, erect. Stamens equal in length to the corolla. Capsule triangular[2].

Native of Spain, Portugal, Italy, Barbary, Syria, on sandy coasts. Desfontaines says it is common in Barbary, in fields; flowering in autumn. In England it flowers in april and may: and was cultivated in the botanic garden at Oxford, in 1648[3].]

There are two varieties, one with a red, the other with a white root; but the white is generally preferred for medicinal use: [Dr. Woodville on the contrary says, that the red-rooted variety has been supposed to be more efficacious, but remarks justly that this red colour is confined to the outer coats of the root.

It is very nauseous, intensely bitter and acrimonious, without any perceptible smell. Alkalines considerably abate the bitterness and acrimony: vegetable acids make little alteration in either; but the taste of the acid makes that of the Squill more supportable.

This is one of the few medicines known in the early ages of Greece, which is held in great estimation and is in frequent use at this time; though it manifests a poisonous quality to several animals; as appears from Hillefield, Bergius, Vogel, and others. If much handled, it exulcerates the skin; and in large doses frequently repeated, it not only excites nausea, &c. but strangury, bloody urine, haemorrhoids, &c. with fatal inflammation and gangrene of the stomach and bowels. Under proper management however it is a medicine of great practical utility. In dropsy it has long been esteemed the most certain and effectual diuretic with which we are acquainted: and in asthma or dyspnoea, occasioned by the lodgment of tenacious phlegm, it has been the expectorant usually employed. In large doses, it is apt to prove emetic, and sometimes purgative, and thus the patient is deprived of its diuretic effects: it is given therefore in small doses repeated at more distant intervals, or an opiate is joined with it. From a continued repetition, the dose may be gradually increased, and the intervals shortened: when thus the doses come to be tolerably large, the opiate may be most conveniently employed to direct the operation of the Squill more certainly to the kidnies. In dropsy, when from an effusion of water into the cavities, less water goes to the kidnies, it may be of use to add neutral salt.

Dr. Cullen recommends a solution of corrosive sublimate to promote the diuretic effects of Squills. When the *primæ viæ* abound with mucous matter, and the lungs are oppressed with viscid phlegm, Squills are in general estimation. As an expectorant they may be supposed not only to attenuate the mucus, and thus facilitate its ejection, but by stimulating the secretory organs and mucous follicles, to excite a more copious excretion of it from the lungs, and thereby lessen the congestion, upon which the difficulty of respiration very generally depends. Therefore in all pulmonic affections, excepting those of actual or violent inflammation, ulcer and spasm, the Squill has been experienced to be a useful medicine.

The officinal preparations are a conserve, the dried root, a syrup and vinegar, an oxymel, and pills. When this root is intended as a diuretic, it has most commonly been used in powder, with the addition of neutral salts, as nitre or crystals of tartar, especially if the patient complained of much thirst; others recommend calomel; and to render the Squills less offensive to the stomach, it has been usual to join an aromatic. The dose of dried Squill is from two to four or six grains, once a day, or half this quantity twice a day. The dose of the other preparations, when fresh, should be four times this weight[4].]

2. This has a scaly root like the Lily, for which reason Tournefort separated it under the name of *Lilio-Hyacinthus*. The root (or bulb) is oblong and yellow, very like that of Martagon: the leaves are shaped like those of the White Lily, but are smaller. The stalk is slender, and rises a foot high; it is terminated by blue flowers, which appear in june.—Native of Spain, Portugal, and the Pyrenees.

3. Bulb roundish, solid, like that of the Hyacinth. The leaves come out sparsedly, and are very like those of the English Hare-bells (Hyacinthus non-scriptus or Scilla nutans.) Stem seven or eight inches high, terminated by clustered flowers of a pale blue colour, at first disposed in a sort of umbel or depressed spike, but afterwards drawing up to a point and forming a conical corymb.

[Raceme conical-oblong with pedicels almost erect, the length of the flower. Flower spreading with petals bent back at the sides, blunt at the top, white or blue. Bractes the length of the pedicels[5].

[1] Linn. spec. [2] Desfontaines. [3] Hort. kew. [4] Woodville, [5] Linn. mant.

Bulbs cluſtered, coated. Scape a large ſpan high, round below, ſomewhat angular above. Leaves commonly rather longer than the ſcape, ſcarcely half an inch wide. Raceme conical, compoſed of from ſeven to thirty and more ſcattered, peduncled flowers. Bractes two to each peduncle, coloured, one longer, the other ſhorter than the peduncle. Corolla ſpreading very much; petals ovate, pale blue, with the ſides of the claws bent back. Filaments and anthers erect, blue. Piſtil blue: germ ſubglobular, ſix-grooved; ſtyle the ſame length with the ſtamens, linear, permanent; ſtigma minute. Capſule tricoccous, three-celled, ſix-valved, three-ſeeded [f].

By the trivial name this ſhould be a native of Italy; Linneus and Aiton aſſign no place for it: neither do Cluſius or Parkinſon. Miller affirms it to be a native of Portugal. Allioni ſays that it is found in the county of Nice. Retzius will have this to be Haller's Phalangium, n. 1212. which he found in the meadows near Berne; but Haller himſelf denies it. Cultivated here in 1629 [g].

4. Root bulbous. Leaves four, radical, ſpreading, cruciate, cordate-lanceolate, ſeſſile, nerved, even. Scape none. Flowers ſhorter by half than the leaves: peduncles filiform-ſetaceous, one-flowered, very abundant. Petals lanceolate, membranaceous at the edge. Filaments ſetaceous, ſhorter than the petals. Anthers oblong. Germ roundiſh, hexangular, obtuſe. Style filiform. Stigma obtuſe.

Native of Africa [h].

5. Root large, ſolid, raiſed a little pyramidal in the middle, covered with a brown coat, from this come out before winter five or ſeven leaves, ſix or eight inches long, of a lucid green, keeled, and ſpreading almoſt flat on the ground. From the centre of theſe come out one, two or three ſcapes, thick, ſucculent, ſix or eight inches high, terminated by a conical corymb of flowers, upon pretty long pedicels.

[Bulb ovate, coated. Leaves ciliate, ſlightly waved, channelled at the baſe. Scape ſhorter than the leaves. Flowers blue or violet, very numerous, cluſtered, in a very large convex corymb. Bractes membranaceous, long, lanceolate, acute. Petals elliptic, ſubacute, ſpreading out horizontally. Stamens of the ſame colour, ſhorter than the corolla [i].]

There are two varieties of this, one with a deep blue, and the other with a white flower. It has been long known in the Engliſh gardens by the name of Hyacinth of Peru. [How it came by that name I know not, but it is a native of Spain, Portugal and Barbary. Parkinſon calls it, the great Spaniſh Starry Jacinth, and adds a bluiſh-coloured variety. According to him, it is found in the meadows near Cadiz, and in going thence to Porto Santa Maria, ſo thick together, as to cover the ground, when in flower, like a tapeſtry of divers colours; as he was informed by Guillamme Boel, a Freeze-lander, who being in ſearch of rare plants in Spain, in 1607, after that moſt violent froſty winter, which periſhed both the roots of this, and many other fine plants with us, ſent Parkinſon over ſome of theſe roots for his garden, which he gathered in the places named, with his own hands.

6. Scape erect, ſimple, ſmooth, a palm high. Bractes on the ſcape and below the flowers alternate, membranaceous, lanceolate, upright and preſſed cloſe, ſhorter than the interſtices. Flowers ſubumbelled, on pedicels about a quarter of an inch in length. Corolla ſpreading, white-purple. Petals oblong, blunt. Filaments a little ſhorter than the corolla. Anthers oblong, bluiſh. Style a little longer than the corolla. Stigma capitate, lobed.—Native of Japan [k].]

7. Root large, ſolid, purpliſh, from which come out five or ſix leaves, lying on the ground, above a foot long, and an inch broad, keeled, channelled, and of a lucid green; from among theſe ariſe two, three or four purpliſh ſtalks, eight or nine inches high, ſuſtaining towards the top five or ſix flowers, which come out ſingly from the ſide; they are of a violet-blue colour, and appear in april. The ſeeds ripen in june.

[When the plant is in flower, the ſtems are altogether upright, but as the ſeed-veſſels advance in ſize and weight, they bend down. The ſeeds are of a pale amber colour, and drop ſoon. The germ in the flower is diſtinguiſhed for the paleneſs of its colour [l]. Linneus calls it yellow, and ſays that there are two whitiſh lines at the baſe of the petals.

Native of the Levant. Introduced by Edward Lord Zouch about the year 1600 [m]. Cluſius ſays it came from Conſtantinople, and was ſent to him at Frankfort, with other plants, in the year 1590, by a lady of the name of Ungnadin.

8. This is diſtinguiſhable at firſt ſight from the preceding by its habit, ſmalneſs, and earlineſs of flowering: but it differs farther in the length of the peduncles, the lower ones being three times as long and more, the upper ones twice as long as the flower: the bractes are blunt and ſo very ſmall as to be hardly viſible: the corolla is bell-ſhaped and one third only of the ſize: the leaves linear never blunt iſh, as in the preceding, attenuated at the baſe. The native country is not known [n].]

9. Bulb oblong, white; whence come out five or ſix leaves, a foot long, and half an inch broad, of a lucid green, and a little keeled. Scape nine or ten inches high, firm, and ſuſtaining many flowers at the top, diſpoſed in a looſe panicle, each on a pretty long pedicel which is erect, but the flower itſelf nods. Corolla of a deep blue violet colour.

Native of Spain and Portugal: flowering in may. [Cultivated in 1759 by Mr. Miller [o].

10. Bulb ſubovate. Leaves ſcarcely ever more than two in number, lanceolate, blunt iſh, ſomewhat keeled. Scape a little higher than the leaves, erect, round. Bractes either altogether wanting, or ſo minute as to be hardly perceptible. Corymb terminating, ſubracemed. Flowers from four to ten (Linneus ſays, often four, equal in height) on long pedicels, blue. Petals blunt iſh. Anthers browniſh [p].

Scape roundiſh. Peduncles all or moſtly on one ſide, the lower ones longer, tinged with red, round. Bractes wanting. Corolla as in the *italica*. Filaments blue. Anthers blueiſh with a dirty blackiſh pollen. Piſtil blue. Germ conical, ſix-grooved [q].

Native of Germany, Switzerland, Auſtria, France, Italy and England. It was cultivated in our gardens in the times of Gerarde and Parkinſon, and was not, till very lately, aſcertained to be a native of this country. Dr. Smith firſt introduced it into his Engliſh Botany, on the authority of Buddle's herbarium: but it has been ſince received from the weſt of England by Mr. Sims, druggiſt of Norwich [r]. It flowers in march and april.

β. It varies with a white flower: and having ſometimes three leaves, that is given alſo as a variety.

11. Bulb ovate, ſmall. Leaves many, linear, channelled, attenuated at the baſe. Scape round, erect. Corymb terminating, hemiſpherical. Flowers from three to ſix, ſeldom more, pedicelled, blue. Bractes the length of the pedicels, permanent, blunt. Petals ovate, keeled. Filaments round, with blue anthers. Germ roundiſh. Style ſhort. Stigma blunt [s].

According to Hudſon, the bulb is brown, the ſize of a hazel nut. Scape from two to ſix inches high. Leaves ſubulate-linear, acute, almoſt the length of the ſcape. Flowers from three to eight, and in gardens from ſix to ſixteen, pale blue. Bractes membranaceous, concave, acute, almoſt the length of the peduncle. Withering ſays, they are longer than the peduncle; that the flowers are from four to ſix; and that in a wild ſtate, the root-leaves are ſeldom more than two. Lightfoot alſo attributes only two or three leaves to it; and from two to ten flowers, on a ſcape about four inches high.

Native of Great Britain; and of Spain; if it be the *Ornithogalum hiſpanicum minus* of Cluſius. But Dr. Smith thinks that the ſynonyms quoted by Hudſon belong rather to *S. italica*. Mr. Hudſon firſt

[f] Retzius. [g] Hort. kew. [h] Linn. ſuppl. [i] Deſfontaines. [k] Thunberg. [l] Curtis. [m] Hort. kew. [n] Willdenow. [o] Hort. kew. [p] Smith brit. [q] Retzius. [r] Smith brit. [s] Idem.

proved this to be distinct from the Linnean *Scilla bifolia*, with which it had been confounded even by Ray himself.

S. verna is a maritime plant found among rocks in Cornwall, the western coast of Wales, the Isle of Man, and the Hebrides[m]. Mr. Heaton found it in Barge-island, North Wales, and at King's-end near Dublin; Mr. Willoughby, in Anglesey; Ray, in Bardsey-island abundantly, and in other islands and cliffs on the coast of Wales; Hudson, about St. Ives and elsewhere in Cornwall; Mrs. Watt, near Redruth, and Dr. Withering, near Penzance, in Cornwall, and Glodd aeth in Caernarvonshire; Mr. Hall, on cliffs in the Isle of Man; and Lightfoot, in the islands of Jona and Staffa abundantly. It flowers in april.

12. This resembles *Sc. amoena*. Scape round. Flowers distant, commonly shorter than the pedicel: petals elliptic, bluntish, marked with grooves and lines, spreading. Stamens a little shorter than the petals, with yellow anthers[n].

Native of Portugal. Introduced in 1777, by Edward Whitaker Gray, M. D. It flowers in may[p].

13. Root-leaves many, attenuated below, smooth, a span long. Scape erect, smooth, two feet high, with alternate spathaceous scales.—Native of Japan, in the island Niphon[q].

14. Flowers numerous, small, blue. Pedicels scattered, filiform, blue, three times as long as the flowers[r].

The offsets from the principal bulb are very numerous and bigger than the first. Scape three feet high, flowering almost from the middle to the top. Leaves flat, more than half a foot long, and an inch wide. Pedicels in threes or fours, so close as almost to seem in whorls, and an inch long. Corollas very small. Germ whitish. Bractes scarcely visible, solitary, and removed a small space from the pedicel[s].

Native of the Island of Madeira. Introduced by Masson in 1778. It flowers in august[t].

Gouan relates that it had been cultivated about a century in the botanic garden at Montpellier, and many other gardens thereabouts, when he first observed it flowering (in may) in the year 1767; when he sent it to Linnæus, who reduced it to its proper genus.

15. Bulb ovate, coated, solid. Leaves five to seven, smooth, acute, flat, involved in a membranaceous sheath at the base. Scape slender, erect. Raceme short, ovate. Flowers on filiform pedicels, equal to the flowers. Bractes awl-shaped, membranaceous, scarcely longer than the pedicel. Corolla blue, of the same size as in S. italica; segments elliptic, obtuse. Filaments wide at bottom. Germ roundish.—Native of Barbary, in fields; flowering in winter.

16. Bulb ovate, solid, coated. Leaves spreading in a ring, unequal, obtuse or acute. Scape erect. Pedicels filiform. Bractes lanceolate, acute, concave, membranaceous, now shorter, now longer than the pedicels. Corolla blue, the same size as in Sc. amoena: the segments elliptic, bluntish. Stamens shorter than the corolla. Filaments flatted, wider below. Germ roundish.

Native of Barbary, in sands near Kerwan, flowering in winter.

17. Bulb ovate, solid. Leaves blunt, sometimes mucronate. Scapes often two, slender, round, simple, erect. Flowers like those of Sc. autumnalis, on filiform pedicels three times as long as the flowers. Corolla violet, with the segments elliptic. Stamens the length of the corolla. Capsule small, short, bluntly three-cornered. Seeds oblong, black.—Native of Barbary near la Calle.

18. Bulb ovate, solid, with the outer coat brown and membranaceous. Leaves four to six, unequal, thickish, very finely striated. Scape slender, erect, often twice as long as the leaves, quite simple. Flowers like those of Sc. autumnalis, on filiform pedicels twice or thrice the length of the flower spreading out horizontally. Raceme at first conical, then cylindrical. Corolla violet, with the segments elliptic and blunt. Stamens length of the corolla, with the filaments wider at bottom. Anthers blueish.

Native of Barbary, in fields about Algiers; flowering in winter.

19. Bulb ovate, compact, with the outer coats membranaceous and separating. Leaves spreading in a ring. Scape slender, simple, erect. Flowers on filiform pedicels. Bractes awl-shaped, very small. Corolla bell-shaped, spreading, pale rose-coloured; with the segments linear, bluntish, more deeply coloured in the middle. Stamens a little shorter than the corolla. Filaments slender equal. Style length of the stamens. Capsule blunt, triangular, pressed close to the scape. Seeds black, angular. The leaves come out after the flowering is over.

Very common in Barbary, on barren hills about Tunis, Constantine, Algiers, &c. flowering in autumn and at the beginning of winter[u].

20. Bulb ovate-roundish, coated, whitish. Leaves numerous, much shorter than the scape, two or three inches long, linear, obtuse, channelled, spreading. Scape from three or four to six inches in height, round, upright, striated, below whitish green, above purplish, appearing villose when magnified. Sometimes there is a second scape. Flowers six, ten or even twenty in a corymb, which is soon lengthened out into a raceme. Pedicels short, always pointing upwards, and after flowering pressed close to the scape, entirely destitute of bractes. Petals variegated with blue and purple: germ and stamens blue. The petals are callous and of a greenish-brown colour at the tips, three of them a little narrower than the other three. Anthers heart-shaped, large, at first deep purple, but blackish on shedding the pollen. Germ marked with six impressed white lines: style three-cornered, three-grooved, length of the stamens. Capsule roundish, having in each of the three cells two seeds, which are large, blackish, shining, three-cornered, the outer side convex, the two inner ones flat[x].

Native of France, Spain, Italy, Barbary and England.

The autumnal Squill, or Starry Hyacinth, as our old writers call it, is not very uncommon in dry pastures, in the southern and western parts of England. Gerarde was not aware of its being a native. Parkinson (in 1629) informs us, "that it is wild in many "places of England, and that he gathered it from "the foot of a high bank by the Thames side, at the "hither end of Chelsey, before you come at the "King's Barge-house." It occurs still in several places near London, as on Blackheath, where Plukenet observed it; near Ditton, on Moulsey-hurst, over against Hampton-Court, &c. where it was found by Merret; not many years since it was observed sparingly on Kew-green. Ray remarked it abundantly on St. Vincent's rocks near Bristol, and on the Lizard point in Cornwall. It is still found in those places; and according to Mr. Watt, it is common near Chace Water Mine in Cornwall[y].

It grows among grass, in a light and not very fertile loam, and is seldom above three inches in height. In a garden it is double the size, and produces several stems. It begins to flower about the third week in august, and continues three weeks or a month. In a wild state the flowering-stalks mostly come up without the leaves, in some few plants the leaves accompany them, and appear the greatest part of the year; but being small and grassy, they do not readily lead to a discovery of the plant.

Most old writers distinguish a larger and a smaller sort; but these differ merely in size. Parkinson notices a variety with white flowers[z].

21. Bulb ovate, coated. Flowers loosely racemed, on filiform pedicels a little shorter than the corolla. Bractes narrow, equal to the pedicels or shorter. Corolla nearly the size of *Ornithogalum pyrenaicum*, with elliptic, blunt, pale yellow segments.

[m] Engl. bot. [n] Hort. kew. [o] Thunb. in Linn. transf. [p] Gouan. [q] Linn. syst. [r] Linn. syst. [s] Hort. kew. [t] Desfontaines. [u] Ray, Curtis, Withering. [x] Smith brit. & engl. bot. Curt. lond. [y] Curtis.

Native

Native of Barbary near La Calle; flowering in autumn and winter[a].

22. Native of Portugal.

Dr. Smith has very properly removed Hyacinthus non-ſcriptus into this genus under the name of *Scilla nutans*. But it has already been deſcribed under the former name.]

PROPAGATION AND CULTURE.

1. The Officinal Squill growing on ſea-ſhores, and in ditches where the ſalt water flows in with the tide, in the warm parts of Europe, cannot be propagated in gardens, the froſt in winter always deſtroying the roots, and for want of ſalt water they do not thrive in ſummer. Sometimes the roots put out ſtems and produce flowers as they lie in the druggiſt's ſhops.

2, &c. The other ſpecies are moſtly hardy, and may be propagated by ſeeds or offsets: the latter, being the more expeditious way, is generally practiſed. The roots may be tranſplanted after the leaves are decayed; but if they are removed after they have put out new fibres, they rarely ſucceed, at leaſt they will not flower the following ſpring. They may be treated in every reſpect like the ordinary ſorts of Hyacinths.

The ſeeds ſhould be ſown in autumn ſoon after they are ripe, either in ſhallow boxes or pans in the manner before directed for Hyacinths.

[14. Dodonæus remarks, that unleſs the offsets are frequently taken from this ſpecies, it will not flower for twenty years together.

20. This may be raiſed from ſeeds, which it produces in plenty, and it will flower the third year. It may be increaſed alſo, though ſlowly, by its bulbs, which ſhould be planted in a light loamy ſoil, and placed in a dry part of the garden. It is beſt to plant the bulbs in pots, plunged in the border; for they will thus be ſecured from deſtruction, when the border is dug. This hint is applicable to any other ſmall-hardy bulbs[b].

SCILLA. See *Aletris*.

SCIRPO-CYPERUS. See *Scirpus*.

SCIRPOIDES. See *Carex* and *Scirpus*.

SCIRPUS (*of Pliny, q. Sirpus, a ſirpo, i. e. liga, vincio. It being proper to tie or bind. Hence it is called* Bintz *or* Binſe *in German, from the verb* binden.)
Lin. gen. n. 67. *Reich. n.* 73. *Schreb. n.* 94. *Mich. t.* 31. *Tournef. t.* 300. *Juſſ.* 27. *Gærtn. t.* 2. Scirpo-Cyperus. *Mich. t.* 31.
Claſſ. 3. 1. Triandria Monogynia.
Nat. order of *Calamariæ. Cyperoideæ*, Juſſ.

GENERIC CHARACTER.

CAL. *Spike* imbricate all round; *ſcales* ovate, from flat bent in, diſtinguiſhing the flowers.
COR. none.
STAM. *Filaments* three, finally becoming longer. *Anthers* oblong.
PIST. *Germ* very ſmall. *Style* filiform, long. *Stigmas* three, capillary.
PER. none.
SEED one, three-ſided, acuminate, ſurrounded with villoſe hairs ſhorter than the calyx, or without any.
OBS. *Thoſe villoſe hairs of the ſeed, in ſome ſpecies are faſtened to the tip, in others to the baſe of the ſeed.*

ESSENTIAL CHARACTER.

Glumes chaffy, imbricate every way. *Cor.* none. *Seed* one, beardleſs.

SPECIES.

* *With a ſingle ſpike.*

1. Scirpus mutatus.
Lin. ſpec. 71. *Reich.* 1. 130. *Willd.* 1. 290. *amoen.* 5. 391. *Brown. jam.* 126. *n.* 4.
Culm three-ſided naked, ſpike cylindrical terminating.
2. Scirpus ſpiralis. *Spiral Club-ruſh.*
Lin. ſpec. ed. Willd. 1. 290. *Rottb. gram.* 45. *t.* 75. *f.* 1.
Culms aggregate almoſt naked three-ſided, ſpike cylindrical terminating, florets wedge-form truncate diſpoſed ſpirally.

3. Scirpus articulatus. *Half-jointed Club-ruſh.*
Linn. ſpec. 70. *Reich.* 1. 130. *Willd.* 1. 290. *Rottb. gram.* 53. *Vahl ſymb.* 1. 8. *Thunb. jap.* 36.
S. fiſtuloſus. *Forſk. deſcr.* 14. *n.* 45.
Tſieli. *Rheed. mal.* 12. 135. *t.* 71.
Culm round almoſt naked half jointed, head glomerate lateral.
4. Scirpus plantagineus.
Lin. ſpec. ed. Willd. 1. 291. *Retz. obſ.* 5. 14. *n.* 18.
S. plantaginoides. *Rottb. gram.* 45. *t.* 15. *f.* 2.
Culms round jointed naked, ſpike terminating cylindrical naked.
5. Scirpus nutans.
Lin. ſpec. ed. Willd. 1. 291. *Retz. obſ.* 4. 12. *n.* 22.
Culm compreſſed, bluntly four-cornered naked, ſpike ovate ſolitary terminating nodding.
6. Scirpus paluſtris. *Marſh creeping Club-ruſh.*
Lin. ſpec. 70. *Jacq.* 98. *Reich.* 1. 130. *Willd.* 1. 291. *fl. lapp. n.* 19. *ſuec. n.* 42. *Hudſ. angl.* 17. *Wither. arr. ed.* 3. 17. *Smith brit.* 48. *engl. bot. t.* 131. *Relh. cant. n.* 34. *Sibth. oxon. n.* 64. *Abbot bedf. n.* 30. *Fl. dan. t.* 273. *Hall. helv. n.* 1336. *Hoffm. germ.* 16. *Roth. germ.* 1. 21. 2. 52. *Pollich pal. n.* 43. *Lœrs herborn. n.* 34. *t.* 1. *f.* 3. *Krock. ſileſ. n.* 70. *Neck. gallob.* 24. *Scop. carn. n.* 56. *Villars dauph.* 2. 187. *Gmel. ſib.* 1. 83. *n.* 8. *Deſcour. atlant.* 47. *Reliqu. Rudb.* 27. *f.* 2.
S. equiſeti capitulo majori. *Scheuch. gram.* 360. *Monti prodr.* 15. *Tournef. inſt.* 528. *Raii ſyn.* 429.
Juncus capitulis equiſeti major. *Bauh. pin.* 12. *theat.* 186. *Mor. hiſt. ſ.* 8. *t.* 10. *f.* 32. *Raii hiſt.* 1305. 18.
J. capit longis ſ. clavatus. *Bauh. hiſt.* 2. 523.
J. aquaticus capitulis equiſeti. *Park. theat.* 1196.
J. minor capit. equiſeti. *Ger. emac.* 35. 5. *t.* 1631. *Lob. obſ.* 44. 1. *ic.* 86.
J. cyperoides capitulo ſimplici. *Leſ. pruſſ.* 131. *t.* 36.
β. S. equiſeti capit. majori alter. *Scheuch. gram.* 361. *t.* 7. *f.* 17.
Juncus capit. equiſeti longioribus. *Mor.* 3. 233. *ſ.* 33.
Culm round ſheathed at the baſe, ſpike ſuboval terminating, glumes acute, root creeping.
7. Scirpus multicaulis. *Many-ſtalked Club-ruſh.*
Smith brit. 48. *Fl. dan. t.* 167. *conf. t.* 287. *deſcr.*
S. paluſtris β. *Lin. lapp. n.* 19.
S. multicaulis, equiſeti capitulis minoribus. *Reliqu. Rudb. t.* 28. *f.* 2.
S. equiſeti capit. craſſioribus & habitioribus pumilus & multicaulis. *Rupp. jen. ed. Hall.* 319.
S. caule aphyllo, ſpica imbricata ſubrotunda, glumis obtuſis. *Hall. helv. ed.* 1. 249?
Culm round ſheathed at the baſe, ſpike ovate terminating, glumes obtuſe equal, root fibrous.
8. Scirpus geniculatus. *Knee-jointed Club-ruſh.*
Lin. ſpec. 71. *Reich.* 1. 131. *Willd.* 1. 291. *bort. cliff.* 21. *Rottb. gram.* 44. *Brown. jam.* 126. *n.* 5. *Sloan. jam.* 1. 121. & 122. *n.* 52, 53. *t.* 75. *f.* 2. & *t.* 81. *f.* 3. *Raii ſuppl.* 628. (Juncus.)
Culm round naked, ſpike oblong terminating.
9. Scirpus cæſpitoſus. *Scaly-ſtalked Club-ruſh.*
Lin. ſpec. 71. *Jacq.* 98. *Reich.* 1. 131. *Willd.* 1. 292. *Fl. lapp. n.* 20. *ſuec. n.* 43. *Hudſ. angl.* 17. *Wither. arr. ed.* 3. 73. *Smith brit.* 49. *Relh. cant. n.* 35. *Abbot bedf. n.* 32. *Hall. helv. n.* 1334. *Hoffm. germ.* 16. *Roth. germ.* 1. 21. 2. 52. *catalect. bot.* 1. 7. *Pollich pal. n.* 44. *Neck. gallob.* 26. *Reliqu. Rudb.* 28. *f.* 1. *Krock. ſileſ. n.* 72. *t.* 14. *Villars dauph.* 2. 187.
S. montanus capitulo breviori. *Scheuch. gram.* 363. *t.* 7. *f.* 18. *Raii ſyn.* 429. *Tournef. inſt.* 528.
Juncus parvus montanus, cum parvis capitulis luteis. *Bauh. hiſt.* 2. 525. *f.* 2. *Mor. hiſt. ſ.* 8. *t.* 10. *f.* 35: *ord.* 3.
J. parvus paluſtris, cum parvis capit. equiſeti. *Raii hiſt.* 1306. *n.* 22. *ſyn. ed.* 2. 15. *Pluk. phyt. t.* 40. *f.* 6.

Gramen

[a] Deſfontaines. [b] Curtis.

Gramen junceum, foliis & ſpica junci minus. *Bauh. pin.* 6. *theat.* 79.

Culm round ſtriated ſheathed at the baſe with numerous ſcales, ſpike terminating, outer glumes very large.

10. Juncus pauciflorus. *Chocolate-headed Club-ruſh.* *Lightf. Scot.* 1078. *Hudſ. angl.* 648. *Wither. arr. ed.* 3. 74. *Smith brit.* 30. *Sibth. oxon. n.* 65. *Hall. helv. n.* 1335.

S. Bæothryon. *Lin. ſuppl.* 103. *Lin. ſpec. ed. Willd.* 1. 293. *Ehrh. phyt. n.* 31.

S. Halleri. *Villars dauph.* 2. 188.

S. minimus ſpica breviore ſquamoſa ſpadicea. *Scheuch. gram.* 364. *t.* 7. *f.* 19.

Culm round ſtriated ſheathed at the baſe, ſpike terminating few-flowered longer than the outer glumes.

11. Scirpus campeſtris. *Lin. ſpec. ed. Willd.* 1. 293. *Roth. catal. bot.* 1. 5.

Culm ſtriated naked, ſpike terminating ſcarcely exceeding the two-valved calyx, calyx-glumes oblong membranaceous at the tip blunt almoſt equal.

12. Scirpus capitatus. *Lin. ſpec.* 70. *Reich.* 1. 132. *Gron. virg.* 12. *Brown. jam.* 126. *n.* 3. *Sloan. jam.* 122. (Juncus.)

S. caribæus. *Rotth. gram.* 46. *t.* 15. *f.* 3.

Culm round naked briſtle-form, ſpike ſubglobular terminating.

13. Scirpus ovatus. *Lin. ſpec. ed. Willd.* 1. 294. *Roth. catalect. bot.* 1. 5.

S. compreſſus. *Moench. meth.* 349.

S. capitatus. *Schreb. ſpicil.* 60. *Kruck. fileſ. n.* 71. *Hoffm. germ.* 17. *Roth. germ.* 1. 21. 2. 54. *Ehrh. phyt.* 4. 155. *n.* 16.

Juncus clavatus minor capitulis rotundioribus. *Mor. hiſt.* 3. 233. *ſ.* 8. *t.* 10. *f.* 34.

Culm ſubcompreſſed naked filiform, ſpike ovate terminating naked, flowers two-ſtamened.

14. Scirpus atropurpureus. *Lin. ſpec. ed. Willd.* 1. 294. *Retz. obſ.* 5. 14. *n.* 19.

Culms ſetaceous round in bundles, ſpikes terminating ovate ſolitary, flowers one-ſtamened.

15. Scirpus polytrichoides. *Lin. ſpec. ed. Willd.* 1. 295. *Retz. obſ.* 4. 11. *n.* 21.

Gramen polytrichum. *Rumph. amb.* 6. 17. *t.* 7. *f.* 1.

Culms compreſſed ſetaceous, ſpikes terminating ſolitary ſomewhat nodding one-ſtamened.

16. Scirpus acicularis. *Leaſt Club-ruſh.* *Lin. ſpec.* 71. *ſyſt.* 98. *Reich.* 1. 132. *Willd.* 1. 295. *mant.* 321. *fl. lapp. n.* 21. *ſuec. n.* 44. *Hudſ. angl.* 18. *Smith brit.* 51. *engl. bot. t.* 749. *Sibth. oxon. n.* 66. *Dickſ. hort. ſicc.* 14. 1. *Fl. dan. t.* 287. *Hoffm. germ.* 17. *Roth. germ.* 1. 21. 2. 55. *Pollich pal. n.* 45. *Krock. fileſ. n.* 73. *Villars dauph.* 2. 187. *Hall. helv. n.* 1346. (Mariſcus.)

S. minimus capitulis equiſeti. *Dill. cat. giſſ.* 165. *Raii ſyn.* 429.

Cyperus acicularis. *Wither. arr. ed.* 3. 78.

Juncus inutilis ſ. Chamæſchoenus. *Bauh. theat.* 183.

Juncellus minimus capit. equiſeti. *Mor. hiſt. ſ.* 8. *t.* 10. *f.* 37. *Pluk. phyt. t.* 40. *f.* 7. *Plot oxon.* 145. *t.* 9. *f.* 3.

Culm quadrangular, with a beardleſs ſheath at the baſe, ſpike ovate acute terminating, outer glumes larger.

17. Scirpus fluitans. *Floating Club-ruſh.* *Lin. ſpec.* 71. *Reich.* 1. 132. *Willd.* 1. 295. *Hudſ. angl.* 18. *Withers. arr. ed.* 3. 74. *Smith brit.* 51. *engl. bot. t.* 216. *Sibth. oxon. n.* 67. *Dickſ. hort. ſicc.* 3. 4. *Hoffm. germ.* 17. *Roth. germ.* 1. 22. 2. 55. *Krock. fileſ. n.* 74. *Neck. gallob.* 25. *Guett. ſtamp.* 141. *Sauv. monſp.* 9.

S. equiſeti capitulo minori. *Tournef. inſt.* 528. *Raii ſyn.* 431. *Scheuch. gram.* 365. *t.* 7. *f.* 20.

Juncellus capit. equiſeti minor fluitans. *Bauh. pin.* 12. *prodr.* 23. *theatr.* 187. *Raii ſyn. ed.* 2. 274. 13. *hiſt.* 1306. 20.

Gramen junceum clavatum repens, foliis & capitulis Piſſilii. *Mor. hiſt. ſ.* 8. *t.* 10. *f.* 31.

β. S. ſtoloniſer. *Roth in Uſteri Neu Annal.* 4. 36.

Stem leafy flaccid floating, pedunceles alternate naked, ſpikes ſolitary terminating.

** *A round culm with ſeveral ſpikes.*

18. Scirpus lacuſtris. *Tall Club-ruſh* or *Bull-ruſh.* *Lin. ſpec.* 72. *Reich.* 1. 132. *Willd.* 1. 296. *fl. ſuec. n.* 46. *Hudſ. angl.* 19. *Withers. arr. ed.* 3. 75. *Smith brit.* 52. *Relh. cant. n.* 36. *Sibth. oxon. n.* 68. *Abbot bedf. n.* 31. *Hall. helv. n.* 1337. *Hoffm. germ.* 17. *Roth. germ.* 1. 22. 2. 57. *Pollich pal. n.* 46. *Neck. gallob.* 25. *Scop. carn. n.* 59. *Villars dauph.* 2. 189. *Krock. fileſ. n.* 75. *Gmel. ſib.* 1. 79. *Thunb. jap.* 37. *Brown. jam.* 127. 6.

S. paluſtris altiſſimus. *Tournef. inſt.* 528. *Scheuch. agroſt.* 354. *Raii ſyn.* 428.

Juncus maximus ſ. Scirpus major. *Bauh. pin.* 12. *theat.* 178.

J. lævis maximus. *Park. theat.* 1191. 1. *Mor. hiſt. ſ.* 8. *t.* 10. *f.* 1.

J. aquaticus maximus. *Lob. ic.* 85. *Ger.* 31. 3. *emac.* 35. 3. *Raii hiſt.* 1304. 7.

J. holoſchoenus. *Dod. pempt.* 605. *f.* 1.

J. maximus holoſch. *Bauh. hiſt.* 2. 522. 2.

J. paluſtris major. *Tabern. ic.* 249.

Holoſchoenus. *Dalech. hiſt.* 987. (Villars.)

β. Juncus ſ. Scirpus medius. *Bauh. pin.* 12. *theat.* 181. *Raii hiſt.* 1304. *ſyn.* 428. 2.

Leſſer Bull-ruſh.

γ. J. aquaticus medius, caule carinato. *Raii ſyn.* 428.

Culm round naked, panicle cymed decompounded terminating, ſpikelets ovate.

19. Scirpus glomeratus. *Lin. ſpec. ed. Willd.* 1. 296. *Retz. obſ.* 4. 11. *n.* 19.

Culm naked roundiſh, umbel glomerate, involucre two-leaved ſhort, flowers two-ſtamened.

20. Scirpus arvenſis. *Lin. ſpec. ed. Willd.* 1. 296. *Retz. obſ.* 4. 11. *n.* 20.

Culms compreſſed ſtriated, umbels ſimple, involucre one-leafed ſhort.

21. Scirpus truncatus. *Lin. ſpec. ed. Willd.* 1. 296. *Thunb. prodr.* 17.

Culm round, head glomerate-globular, involucre two-leaved, leaves linear.

22. Scirpus laciniatus. *Lin. ſpec. ed. Willd.* 1. 296. *Thunb. prodr.* 17.

Culm round, head triangular, glumes ovate ciliate, involucre two-leaved.

23. Scirpus membranaceus. *Lin. ſpec. ed. Willd.* 1. 297. *Thunb. prodr.* 17.

Culm round, head angular, glumes ovate membranaceous, involucre three-leaved.

24. Scirpus piloſus. *Lin. ſpec. ed. Willd.* 1. 297. *Thunb. prodr.* 18.

Culm compreſſed, head ovate, glumes lanceolate ciliate, involucre four-leaved.

25. Scirpus Hyſtrix. *Lin. ſpec. ed. Willd.* 1. 297. *Thunb. prodr.* 17.

Culm capillary, head commonly two-ſpiked, glumes acuminate ſquarroſe, involucre one-leafed.

26. Scirpus Holoſchoenus. *Round cluſter-headed Club-ruſh.*

Lin. ſpec. 72. *ſyſt.* 99. *Reich.* 1. 133. *Willd.* 1. 297. *Hudſ. angl.* 19. *Withers. arr. ed.* 3. 75. *Smith brit.* 53. *Dickſ. hort. ſicc.* 2. *Hoffm. germ.* 17. *Roth. germ.* 1. 22. 2. 58. *Scop. carn. n.* 61. *Sauv. monſp.* 8. *Villars dauph.* 2. 190. *Krock. fileſ. n.* 76. *Deſfont. atlant.* 49.

S. maritimus, capitulis rotundioribus glomeratis. *Tournef. inſt.* 528. *Raii ſyn.* 429.

Scirpoides maritimum capitulis ſparſis glomeratis. *Scheuch. agr.* 371. *t.* 8. *f.* 2.

Juncus acutus maritimus, capitulis rotundis. *Bauh. pin.* 11. *theat.* 174. *Raii hiſt.* 1303. 2.

J. maritimus capit. rotundis. *Mor. hiſt. ſ.* 8. *t.* 10. *f.* 17. *Pluk. phyt. t.* 40. *f.* 4. *Reliqu. Rudb.* 22. *f.* 1. & 25. *f.* 3.

J. acutus marit. alter. *Park. theat.* 1194. 4.

Holoſchoenus. *Dalech. hiſt.* 987. (ſec. Linn.)

β. Scirpus auſtralis. *Lin. ſyſt.* 99. *Reich.* 1. 133. *Willd.* 1. 297. *Smith brit.* 53. 8. 3.

Juncus minor acutus maritimus proliſer. *Pluk. phyt. t.* 40. *f.* 5.

7. Scirpus romanus.
Lin. ſpec. 72. *ſyſt.* 99. *Reich.* 1. 133. *Willd.* 1. 298. *Hudſ. angl.* 19. *Wither. arr. ed.* 3. 76. *Jacqu. auſtr.* 5. 23. *t.* 448.
Scirpoides acutum maritimum, capitulo glomerato ſolitario. *Scheuch. agr.* 373. *t.* 8. *f.* 6.
S. marit. capit. non omnibus in pediculis inſidentibus, foliis & ſcapo ſupra paniculam carinam ferentibus viridem. *Mich. gen.* 52. *Segu. veron.* 3. 73.
Culm round naked, heads glomerate peduncled or ſeſſile, involucre two-leaved unequal, leaves channelled.
27. Scirpus nodoſus.
Lin. ſpec. ed. Willd. 1. 298. *Rottb. gram.* 52. *t.* 8. *f.* 3.
Culm compreſſed knotted, head glomerate mucronate.
28. Scirpus radiatus.
Lin. ſpec. ed. Willd. 1. 298. *Thunb. prodr.* 18.
Schoenus radiatus. *Lin. ſuppl.* 101. *ſyſt.* 95.
Culm round, head hemiſpherical, involucre many-leaved.
29. Scirpus ſetaceus. *Leaſt Club-ruſh.*
Lin. ſpec. 73. *ſyſt.* 99. *Reich.* 1. 134. *Willd.* 1. 298. *fl. ſuec. n.* 45. *Gaertn. fruct.* 1. 10. *Hudſ. angl.* 20. *Wither. arr. ed.* 3. 76. *Smith brit.* 55. *Relh. cant. n.* 37. *Sibth. exon. n.* 69. *Abbot beſſ. n.* 33. *Fl. dan. t.* 311. *Hoffm. germ.* 17. *Roth. germ.* 1. 22. 2. 58. *Lucrs herborn. n.* 35. *t.* 1. *f.* 6. *Krock. ſiles. n.* 77. *t.* 16. *Neck. gallob.* 23. *Pollich pal. n.* 47. *Scop. carn. n.* 62. *Villars dauph.* 2. 188. *Deſfont. atlant.* 49. *Rottb. gram.* 47. *t.* 15. *f.* 5, 6. *Hall. helv. n.* 1345. (Mariſcus.)
S. foliaceus humilis. *Dill. cat. giſſ.* 158. *Raii ſyn.* 430.
S. omnium minimus, capitulo breviore. *Tournef. inſt.* 528. *Scheuch. gram.* 358.
Juncellus omnium minimus. *Mor. hiſt. ſ.* 8. *t.* 10. *f.* 23.—Chamæſchœnos. *Lob. adv.* 44. *Raii hiſt.* 1305. 14. *ſyn.* 2. 274. 16.
J. Lobelii. *Park. theat.* 1270. 10. & 9.
Gramen junceum minimum, capite ſquamoſo. *Bauh. pin.* 6. *prodr.* 13.
Culm naked ſetaceous, ſpikes lateral commonly two ſeſſile without braktes.
30. Scirpus ſupinus.
Lin. ſpec. 73. *Reich.* 1. 134. *Willd.* 1. 299. *Roth. germ.* 2. 58. *Dalib. par.* 16. *Lœur. cochinch.* 43. *ed. Willd.* 55.
S. ſupinus minimus, capitulis conglobatis, foliis rotundo-teretibus. *Tournef. inſt.* 528.
Culm round naked, ſpikes ſeſſile glomerate in the middle of the culm.
31. Scirpus natans.
Lin. ſpec. ed. Willd. 299. *Thunb. prodr.* 17.
Culm compreſſed leafy, flexuoſe erect, ſpikes two lateral.
32. Scirpus vaginatus.
Lin. ſpec. ed. Willd. 1. 300. *Thunb. prodr.* 17.
Culm filiform, heads lateral alternate ſhorter than the involucre.
33. Scirpus triſtachyos.
Lin. ſyſt. 99. *Willd.* 1. 300. *ſuppl.* 103. *Thunb. prodr.* 17. *Roth. gram.* 48. *t.* 13. *f.* 4.
Culm capillary, head three-ſpiked, glumes entire, involucre two-leaved.
34. Scirpus uncinatus.
Lin. ſpec. ed. Willd. 1. 300. *Pluk. phyt. t.* 190. *f.* 7.
S. capitatus. *Burm. ind.* 21?
Hairy, culm round leafy, ſpikes conglomerated into a head terminating and axillary.
35. Scirpus ariſtatus.
Lin. ſpec. ed. Willd. 1. 300.
S. pilofus. *Retz. obſ.* 6. 19. *n.* 12.
Culm ſtrioted round leafy, panicle terminating two-leaved, ſpikelets ovate ſquarroſe-echinate.
36. Scirpus autumnalis.
Lin. ſyſt. 99. *Reich.* 1. 134. *Willd.* 1. 301. *mant.* 180. *Rottb. gram.* 58. *t.* 17. *f.* 3? *Clayt.* 772.
Culm ancipital naked, umbel decompounded, ſpikelets ovate.
37. Scirpus diphyllus.
Lin. ſpec. ed. Willd. 1. 301. *Retz. obſ.* 5. 15. *n.* 22.
Culms ſemicylindrical ſtriated two-leaved, umbel compound with a two-leaved involucre longer than it.

38. Scirpus faſtigiatus.
Lin. ſpec. ed. Willd. 1. 301. *Thunb. fl. dr.* 18.
Culm filiform, head convex compreſſed, outer glumes mucronate, involucre none.
39. Scirpus globuloſus.
Lin. ſpec. ed. Willd. 1. 301. *Retz. obſ.* 6. 19. *n.* 11.
Culm compreſſed naked, panicle terminating, ſpikelet ſingle ſeſſile, ſeveral peduncled globular.
40. Scirpus globiferus.
Lin. ſyſt. 99. *Willd.* 1. 301. *ſuppl.* 104.
Culm naked round, umbel terminating compound, heads globular compoſed of ſeveral ſpikelets cloſely heaped.
41. Scirpus capillaris.
Lin. ſyſt. 99. *Reich.* 1. 135. *Willd.* 1. 302. *mant.* 321. *fl. zeyl. n.* 39. *hort. cliff.* 21. (Cyperus.) *Burm. zeyl.* 109. *t.* 47. *f.* 2. (Gramen puſillum.)
Culm naked capillary, ſpikes peduncled in threes, the middle one ſeſſile.
*** *Culm three-ſided, panicle naked.*
42. Scirpus triſpicatus.
Lin. ſyſt. 99. *Willd.* 1. 302. *ſuppl.* 10. *Thunb. prodr.* 17.
Culm angular naked, ſpikes terminating in threes ſeſſile naked.
43. Scirpus lateralis.
Lin. ſpec. ed. Willd. 1. 302. *Retz. obſ.* 4. 12. *n.* 24. & 5. 16. *n.* 25.
Culms three-ſided naked, ſpikes ſubtern lateral, involucre one-leafed ſhort.
44. Scirpus triqueter. *Triangular Club-ruſh* or *Bull-ruſh.*
Lin. ſyſt. 99. *Reich.* 1. 135. *Willd.* 1. 302. *mant.* 29. *Roth. germ.* 1. 23. 2. 59. *Smith brit.* 55. *Wither. arr. ed.* 3. 70. *Mich. gen.* 47. (Scirpo-Cyperus.)
α. S. mucronatus. *Pollich pal. n.* 48. *Scop. carn. n.* 60. *Hoffm. germ.* 18.
S. mucr. β. triqueter. *Hudſ. angl.* 20.
Juncus acutus maritimus, caule triquetro molli procerior. *Pluk. phyt. t.* 40. *f.* 2. *Raii ſuppl.* 629. 2. *ſyn.* 428. 4.
Spikes moſtly peduncled numerous and ſometimes reaching to the apex of the culm.
β. S. mucronatus. *Roth. germ.* 1. 23. 2. 60. *Wither. arr. ed.* 2. 50. *Hudſ.* 20. α.
Juncus acutus maritimus caule triangulo. *Bauh. pin.* 11. *prodr.* 22. *theat.* 175. *Mor. hiſt.* 3. 332. *ſ.* 8. *t.* 10. *f.* 20. *Reneal. Rudb.* 22. *f.* 2, 3. *Park. theat.* 1194. *Raii hiſt.* 1303. 3. & 3. 629. 1.
J. acut. marit. caule triquetro, rigido, mucrone pungente. *Pluk. phyt. t.* 40. *f.* 1. *Raii hiſt.* 3. 629. 1.
Spikes almoſt all ſeſſile conglomerate.
Culm three-ſided ſtraight naked acuminate, ſpikes lateral ſeſſile or peduncled.
45. Scirpus mucronatus.
Lin. ſpec. 73. *ſyſt.* 100. *Reich.* 1. 135. *Willd.* 1. 303. *Hall. helv. n.* 1338. *Villars dauph.* 2. 191. *Dickſ. hort. ſicc.* 26.
S. glomeratus. *Scop. carn. n.* 63.
Cyperus maritimus capitulo glomerato. *Tournef. inſt.* 527.
Scirpo-Cyperus maritimus. *Mich. gen.* 47. *ord.* 3.
Scirpo-Cyperus panicula glomerata e ſpicis imbricatis compoſita. *Scheuch. agr.* 404. *t.* 9. *f.* 14.
Culm triangular naked acuminate, ſpikes conglomerate ſeſſile lateral.
46. Scirpus dichotomus.
Lin. ſpec. 74. *ſyſt.* 136. *Willd.* 1. 303. *fl. zeyl. n.* 40. *Retz. gram.* 57. *t.* 13. *f.* 1. *Retz. obſ.* 4. 12. *n.* 23. *Vahl ſymb.* 1. 8. *Forſt. prodr. n* 28. *Pluk. phyt. t.* 119. *f.* 3. (Gramen cyperoides.) *Mich. gen.* 49. (Scirpo-Cyperus.)
S. biſumbellatus. *Forſk. deſcr.* 15. *n.* 46.
S. annuus. *Allion. pedem. n.* 2371. *t.* 88. *f.* 5. *Deſfont. atlant.* 51.
Cyperus maderaſpatanus calamo compreſſo, ſpicis minoribus fuſcis. *Scheuch. agr.* 395.
C. ſupinus minor, ſparſa panic. ex rarioribus locuſtis. *Monti prodr.* 13.
Culm three-ſided naked, umbel decompounded, ſpikes in the forks ſeſſile.

47. Scirpus echinatus.
Lin. ſpec. 74. *Reich.* 1. 136. *Willd.* 1. 304. *fl. zeyl. n.* 38. *Gron. virg.* 12. (Cyperus.) *Pluk. phyt. t.* 91. *f.* 4. (Gramen cyperoides.)
Culm three-ſided naked, umbel ſimple, ſpikes ovate.

48. Scirpus retroſractus.
Lin. ſpec. 74. *Reich.* 1. 136. *Willd.* 1. 304. *Pluk. phyt. t.* 415. *f.* 4.
Culm three-ſided, umbel ſimple, floſcules of the ſpikes retroſracted.

49. Scirpus ferrugineus.
Lin. ſpec. 74. *Reich.* 1. 136. *Willd.* 1. 304. *Swartz obſ.* 31. *Sloan. jam.* 1. 36. *t.* 77. *f.* 2. (Gramen Cyperoides.)
Schoenus polymorphus. *Rottb. gram.* 67.
Culm three-ſided almoſt naked, involucres length of the panicle and ciliate.

50. Scirpus ſpadiceus.
Lin. ſpec. 74. *Reich.* 1. 137. *Willd.* 1. 305. *Vahl, ecl.* 1. 7. *Gron. virg.* 132. *Sloan. jam.* 1. 118. *t.* 76. *f.* 2. (Gramen Cyperoides.)
Culm three-ſided naked, umbel almoſt naked, ſpikes oblong ſeſſile and terminating.

**** *Culm three-ſided, panicle leafy.*

51. Scirpus anomalus.
Lin. ſpec. ed. Willd. 1. 305. *Retz. obſ.* 5. 15. *n.* 23.—conf. Schoenum nemorum. *Vahl, ſymb.* 3. 8.
Culm three-ſided leafy, panicle terminating ſhort, ſpikelets ovate, flowers corolled the lower one-ſtamened, the upper two-ſtamened.

52. Scirpus miliaceus.
Lin. ſpec. 75. *ſyſt.* 100. *Reich.* 1. 137. *Willd.* 1. 305. *Burm. ind.* 22. *t.* 9. *f.* 2. *Retz. obſ.* 5. 16. *n.* 26. *Thunb. jap.* 37. *Lour. cochinch.* 43. *ed. Willd.* 55. *Roth. gram.* 57. *t.* 5. *f.* 2.
Culm three-ſided naked, umbel ſuperdecompound, intermediate ſpikes ſeſſile, involucres ſetaceous.

53. Scirpus maritimus. *Salt-marſh Club-ruſh.*
Lin. ſpec. 74. *ſyſt.* 100. *Reich.* 1. 138. *Willd.* 1. 306. *fl. ſuec. n.* 47. *Hudſ. angl.* 21. *Wither. arr. ed.* 3. 77. *Smith brit.* 56. *engl. bot. t.* 542. *Curt. lond.* 4. *t.* 4. *Relh. cant. n.* 38. *Gunn. norv. n.* 340. *Hall. helv. n.* 1339. *Hoffm. germ.* 18. *Roth. germ.* 1. 23. 2. 60. *Pollich pal. n.* 49. *Krock. ſilef. n.* 78. *t.* 15. *Neck. gallob.* 26. *Scop. carn. n.* 57. *Villars dauph.* 2. 190? *Gmel. ſib.* 1. 79. *Deſont. atlant.* 50. *Knipb. orig. cent.* 12. *n.* 86.
α. Cyperus rotundus inodorus germanicus. *Bauh. pin.* 14. *theat.* 215.
C. rotundus vulgaris. *Bauh. pin.* 13.
Gramen cyperoides vulgatius germanicum. *Bauh. hiſt.* 2. 495.
Scirpus tuberoſus. *Deſont. atlant.* 50.
β. Cyperus rotundus inodorus anglicus. *Bauh. pin.* 14.
C. rot. littoreus. *Ger. emac.* 31.—inodorus. *Lob. ic.* 77. *Bauh. hiſt.* 2. 503. *Raii hiſt.* 1300. 6. *ſyn.* 426.—anglicus. *Park. theat.* 1264.
C. rot. inod. aquaticus ſeptentrionalis. *Mor. hiſt. ſ.* 8. *t.* 11. *f.* 9.
γ. C. panicula compacta e ſpicis teretibus craſſioribus compoſita. *Scheuch. agr.* 400. *t.* 9. *f.* 9, 10.
δ. C. longus inodorus latifolius, ſpicis tumidioribus. *Mor. hiſt. ſ.* 8. *t.* 11. *f.* 25.
Gramen cyperoides panicula ſparſa majus. *Bauh. pin.* 6. *theat.* 86. *Scheuch. agr.* 398. *t.* 9. *f.* 7, 8.
Gr. cyp. paluſtris panic. ſparſa. *Park. theat.* 1266. *Raii ſyn.* 425.
Gr. cyperoides vulgatius aquaticum. *Bauh. hiſt.* 2. 495. *Lob. ic.* 20. *Ger. emac.* 22.
ε. Scirpo-Cyperus paluſtris, radice repente nodoſa inodora, panicula ſparſa, capitulis majoribus. *Mich. gen.* 48.
Culm three-ſided, panicle conglobate leafy terminating, glumes mucronate laterate-trifid.

54. Scirpus pubeſcens.
Deſont. atlant. 52. *Lamarck illuſtr. n.* 663.
Carex pubeſcens. *Poiret itin.* 2. 254.
Culm three-ſided leafy pubeſcent at top, ſpikelets few directed one way terminating ovate, glumes mucronate.

55. Scirpus groſſus.
Lin. ſyſt. 100. *Willd.* 1. 306. *ſuppl.* 104.
Culm three-ſided naked, umbel ſuperdecompound, ſpikes pedicelled, involucre three-leaved lanceolate-ſubulate very long.

56. Scirpus luzulæ.
Lin. ſpec. 75. *ſyſt.* 100. *Reich.* 1. 139. *Willd.* 1. 307. *Burm. ind.* 22. *Pluk. mant.* 97. *t.* 427. *f.* 3.—v. *Retz. obſ.* 4. 11. *n.* 18.
Culm three-ſided naked, umbel leafy proliferous, ſpikelets roundiſh.

57. Scirpus ſylvaticus. *Wood Club-ruſh.*
Lin. ſpec. 75. *ſyſt.* 100. *Reich.* 1. 139. *Willd.* 1. 307. *fl. ſuec. n.* 48. *Hudſ. angl.* 21. *Wither. arr. ed.* 3. 77. *Smith brit.* 57. *Sibth. oxon. n.* 70. *Fl. dan. t.* 307. *Hall. helv. n.* 1340. *Hoffm. germ.* 18. *Roth. germ.* 1. 23. 2. 61. *Pollich pal. n.* 50. *Leers herborn. n.* 36. *t.* 1. *f.* 4. *Krock. ſilef. n.* 79. *Jacqu. vind.* 19. *Scop. carn. n.* 58. *Villars dauph.* 1. 190. *Gmel. ſib.* 1. 81. *n.* 3. *Knipb. orig. cent.* 12. *n.* 87.
S. gramineus. *Necker gallob.* 27.
Cyperus gramineus. *Bauh. hiſt.* 2. 504. 2. *Lob. adv.* 38. 1. *Raii hiſt.* 1301. *ſyn.* 426. *Dill. giſſ.* 86. *Scheuch. agr.* 393. *Tournef. inſt.* 527.—miliaceus. *Ger. emac.* 30. 5.
C. longus miliaceus inodorus locuſtis plurimis brevioribus. *Mor. hiſt. ſ.* 8. *t.* 11. *f.* 15.
Pſeudo-Cyperus miliaceus. *Park. theat.* 1171. 2.
Gramen cyperoides miliaceum. *Bauh. pin.* 6. *n.* 13. *theat.* 90.
Gr. arundinaceum, foliis acutiſſimis, panicula multiplici, cyperi facie. *Luſ. proſſ.* 119. *t.* 33.
β. Scirpus radicans. *Schkuhr. in Uſteri annal.* 4. 48. *t.* 1. *Willd.*
Culm three-ſided leafy, cyme leafy terminating, peduncles naked ſuperdecompound, ſpikes cluſtered.

58. Scirpus corymboſus.
Lin. ſpec. 76. *ſyſt.* 100. *Reich.* 1. 139. *Willd.* 1. 308. *cent.* 112. *amoen.* 4. 303. *Burm. ind.* 23.
Kadira-pullu. *Rheed. mal.* 12. 97. *t.* 43.
Culm three-ſided leafy, corymbs lateral ſimple, the terminating one proliferous, ſpikes ſubulate.

59. Scirpus æſtivalis.
Lin. ſpec. ed. Willd. 1. 308. *Retz. obſ.* 4. 12. *n.* 26.
Culms depreſſed three-ſided naked, umbels compound involucred, flowers one-ſtamened.

60. Scirpus ſquarroſus.
Lin. ſyſt. 101. *Reich.* 1. 140. *Willd.* 1. 308. *mant.* 181. *Roth. gram.* 49. *t.* 17. *f.* 5. *Pluk. mant.* 98. *t.* 350. *f.* 6.
S. chinenſis. *Osbeck it.* 220.
Motta pullu. *Rheed. mal.* 12. *p.* 72. *t.* 38. *Rottb.*
Avenacu. *Rheed. mal.* 12. *p.* 72. *t.* 36. *Linn.*
Culm three-ſided naked ſetaceous, ſpikes in threes ſeſſile ovate ſquarroſe.

61. Scirpus diptaceus.
Lin. ſpec. ed. Willd. 1. 309. *Rottb. gram.* 56. *t.* 12. *f.* 1.
Culms ſetaceous three-ſided, umbel ſimple, heads oblong ſquarroſe, floſcules ſubulate recurved two-ſtamened, germ echinate.

62. Scirpus juncifórmis.
Lin. ſpec. ed. Willd. 1. 309. *Retz. obſ.* 6. 19. *n.* 11.
Culm naked ſiliform ſubtrigonal, ſpikelets of the panicle ſeſſile and peduncled, involucre two-leaved.

63. Scirpus michelianus.
Lin. ſpec. 67. *Reich.* 1. 141. *Willd.* 1. 309. *Hoffm. germ.* 18. *Schkuhr in Uſteri annal.* 1. 20. *t.* 2. *Gouan illuſtr.* 3. *Allion. pedem. n.* 2370. *Deſont. atlant.* 51.
Cyperus italicus omnium minimus. *Till. piſ.* 51. *t.* 21. *f.* 5.
C. humilis, ſpicis brevibus rotundis conglomeratis. *Buxb. cent.* 1. 34. *t.* 55. *f.*
Juncus foliatus minimus. *Bauh. hiſt.* 2. 523.—item, Gramen junceum marinum, capitulo ſquamoſo, ejuſd. 2. 509. *Gouan.*
Culm three-ſided, head globular, involucre many-leaved long.

64. Scirpus ciliaris.
Lin. syst. 101. *Reich.* 1. 141. *Willd.* 1. 309. *mant.* 182. *Roth. gram.* 55. *t.* 17. *f.* 1. *Pluk. mant.* 98. *t.* 417. *f.* 6.
Culm three-sided leafy, umbels scattered, scales of the calyx with ciliate awns.
***** *Culm three-sided, head terminating.*

65. Scirpus hottentottus.
Lin. syst. 101. *Reich.* 1. 141. *Willd.* 1. 310. *mant.* 182. *Thunb. prodr.* 18.
Culm three-sided leafy, head globular, calycine scales lanceolate rough-haired.

66. Scirpus antarcticus.
Lin. syst. 101. *Reich.* 1. 141. *Willd.* 1. 310. *mant.* 181. *Thunb. prodr.* 17. *Pluk. phyt.* 1. 299. *f.* 3.
S. barbatus. *Roth. gram.* 52. *t.* 17. *f.* 4.
Culm three-sided naked, head globular, involucre one-leafed.

67. Scirpus argenteus.
Lin. spec. ed. Willd. 1. 311. *Roth. gram.* 51. *t.* 17. *f.* 6.
Mullen-pullu. *Rheed. mal.* 12. 101. *t.* 54.
Culms setaceous three-sided, involucre four-leaved very long, spikes cylindrical very many glomerate into a head.

68. Scirpus monandrus.
Lin. spec. ed. Willd. 1. 311. *Roth. gram.* 50. *t.* 14. *f.* 3.
Culm setaceous three-sided, involucre three-leaved long, head sessile glomerate, floscules one-stamened.

69. Scirpus cephalotes.
Lin. spec. 76. *syst.* 101. *Reich.* 1. 142. *Willd.* 1. 311.
Culm three-sided naked, head ovate squarrose, involucre three-leaved long.

DESCRIPTIONS, *&c.*

1. This resembles S. geniculatus very much, but the culm is three-sided, softish and not jointed [a]:—almost hollow, and partitioned by frequent transverse septa. It is frequent in all the shallow standing waters of Jamaica, especially those to the east and west of Kingston [b].

2. Native of the East Indies.

3. Culm hollow, jointed but not all round. Spikes lateral collected into a half-whorled head [c].

Root in bundles, fibrous, eatable. Culms several broken by joints at an inch distance, striated, smooth. Between the joints the streaks approximate and become indistinct [d].—Native of Malabar, Egypt and Japan.

4. Culms three or four feet high, sheathed at the base, striated, jointed with very frequent transverse septa between the joints, appearing on the outside, at least in the dry specimen. Leaves shorter and compressed towards the end. Spike an inch long, closely imbricate.—Native of the East Indies [e].

5. Root fibrous. Culms several, a span high, filiform, compressed, in a manner four-cornered by a deeper streak on the narrower sides, having short brown scales at the base, and one or two leafless sheaths an inch in length. Spike naked, with ovate, entire, scariose brownish scales.—Native of Malacca [f].

6. Root creeping horizontally, throwing out many yellowish fibres, and producing thick tufts of upright, cylindrical, smooth, naked stems, becoming striated when dry, clothed at their base with a close blunt sheath, which is invested with two or three other shorter more membranous and reddish sheaths. It has no leaves, unless the barren culms or stems be taken for them. Spikes solitary at the end of each stem, erect, naked, many-flowered, oblong, appearing oval from the spreading of the scales in flowering, and sometimes accompanied by a small, membranous, close-pressed bractæ. Scales brown, acute, with a white scariose edge. Anthers large, yellow, projecting entirely beyond the scales. Seed roundish, smooth, yellow, with a brown apex; having four bristles at the base, according to Leers: who says also that the flowers have always two anthers, never three.

It varies in height from six inches to two feet or more: hence some authors make two varieties of it.

[a] Linn. spec. [b] Browne. [c] Linn. spec. [d] Retz. [e] Thunberg. [f] Idem.

Native of Europe, Asia and Africa. Very common in England, in ditches, ponds, marshes and rivulets; flowering in june and july.

Swine devour the roots greedily when fresh, but will not touch them when dry [g].

7. Root putting out long thicker fibres, but not creeping. Culms numerous, in tufts, spreading loosely, a span high, cylindrical, smooth, striated chiefly at the base and closely sheathed separately, with cylindrical, stiff, truncate, entire, subacuminate sheaths, generally doubled, but without any scales between. Leaves none. Spike ovate or elliptic, ferruginous, naked, many-flowered. All the scales are equal, imbricate, ovate, blunt, dark-purple or brown, somewhat scariose at the top, with an indistinct green keel. One or two of the floscules at the base of the spike frequently become viviparous and divaricate.

Native of Lapland, where it was observed by Rudbeck, and considered by Linneus as a variety of the preceding: also of Denmark. Mr. John Mackay, discovered it in 1794, on a bog near the house of Mr. M'Kinnon, at Corrybattachan, in the Isle of Skye [h].

8. Culms five or six, from two to three feet high, of a fine shining green colour, hollow, with many transverse membranes. Head oblong, scaly, white. It varies in size, and is found in holes of the low lands where water has stood, in Jamaica [i]. Browne says it is very like the common Bull-rush.

9. Root fibrous, tufted. Culms numerous, upright, varying much in height (according to Dr. Stokes, from two to six inches,) equal, smooth, striated, sheathed at the base, with one or two loose leafy striated entire sheaths, having the top oblique, ending in a short blunt point, and fenced with numerous membranaceous whitish-brown striated concave imbricately sheathing scales, smaller outwards and permanent. Spike small, rufous. The two outer glumes (a little unequal) are the length of the whole spike, and have a leafy point [k]. Dr. Stokes remarks that the seeds have hairs at the base. Dr. Withering observes, that the length of the spike and of its lower scales is extremely uncertain; sometimes these lower scales are as long as the spike, sometimes not half so long, and in other instances considerably longer, the point of the outer valve being lengthened into a kind of awn. This species is therefore best distinguished from the *palustris* by the green and leaf-like appearance of the upper sheaths at the bottom of the culm.

Native of Europe, in bogs, flowering in july. The principal food of sheep and cattle in the highlands of Scotland in march and april till the end of may [l].

10. Root tufted, blackish. Culms almost upright, from three to six inches high, slender, smooth, having a stiff, awnless, equal sheath at the base. Root-leaves (or rather barren culms) similar and often higher, sheathed in the same manner at the base. Spike small, reddish brown, having about four flowers, with the two lower glumes almost equal, elliptic, shorter than the spike and awnless.

It is very distinct from the preceding, with which it has been confounded by Linneus and Hudson, by the almost total want of the radical scales; by the sheaths being strict, blunt and awnless; the lower glumes shorter than the spike; and by having radical leaves (or barren culms [m].)

Mr. Woodward remarks, that this is very different in habit from the *caespitosus*; that besides its growing single and not in tufts, the stems generally decline and scatter from each other, instead of being upright and close together; that the stems are also more rigid, of shorter growth, and the flowers fewer.

Native of Sweden, Germany, Switzerland, France and Britain. Found in Ellingham fen, Norfolk, by Mr. Woodward; plentifully on Porjngland heath, near Norwich, by Mr. Crowe; Houghton-moor, near Newbold, and near Beverley, Yorkshire, by Mr. Teesdale; and on the highlands of Scotland, by Mr. Stuart: flowering in auguſt.

[g] Smith brit. and engl. bot. Withering. [h] Smith brit. [i] Sloane. [k] Smith. [l] Lightfoot. [m] Smith.

11. Native of the Dutchies of Oldenburgh and Bremen.

12. Native of Virginia and the Caribee iſlands.

13. This differs from *acicularis* in habit, in having much larger ovate heads of a bay colour, and a longer culm which is yellow not green. The pale-yellow colour of the plant diſtinguiſhes it at firſt ſight from *paluſtris*; the tufts are alſo much thicker, and the culms have ſcarcely any pith[1].—Native of Germany and Sileſia.

14. This reſembles *Sc. capitatus*, (n. 12.) but is more ſlender. Culms cluſtered, ſtrict, roundiſh, ſtriated, naked, having a ſhort purpliſh ſheath at the baſe; from an inch to half a foot in height. Leaves ſimilary few. Spike naked, dark purple, eſpecially in the rainy ſeaſon. Scales ovate, blunt, with a green keel. Seed dark, with a few ſnow-white briſtles at the baſe. Native of the Eaſt Indies, in boggy grounds: found by Koenig.

15. Culms in tufts, depreſſed, from four to ſix inches high, ſtriated, ſheathed together with the leaves at the baſe. Leaves ſhorter, filiform. Spike ſubovate. Bracte ſomewhat ſhorter than the ſpike, acuminate. Scales ovate, keeled, blunt, ſcarioſe, brown at the tip. Stamen one, ſeldom two.

Very common in low wet paſtures in Ceylon[2]. Alſo in Amboyna.

16. Root fibrous, tufted. Stems numerous, from two to four inches high, very ſlender, erect, roundiſh when freſh, but marked with four ſmooth angles, which in drying become very conſpicuous: the baſe is inveſted with a tight blunt beardleſs ſheath. Leaves few, ſhorter than the ſtems, obſoletely quadrangular, being flat above, and ſomewhat rounded beneath. Spike ſmall, ſolitary, compoſed of five or ſix flowers, the glumes of which are truely imbricate in every direction, not two-ranked; ſo that it properly belongs to this genus, and by no means agrees in character or habit with Cyperus. Each glume is ſharply keeled and pointed, with a membranous margin; the two lowermoſt are rather larger, and ſometimes barren. Seed elliptical, without any briſtles at the baſe.—All authors, except Hudſon, have deſcribed the culm as round, which is a miſtake. This ſmall plant grows in damp places, where water has ſtagnated in winter, on heaths and commons: flowering in auguſt[3]. In England, it has been obſerved on Hounſlow-heath, towards Hampton, by Mr. Doody; on Epping Foreſt, near Wanſtead, and in Wanſtead-park, Eſſex, by Mr. Edward Forſter, jun.; on Malvern-chace, in Worceſterſhire, by Mr. Stokes; on Binſey-common, by Dodſworth, and near Eyniſham-bridge, in Oxfordſhire, by Sibthorp; in Dorſetſhire, by Pulteney, who remarks that it was firſt noticed by Plot; as *cæſpitoſus* ſeems to have been, in England, by Merret, and *fluitans*, by Ray: on Stockton Common, Terrington Car, and other watery heaths in Yorkſhire, by Mr. Teeſdale.

17. Root ſmall fibrous; the ſtems alſo throw out many long fibres from the joints as they float many together on the ſurface of the water. Stems round, ſtriated, branched, very long, moſt ſlender at the baſe, with the internodes there lengthened out; towards the top thickened a little, with the joints nearer. Leaves linear, ſheathing at the baſe, flaccid, floating, in alternate ſingle bundles at the joints. Peduncles axillary towards the upper part of the ſtem, ſolitary, round, ſtriated, ſtraight, two inches long. Spikes erect above the ſurface, and though ſmall conſpicuous by their number and whitiſh colour. Their form is ovate, and each conſiſts of few flowers, the glumes of which are not much ſhorter than the ſtamens; the two lower or outer are mucronate and particularly large, ſo as to appear like bractes, but they have always parts of fructification belonging to them. The ſtigmas are only two in number.

Native of Germany, France, Flanders and England, in ditches and little pools upon graſſy commons and heaths, where the water is apt to be dried up in ſummer, in which caſe it ſometimes grows more luxuriantly[4].

Mr. Doody gathered it on Wandſworth-common, and in the ſame place with the Pepper-graſs[5], that is on Streatham-common in Surry. Mr. Blackſtone, in the bogs on Harefield-common. Mr. Hudſon, on Putney and Hounſlow heaths. Mr. Crowe and Mr. Dickſon, on the heath between Farnham and Godalmin. Dr. Smith, on St. Faith's bogs near Norwich[6]. Dr. Pulteney, on Chorley-foreſt in Leiceſterſhire, and in Dorſetſhire abundantly. Mr. Hall, in ſmall rills about Newton Cartmell. Mr. Robſon, at Saleſmoor near Manchester[7]. Mr. Teeſdale, upon Stockton-common, Terrington Car, and many other watery heaths in Yorkſhire; with the cæſpitoſus, acicularis and ſetaceus[8]. By Morton, at Badby in Northamptonſhire. By Ray, at Madern near Haverford-Weſt in Pembrokeſhire[9].

18. Roots creeping under water horizontally, thick and ſtrong. Stems ſtraight, four or five feet or much more in height, naked, round, ſmooth, dark green, very ſpongy and full of watery juice within, with ſeveral alternate ſheathing ſcales at the baſe. Panicle decompounded in a cyme-like form: its branches are very unequal, compreſſed, and fringed towards their extremities. Bractes two exterior, lanceolate, acute, ſheathing, commonly ſhorter than the panicle, and many interior ones which are ſmaller. Spikes cluſtered, (generally two or three together) ovate, brown with a ſhining ruſty tinge. Glumes concave, keeled, pointed, fringed, ſometimes cloven, but with a ſerrated point in the cleft. Stamens not very long. Stigma three-cleft. Seed flat on one ſide, convex on the other, with five or ſix ſhort rough briſtles at its baſe.

It varies in the length of the bractes, and height of the culm: in β the panicle is ſmaller; and in γ the culm, according to the obſervation is flatted on one ſide.

Native of Europe, Siberia, Japan and Jamaica; growing abundantly in clear ditches and ſtreams, fens, pools and lakes; flowering in july and auguſt[10].

Bottoms of chairs are very commonly made of the Bull-ruſh: if cut at one year old, it makes the fine bottoms; coarſe bottoms are made of it at two years old; ſuch as are ſtill older, mixed with the leaves of Flag, (Iris Pſeudacorus) make the coarſeſt bottoms. Mats are likewiſe made either of this alone, or mixed with Flag leaves. Cottages are ſometimes thatched, and pack-ſaddles ſtuffed with it[11]. It is of a ſoft pliant texture, totally deſtitute of the roughneſs or cutting edges of many graſs-like plants. In hard ſeaſons cattle will eat it[12].

19. Roots long, filiform. Leaves radical, cluſtered, ſhort, rigid, curved. Culm grooved, naked, ſolitary, a palm high. Umbel compound. The two leaves of the involucre are ſtiffiſh and ſhorter than the umbel; beſides theſe there are a few ſcarioſe ſcales. Spikelets ovate. Scales wide, blunt, concave, brown edged with white.—Native of Ceylon. Found by Koenig.

20. Culms two feet high, cloathed at the baſe by a brown angular ſheath two inches in length. A ſhort leaf iſſues from the ſheath with the culm. The umbel is compoſed of from five to eight ſpikes; and ſometimes, but ſeldom, an intermediate pedunple bears two pedicelled ſpikes. The involucre is moſtly one-leafed and ſhorter than the umbel. Spikes ovate, brown, peduncled; with lanceolate ſcales, gradually decidnous from the baſe.—Koenig ſent it from Ceylon[13].

21. 22. 23. 24. 25. All natives of the Cape of Good Hope, where they were found by Thunberg[14].

26. Root tufted. Culms almoſt upright, two or three feet high, ſmooth, very finely ſtriated, ſheathed at the baſe with a torn membrane. Leaves radical, linear, acute, pungent, ſmooth, not keeled but channelled above with a white hollow. Heads ſeſſile or on angular peduncles ſheathed at the baſe ſometimes branched, brown, compoſed of numerous blunt ſpikelets, with concave acute ſtriated ſcales between, pu-

[1] Krocker. [2] Retzius. [3] Smith engl. bot. and fl. brit. [4] Smith brit. and engl. bot. [5] Ray ſyn. [6] Smith brit. [7] Wither. [8] Linn. tranſ. 2. [9] Ray ſyn. [10] Smith brit. and engl. bot. [11] Withering. [12] Engl. bot. [13] Retzius. [14] Thunb. prodr.

beſcent at the edge. Bractes two unequal, quite ſimilar to the leaves, the upper one ſeeming to be a continuation of the culm, varying much in length from two inches to a foot, from ſtraight curved in; the lower much ſhorter, more or leſs divaricating. The ſtructure of the flower is ſcarcely known. The ſeeds, according to Scheuchzer, ſeem to be beardleſs; ſtigma trifid. The upper involucre, as alſo the lower, being channelled with a white hollow line, and mucronate-pungent, like the leaves, ſhews that the fructification is truly terminating in this as in *laceſtris*.

Dr. Smith has joined this with *auſtralis* and *romanus* as one ſpecies, on a compariſon of the ſpecimens of Linneus, Jacquin, Seguier and others, and on the admonition of Linneus himſelf in his later manuſcripts.

In α and γ the culm is more ſlender, the heads fewer and ſomewhat larger. Linneus had not ſeen the leaves of *S. romanus* when he deſcribed *S. auſtralis* in Syſtema Vegetabilium from the Hortus Upſalienſis [f].

Native of England, Germany, the ſouthern parts of Europe and Barbary.—Found by Mr. Stephens in Braunton Boroughs, Devonſhire; in Somerſetſhire and Hampſhire [g]; the place of β is unknown, Dr. Smith has not found it:—γ occurs in the South of France, Auſtria, Siberia, about Rome, and in England in marſhes near Throgmorton in Worceſterſhire; found there by the Rev. Mr. Sheffield [h].

27. Native of the Cape of Good Hope.

28. Culm leafleſs, a palm high, roundiſh, ſtriated. Leaves linear, channelled, even, ſtiffiſh, a ſpan high. Head the ſize of a Plum. Involucre eight-leaved, length of the culm, lanceolate, three times as wide as the leaves, yellow. There are other leaflets among the heaps of flowers, like the involucre, but ſmaller. Flowers from ſmall lanceolate one-flowered ſcales, all from the baſe and not imbricate. Stamens three. Style one. Seeds without any beard.—Native of the Cape of Good Hope [i].

29. Root fibrous tufted. Culms numerous, two or three inches high, ſtriated, ſmooth. Leaves like the culms, but ſhorter, with a cylindrical ſtriated ſheath. Spikes commonly two, but often ſingle, ſometimes three or four, breaking out laterally a little below the top of the culm, without any bracte beneath, ovate, ſmooth; glumes nearly equal, brown, keeled with a green nerve and mucronate. Seeds, according to Leers, beardleſs [k]. Dr. Stokes alſo ſays that they are naked. Dr. Withering deſcribes the plant as from two to ſix inches high; and the ſpikes as greeniſh-brown with a roſy tinge.

According to Gærtner, the glumes are ſimple, convex, imbricate every way into ovate ſpikes, which are not compreſſed. He conſiders the fruit as a nut, which is very ſmall, roundiſh or obovate, cruſtaceous, brittle, convex on one ſide, flattiſh on the other, acuminate at top with the permanent ſtyle, contracted below into an umbilical tubercle, longitudinally grooved, of a cheſtnut-ruſſet colour. Seed obovate, lenticular, ruſſet-coloured, faſtened to the bottom of the nut.

Native of moſt parts of Europe, in wet ſandy ground, and on ſandy coaſts: flowering in july and auguſt.

The deſcription in Linneus's Mantiſſa (321) belongs to another ſpecies, native of Portugal and the Cape of Good Hope, which is perhaps *Cyperus minimus* of Linneus; united with this by Rottboel.—*Sc. ſupinus*, which the ſame author confounds with this, is certainly diſtinct from both [l].

30. Culms a foot and half high, ſtriated. Leaves awl-ſhaped, ſhort. Spikes ovate, three or four together. Seed turbinate, compreſſed, ſhort, ſurrounded by rough villoſe hairs ſhorter than the calyx [m].

Native of France near Paris, the March of Brandenburgh, and Cochinchina.

31. 32. Natives of the Cape of Good Hope.

33. Culms and leaves ſetaceous and very ſmooth. Head lateral, immediately below the top of the culm, compoſed of from three to ſeven ſpikes. It varies in ſize, and very much reſembles *S. capillaris*, but the ſpikes are not peduncled; perhaps it is only a variety of that. Native of the Cape of Good Hope [n].

34. Culm two inches high, hairy. Leaves graſſy, hairy on both ſides, wide in proportion to the plant. The terminating ball of flowers has a two-leaved ſhort hairy involucre; the other is peduncled and naked, in the axil of the uppermoſt leaf. Scales lanceolate, ſtraw-coloured, mucronate, uncinate, with a raiſed nerve.—Native of the Eaſt Indies [o].

35. Culm a ſpan high, ſlender, hairy towards the upper part. Leaves radical, and one in the middle of the culm, ſomewhat longer than it, one ſixth of an inch wide, nerved, hairy above and about the edge. Paniele ſhort, almoſt faſtigiate; peduncles one or two-ſpiked and very hairy. Involucre two-leaved: lower leaf five times as long, upper as long and half as the panicle, of the ſame form with the leaf, and hairy even beneath. Spikelets one ſixth of an inch in length, with abundance of whitiſh hairs on them. Scales imbricate, obovate, thin, pellucid, ſtriated, terminated by a white thread like an awn the length of the ſcale itſelf, and pinnate as it were with ſtraight white hairs on each ſide. Stamens three brown the length of the ſcale. Germ three-ſided, brown. Style length of the ſtamens. Stigmas three.

Native of the Eaſt Indies [p]. Willdenow has changed Retzius's trivial name; another ſpecies having been named *piloſus* by Thunberg.

36. This has the appearance of *Juncus pilofus*. Leaves radical, graſſy, looſe, ſomewhat rugged, often the length of the culm. Culms a hand high, compreſſed, keeled a little on one ſide. Involucre terminating, two-leaved, like the leaves, commonly longer than the umbel; which is ſpreading and unequal. The peduncles have generally three ſpikes. Scales ovate, ferruginous with a green keel, ſcarcely mucronate [q].

Rottboell's plant appears to be different from this [r].

Native of Virginia and Jamaica.

37. Culms two or three feet high, filiform. Leaves glaucous; thoſe next the root ſhorter, thoſe on the ſtem almoſt the length of the culm, graſſy. Umbel unequal. The two leaves of the involucre like the radical leaves, and beſides theſe one or two filiform and ſhorter. Involucrets ſhort, ſcarioſe. Spikelets ovate, pedicelled. Scales ovate, acute, concave, brown, with a green line on the back. Filaments flat. Germ obovate, acute, compreſſed, convex on both ſides, ſtriated longitudinally, very minutely wrinkled tranſverſely. Style widiſh, compreſſed, longitudinally haired on each ſide. Stigma bifid.—Koenig ſent it from Tranquebar [s].

38. Native of the Cape of Good Hope.

39. Culms a ſpan high, the thickneſs of a coarſe thread. Peduncles undivided one-ſpiked, ſeldom bearing a ſecond ſeſſile ſpike, from two to eight lines in length, unequal, cloſhed with a very ſhort ſheath at the baſe: theſe ſheaths are terminated by a very ſhort leaf, or rather the top is free or looſe. Scales roundiſh, very blunt, concave, brown with a whitiſh margin. Stamens three. Style one. Stigmas three, hirſute, brown.—Native of the Eaſt Indies [t].

40. Culm very ſmooth, terminated by a very ſhort two-leaved ſpathe; the leaflets equal, awl-ſhaped, mucronate. Peduncles ſpringing from the ſpathe many, ancipital, terminated by little balls, compoſed of very ſhort ſpikes cluſtered together. Theſe little balls put forth about the baſe, other rays bearing balls, which are again ſubdivided: hence the inflorescence reſembles a compound umbel with the umbels proliferous at the baſe.—Native of Teneriffe [u].

41. Leaves capillary, ſcarcely a finger's length. Culms ſcarcely longer or thicker than the leaves. Under the umbel is a ſetaceous leaflet longer than the ſpikes. Spikes terminating, ovate. Scales ferruginous with a green keel, blunt.—Native of Ceylon [w].

42. Leaves ſcarcely any except ferruginous radical

[f] Smith brit. [g] Ray ſyn. [h] Hudſon.
[i] Linn. ſuppl. [k] Smith brit. [l] Idem and Reichard.
[m] Loureiro.
[n] Willdenow. [o] Willdenow. [p] Retzius.
[q] Linn. mant. [r] Willdenow. [s] Retzius.
[t] Idem. [u] Linn. ſuppl. [w] Linn. mant.

ſcales. Culms many from a foot to two feet in height, very ſmooth. Spikelets oblong, ſmall, equal, erect. Involucre many-leaved; the leaves awl-ſhaped, very ſhort.—Native of the Cape of Good Hope [f].

43. Culms from a ſpan to a foot in height, filiform, ſheathed at the baſe. Leaves of the ſame form, but ſhorter. Spikes from two to eight, ovate, of which one is on a peduncle a little above the middle of the culm. They generally have a ſhort, one-leaſed involucre. Scales pale brown with a green keel, ovate, acute, concave. Stamens three, with linear anthers. Germen three-cornered, acute at both ends. Style ſhort, with the ſtigma ſlightly bifid.—Koenig gathered it in Ceylon [a].

44. Root fibrous, tufted. Culms erect, three feet high, flat at the ſides and even at the corners, ſpongy within, with a ſharp top a little bent in; (in variety β, which is maritime, firmer, according to Dillenius.) Spikes without bractes, having a few membranaceous ſcales between, on triangular peduncles, ſometimes branched and equalling the top of the culm. Glumes bay-coloured, ovate, keeled, mucronate, with a widened torn margin [b].

Native of Germany, England and ſome other parts of Europe; alſo of North America. With us it is found on the ſea ſhore, and on the banks of large rivers, as by the Thames, both above and below London. In ditches by the ſide of Acle dam, Norfolk, by Mr. Crowe. It was obſerved by Merret, and was firſt ſhowed to Mr. Ray by Doody. Ray had not ſeen it when he publiſhed his hiſtory of plants.

Sc. mucronatus of Linneus, not yet diſcovered in England, has the ſides of the culm not flat, but a little hollowed, with the point bent back; the glumes more numerous, ſtriated, green, with the margin ferruginous and entire, not widened and torn [b].

β. This variety was found in the iſland of Jerſey, by Sherard [c].

45. This is eaſily diſtinguiſhed from the preceding by its greater ſtature, its thicker culm with the ſides hollowed, its thicker ovate ſpikelets, twenty or more collected into a head, finally by the point or upper part of the culm not being upright but bent horizontally [d].

Native of Switzerland, the South of France, Carniola and Italy.

46. Koenig ſent two varieties from Ceylon: one two feet high, with a large, diffuſed and very branching umbel; the other half a foot high, with a ſmall umbel, ſparingly branched: both have naked compreſſed culms, with one ſide plane the other ſomewhat convex, and white ſeeds [a].

Vahl remarks, that Forſkahl's *bifumbellatus* from Arabia, recedes from Eaſt Indian ſpecimens only in ſize and villoſity; and this ſpecies is polymorphious.

It is an annual plant, which few of the Scirpi are. Allioni deſcribes *his annuus* as having the leaves even ſtriated linear and ſoft, the culm ſtriated, a little higher than the leaves, from three to ſix inches in height, many from the ſame root, involucre of two unequal leaves, the ſhorter ſcarcely equalling the peduncle, the longer ſometimes meaſuring the entire umbel, ſpikelets ovate-acuminate, one ſeſſile in the centre, the others on unequal three-ſided peduncles. The peduncles commonly bear one ſpike, but they are ſometimes proliferous, and put forth another ſeſſile ſpikelet placed lower and alſo peduncled, having a leaflet at its baſe, but the ſpikes and peduncles are naked. Number of the peduncles in the umbel various, from two to ſeven. Glumes preſſed cloſe, acute, bay with a green nerve; but the lower ones and thoſe which embrace the ſpike at the baſe are awned, the nerve being produced into an awn. Seed elliptical, aſh-coloured, ſtriated.

According to Deſfontaines, the leaves are pubeſcent, acute, ſoft, very ſlightly ſerrate; culm ſtriated, upright, a little higher than the leaves; involucre five-leaved or thereabouts, the leaflets unequal, ſome longer than the corymb. Peduncles many-ſpiked; the central ones very ſhort or none, the lateral ones ſuperdecompound, with the pedicels unequal and ſhort; the central ſpikelet ſeſſile. Spikelets ovate, ruſeſcent. Scales ovoid, mucronate, membranaceous at the edge, and having a raiſed dorſal line. Seed ſtriated. Number of the peduncles variable from two to eight.

Thus if the *annuus* of Allioni, the *bifumbellatus* of Forſkal, and the *dichotomus* of Linneus, be the ſame plant; it is a native of the Eaſt Indies, Arabia, Italy and Barbary.

47. Culm a ſpan high. Leaves carex-form, length of the culm. Spikes eight, each on its proper peduncle forming a ſort of umbel, compoſed of capſules which are acuminate and have no ſcales between them. Involucre of four or five long leaflets [f].—Native of both Indies.

48. Native of Virginia.

49. This ſpecies varies remarkably, from a ſpan to two feet in height. It is eaſily diſtinguiſhed by its unequal ciliate involucre.

Native of Jamaica and other iſlands of the Weſt Indies, both in dry and wet ſituations [g].

50. Culms two feet high, erect, ſlender, ſtriated, ſmooth, convex on one ſide, flattiſh on the other, with the angles rugged backwards. Leaves narrow, ſmooth, ſhorter than the culm. Umbel terminating compound: univerſal with eight or nine unequal rays, three or four inches long or leſs, convex on one ſide channelled on the other, ſmooth, rugged at the edge like the culms: partial with eight rays, an inch long or ſhorter. Univerſal involucre three or four-leaved; with a leaflet equal to the longer rays, the reſt an inch in length or leſs, rugged as before and channelled; the two oppoſite exterior ones larger, brown at the baſe: partial involucre two or three-leaved. Spikes three on each ray of the partial umbel, oblong, finally cylindrical, ſharpiſh, imbricate, brown and ſhining: the middle one ſeſſile. Scales oblong, blunt, convex, concave, keeled at the tip; the keel running out into an obſcure point.—Native of South America [h], Virginia, and Jamaica.

51. Culm about two feet high, even. Leaves at the baſe many, length of the culm, flat, three-nerved, naked, unarmed, half an inch wide: on the culm three like theſe but ſhorter. Panicle an inch and half long, with ſhort half-round ciliate-ſcabrous peduncles. The involucre conſiſts of a leaf under the loweſt peduncle four times as long as the panicle and ciliate-ſcabrous, another like this but ſcarcely longer than the panicle under the ſecond peduncle, and of ſeveral other leaves gradually ſhorter but all ciliate-ſcabrous. Peduncles from three to five-flowered. Pedicels very ſhort, with two or three lanceolate ſcales. Spikelets ovate, with imbricate ovate blunt ſcales. Lower flowers one-ſtamened, upper two-ſtamened. Corolla two-petalled, about the five of the calycine ſcale. Glumes equal, compreſſed, with the keel ciliate. Style length of the corolla. Stigmas two, ſhorter than the filaments, villoſe [i].

According to Vahl, his *Schoenus nemorum*, to which he refers Rheede's *Beera-Kaida*, (hort. malab. 12. 109. t. 58.) ſeems to agree with this, but he does not decide, Koenig's ſpecimens being imperfect in the fructification. On his authority, Vahl has made it a *Schoenus*.

Willdenow remarks, that reſpecting the genus it is yet doubtful; having a two-valved corolla. He ſuſpects that it may belong to the genus *Kyllingia*.

Native of the Eaſt Indies.

52. Culms very many, even, half a foot high. Leaves graſſy, clothing the baſe of the culm, even. Umbel looſe, diffuſed. Involucres general and partial leafy-ſetaceous, ſhorter than the umbel. Spikes peduncled except one which is ſeſſile in the ramifications of the umbel; all ovate, as ſmall as the ſeeds of Millet [k].

According to Retzius, the culms vary from half a foot to a foot and half in height. Leaves equitant at

[f] Linn. ſuppl. [a] Retzius. [b] Smith. [c] Idem.
[d] Ray ſyn. [e] Willdenow. [f] Retzius.
[g] Linn. zeyl. [h] Swartz obſ. [i] Vahl ecl.
[k] Retzius. [l] Linn. ſpec.

the base. Spikelets globular, by no means ovate. Stigmas two, bent.—Native of the East Indies.

53. Roots creeping, knotty at the extremities, sometimes more evidently and constantly so than they are in general; hence variety β. Stems upright, from a foot to three feet in height, striated, leafy, the angles roughish. Leaves linear, acute, very long, rugged at the edge, keeled, suddenly for the most part contracted to a sharp point; the lower ones sheathing and alternate, those under the panicle sessile and very unequal in length. Spikes terminating among the upper leaves, chestnut-coloured, glomerate, sessile or peduncled, ovate; peduncles three-sided, simple; sometimes cylindrical and very long. Glumes shining, dusky rusty-coloured, ovate, keeled, long-pointed, torn at the summit. Seeds triangular, flattest on one side, having mostly one short rough bristle at the base, sometimes more. So nearly are the genera of *Scirpus* and *Eriophorum* allied [l]!

There are many varieties of this species. The panicle is sometimes branched, sometimes simple. In some the spikes are sessile, and the stem-leaves shorter than the culm; in others they are longer; and in some plants the spikes are some sessile, others peduncled, as described above [m].

Desfontaines gives the knobby-rooted variety as a distinct species, under the name of *tuberosus*. He adds the synonyms of Caspar Bauhin, in our variety α; of Morison, in our variety γ; and of Scheuchzer, in our variety δ.—He doubts whether it be a distinct species from the *maritimus* of Linneus; but says that it differs not only in having roots with round knobs, but spikelets fewer in number, clustered, narrower, sessile or on short peduncles. He found it in lakes near La Calle in Barbary.

Linneus remarks, that the anatomy of the parts of fructification shows that all these varieties make but one species.

Native of Europe, Barbary and Siberia, on sea coasts, salt marshes and æstuaries, or the banks of great rivers exposed to the tide; flowering through july and august. At Sheerness and the Isle of Dogs. Near Yarmouth. Shirley wych near Stafford. Between Stockton and Porterack, by the Tees, &c.

The Bishop of Drontheim informs us that it is very greedily devoured by all sorts of cattle. Mr. Curtis suggests, that swine being extremely fond of the roots of *Sc. palustris*, which the Swedish peasants collect and fodder them with in the winter, and the roots of this species being much larger, it would probably be preferable to that for this or similar purposes.—Dr. Withering relates, that the roots, dried and ground to powder, have been used instead of flour in times of scarcity.

Monf. Villars observes of the Scirpi in general, that being mostly natives of bogs, marshes and watery places, they have a tendency to raise and dry such spots. The roots and base of the stems rot and become turf, and thus are useful for firing, and to fertilize grounds that we have exhausted by a long course of culture.

54. Culm erect, with the angles acute. Leaves sheathing, long, keeled, acute, striated, quite entire; the lower ones shorter. Spikelets from three to six, blunt, pale, single or two together from the top of the peduncles; which are three-sided, pubescent, unequal, short; the lower ones longer. Scales imbricate, ovate, concave, striated, mucronate, membranaceous at the edge. Spikelets sometimes sessile.—On banks of lakes near La Calle in Barbary, flowering in summer [n].

55. Culm a fathom high, almost as thick as the human finger, erect, the sides flat, very smooth, towards the root clothed with radicate lanceolate very smooth somewhat warted leaves. Spikelets ovate, ferruginous. Leaflets of the involucre rugged at the edge and one of them very long. It is very like *S. mitiaceus*, but differs much in thickness and size.—Native of the East Indies [o].

56. Culm more than a foot high, even. Universal involucre many-leaved: leaves ensiform longer than the umbel. Partial involucres scarcely any except a very short bristle. Middle peduncles of the umbel very short; all terminated by a little head, which is again proliferous. Heads roundish, composed of roundish spikelets in a ball.—Native of the East Indies [p].

Introduced in 1776, by Lady Ann Monson: and flowering here in auguft and ſeptember [q].

57. Culm ſolitary, erect, ſmooth. Leaves widiſh, rugged at the edge, thoſe next the root cloſely tufted; ſtem-leaves ſheathing, alternate; floral-leaves ſeſſile. Cyme many-flowered, ſuperdecompound, with three-ſided, rugged, alternate pedunels, and lanceolate membranaceous bractes. Spikes ſmall, ſolitary or heaped, ovate, duſky green. Glumes keeled, bluntiſh, undivided. Seeds ſurrounded by briſtles longer than the ſeed itſelf [r].

Native of Europe and Siberia in wet woods and ſhady places: as in Eſſex, Warwickſhire and Pembrokeſhire. Mr. Dale obſerved it by the river Blackwater, below Bocking. Mr. Newton, by the road to Kentiſh Town, a little beyond Pancras church [s]. Dr. Smith in Charlton wood. It has been ſeen formerly between Hampſtead and Highgate. Mr. Stone found it at Ditchingham, and Dr. Smith, in other parts of Norfolk [t]. Dr. Sibthorp, in Heythorp woods, Oxfordſhire. Ray, by the Thame ſide near Tamworth in Warwickſhire; in a brook near Haverford-weſt in Pembrokeſhire, and many other places [u]. Morton, between Kettering and Thorp-Maſſor in Northamptonſhire. Deering, near Nottingham. Mr. Aikin, in a ditch near York. And Mr. Brown, a little eaſt of Breakinbridge over the South Eſk, on the ſouth ſide. It flowers in july [x].

58. Culm two feet high. Leaves ſheathing at the baſe. Corymb terminating, with the middle peduncles longer and proliferous. Between the pedicels a leafy briſtle. Spikelets ferruginous, compoſed of imbricate ſcales, of which the upper ones are longer and convolute into a ſubulate ſpike. There is a ſimple peduncled corymb from the axil of each ſtem-leaf.—Native of the East Indies [y].

According to Swartz, *Sc. corymboſus* of *Syſtema Vegetabilium*, is the ſame with his *Schœnus ſurinamenſis*.

59. Culms filiform, two inches high. Leaves filiform, channelled, commonly longer than the culm, rough-haired, ſheathed at the baſe. Umbels with ſimple and umbelled peduncles. Involucres filiform, rough-haired, compoſed of from five to eight leaves, three of which are longer than the umbel. Involucrets ſhort, capillary. Spikelets ſomewhat angular. Scales brown, keeled, acuminate with the points divaricating. Found abundantly in Ceylon by Koenig [z].

60. Leaves radical, ſetaceous, channelled, erect, ſhorter than the culm. Culms from a hand to a foot in height. Involucre terminating two-leaved: leaflets ſetaceous, one ſcarcely longer than the ſpikes, the other often ſix times as long and more upright. Spikes heaped: ſcales awl-ſhaped, ſtanding out, knotted at the baſe, much imbricated.—Native of the East Indies [a].

61. Native of the East Indies.

62. Leaves radical linear, even, ſhorter than the culm. Culm a foot high, with one angle obliterated, ſo that it is in a manner irregularly quadrangular. Panicle like that of *Juncus buſonius*, but ſhorter. Univerſal involucre ſhorter than the panicle. Spikelets acutely three-cornered, few-flowered. Scales, eſpecially the three outer, acutely keeled, mucronate, between which a ſtamen or two, or a piſtil only, with a ſmall oblong germ, a ſimple ſtyle, and three long villoſe ſtigmas.—Native of China [b].

63. Height an inch or half an inch. Culm commonly reddiſh, naked or with a ſingle leaf at the baſe, the length of the ſcape. Head reddiſh. Involucre of two or three leaflets, the largeſt of which is twice or thrice the length of the head. Flowers one to four [c].

[l] Smith brit. and engl. bot.
[m] Hudſon and Scopoli.
[n] Desfontaines.
[o] Linn. ſuppl.
[p] Linn. ſpec.
[q] Hort. kew.
[r] Smith brit.
[s] Ray ſyn.
[t] Withering.
[u] Linn. amoen.
[x] Retzius.
[y] Linn. mant.
[z] Gouan.
[a] Retzius.

Leaves keeled, even. Involucre of about five unequal leaflets, much longer than the head. Flowers in a close terminating head, simple or compound. Spikelets pale green, ovate, imbricate with acuminate loosish scales [a].

Native of Germany, France about Montpellier, Italy, Media, Morocco by the river Sebon. It is an annual, which is the case with very few of the species.

64. Culms a hand high, upright, loose. Stem-leaves four or five, alternate, grassy, wide, loose, sheathing, often the length of the culm. Peduncles axillary and terminating, shorter than the leaves, with from three to five sessile spikes at the end, divaricating into a head. Spikes ovate, imbricate, rough with thin-set hairs, blunt, mucronate with an awn shorter than the scales, erect, ciliate, distant. In place of an involucre, one or two small subulate leaflets under the head. Native of the East Indies. Annual [a].

65. Culms a foot high, strict, even. Leaves on the stem three, alternate, very remote, sheathing, grassy, somewhat keeled, even, acute, erect, several times shorter than the culm. Head compound, terminating, roundish, appearing to be simple [b] but composed of several parcels of floscules heaped together. Scales terminated by a rough-haired slightly awned point. Involucre of the head three-leaved, unequal, scarcely longer than the head.—Native of the Cape of Good Hope [c].

66. Leaves radical, filiform, half-round on the outside, channelled on the inner side, length of the culm. Culms filiform, about a foot high. Head terminating, composed of numerous sessile equal spikes. Involucre setaceous, longer than the head, standing out laterally. Spikes ovate, imbricate in three rows, three-sided, brown with a pale edge, bluntish.—Native of the Cape of Good Hope and Guinea [c].

67, 68. Natives of the East Indies.

69. Culm lofty even striated. Head terminating, with the pedicels not conspicuous. Calyxes imbricate, acuminately squarrose or recurved. Universal involucre very long, three or four-leaved, reflexed, rugged at the edge [b].

S. cephalotes of Jacquin (hort. t. 97.) is quite a different plant from this of Linneus's [a].

S. junceus of Forster (prodr. n. 29.) a native of the Society Isles, seems, in Willdenow's opinion, to belong to the genus *Schoenus*.

S. capsularis of Loureiro, a native both of China and Cochinchina, is referred to the genus *Juncus*, by Willdenow. It has only three stamens, in which it agrees with this genus. (But as Willdenow remarks, some European species of *Juncus* have only three stamens.) It approaches in fructification to *Juncus*, in habit both to that and *Scirpus*, in calyx and corolla to neither. Loureiro chose to place it among the *Scirpi*, because there are many species of *Scirpus* in India, but few of *Juncus*.—The culm furnishes an excellent wick for candles and lamps. Juncus indicus porosus. *Clus. eur. post.* 64. seems to be this species [b].

SCIRPUS. See *Bobartia*, *Carex*, *Eriophorum*, *Juncus*, *Schoenus*, *Scleria*.

SCIORIS.

Lin. gen. Schreb. n. 53. Raputia. *Aubl. t.* 272. *Juss.* 421.

Class. 2. 1. Diandria Monogynia.

GENERIC CHARACTER.

CAL. *Perianth* one-leaved, five-toothed, short, acute.

COR. one-petalled, tubular, curved in, two-lipped. Upper lip trifid, with the middle segment a little longer: lower, a little shorter, bifid.

STAM. *Filaments* two, short, inserted into the upper lip, fenced by two scalelets at the base, antheriferous; three longer, inserted into the lower lip, hairy at the base, barren. *Anthers* oblong, bifid at the base.

PIST. *Germ* five cornered, surrounded by a gland. *Style* length of the corolla, curved in. *Stigma* flattish, three-lobed.

PER. *Capsules* five, united, outwardly rounded, depressed, one-celled, two-valved, opening inwardly.

SEEDS solitary, oblong.

ESSENTIAL CHARACTER.

Cor. unequal, with the upper lip trifid, the lower bifid and shorter. *Stam.* five, but three barren. *Caps.* five, united, one-celled, one-seeded.

SPECIES.

1. Sciuris aromatica.
Lin. spec. ed. Willd. 1. 153.
Raputia aromatica. *Aubl. guian.* 670. *t.* 272.

DESCRIPTION, *&c.*

This is a shrub, two feet in height, with opposite divaricating branches. Leaves opposite petioled ternate: leaflets oblong acuminate quite entire. Spikes axillary nodding [a].

The leaves have pellucid dots scattered over them. Each flower has a little bractle. It is allied to *Munniera* of Linneus, and *Galipea* of Aublet [b].

Native of Guiana, in woods.

SCLAREA. See *Salvia*.

SCLERANTHUS. (*From σκληρος hard or juiceless, and ανθος a flower.*)

Lin. gen. n. 562. *Reich. n.* 611. *Schreb. n.* 767. & *p.* 831. *Gærtn. t.* 126. *Juss.* 314. Knawel. *Dill. gen.* 3.

Class. 10. 2. Decandria Digynia.

Nat. order of *Caryophylleæ*. *Portulaceæ*, Juss.

GENERIC CHARACTER.

CAL. *Perianth* one-leafed, tubular, half-five-cleft, acute, permanent, contracted at the neck.

COR. none.

STAM. *Filaments* ten, awl-shaped, erect, very small, placed on the calyx. *Anthers* roundish.

PIST. *Germ* roundish. *Styles* two, erect, capillary, length of the stamens. *Stigmas* simple.

PER. none.

SEED single, (or two) ovate, inclosed in the cartilaginous tube of the calyx.

ESSENTIAL CHARACTER.

Cal. one-leafed, inferior. *Cor.* none. *Seeds* two inclosed in the calyx.

SPECIES.

1. Scleranthus annuus. *Annual Knawel.*
Lin. spec. 580. *Jacq.* 415. *Reich.* 2. 323. *Willd.* 2. 660. *fl. succ. n.* 377. *hort. cliff.* 166. *Gærtn. fruct.* 2. 196. *Hudf. angl.* 178. *Wither. arr. ed.* 3. 407. *Smith brit.* 458. *engl. bot. t.* 351. *Relh. cant. n.* 313. *Sibth. oxon. n.* 403. *Fl. dan. t.* 504. *Hall. helv. n.* 1551. *Hoffm. germ.* 145. *Roth. germ.* 1. 183. 2. 467. *Pollich pal. n.* 404. *Leers herborn. n.* 310. *Kruck. sile. n.* 643. *Neck. gallob.* 192. *Villars dauph.* 3. 649. *Allion. pedem. n.* 1998. *Gmel. sib.* 3. 39. *t.* 6. *f.* 2.
Knawel annuum. *Scop. carn. n.* 501. *Rupp. jen.* 3.
Knawel. *Dod. pempt.* 115. 1. *Raii syn.* 159. *Petiv. brit. t.* 9. *f.* 6.
Polygonum gramineo folio majus erectum. *Baub. pin.* 281.
P. anguſtiſſimo & gramineo folio minus repens. *Baub. pin.* 281.
P. minus alterum. *Tabern. hiſt.* 1217.
P. Germanis Knawel. *Trag. hiſt.* 393.
P. ſelinoides ſ. Knawel. *Ger.* 452. 2. *emac.* 566. 4.
P. germanicum ſ. Knawel Germanorum. *Park. theat.* 447. *f.* 7. *Raii hiſt.* 213. 1.
Calyxes of the fruit patulous acute, ſtems ſpreading.

2. Scleranthus perennis. *Perennial Knawel.*
Lin. ſpec. 580. *Jacq.* 415. *Reich.* 2. 323. *Willd.* 2. 661. *fl. ſuec. n.* 378. *Hudſ. angl.* 178. *Wither. arr. ed.* 3. 407. *Smith brit.* 458. *engl. bot. t.* 352. *Fl. dan. t.* 563. *Hoffm. germ.* 145. *Roth. germ.* 1. 183. 2. 468. *Pollich pal. n.* 405. *Leers herborn. n.* 311. *Hall. helv. n.* 1550. *Kruck. ſile. n.* 644. *Villars dauph.* 3. 649. *Allion. pedem. n.* 1999. *Gmel. ſib.* 3. *t.* 6. *f.* 1. *Knipb. cent.* 10. *n.* 76. *Plenck, ic. t.* 344.
Knawel incanum flore majore perenne. *Raii hiſt.* 213. *ſyn.* 160. *t.* 5. *f.* 1. *Petiv. brit. t.* 9. *f.* 5.
Polygonum minus polycarpon. *Tabern. hiſt.* 1215.
Alchimilla gramineo folio, majori flore. *Tournef. inſt.* 508. *Vaill par. t.* 1. *f.* 5.

[a] Desfontaines. [b] Linn. spec. [c] Loureiro. [d] Linn. mant. [e] Idem. [f] Swartz obs. [g] Willdenow. [h] Jus[illegible]

Saxifraga anglicana alſinefolia. *Ger.* 453. *emac.* 567. 5.

S. anglica occidentalium Lobelii. *Park. theat.* 427. *n.* & *f.* 2.

β. Polygonum cocciferum. *Camer. epit.* 691. *Mor. hiſt.* 2. *ſ.* 5. *t.* ult. *f.* 2. *ord.* 1.

P. polonicum cocciferum. *Bauh. hiſt.* 3. 378.

Calyxes of the fruit cloſed obtuſe, ſtems procumbent.

3. Scleranthus polycarpus.

Lin. ſpec. 581. *Reich.* 2. 324. *Willd.* 2. 661. *amoen.* 4. 313. *Villars dauph.* 3. 649.

Polycarpus. *Dalech. hiſt.* 444.

Polygonum montanum Vermiculatæ foliis. *Bauh. pin.* 281.

Vermiculata nova planta. *Col. ecphr.* 1. 295. *t.* 294.

Alchemilla ſupina gramineo folio, minore flore. *Tournef. inſt.* 508. *par.* 49 & 378.

Calyxes of the fruit ſpreading very much and ſpiny, ſtem ſubvilloſe.

DESCRIPTIONS, *&c.*

1. Root annual, fibrous, ſmall but ſtriking deep, little or not at all branched. Stems very numerous, ſpreading in all directions, the outermoſt decumbent at the baſe only, not proſtrate their whole length, all round, a little downy, branched at top, leafy, pale ſometimes reddiſh. Leaves oppoſite, united at their baſe by a dilated membranous downy margin, linear, acute, ciliate at the bottom, of a graſſy green. Heads of flowers of the ſame colour, ſeſſile, terminating, leafy. Calyx with ten ribs, and cloven half way down into five ſharp ſpreading ſegments a little membranous at their edges. Stamens ſhorter than the calyx, ſometimes ten, but generally from five to eight, of which ſeveral are ſhort and imperfect. Germ ſuperior, ovate. Styles ſpreading. Stigmas downy. Seed incloſed in the permanent hardened calyx, often ſolitary, (as Dillenius, Haller, Leers, Adanſon and Gærtner remark) but there are certainly rudiments of two ſeeds, though one of them is commonly abortive [a]. Branches either oppoſite or alternate, always woolly. Leaves ſmooth above. Stamens ſix to nine, generally eight, two or three of them twice as long as the reſt and producing pollen, the others barren [b].

According to Leers the ſtamens are from five to ſeven; Gærtner ſays from five to ten. The latter deſcribes the pericarp as formed from the ripened calyx, coriaceous-ſuberous and almoſt nucamentaceous, involving the ſeed and not parting from it. Seed one, ovate-acuminate, ſmooth, pale ſtraw-colour: covering three-fold: the outmoſt from the calyx, hard, perforated at the top; the middle, membranaceous, looſe, bearing the ſtyle; the inmoſt like a cobweb. The middle integument might, with Linnæus, be conſidered as a utricular capſule.

Native of Europe and Siberia.—Scarcely any plant is more common than this on a ſandy ſoil, eſpecially in fallow fields. It flowers about the middle of ſummer, and ſows its ſeeds very abundantly in autumn, which produce a crop of young plants that generally ſurvive the winter, or, if deſtroyed, are replaced by another crop ariſing from thoſe ſeeds that happen not to vegetate till ſpring [c].

The Swedes and Germans receive the vapour ariſing from a decoction of it into their mouths, to cure the tooth-ach [d].

2. Root perennial, as it is ſaid. It has the habit of the preceding, but the ſtems are perfectly proſtrate, and cloſe preſſed to the ground, downy in the upper part, much branched eſpecially towards their extremities. The colour of the whole herb is glaucous, and ſomewhat glittering with ſhining pellucid tubercles. Leaves ſometimes pubeſcent. Segments of the calyx with a wider membranous border than in S. annuus; their points much more obtuſe and curved inwards. The earlier flowers at the end of ſummer are of a very ſilvery appearance, and attract the eye at a diſtance. The ſtamens are ſeldom or ever all perfect. Calyx, in the flowering ſtate cloven rather more than half way down, but not ſo when the germ ſwells, externally pubeſcent. The whole plant when growing old becomes of a reddiſh brown [e].

Stems ſometimes, but not always woolly. Leaves ſea-green, fringed at the edge. Calyx not perfectly cloſed, but leſs open than in *S. annuus* [f].

Native of Europe and Siberia. In England at leaſt it is much more rare than the preceding, having hitherto been obſerved only in Norfolk and Suffolk; always on the drieſt barren ſandy heaths. Mr. Ray firſt found it at Elden in Suffolk, between Newmarket and Thetford. It has been ſince diſcovered about Bury by Sir Thomas Gery Cullum, Mr. Woodward, and Mr. Mathew; and near Snettiſham in Norfolk by Mr. Crowe. It flowers in november.

The Poliſh Cochineal (Coccus polonicus) is found upon the roots in the ſummer months: hence ſome authors have a variety of this ſpecies, under the name of Polygonum cocciferum [g].

3. Root annual. Stem branching and procumbent, a little villoſe and aſh-coloured, as are alſo the leaves. Flowers terminating, whitiſh, with a calyx ſlightly membranaceous. Anthers twice as large as in the firſt ſpecies [h].—Native of France and Italy.

Miller mentions the two firſt ſpecies, but gives neither character nor deſcription.

Lightfoot (app. 1134.) informs us, that the third ſpecies is ſaid to have been found at Broomholm near Langholm in Eſkdale, Scotland: but this report has not been confirmed.

SCLERIA. (*So named by Bergius, from* Σκληρος, *hard; on account of the hardneſs of the ſeed and whole plant.*)

Lin. gen. Schreb. n. 1408. *Berg. act. holm.* 1765. *t.* 4. *Retz.* 4. 13. *Gærtn. t.* 2. *Swartz prodr.* 18.

Claſſ. 21. 3. Monoecia Triandria.

Nat. order of *Calamariæ.*

GENERIC CHARACTER.

Male flowers in the ſame ſpikelet or panicle mixed with the females.

* *Male ſpikelets* ſolitary, or androgynous.

CAL. *Glume* from two to ſix-valved, many-flowered: *valves* ovate, acute, keeled, concave, awnleſs, permanent.

COR. *Glumes* very many, oblong, awnleſs, longer and more ſlender than thoſe of the calyx, ſeparating the ſtamens.

STAM. *Filaments* ſolitary or three, within each corolline glume. *Anthers* linear.

* *Female ſpikelets* ſolitary, axillary, terminating, or inſerted between the male calycine glumes.

CAL. *Glume* two to four-valved, one-flowered: *valves* ovate, acute, awnleſs, keeled, concave, permanent.

COR. none.

PIST. *Germ* roundiſh, attenuated at the baſe. *Style* filiform, length of the glumes, undivided or trifid. *Stigmas* capillary, reflexed.

PER. none.

SEED. *Nut* ſubglobular or oblong, coloured, ſhining. *Nucleus* roundiſh, veined.

ESSENTIAL CHARACTER.

MALE. *Cal.* Glume from two to ſix-valved, many-flowered awnleſs.

Cor. Glumes awnleſs. *Filam.* one to three.

FEM. *Cal.* from two to ſix-valved, one-flowered, awnleſs. *Stigmas* one to three.

SEED. *Nut* ſubglobular, ſomewhat bony, coloured.

SPECIES.

1. Scleria Flagellum.

Berg. act. holm. 1765. 144. *t.* 4. *Swartz prodr.* 18. *deſcr.* 88.

S. margaritifera. *Gærtn. fruct.* 1. 13.

Schoenus ſecans. *Lin. amoen.* 5. 391.

S. lithoſpermus. *Lin. ſpec.* 65.

Carex lithoſperma. *Lin. ſyſt. ed.* 13. 706. *ed.* 14. 846.

Gramen cyperoides ſylvaticum maximum geniculatum aſperius, ſemine nullis foliis. *Sloane jam.* 1. 118. *t.* 77. *f.* 1. *Raii hiſt.* 3. 624.

[a] Smith brit. & engl. bot.
[b] Gough. Woodw. and Stokes in Withering.
[c] Engl. bot. [d] Withering.
[e] Smith brit. & engl. bot.
[f] Woodw. and Haller in Withering. [g] Withering.
[h] Villars.

Culm three-sided scandent very rugged, leaves prickly backwards three ways, flowers panicled, rachis villose.

2. Scleria mitis.
Berg. act. holm. 1765. 145. *t.* 5. *Swartz prodr.* 18. *descr.* 90.
Carex tenuior altissime scandens. *Brown. jam.* 335?
Culm three-sided scandent even, leaves even, flowers panicled, rachis smooth.

3. Scleria lithosperma.
Swartz prodr. 18.
Scirpus lithospermus. *Lin. spec.* 1. 51.
Cyperus. *Mor. hist.* 3. 237. *s.* 8. *t.* 11. *f.* 16.
Carex amboinica. *Rumph. amb.* 6. 20.
Kaden-Pullu. *Rheed. mal.* 12. 89. *t.* 48.
Culm three-sided somewhat rugged erect, leaves strict linear rugged at the edge, flowers panicled, rachis rough.

4. Scleria filiformis.
Swartz prodr. 19. *descr.* 91.
Culm simple filiform even, leaves subulate, spike almost simple, floscules smooth having a filiform leaflet under them.

5. Scleria hirtella.
Swartz prodr. 19. *descr.* 93.
Culm simple filiform pubescent, leaves linear, spike simple, floscules rough-haired.

6. Scleria latifolia.
Swartz prodr. 18. *descr.* 95.
Culm three-sided leafy erect even, leaves broad-lanceolate nerved, flowers panicled.

7. Scleria poæformis.
Retz. obs. 4. 13.
Culm leafless, panicles contracted with flexuose branches, spikelets sessile, female spikes axillary, males two-flowered.

8. Scleria tenuis.
Retz. obs. 4. 13.
Culm leafy, leaves unarmed, panicle capillary, flowers sessile, outer male, inner female.

9. Scleria lævis.
Retz. obs. 4. 13.
Culm leafy, leaves unarmed, branches of the panicle divided involucred, male spikes sessile and peduncled.

DESCRIPTION, *&c.*

1. Culm climbing very high, flaccid, subdivided, striated, hispid with very minute bristles, and the angles rugged with very short recurved prickles. Leaves sheathed, a foot long, linear, acute, striated, keeled, smooth above with a longitudinal hispid line, hispid beneath, with the keel and edges prickly backwards. Sheaths strict, short, with a truncate hairy ligule. Panicles axillary, on compressed prickly peduncles from the sheaths of the leaves; ovate with simple spreading subvillose branches. Floral leaflets bristle-shaped, short at the base of the branches and pedicels of the panicle. Pedicels alternate furrounded at the base by a little sheath. Males mixed with the females. In the males, the calycine glume is six-valved, with the upper valves larger, all compressed at the top. Glumes of the corolla membranaceous, lanceolate. Filaments three or fewer, setaceous, length of the corolline glumes.—In the females, glumes from four to six-valved; the inner valves shorter. Germ oblong, bluntly three-cornered. Stigma simple, acute. Nut placed on the base of the permanent calyx, globular, brown and white variegated, with a tubercled whitish top[s].

According to Gærtner, the male spikelets are oblong, pyramidal, imbricate with ovate-acuminate scales; of which the lower are less and empty, the upper gradually longer having three stamens within each. The female spikelets are sessile, imbricate with from four to six rigid smooth scales; of which the lower are less, and the two uppermost very large, ovate-acuminate, hemispherical-concave when ripe. Corolla at the bottom of the calyx three-petalled: petals rounded, concave, membranaceous, very thin white and small. Nut coriaceous-crustaceous, globular depressed a little, produced below into an umbilical tubercle, smooth, shining, white or tinged with violet, one-celled, valveless. Seed or kernel one, of the same form with the nut, bay with branched vesse[l]. Gærtner does not seem to have distinguished this species from the *lithosperma*.

Though Linneus placed it first in *Schœnus* and afterwards in *Carex*, he seems to have been well aware of its difference from both.

Sloane says it runs fifteen feet high among bushes, supported by them; that there is a hollow between the angles of the culm, as in a sword-blade; that the culm and leaves are of a very dark green; and that the seed which comes out between two black glumes, is roundish, large, whitish like that of Gromwell or pearl Barley.

Native of Jamaica, Surinam, and Africa.

2. Culm erect, scandent, without knots, smooth, with the angles even. Leaves lanceolate-linear, slightly keeled, whitish, striated, paler, smooth on both sides. Sheaths long, close, smooth; with a lanceolate blunt ligule. Panicles from the sheaths of the upper leaves, elongated, contracted; with the branches simple, alternate, three-sided, smooth. Flowers smaller on very short pedicels. Glumes of the calyx and corolla in the males a little more ovate than in the preceding. Filaments three. In the females, glumes one-flowered; the inner ones larger. Nut placed on the calyx, globular, snow-white, black and tubercled at the top, girt at the base by a little ciliate membrane.—Native of Jamaica and Surinam[t].

Swartz suspects it may possibly be the climbing Carex of Browne; the stalk of which he says is slender, and rises to a considerable height, when supported by bushes.

Native of the East Indies, Africa near the Cape of Good Hope, and the Isle of Tanna in the Pacific Ocean. It approaches to the *latifolia*, but the culm is rugged, and the leaves are linear with the edges rugged.

4. This is a rushed grass. Culm from one to two feet high, erect, loose, sharply three-sided, smooth. Leaves linear, keeled, acute, alternate, sessile not sheathing, hispid at the edge, and (when examined with a magnifier) cartilaginous-serrate, smooth. Spikes terminating, simple; or peduncles from two to four, alternate, few-flowered; on which are floscules from three to six, male and female mixed, sessile, approximating with a capillary leaflet under them at the base. Under the valves are a few very small scales. In the males, glume of the calyx four-valved: outer valves smaller, keeled, acute, often purplish at the tip, closed. Glumes of the corolla many interior, small, linear, acute, imbricate, whitish. Filaments one between the valves, length of the glumes of the males, by the side of the corolline glumes. Germ roundish, whitish. Style filiform, length of the glumes, three-parted to the middle. Stigmas capillary, reflexed. Nut ossified, oblong or roundish bluntly three-cornered, white, very hard, inclosing the seed. It approaches to *lithosperma*, but the culm is simple and short, and the flowers not panicled but in a sort of spike.

Native of Jamaica and Hispaniola, in very dry rocky places.

5. This grass is scarcely a foot high. Roots small filiform, black. Culm erect, three-sided, striated, loose. Leaves slightly sheathing at the base, distant, very narrow, slightly keeled, rough-haired. Spike terminating, composed of three or four clustered floscules, which are sessile, alternate, rough-haired. In the males, the glumes of the calyx are from two to four-valved, two-flowered, awnless: valves lanceolate, acute, ciliate at the edge with ferruginous hairs: one or two glumes, interior, more tender, smaller, corolline. Filaments solitary.—Females in the same bundle, solitary. Glume two-valved, one-flowered: valves broad-lanceolate, ciliate. Style bifid or trifid. Stigmas villose, reflexed. Nut ossified, globular, shining, white. Very different from *filiformis* at first sight.

Native of Jamaica.

[s] Swartz.

[t] Idem.

6. This graſs is a fathom in height. Culm undivided. Leaves from one to two feet in length, ſheathing at the baſe, often an inch wide, folding longitudinally, rigid. Sheaths acuminate in front. Panicles terminating, or from the axils of the upper leaves erect, ſtrict, ſomewhat branched; branchlets alternate, with male and female flowers ſcattered, diſtinct, ſubſeſſile or pedicelled, having a ſmall leaf always under the floſcules. Males terminating: glume of the calyx three or four-valved, two or three-flowered: valves ovate, acute, keeled, permanent, ſmooth. Inner corolline glumes ſmaller, narrower. Filaments three, very minute.—Females more numerous, below the others. Glume four-valved, one-flowered: the two outer valves lanceolate, the two inner broad-ovate, acuminate, permanent. Germ roundiſh. Style trifid at the top and permanent. Stigmas reflexed, villoſe, whitiſh. Seed globular, ſomewhat bony, marked with a whitiſh point ſtanding out.

Native of Jamaica, eſpecially in the weſtern parts, in dry mountain woods[*].

7. Culm three-cornered, with flat ſides. Common peduncle of the panicle multangular; the others triangular. Male ſpikelets cylindrical, alternate. Under each branch of the panicle a capillary leaflet. It has almoſt the appearance of a Poa.

Native probably of the Eaſt Indies, ſince it was ſent by Koenig.

8. This has the appearance of a ſlender ruſh. Leaves filiform. Panicle ſmall, little divided. All the flowers, except thoſe which are at the end of the branches, ſeſſile within the common ſcales, one male exterior and one female interior.—Koenig communicated it from Ceylon.

9. This has many things in common with *S. mitis* of Bergius. Male ſpikelets ſeſſile and pedunculed; all the females ſeſſile. Under each branchlet of the panicle a leaflet or filiform involucre. Leaves and culm narrower.

Native of the Eaſt Indies[*].

SCLEROCARPUS. (*From σκληρος hard, and καρπος, fruit.*)

Lin. gen. Schreb. n. 1327. *Jacqu. fil. aſt. helv.* 9. 34. *t.* 2. *Gærtn.* 2. 428. *Juſſ.* 186.

Claſſ. 19. 3. Syngeneſia Polygamia Fruſtranea.

Nat. order of *Diſcoideæ*. *Corymbiferæ*, Juſſ.

GENERIC CHARACTER.

CAL. *Common* of ſix leaflets, of which three are exterior, three interior, alternately: *exterior* bigger, of the ſame ſtructure and appearance with the leaves, ſpreading; two large, the third leſs: *interior* linear, channelled, acute, erect with a ſpreading tip, length of the floſcules.

COR. *Compound*, radiate: *Corollets* hermaphrodite ten in the diſk: *Female* three in the ray, each within one of the interior calycine leaflets.

Proper of the Hermaphrodites tubular, five-cleft:—of the Female ligulate, roundiſh.

STAM. in the Hermaphrodites *Filaments* five capillary. *Anthers* five, ſmall, united, each awned at the tip.

PIST. in the Hermaphrodites: *Germ* oblong, compreſſed, outwardly gibbous. *Style* filiform, length of the corollet. *Stigma* deeply bifid, revolute. In the Females, *Germ* ſlender. *Style* none. *Stigma* none.

PER. none, except the chaffs involving the ſeeds.

SEEDS in the Hermaphrodites ſolitary, oblong, compreſſed, with the outer margin gibbous, the inner ſtraight. *Pappus* none. The Females have no ſeed.

REC. convex, ſmall. *Chaffs* of the hermaphrodites cartilaginous, compreſſed, gibbous at the back, ſtriated and tubercled, opening at the inner ſtraight ſide, the margins converging inwards flat and even, the apex terminated by a ſhort almoſt upright neck: mouth oblique, acuminate outwards; each incloſing a ſingle ſeed. Chaffs of the Females ſtraightiſh, cylindrical, ſlender, ſhorter.

ESSENTIAL CHARACTER.

Cal. ſix-leaved, three exterior larger, like the leaves, three interior ſmaller, like ſcales, alternate. *Pappus* none. *Recept.* chaffy.

[*] Swartz.

SPECIES.

1. Sclerocarpus africanus.

Jacqu. nov. aſt. helv. 1. 34. *t.* 2. *icon. rar. Lin. ſyſt.* 783. *Gærtn. fruct.* 2. 428.

DESCRIPTION, *&c.*

1. Herbaceous but ſomewhat woody, with alternate three-nerved leaves, and terminating ſolitary flowers. Florets in the diſk about eight fertile; in the ray from one to four, neuter. Chaffs permanent, hardening, acuminate. Seeds ovate, ſubcompreſſed, (or diminiſhed obovate) remarkably narrowed downwards, black and ſhining, each wrapped up in the chaff[*].—Native of the Cape of Good Hope.

SCLOPENDRA. See *Ophioglooſſum*.

SCOLOPENDRIA. See *Aſplenium*.

SCOLOPENDRIÆ FACIE. See *Arnica*.

SCOLOPENDRIUM. See *Aſplenium*.

SCOLOPIA. (*Σκολοπια from σκολοψ, a ſharp ſtake or thorn; the ſame with σκολοπενδρα or σκολοπενδριον, the name of a plant in Theophraſtus &c.*)

Lin. gen. Schreb. n. 846. Limonia. *Gærtn. t.* 58.

Claſſ. 12. 1. Icoſandria Monogynia.

GENERIC CHARACTER.

CAL. *Perianth* one-leafed, three or four-parted, permanent: *ſegments* ovate, obtuſe, concave, ſpreading.

COR. *Petals* three or four, oblong, ſubcoriaceous, obtuſe, ſpreading, permanent, twice the length of the corolla.

STAM. *Filaments* numerous, filiform, flattiſh below, villoſe at the baſe, ſpreading, permanent, length of the corolla, inſerted into the calyx. *Anthers* linear.

PIST. *Germ* roundiſh, ſuperior. *Style* cylindrical, ſtraight, longer than the ſtamens. *Stigma* thickened, three-lobed, impreſſed above with three little pits.

PER. *Berry* roundiſh, crowned with the permanent ſtyle, one-celled.

SEEDS ſix, rounded-four-ſided, arilled. *Arils* membranaceous, thin, pulpy, angular, two faſtened to three ribs, glued to the inner wall of the berry.

OBS. *The ribs eaſily ſeparate from the berry, and are reſolved into ſix unequal threads, from the apex of which the arils hang down.*

ESSENTIAL CHARACTER.

Cal. inferior, three or four-parted. *Cor.* three or four-petalled. *Berry* crowned with the ſtyle, one-celled, ſix-ſeeded. *Seeds* arilled.

SPECIES.

1. Scolopia puſilla.

Lin. ſpec. ed. Willd. 2. 981.

Limonia puſilla. *Gærtn. fruct.* 1. 279.

Malus ſimonia lentiſci folio zeylanica, fructu minimo uvariæ magnitudine. *Pluk. alm.* 239.

DESCRIPTION, *&c.*

Berry elliptic-ſpheroidal, crowned with a ſhort ſtyle, fleſhy-coriaceous, divided within into three incomplete cells by three prominencies. Pulp ſeparated every way from the cells by a very thin membrane, and formed into three ſoft oblong bags, in which the ſeeds are lodged. There are generally two ſeeds in each bag, ſeldom three, placed on each other, obliquely and irregularly truncate at the point of contact, in other parts ſubovate, convex on one ſide, angular on the other, black and ſomewhat ſhining.

Native of Ceylon, where it is called *Khatu-Kurundu*, or thorny Cinnamon; whence we may conjecture that it reſembles the Cinnamon in leaves and outward appearance, but differs from it in having thorns[*].

SCOLOSANTHUS. (*From σκωλος a thorn, and ανθος a flower.*)

Vahl ed. 1. 11. *t.* 10.

Claſſ. 4. 1. Tetrandria Monogynia.

Nat. order of *Luridæ*. *Rubiaceæ*, Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* one-leafed, ſuperior, ſmall, four-cleft: *ſegments* linear-lanceolate, four times ſhorter than the corolla, acute, ſpreading.

COR. one-petalled with claws, tubular, before it opens exactly four-cornered, the angles acute, a little curved in, gradually widening upwards; when opened bluntly

[*] Juſſ. and Gærtner.

[*] Gærtner.

four-cornered. *Border* four-cleft: *fegments* ovate, acute, revolute.

STAM. *Filaments* four, erect, ſcarcely placed at the bottom of the corolla, cohering a little at the baſe in a four-cornered ſmooth tube, a little hairy below. *Anthers* linear, erect, the length of the tube.

PIST. *Germ* inferior, ſmall. *Style* capillary, a little longer than the corolla. *Stigmas* two, ſmall, obtuſe, a little thicker than the ſtyle.

PER. *Drupe* ſubglobular, ſize of black pepper, ſmooth, ſucculent, mucronate with the permanent calycine ſegments.

SEED one, in an oblong, ſomewhat ſtony, one-celled ſhell.

ESSENTIAL CHARACTER.

Cal. four-cleft. *Cor.* tubular with a revolute border. *Drupe* one-ſeeded.

SPECIES.

1. Scoloſanthus verſicolor.
   Lin. ſpec. ed. Willd. 1. 607. *Vahl ecl.* 1. 11.
   Cateſbæa parviflora. *Lamarck encycl. & meth. bot.* 1. 67.

DESCRIPTION, *&c.*

This is a ſmall ſhrub, approaching in habit to *Juſticia ſpinoſa*. Branches round, alternately compreſſed at top, remote, commonly oppoſite, rarely alternate, ſometimes biſid, the thickneſs of a packthread, green with a tinge of aſh-colour, appearing pubeſcent when examined by a magnifier, jointed, the internodes about half an inch in length; the joints ſurrounded by a ſort of ring formed by the ſhort evaneſcent membrane of the ſtipules. Leaves ſubſeſſile, oppoſite, from two to five on each ſide, more ſeldom ſolitary, ſcarcely half an inch long; others a little ſmaller, obovate, quite entire, ſubcoriaceous, veinleſs, herveleſs, ſhining. Spines commonly in pairs, from each alternate axil, connate at the baſe, divaricating, for the moſt part a little longer than the leaf, rigid, purpliſh, often floriferous at one of the tips. They are the younger ſpines that commonly bear the flowers, and they keep growing on after the flowers are fallen. Flowers on very ſhort peduncles: thoſe from the apex of a ſpine ſolitary, a little ſmaller, moſtly drooping, purple, abortive: others axillary, ſolitary or more rarely two or four together, erect, ſaffron-coloured, fertile. Fruit ſnow-white. Diſcovered in the iſland of Santa Cruz by Ryan [a].

SCOLYMOCEPHALA, SCOLYMOCEPHALUM. See *Protea*.]

SCOLYMUS (*of Pliny,* Σκολυμος *of Dioſcorides, and Heſiod. Theophraſtus has* σκολυμιδες φυλλα.)
   Lin. gen. n. 922. *Reich. n.* 1001. *Schreb. n.* 1252. *Tournef. t.* 273. *Vaill. act. gall.* 1721. 41, 42. *Juſſ.* 171. *Gærtn. t.* 157. *Deſfont. t.* 218.
   Claſſ. 19. 1. «Syngeneſia Polygamia Æqualis.
   Nat. order of *Compoſitæ Semiflоſculoſæ. Cichoraceæ*, Juſſ.

GENERIC CHARACTER.

CAL. *Common* imbricate, ovate: *ſcales* numerous, lanceolate, ſpiny, looſe.

COR. *Compound* imbricate, uniform: *corollets* hermaphrodite, numerous, equal.
   Proper one-petalled, ligulate, linear, truncate, very finely five-toothed.

STAM. *Filaments* five, capillary, very ſhort. *Anther* cylindrical, tubular.

PIST. *Germ* oblong. *Style* filiform, longer than the ſtamens. *Stigmas* two, reflexed.

PER. none. *Calyx* unchanged.

SEEDS ſolitary, ſomewhat oblong, triangular, acuminate at the baſe. *Pappus* none.

REC. chaffy, convex: *chaffs* roundiſh, flat, three-toothed at the tip, longer than the ſeeds and ſeparating them.

ESSENTIAL CHARACTER.

Cal. imbricate, ſpiny. *Pappus* none. *Recept.* chaffy.

SPECIES.

1. Scolymus maculatus. *Annual Golden Thiſtle.*
   Lin. ſpec. 1143. *ſyſt.* 722. *Reich.* 3. 666. *Scop. carn. n.* 992. *Gouan monſp.* 419. *Allion. pedem. n.* 755. *Kniph. cent.* 9. *n.* 85. *Deſfont. atlant.* 242.

[a] Vahl.

Scolymus. *Lin. hort. cliff.* 388.—annuus. *hort. ups.* 244. *Ger. prov.* 175. 1. *Villars dauph.* 3. 57.

S. gymnoſpermos. *Gærtn. fruct.* 2. 355.

S. chryſanthemus annuus. *Dodart. mem.* 111. *acad.* 1666. 4. 393. *Tournef. inſt.* 480. *Vaill. acad.* 1721. *p.* 219.

S. Theophraſti. *Lob. ic.* 2. 6.—narbonenſis. *Cluſ. hiſt.* 2. 153.

Spina lutea. *Bauh. hiſt.* 3. 84.

Carduus chryſanthemus narbonenſis. *Ger. emac.* 1155. 2. *Raii hiſt.* 258.

Cardui chryſanthemi altera icon. *Dod. pempt.* 725.

Flowers ſolitary, leaves cartilaginous at the edge, involucres pectinate-multifid.

2. Scolymus hiſpanicus. *Perennial Golden Thiſtle.*
   Lin. ſpec. 1143. *ſyſt.* 722. *Reich.* 3. 666. *Gouan monſp.* 419. *Naill. fig. t.* 229. *Forſk. ægypt. cent.* 5. 145. *Allion. pedem. n.* 756. *Deſfont. atlant.* 241.

S. vivax. *Sauv. monſp.* 294.

S. perennis. *Ger. prov.* 175. 2. *Villars dauph.* 3. 57.

S. angioſpermos. *Gærtn. fruct.* 2. 356.

S. chryſanthemos. *Bauh. pin.* 384. *Tournef. inſt.* 480. *Garid.* 434. *Vaill. acad.* 1721. *p.* 219. *Zanich. iſt. t.* 175.

S. Theophraſti hiſpanicus. *Cluſ. hiſt.* 2. 153. *Tabern. ic.* 694.

Carduus Chryſanthemos. *Dod. pempt.* 725. *Ger.* 993. 1. *Raii hiſt.* 257.—hiſpanicus. *Ger. emac.* 1155. 1.

Flowers heaped; involucres leafy tooth-ſpiny.

[3. Scolymus grandiflorus. *Great-flowered Golden Thiſtle.*
   Deſfont. atlant. 240. *t.* 218.

S. chryſanthemos ægyptiacus perennis ferocior. *Vaill. acad.* 1721. *p.* 219.

Flowers ſolitary, the upper ones approximating, involucres coriaceous nerved lanceolate acute.]

DESCRIPTIONS, *&c.*

1. This is an annual plant, which riſes with a branching ſtalk four or five feet high, having leafy wings running along the ſides from joint to joint, ſcalloped and indented; the borders of theſe are thinner than the other parts, and are armed all the way with very ſharp ſpines; at each joint are ſtiff leaves, which are jagged and armed with ſtrong ſpines; they are pale green and ſeſſile. The flowers are produced at the top of the ſtalks incloſed in leafy involucres, longer than the flowers, and armed with very ſtrong ſpines: within theſe the calyxes are armed with ſhort ſpines. The flowers are compoſed of many golden florets.

[It is an annual herb, with a ſlender root. Stem more branched below. Leaves ſmooth, ſhining, with a cartilaginous border, decurrent almoſt to the baſe of the ſtem. Flowers ſolitary from the divarications. Corolla ſmaller with brown anthers [a].

According to Gærtner, the flowers of this are larger and moſtly ſolitary, and the leaves are thickened at the edge. But theſe marks are by no means certain or conſtant, the true ſpecific difference therefore ought to be taken from the chaffs of the receptacle not involving the ſeeds. Hence he has named it *gymnoſpermos*.

Root fuſiform, often branched. Stems ſubvilloſe, with the wings unequally toothed and ſpiny. Branches numerous, ſpreading. Stem-leaves rigid, ſpiny, variegated with white ſpots, ſinuate-lobed, with cartilaginous edges, unequally toothed, the teeth ſpiny. Flowers ſolitary or aggregate on a common peduncle along the branches and from the point of diviſion. Bractes four or five, coriaceous, pectinate, cartilaginous at the edge, longer than the corolla: teeth long, almoſt equal, awl-ſhaped, ending in a prickle. Corollets linear, toothed at the end, yellow. Anthers brown. Seeds even, convex on one ſide, neſtling in the chaffs of the receptacle (which is contrary to Gærtner's opinion.) Receptacle conical. Chaffs ſhort, blunt. It differs from the others in having an annual root, the upper leaves cartilaginous at the edge, the bractes pectinate, the flowers ſmaller, the anthers brown, and

[a] Linn. ſyſt.

the ſeeds being deſtitute of a pappus or down. There is a great confuſion of ſynonyms in Gærtner[f].

Native of the South of Europe, and of Barbary.—This, ſays Johnſon, (in Ger. emac.) I ſaw this year (1633,) growing in the garden of Mr. John Tradeſcant, ſenior, at South Lambeth.]

2. Root perennial (biennial,) from which ſpring up many thick ſtalks, that riſe about three feet high, branching out on the ſides the whole length, and having ſtiff jagged leaves, the borders of which are thicker than the other part, and armed with ſpines as in the preceding: the ſtalks alſo have leafy borders as the other, ſtrongly armed with ſpines. The flowers are produced at the top of the ſtalks, and are ſhaped like thoſe of the former ſort. They ſit cloſe, and are ſo cloſely guarded by long leaves armed with ſtrong ſpines, that it is very troubleſome to reach the flower.

[This flowers the ſecond year, and has a fuſiform root. Stem leſs branched below. Leaves ſomewhat rugged, aſh-coloured, not cartilaginous at the edge, decurrent, but ending before the next leaf. Flowers commonly four, headed or aggregate. Corolla double the ſize of the other with anthers of the ſame colour[g].

According to Gærtner, the calyx when mature is ſmaller than that of the preceding, and fenced with narrower leaves: the receptacle very convex and almoſt globular: the chaffs membranaceous, obovate, folded together by the edges bending inwards, and thus almoſt concealing each ſeed as in a ſheath, (whence he improperly names this ſpecies *angioſpermos*.) Seeds obovate, remarkably acuminate downwards, a little convex on one ſide and marked with a double longitudinal line, on the other flattiſh with a ſingle line along the middle. Integument ſingle, membranaceous, ſnow-white but not ſhining. The preceding, beſides this membranaceous coat, has an exterior one, that is coriaceous, thickiſh and hard. In that alſo the receptacle is almoſt flat; the chaffs oblong, keeled, ciliate, narrower than the ſeeds, which are naked, ovate, ſmooth, ſhining, pale ſtraw-coloured or ruſeſcent.

Allioni aſcribes a pappus, of two or three awns readily falling off, to this ſpecies, which Gærtner has never ſeen in cultivated plants. He adds that Ehrhart affirms of the ſeed of Scolymus that it is two-awned, but he does not mention the ſpecies.

Deſfontaines deſcribes the root as fuſiform, often branched; the branches of the ſtem ſpreading, villoſe, winged; the wings ſpiny, unequally toothed, the teeth ending in a prickle; the flowers ſeſſile, ſolitary or aggregate; the bractes (involucre) torn, rigid, lanceolate, leafy, channelled, a little longer than the flower, unequally tooth-ſpiny at the edge, acute; ſcales of the calyx linear-lanceolate, often ending in a prickle; corollets yellow, linear, attenuated upwards, toothed at the end; anthers yellow; ſeeds even, obovate, convex on one ſide, neſtling in the chaffs of the receptacle, having two or three deciduous awns; receptacle hemiſpherical, with ſhort blunt chaffs. It differs from the next ſpecies, to which it is allied in having a branched, loftier ſtem, the leaves ſemidecurrent, the bractes leafy, the flowers numerous ſometimes aggregate, and the corollas ſmaller by half.

Deſfontaines conſiders it as biennial. Miller ſays it will continue ſeveral years.

Villars is diſpoſed to make one ſpecies of theſe. The firſt, he ſays, is annual; the leaves ſmooth, ſpotted with white like our Lady's Thiſtle, and a cartilaginous border; the ſtems are more branched, leſs ſtraight, as are alſo the roots, and the flowers are at the ends of the branches, commonly by threes, and ſomewhat ſmaller.

The ſecond has the leaves more cut, not ſo thick, larger, and a little pubeſcent; the ſtem ſtraight, commonly ſimple, with axillary flowers having the calyx a little villoſe; the root is perennial, ſimple and fuſiform; ſoft and ſweet like Scorzonera, and as good to eat as that.]

Mr. Miller ſays, that the leaves, ſtalks and root abound with a milky juice; that the people of Salamanca eat it in the ſame manner as Chardon, and that the Spaniards ſophiſticate their Saffron with the flowers.

[Native of the South of Europe, and of Barbary. Cultivated in the botanic garden at Oxford, in 1658. It flowers from July to ſeptember. The preceding in july and auguſt[h].

3. Root perennial, fuſiform, white, the thickneſs of a finger. The whole plant milky. Stem ſimple or very ſparingly branched, erect, villoſe, winged: wings unequally tooth-ſinuate: teeth ſpiny at the end. Leaves alternate, rigid, decurrent, long, variegated with white veins, ſinuate-lobed; lobes ovate and lanceolate, acute, unequally toothed; teeth ending in a prickle. Flowers axillary, ſolitary, ſeſſile, three four or five from the top of the ſtem; the lower for the moſt part more remote. Bractes (involucre) three, involving the calyx, (in the terminating flower fix,) thick, coriaceous, lanceolate, channelled, acute, painted longitudinally with white and green nerves; toothed at the edge with rigid, uniform, remote, horizontal teeth, ſpiny at the end. Scales of the calyx linear-lanceolate, ſmooth, frequently terminated by a ſpinule, membranaceous at the edge; the outer ſcales ſhorter, blunt; the inner acute. Corollets yellow, lanceolate, narrower at top, toothletted at the end. Anthers yellow. Seeds even, ſmooth, obovate, convex on one ſide, neſtling in the chaffs of the receptacle. Pappus has two or three deciduous brittle awns. Receptacle hemiſpherical, chaffy: the chaffs compreſſed and obtuſe.—This is a very beautiful ſpecies, flowering early in ſpring, and now cultivated in the European gardens.

Native of Egypt, and very common in the fallows of Barbary. The Arabs eat the ſtalks both raw and boiled[i].]

PROPAGATION AND CULTURE.

Sow the ſeeds in march or april, on a bed of freſh undunged earth, in an open ſituation; when the plants come up keep them clear from weeds, and thin them ſo as to leave them about two feet aſunder. As they ſend forth tap-roots, they do not bear tranſplanting well. If the ſeaſon ſhould prove warm and dry, they will perfect their ſeeds in autumn; but in wet ſeaſons they rarely perfect their ſeeds in England. In that caſe freſh ſeeds muſt be procured from abroad: or the ſecond and third may be increaſed by offsets.

SCOLYMUS. See *Cynara*.

SCOPARIA. (*From* Scopa, *a beeſom*; *to which uſe it is adapted.*)

Lin. gen. n. 143. *Reich. n.* 149. *Schreb. n.* 187. *Gærtn. t.* 53. *Juſſ.* 118.

Claſſ. 4. 1. Tetrandria Monogynia.

Nat. order of *Perſonatæ*. *Scrophularia*, Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* one-leafed, four-parted, concave: *ſegments* ſlender, rugged.

COR. one-petalled, wheel-ſhaped, ſpreading, concave, four-parted: *ſegments* tongue-ſhaped, obtuſe, equal; *throat* bearded.

STAM. *Filaments* four, equal, awl-ſhaped, ſhorter than the corolla. *Anthers* ſimple.

PIST. *Germ* conical. *Style* awl-ſhaped, length of the corolla, permanent. *Stigma* acute.

PER. *Capſule* oblong-conical, acuminate, one-celled, two-valved.

SEEDS very many, oblong.

ESSENTIAL CHARACTER.

Cal. four-parted. *Cor.* four-parted, wheel-ſhaped. *Capſ.* one-celled, two-valved, many-ſeeded.

SPECIES.

1. Scoparia dulcis. *Sweet Scoparia.*
Lin. ſpec. 168. *ſyſt.* 157. *Reich.* 1. 326. *Willd.* 1. 652. *Jacqu. amer.* 17. *pict.* 14. *Brown. jam.* 145. *Vahl ſymb.* 1. 12. *Lour. cochinch.* 1. 71. *ed. Willd.* 1. 89. *Gærtn. fruct.* 1. 251. *Pluk. phyt. t.* 215. *f.* 1. (Phytenoides.)

Scoparia ternata. *Forſk. deſcr.* 31. *n.* 7.

[f] Deſfontaines. [g] Linn. ſyſt. [h] Hort. kew. [i] Deſfontaines.

Capraria. *Lin. hort. cliff.* 320.
Samoloides. *Boerh. lugdb.* 2. 265.
Veronica americana erecta fruteſcens & ramoſa. *Herm. parad.* 241. *t.* 241.
V. fruticoſa erecta dulcis, hexangulari caule. *Sloan. jam.* 1. 195. *t.* 108. *f.* 2.
β. Tupeicava. *Pif. braſ.* 246.
Leaves in threes, flowers peduncled.
[2. Scoparia procumbens.
Lin. ſpec. 168. *fil.* 157. *Reich.* 1. 326. *Willd.* 1. 632. *Jacqu. amer.* 18. *pict.* 14.
Leaves in fours, flowers ſeſſile.
3. Scoparia arborea.
Lin. fil. 157. *Willd.* 1. 653. *ſuppl.* 125. *Thunb. prodr.* 29.
Leaves lanceolate alternate quite entire, corymb ſuperdecompound tricbotomous.]

DESCRIPTIONS, &c.

1. Root annual. Stalk hexangular, riſing near two feet high, and ſending out many branches, which have three leaves placed round at each joint; theſe are about an inch long, and a quarter of an inch broad, ſerrate, and of a deep green colour: the flowers come out from the ſide of the ſtalks at each joint on peduncles: they are ſmall, white, and their petals have bearded threads on their edges.

It is upright, and attains the height of three feet. Leaves oblong, acute, attenuated into the petiole. Peduncles one-flowered, axillary. The ſegments of the corolla have many hairs at the baſe equalling the ſtamens[a].

The branches, as well as the leaves, are in threes; the leaves ſeſſile and ſmooth[b].

Capſule ſmall, ſpherical, with a groove on each ſide, thin, two-celled and two-valved. (Loureiro ſays it is ovate and four-valved.) Partition membranaceous, very thin, diaphanous, parallel to the valves and faſtened to their future. Receptacle orbicular, depreſſed a little, ſpongy, faſtened along the partition on each ſide. Seeds numerous, ſmall, ovate-globular, obſcurely angular, having very minute holes in rows, ſomewhat of a ruſt colour[c].

Native of Jamaica and all the Caribbee iſlands and the neighbouring continent; alſo in Cochinchina.—The French call it *Balai doux* or Sweet Beeſom; the Spaniards *Eſcobilla menuda* or Little Beeſom. An infuſion of it is uſed by both in diſorders of the breaſt[d]. According to Browne, it may deſervedly be conſidered as an excellent vulnerary.

It was cultivated in 1730 by Mr. Miller, and flowers from June to September[e].

β. Piſo's plant, in his herbarium, was ſubvilloſe[f].

2. This plant is ſcarcely half a foot high, with nearly the ſame habit as the preceding; but with the ſtems dichotomous, procumbent at bottom and then upright. Leaves awl-ſhaped, acuminate, ſmall, ſtiffiſh, in fours with the two interior oppoſite ones a little ſhorter. Flowers white, ſeſſile, ſmall, in the forkings of the branchlets, and in ſome of the axils. The tube of the corolla is fringed at top, but there are no hairs at the baſe of the ſegments. In other reſpects it agrees with the preceding.

Native of Carthagena in New Spain, on the ſandy coaſt about Boca Chica[g].

3. This is a tree, having the habit of the Olive or of Phillyrea. The inflorescence is very large and extremely compounded. The flowers are ſmall.

Native of the Cape of Good Hope, where it was found by Thunberg[h].]

PROPAGATION AND CULTURE.

1. Sow the ſeeds upon a hot-bed in the ſpring; and when the plants are fit to remove, plant them upon a freſh hot-bed, ſhading and watering them, until they have taken new root; after which admit air to them daily according to the warmth of the ſeaſon, and refreſh them frequently with water. In June they may be taken up with balls of earth to their roots, and planted into open borders, where they will flower, perfect their ſeeds in the autumn, and periſh.

[SCOPARIA. See *Chenopodium*, and *Lecbea*.

SCOPOLIA. (*So named by Dr. Smith, in honour of Giovanni Antonio Scopoli, Profeſſor of Chemiſtry and Botany at Pavia, author of* Flora & Entomologia Carniolica, Delectæ Floræ Faunæque Inſubricæ, *and many other works in Metallurgy, Zoology and Botany. He died on the 8th of may 1788.*)

Smith, ic. ined. 2. poſt. 34. Cranzia. *Schreb. gen. n.* 362. & *Diſſ. noſtr.*

Claſſ. 5. 1. Pentandria Monogynia.

ESSENTIAL CHARACTER.

Cal. five-cleft. *Nect.* none. *Stigma* capitate. *Caps.* berried, five-celled. *Seeds* ſolitary.

SPECIES.

1. Scopolia aculeata.
Smith, ic. ined. 2. poſt. 34. *Willd. ſpec.* 1. 1215.
Paullinia aſiatica. *Lin. ſpec.* 524. & *Diſſ. noſtr.*
Cranzia aculeata. *Diſſ. noſtr.*
Toddalia. *Juſſ. gen.* 371. *Lamarck encycl.* 1. 139. *f.* 1.
Chamælea trifoliata aculeata. *Burm. zeyl.* 58. *t.* 24.
Stem prickly, leaves ovate acuminate.
2. Scopolia inermis.
Willd. ſpec. 1. 1116.
Toddalia. *Lamarck encycl.* 1. 139. *f.* 2.
Stem unarmed, leaflets obovate obtuſe.

OBSERVATIONS.

This plant has already appeared twice in our Dictionary; firſt as the *Paullinia aſiatica* of Linneus; ſecondly as the *Cranzia* of Schreber; and here thirdly as the *Scopolia* of Smith.—The *Scopolia* of the younger Linneus's Supplement, is referred by Dr. Smith to the genus *Daphne*. The *Scopolia* of Jacquin is conſidered by the elder Linneus as a ſpecies of *Hyoſcyamus*. And the *Scopolia* of Forſter, has obtained another name of *Griſelinia lucida* from the author himſelf. That ſo eminent, though unfortunate a naturaliſt, ſhould not want a name, Dr. Smith has conſecrated this plant to his memory, with an elegant and handſome teſtimonial to Scopoli's great merits.—Juſſieu's and Lamarck's name *Toddalia*, from the Indian *Kukatoddali*, is barbarous. And another plant has received the name of *Cranzia*, from Swartz, in his Prodromus[i].

Willdenow remarks, that the leaves are ternate; the panicles racemed and axillary. For the reſt ſee *Cranzia* and *Paullinia aſiatica*.

2. This has the habit of the preceding, and alſo ternate leaves, but yet it is ſufficiently diſtinct by the ſtem being unarmed, the leaflets obovate, obtuſe, and the flowers in terminating corymbs. Suppoſed to be a native of the Iſle of Bourbon[i].

SCORIO AFFINIS. See *Rhinanthus*.

SCORODUM. See *Moluccella, Nepeta, Stemodia, Teucrium*.

SCORODYS. See *Nepeta*.

SCORODONIA. See *Scrophularia, Teucrium, Verbena*.

SCORODOPRASUM. See *Allium*.

SCORODO-THLASPI. See *Thlaſpi*.

SCORPII SPINA. See *Eryngium*.

SCORPIOIDES. See *Hedyſarum, Myoſotis, Ornithopus, Scorpiurus*.

SCORPION-GRASS. See *Myoſotis*.

——SENNA. See *Coronilla Emerus*.]

SCORPIURUS (*of Pliny.* Σκορπιουρος, *Scorpion's tail, from the twiſting of the pod.*)

Lin. gen. n. 846. *Reich. n.* 959. *Schreb. n.* 1201. *Gærtn. t.* 155. *Juſſ.* 361. Scorpioides. *Tournef. t.* 226.

Claſſ. 17. 4. Diadelphia Decandria.

Nat. order of *Papilionaceæ* or *Leguminoſæ*.

GENERIC CHARACTER.

CAL. *Umbel* ſimple.
Perianth one-leaved, erect, inflated, very ſlightly compreſſed, half-five-cleft, acute: teeth almoſt equal: the *upper* ones leſs divided.
COR. papilionaceous. *Banner* roundiſh, emarginate, reflexed, ſpreading. *Wings* ſubovate, long, with a blunt

[a] Jacquin. [b] Loureiro. [c] Gærtner. [d] Jacquin. [e] Hort. kew. [f] Linn. ſpec. [g] Jacquin. [h] Linn. ſuppl. [i] Smith. [j] Willdenow.

appendix. *Keel* half-mooned, with the *belly* gibbous, acuminate, erect, two-parted below.

STAM. *Filaments* diadelphous, (simple and nine-cleft,) ascending. *Anthers* small.

PIST. *Germ* oblong, cylindrical, a little reflexed. *Style* bent in upwards. *Stigma* a terminating point.

PER. *Legume* oblong, subcylindrical, coriaceous, striated, rugged, revolute, divided internally into several transverse cells, obtusely knobbed externally by the contractions of the joints.

SEEDS solitary, roundish.

ESSENTIAL CHARACTER.

Legume divided by isthmuses or transverse partitions, revolute cylindrical.

SPECIES.

1. Scorpiurus vermiculata. *Common Caterpillar.*
   Lin. spec. 1050. *fil.* 671. *Reich.* 3. 497. *Scop. carn. n.* 916. *Allion. pedem. n.* 1247. *Rivin. tetr.* 210. *Gærtn. fruct.* 2. 345. *Mor. hist.* 2. 127. *f.* 2. *t.* 11. *f.* 3. (Scorpioides.)
   Scorpioides siliqua crassa Boelii. *Tournef. inst.* 402. *Ger. emac.* 1627. *Raii hist.* 931.
   Peduncles one-flowered, legumes covered all over with blunt scales.

2. Scorpiurus muricata. *Two-flowered Caterpillar.*
   Lin. spec. 1150. *Reich.* 3. 497. *Scop. carn. n.* 917. *Villars dauph.* 3. 398. *Allion. pedem. n.* 1248. *Knipb. cent.* 8. *n.* 82. *Mor. hist. f.* 2. *t.* 11. *f.* 4. (Scorpioides.)
   Scorpioides bupleuri folio pluribus corniculis asperis. *Park. theat.* 1117. 2.
   Peduncles two-flowered, legumes bluntly prickly outwards.

3. Scorpiurus sulcata. *Furrowed Caterpillar.*
   Lin. spec. 1050. *Reich.* 3. 497. *hort. cliff.* 364. *Scop.* 1338. *Gærtn. fruct.* 2. 346. *Villars dauph.* 3. 399. *Desfont. atlant.* 174. *Mill. fig. t.* 270.
   Scorpioides Bupleuri folio. *Bauh. pin.* 287. *Tournef. inst.* 402. *Mor. hist. f.* 2. *t.* 11. *f.* 2.
   S. Bupleuri folio. *Lob. ic.* 457. *Ger.* 267. *emac.* 337. 1.
   S. prius. *Bod. pempt.* 72.
   Campodes hirsuta. *Rivin. tetr. t.* 96.
   Peduncles subtriflorous, legumes with distinct acute spines on the outside.

4. Scorpiurus subvillosa.
   Lin. spec. 1050. *Reich.* 3. 498. *Allion. pedem. n.* 1249. *Desfont. atlant.* 173. *Knipb. cent.* 9. *n.* 96. *Mor. hist. f.* 2. *t.* 11. *f.* 11. (Scorpioides.)
   Peduncles mostly four-flowered, legumes with acute spines in clusters outwardly.

DESCRIPTIONS, &c.

1. Stalks herbaceous, trailing, above a foot long, lying on the ground, and having at each joint a spatulate leaf on a long four-ſtalk. Peduncles axillary, ſuſtaining at the top one yellow flower, which is ſucceeded by a thick twiſted pod, the ſize and appearance of a large green caterpillar.

[Stem half a foot high. Leaves lanceolate, decurrent into the petiole, having ſtaccid villoſe hairs ſcattered over them above, acuminate, quite entire. Bractes in pairs, erect, narrow, attenuated, longer than the banner of the corolla. Peduncles near two inches in length, ſhorter than the leaf. Banner ſtriated with eight reddiſh lines at the baſe. Wings placed at the apex of the keel. Filaments widening at the top. Stigma ovate. Legume marked with ten raiſed waved ſtreaks[a].

Legume round, thick, rolled into a cloſe ſpiral, ſwelling a little where the ſeeds are; covered all over on the outſide with headed ſcalelets in longitudinal rows; divided within into ſix or nine cells, valveleſs and not ſeparating at the joints. Seeds ovate-globular, ſmooth, ſtraw-coloured or ruſeſcent, faſtened to the outer ſide of the cells. Navel in the middle of the back[b].

Native of the South of Europe. Cultivated in 1621, by Mr. John Goodyer[c].]

2. This has ſtronger ſtalks than the firſt; the leaves are much broader; the peduncles ſupport two ſmaller flowers; the pods are ſlender, longer and more twiſted, and are armed with blunt ſpines on their outſide.

[Scopoli remarks, that it has the appearance, duration, ſtature, &c. of the preceding; differing only in having the peduncles two-flowered, longer than the leaf; and the pod rough with angular ciliate lines.

Native of the South of Europe.

It was cultivated here in 1640, as appears from Parkinſon[d].]

3. This has ſlenderer ſtalks than either of the former; the leaves ſtand upon ſhorter ſpoonſtalks, but are ſhaped like thoſe of the firſt ſort; the pedunicles are ſlender, and frequently ſuppore three flowers; the pods are ſlender, not ſo much twiſted as the former, and armed on their outſide with ſharp diſtinct ſpines.

[The pods are channelled more viſibly than thoſe of the preceding; and the briſtles are diſtinct and ſtiffer[e].——According to Gærtner, the legume is roundiſh, ſlender, rolled into a looſe waved ſpiral, jointed, grooved, four of the dorſal grooves ſpiny, the others, as alſo the ventral ones unarmed. Joints ſeven to ten, curved, valveleſs, not ſeparating. Seeds roundiſh, curved a little, ferruginous.

Native of the South of Europe, and Barbary about Algiers. Cultivated by Gerarde, in 1596[f].

4. Stems ſtriated, ſubvilloſe, procumbent. Leaves wide-lanceolate, quite entire, petioled, ſubvilloſe, acute. Stipules narrow-lanceolate, acute. Peduncles axillary, naked, ſtriated, twice or thrice the length of the leaf. Flowers ſmall, in fours, terminating. Calyx half-five-cleft, with awl-ſhaped ſegments. Corolla yellow. Keel acute. Legume twiſted, echinate with numerous little briſtles[g].

The ſtalks and leaves of this are very like thoſe of the firſt, but the peduncles are longer, and each has three or four ſmall yellow flowers at the top: the pods are very ſlender, greatly contorted, and armed with ſhort ſpines in cluſters on their outſide.

[Native of the South of Europe, and Barbary about Algiers.

Linneus ſays there is no doubt but that all theſe are originally derived from one ſpecies; that ſoil and ſituation are not adequate to their generation, for then, on changing theſe again, they would return to their former ſameneſs. What mixture then, he aſks, can have produced theſe conſtant plants? Whoever would either unite or diſtinguiſh them, might have arguments on his ſide.

Desfontaines has another ſpecies, which he names *Scorpiurus purpurea*. It is allied to the firſt ſpecies, and has one flower on a long peduncle, as that has: but the ſtems and leaves are hirſute: the corolla purple: the legume grooved and very ſhortly muricate, not ſcaly, as in *S. vermiculata*.

Native of Algiers.]

Mr. Miller has alſo another ſpecies with pinnate leaves, which he therefore names *Sc. pinnata*.—It has very ſhort ſtalks: the leaves have four or five pairs of ſmall leaflets, terminated by an odd one: the flowers are ſmall, as are alſo the pods, which are leſs twiſted than in the others.

[Gærtner remarks, that in this whole family or natural order, the embryo is not long and round, or ſhaped like the ſhaft of a column, (teres) except in *Hippocrepis* and this genus.]

PROPAGATION AND CULTURE.

Theſe plants are preſerved in ſeveral curious gardens, for their oddneſs more than for any great beauty: they are all of them annual plants, which are propagated by ſowing their ſeeds upon a bed of light freſh earth; and when the plants are come up they ſhould be thinned, ſo as to leave them about ten inches or a foot aſunder; becauſe their branches trail upon the ground; and if they have not room, they are apt to overbear each other, and thereby are very often rotted, eſpecially in moiſt ſeaſons. The weeds ſhould alſo be diligently cleared from them, otherwiſe they will grow over and deſtroy them. In June theſe plants will produce ſmall, yellow flowers, which are ſucceeded by

[a] Scopoli. [b] Gærtner. [c] Hort. kew. [d] Villars and Desfontaines. [e] Desfontaines. [f] Hort. kew.

pods ſo much like caterpillars, that a perſon at a ſmall diſtance would imagine they were real caterpillars feeding on the plants; and it is for this oddneſs of their pods, that theſe plants are chiefly preſerved.

Theſe plants ſeldom thrive well if they are tranſplanted; therefore the beſt method is, to put in three or four good ſeeds in each place where you would have the plants remain; which may be in the middle of large borders in the pleaſure-garden, where, being intermixed with other plants, they will afford a pleaſing variety. When their pods are ripe, they ſhould be gathered and preſerved in a dry place till the following ſpring, in order to be ſown.

The firſt ſort is the beſt worth cultivating, the pods being large and more viſible than the others, and more in form of a caterpillar.

[SCORPIURUS. See *Eliſia* and *Myoſotis*.

SCORPIUS. See *Genſta*.

SCORTEA. See *Ceccoloba*.]

SCORZONERA, (*quaſi Viperaria, from the Catalonian* Eſcorſo, *a Viper*. Tournefort.)

Lin. gen. n. 906. Reich. n. 985. Schreb. n. 1230 Tournef. t. 169. Vaill. act. gall. 1721. 53. 13. 16. 14. Juſſ. 170. Gærtn. t. 159. Scorzoneroides. *Vaill. act. gall. 1721. fig. iiſdem.*

Claſſ. 19. 1. Syngeneſia Polygamia Æqualis.

Nat. order of *Compoſitæ Semiflosculoſæ. Cichoraceæ*, Juſſ.

GENERIC CHARACTER.

CAL. *common* imbricate, long, ſubcylindrical: *ſcales* about fifteen, ſcarioſe at the edge.

COR. *compound* imbricate, reniform: *corollets hermaphrodite* numerous, the outer a little longer.

Proper one-petalled, ligulate, linear, truncate, five-toothed.

STAM. *Filaments* five, capillary, very ſhort. *Anther* cylindrical, tubular.

PIST. *Germ* oblong. *Style* filiform, length of the ſtamens. *Stigmas* two, reflexed.

PER. none. *Calyx* ovate-oblong, converging and finally ſpreading and reflexed.

SEEDS ſolitary, oblong, cylindrical, ſtriated, ſhorter by half than the calyx. *Pappus* feathered, (ſeſſile, with chaffy and briſtly rays mixed. *Gærtn.*)

REC. naked.

OBS. Scorzonera of *Vaillant has entire leaves.*

Scorzoneroides, *V. has divided and laciniated leaves.*

ESSENTIAL CHARACTER.

Cal. imbricate with ſcales ſcarioſe at the edge. *Pappus* feathered, ſeſſile. *Recept.* naked.

SPECIES.

[1. Scorzonera tomentoſa. *White Viper's-graſs. Lin. ſpec. 1112. Reich. 3. 615. Pallas it. 3. 682.*

S. orientalis latifolia nervoſa candidiſſima & tomentoſa. *Tournef. cor. 36.*

Leaves ovate nerved tomentoſe quite entire ſeſſile.]

2. Scorzonera humilis. *Dwarf Viper's-graſs. Lin. ſpec. 1112. ſyſt. 710. Reich. 3. 615. hort. cliff. 382. Fl. ſuec. n. 685. mat. med. 178. Fl. dan. t. 816. Hall. helv. n. 10. Pollich pal. n. 723. Scop. carn. n. 948. Jacqu. auſtr. 1. 24. t. 36. Villars dauph. 3. 74. Allion. pedem. n. 837.*

S. humilis latifolia nervoſa. *Bauh. pin. 275. Tourn. inſt. 476. Garid. 434. Mor. hiſt. ſ. 7. t. 9. f. 4. v. n. 8.*

S. hum. latif. pannonica. *Cluſ. hiſt. 2. 138. Park. theat. 409. n. 2. Raii hiſt. 249.*

Viperaria pannonica. *Ger. emac. 737. f. 3.*

Tragopogonis ſpecies, ſ. Sc. humilis latifolia. *Bauh. hiſt. 2. 138.*

Stem almoſt naked one-flowered, leaves broad-lanceolate nerved flat.

[3. Scorzonera parviflora. *Small-flowered Viper's-graſs. Lin. ſyſt. 710. Jacqu. auſtr. 4. t. 305.*

Stems branched, leaves linear-enſiform entire, ray of the corolla very ſhort.]

4. Scorzonera hiſpanica. *Garden Viper's-graſs* or *Spaniſh Scorzonera.*

Lin. ſpec. 1112. Reich. 3. 615. hort. cliff. 383. upſ. 242. Scop. carn. n. 951. Allion. pedem. n. 838. Villars dauph. 3. 75. Gmel. ſib. Gron. orient. 244. Blackw. t. 406. Knip. cent. 3. n. 83. D'Aſſo arag. n. 746. Gærtn. ſemin. t. 167.

S. latifolia ſinuata. *Bauk. pin. 275. Tournef. inſt. 476.*

S. hiſp. major. *Park. parad. 301. 1. t. 297. f. 5. Raii hiſt. 248.*

S. major hiſp. 1. *Cluſ. hiſt. 2. 137.*

Viperaria, ſ. Sc. hiſp. *Ger. emac. 736. f. 1.*

Tragopogon hiſpanicus ſ. Scorzonera. *Bauh. hiſt. 2. 1061.*

Stem branched, leaves embracing entire ſerrulate.

[5. Scorzonera undulata. *Wave-leaved Viper's-graſs. Vahl ſymb. 2. 86. Deſfont. atlant. 219.*

S. græca ſaxatilis foliis anguſtis undulatis tomentoſis. *Tournef. cor. 39.*

Stems linear-lanceolate attenuated tomentoſe waved, ſtem ſomewhat branched.]

6. Scorzonera graminifolia. *Graſs-leaved Viper's-graſs. Lin. ſpec. 1112. Reich. 3. 616. Jacq. obſ. 4. 13. t. 100. Allion. pedem. n. 839. Buxb. cent. 2. 26. t. 21? Gmel. ſib. 2. 4. Tournef. inſt. 477.*

Leaves linear-enſiform entire keeled.

7. Scorzonera purpurea. *Purple-flowered Viper's-graſs. Lin. ſpec. 1113. ſyſt. 711. Reich. 3. 616. Jacqu. auſtr. 1. t. 35. Scop. carn. n. 949. t. 46. Gmel. ſib. 2. 7. t. 2. Deſfont. atlant. 219. Poiret itin. 2.*

S. anguſtifolia ſubcærulea. *Bauh. pin. 275. Raii hiſt. 249. Tournef. inſt. 476. Vaill. acad. 1721. p. 209.*

S. elatior anguſtifolia Pannonica. *Park. theat. 410. n. 4.*

S. anguſtif. elatior. *Ger. emac. 737. f. 4.*

S. ſylveſtris foliis anguſtis flore cæruleo. *Mentz. pug. t. 1. f. 1. Raii hiſt. 250. 12.*

Leaves linear-ſubulate entire channelled three-ſided, peduncles cylindrical.

8. Scorzonera anguſtifolia. *Narrow-leaved Viper's-graſs. Lin. ſpec. 1113. Reich. 3. 616. mant. 457. Hall. helv. n. 11. Scop. carn. n. 950. Jacqu. vind. 140. Gouan monſp. 406. Villars dauph. 3. 75. Ger. prov. 159. 3. Gmel. ſib. 2. 2. t. 1.*

S. anguſtif. prima. *Bauh. pin. 275. Tournef. inſt. 476. Garid. 434.*

S. pannonica anguſtifolia. *Ger. 598. f. 6. emac. 737. f. 5. Raii hiſt. 249.*

S. humilis anguſtif. pannonica 3. *Cluſ. hiſt. 2. 137. t. 138.*

Tragopogon piniſolium hiſpanicum. *Barr. ic. 496?*

Tragopogonis ſpecies ſ. Sc. humilis anguſtifolia. *Bauh. hiſt. 2. 1061.*

Leaves ſubulate entire, peduncles thickened, ſtem villoſe at the baſe.

[9. Scorzonera hirſuta. *Hairy Viper's-graſs. Lin. ſyſt. 711. Reich. 3. 617. mant. 278.*

Tragopogon hirſutum. *Bauh. pin. 274. Raii hiſt. 251. Tournef. inſt. 477. Garid. 469. t. 95. Ger. prov. 157. 2.—humile. Park. theat. 412. n. 6.*

T. alter luteus. *Col. ecphr. 1. 234. t. 233.*

T. apulum humile hirſutum luteum. *Col. ecphr. 1. 233. t. 232. Ger.*

Leaves linear hirſute, ſtem one-flowered hirſute.]

10. Scorzonera reſedifolia. *Spreading Viper's-graſs. Lin. ſpec. 1113. ſyſt. 711. Reich. 3. 617. Gouan illuſtr. 53. Vahl ſymb. 2. 87. D'Aſſo arag. n. 749. Villars dauph. 3. 76. Barr. ic. 1. 800.*

Leontodon mucronatum. *Forſk. deſcr. 144.*

Chondrilla ſicula Tragopogonoides maritima. *Boec. ſic. 13. t. 7. f. A & C.*

Leaves linear tooth-pinnatifid ſmooth, calyxes cartilaginous with a whitiſh tip, ſtem erect.

[11. Scorzonera calcitrapifolia. *Vahl ſymb. 2. 87.*

S. orientalis foliis calcitrapæ flore flavescente. *Tournef. cor. 36.*

S. pratenſis, foliis laciniatis glabris. *Buxb. cent. 2. 27. t. 22.*

S. reſedifolia. *Retz. obſ. 3. 42.*

Tragopogon reſedæ minoris folio, ſupinum. *Barr. ic. t. 800.*

Lower leaves lyrate with the ſegments oblong and mucronate, the upper pinnatifid.]

12. Scorzonera

12. Scorzonera laciniata. *Cut-leaved Viper's-graſs.*
Lin. ſpec. 1114. *ſyſt.* 711. *Reich.* 3. 617. *hort. upſ.* 242. *Hall. helv. n.* 12. *Pollich pal. n.* 734. *Jacq. auſtr.* 4. 29. *t.* 356. *Gouan monſp.* 406. *Ger. prov.* 159. 4. *Villars dauph.* 3. 76. *Allion. pedem. n.* 840. *D'Alſo arag. n.* 750. *Gaertn. fruct.* 2. 367.
S. foliis laciniatis. *Tournef. inſt.* 477. *Sauv. monſp.* 692. *Garid.* 434.
Tragopogon laciniatum luteum. *Bauh. pin.* 274. *Raii hiſt.* 251.
T. lacin. majus. *Park. theat.* 411. *f.* 3.
T. lacin. fol. *Col. phyt.* 116. *t.* 32.
T. reſedæ minoris folio erectum. *Barr. ic.* 1. 799.
Leaves linear toothed acute, ſtem erect, ſcales of the calyxes from ſpreading mucronate.
[13. Scorzonera coronopifolia. *Buckſhorn-Plantain-leaved Viper's-graſs.*
Deſfont. atlant. 2. 200. *t.* 212.
S. brevicaulis. *Vahl ſymb.* 2. 88. *t.* 44.
Leaves pinnatifid laciniate pubeſcent, ſtem almoſt naked ſimple one-flowered.
14. Scorzonera orientalis. *Levant Viper's-graſs.*
Lin. ſpec. 1113. *Reich.* 3. 618.
Leaves ſinuate toothletted acute, ſtems one or two-flowered.
15. Scorzonera taraxacifolia. *Dandelion-leaved Viper's-graſs.*
Lin. ſyſt. 711. *Jacqu. miſc.* 3. *icon. rar.*
Leaves runcinate petioled, ſcape branched leafleſs.
16. Scorzonera tingitana. *Poppy-leaved Viper's-graſs.*
Lin. ſpec. 1114. *Reich.* 3. 618. *hort. upſ.* 282. *hort. cliff.* 385. (Sonchus.) *Forſk. ægypt.* 5. 143. *Curt. magaz.* 1. 142.
Picridium tingitanum. *Deſfont. atlant.* 220.
Sonchus tingitanus papaveris folio. *Raii ſuppl.* 137. *Tournef. inſt.* 475.
Chondrilla tingitana, floribus luteis, papaveris hortenſis folio. *Herm. lugdb.* 657. *t.* 659.
Crepis ting. papaveris folio. *Vaill. acad.* 1721. *p.* 196.
All the leaves runcinate and embracing.
17. Scorzonera dichotoma. *Dichotomous Viper's-graſs.*
Vahl ſymb. 2. 89.
Lactuca flava. *Forſk. deſcr.* 143.
Root-leaves runcinate, ſtem branched dichotomous almoſt leafleſs.
18. Scorzonera picroides. *Various-leaved Viper's-graſs.*
Lin. ſpec. 1114. *ſyſt.* 711. *Reich.* 3. 618. *Gouan monſp.* 406. *Ger. prov.* 160. 5. *Pluk. phyt.* 1. 61. *f.* 5.
Picridium vulgare. *Deſfont. atlant.* 221.
Sonchus lævis anguſtifolius. *Bauh. pin.* 124? *Tournef. inſt.* 475. *Garid.* 447.
Crepis. *Dalech. hiſt.* 562.
Sonchis affinis terracrepola. *Bauh. hiſt.* 2. 1018.—item Chondrillis affinis laciniata, an truncatella. *ejuſd.* 2. 1021.
Upper leaves embracing quite entire, lower runcinate, peduncles ſcaly.
19. Scorzonera pinnatifida.
Lour. cochinch. 479. *ed. Willd.* 584.
Leaves pinnatifid half-embracing, panicle diffuſed terminating.

DESCRIPTIONS, *&c.*

1. Stem ſtraight, ſimple, tomentoſe. Leaves alternate, ſcarcely half-embracing, ſharpiſh. Branches floriferous, axillary, ſolitary, one or two-flowered, ſcarcely longer than the leaf. One or two lanceolate bractes. Native of the Levant [a].]

2. This is ſhorter than *hiſpanica*; the leaves are broader; the ſtalk is almoſt naked, and has one yellow flower at the top.

[Root thick, ſtriking deep, having a thick tuft of briſtles at the top. Leaves ſmooth, firm, reſembling thoſe of Plantain or garden Tulip. Stem ſimple, ſix inches high, having two or three leaves. Scales of the calyx membranous at the edge, pointed, ſmooth and lanceolate at the end.

Others deſcribe the ſtem as a foot or eighteen inches in height. The root-leaves are many and form a tuft; they are four inches long, and three quarters of an inch wide. The pappus is ſeſſile [b].

Native of Europe.

3. Native of Auſtria.]

4. Root carrot-ſhaped, about the thickneſs of a finger, and covered with a dark-brown ſkin; it is white within, and has a milky juice. Lower leaves nine or ten inches long, and an inch and half broad in the middle, ending with a long acute point. Stalk three feet high, ſmooth, branching at top, and having on it a few narrow embracing leaves. Flowers bright yellow.

[Leaves ſcarcely wider than a finger, appearing to be very finely ſerrate, when examined by a magnifier [c].

Its branched ſtem, ſays Villars, and waved embracing leaves, diſtinguiſh this from the firſt ſpecies.

Sc. latifolia altera. *Bauh. pin.* 275. appears to be different from this. The leaves do not embrace the ſtalk, but are attenuated at their baſe; they are entire, not toothed, and more of an aſh-colour than in the Garden Viper's-graſs. Ammann ſeems to have it in his *Stirpes rutbenicæ*, *p.* 151. *n.* 213. Matthiolus has figured it under the name of *Sc. bocmica*, and Camerarius (epit. 314.) under that of *Sc. hiſpanica*. Caſpar Bauhin, in his edition of Matthiolus, has repeated it; as has alſo Cluſius, *hiſt.* 138 [d]. Miller made a diſtinct ſpecies of it in the 7th edition of his Dictionary.

Native of Spain, the South of France, Italy, Carniola, Siberia, and the Levant.—Cultivated by Gerarde, in 1596 [e].

5. Root perennial, the thickneſs of the thumb, briſtly at the top with the dry fragments of the leaves of the former year. Stem herbaceous, erect, half a foot high, quite ſimple except that it has often a branch or two at the baſe almoſt as high as the ſtem, round, mealy-tomentoſe at top and bottom, leafed below. Leaves ſeſſile, linear-enſiform, often three inches long, obſcurely nerved, mealy-tomentoſe on both ſides, keeled, the loweſt narrowing to both ends, the upper ones widening at the baſe. Flower terminating, ſolitary, the ſame ſize as in *Sc. humilis*. The peduncle is ſcarcely thickened under the flower. Calyx only half the length of the ray: outer leaflets ovate, acuminate; inner ovate-lanceolate, all membranaceous at the edge. Corolla pale red. Anthers brown, with a ſaffron-coloured pollen. Stigmas ferruginous.—Common in parched ground in the kingdom of Tunis [f].]

6. Stalks ſlender, about two feet high, branching towards the top, and ſuſtaining pale-yellow flowers, ſmaller than in *hiſpanica* and *humilis*.

[Root perennial, brown on the outſide. Stem round, ſtriated, erect, the whole always leafy, ſometimes quite ſimple and one-flowered, ſometimes having a branch or two, ſlightly woolly in the lower part eſpecially at the axils of the leaves, otherwiſe ſmooth. Leaves ſcattered alternately, ſmooth, quite entire, acute, under the very flowers. Calyx ſmooth. Corollets pale yellow. The flower reſembles that of *Sc. humilis*, from which however it certainly differs very much in having always the ſtem full of leaves. It agrees more nearly with *Sc. purpurea*, but the flowers are very different. Buxbaum's figure, cited by Linneus, appears to agree better with *Sc. humilis* [g].

Native of Portugal, Italy and Siberia.—Cultivated by Mr. Miller in 1759 [h].]

7. Leaves ſhorter than thoſe of the preceding. Stalk taper, and branching at the top. Flowers pale purple. [Deſcribed of blue fleſh-colour by Linneus, and red fleſh-colour by Scopoli. The whole plant is ſmooth. Stem ſimple or branched, ſtriated. Leaves almoſt half a foot in length, graſs-like, but three-ſided and keeled. Scales of the calyx as many as twenty, reddiſh at the tip. Cylinder of anthers pale. Seed ſmooth with the rays of the down of a pale ruſous colour [i].

Native of the March of Brandenburgh, Auſtria, Carniola, Barbary and Siberia. Cultivated by Mr. Miller in 1759.]

[a] Linn. ſpec. [b] Haller and Pollich. [c] Scopoli. [d] Villars. [e] Hort. kew. [f] Vahl. [g] Jacqu. n. [h] Hort. kew. [i] Scopoli.

8. This grows a foot and half high. The peduncle immediately under the flower is thicker than it is below, and the lower part of the ſtalk is hairy. The flower is yellow.

[Stem ſcarcely a ſpan high, branched at the baſe and villoſe. Leaves cluſtered, almoſt the length of the ſtem. Flower large. Corolla yellow, purpliſh underneath, the length of the calyx [a]. Down ferruginous, three times as long as the ſeed.—The ſtem is ſometimes ſimple and one-flowered, with the leaves only half its length [b].

Villars diſtinguiſhes it by its being a lower plant than the *hiſpanica*; the leaves aſh-coloured, a little villoſe, and very narrow; the ſtem naked and villoſe at the baſe. It cannot therefore be Barrelier's plant, which is figured leafy from top to bottom [c]. Moriſon has figured this under the name of the *humilis*; and Haller has not well diſtinguiſhed theſe two ſpecies [d].

Native of the South of Europe and Siberia. Cultivated by Mr. Miller in 1759.

9. Leaves channelled. Seeds hairy, white, pappoſe [e]. Leaves entire, ſtrict, ciliate; ſtem rough-haired; peduncles thickened under the flower; calyxes ſhorter than the corolla. Biennial [f].

Native of Apulia and Provence.]

10. This is very like the *laciniata*, except that the ſtalks ſpread on the ground; the indentures on the leaves are more obtuſe, and the tops of the calyxes are woolly.

[Miller has copied theſe characters from Linneus. Vahl informs us, that he has never found the tops of the calyxes to be tomentoſe, but conſtantly whitiſh with a cartilaginous tip, as are the teeth of the leaves. He thus deſcribes the ſpecies.—Root fuſiform. Stem ſimple or branched, a foot high or more, round, ſmooth as is the whole plant, ſtriated, purpliſh. Root-leaves numerous, ſtem-leaves few, alternately unequally toothed; the lower ones towards the middle of the leaf tooth-pinnatifid, all the teeth terminated by a whitiſh cartilaginous point. Peduncles ſometimes branched, few, having at the baſe and in the middle a ſagittate entire leaf. Pedicels ſcaly one-flowered. Flowers ſmall. Calyx-leaves ſmooth; the outer ovate, the inner lanceolate: all obtuſe, terminated by a cartilaginous ſcale.

According to Villars, the ſtem is commonly ſpread on the ground, or only riſing a little at the end, not upright as Vahl deſcribes it; the lower leaves wider, the upper lyrate or pinnatifid, with the diviſions lanceolate; peduncles axillary, terminated by a ſmall yellow flower; ſcales of the calyx a little hooked or ending in a ſpinule, as in the *laciniata*; but this character is inconſtant. The procumbency or inclination of the ſtems is the only ſenſible character in Dauphiné.

D'Aſſo ſays, it is ſcarcely a diſtinct ſpecies from the *laciniata*, unleſs the nap of the calyx be a ſufficient mark; for it has the ſame appearance, and the diviſion of the leaves is the ſame.

Villars remarks, that Boccone's figure, cited by Linneus (Vahl, and D'Aſſo) does not repreſent this plant.—Here therefore is ſome confuſion, and perhaps two ſpecies confounded, or a variety of *laciniata* mixed with this ſpecies.

Native of Spain and the South of France. Vahl found it on the coaſt of Africa. Cultivated by Mr. Miller before 1729. It is a biennial plant, and flowers in june and july [g].

11. Stem upright, herbaceous, a foot high, the thickneſs of a gooſe quill, ſtriated, rugged, ſomewhat branched: branches of the ſame ſtructure with the ſtem, ſpreading. Leaves ſmooth, next the root abundant, ending in the petiole, lyrate-pinnatifid; ſegments alternate, roundiſh or oblong, often irregular, the end one thrice or four times as large as the reſt: thoſe at the top of the ſtem remote, few, pinnatifid; ſegments linear-lanceolate, rugged at the edge. Peduncles terminating, ſolitary, three or four inches long, ſomewhat grooved, one-flowered, having a ſmall awl-ſhaped entire leaf at top. Calyx the ſame ſize as in *Sc. humilis*: the leaflets ovate attenuated, keeled, mottly ſmooth, very tomentoſe and whitiſh at the tip, ſometimes naked. Corolla ſulphur-coloured. Down feathered [h].

Vahl remarks, that this ſpecies agrees with Barrelier's figure, cited under *roſedifolia*, but by no means with Boccone's, which agrees with that, except in being too ſmall, and in the tips of the calyx leaves. Both ſeem to be different from Gouan's *roſedifolia*.

S. calcitrapifolia is not a variety of *laciniata*, for the ſegments of the leaves are always linear, not oblong, and the whole habit of the plant is different.

Native of the kingdom of Tunis in Africa [i].]

12. This riſes with a ſmooth branching ſtalk two feet high, and has leaves like thoſe of Buck's-horn Plantain, but larger. Flowers yellow, upon long naked peduncles, at the end of the branches.

[Root biennial. Primary root-leaves entire, ſpatulate, on long membranaceous petioles: the other leaves ſinuate, pinnatifid, with three or four lanceolate-linear ſegments on each ſide; the end one longer. Stem-leaves ſmaller, ſinuate or entire, ſeſſile. Stem ſtriated, branched at the baſe; branches naked, longer than the leaves, one-flowered. Scales of the calyx lanceolate, acute, membranaceous, the outer ones having a toothlet at the end, the lower ones bent back. Corollas longer than the calyx, yellow [k].

Receptacle, according to Gaertner, ſlightly convex, papilloſe with minute tubercles. Seeds long, from an ovate ſtriated peduncle hollow within and containing a filiform umbilical cord, lengthened out into a ſtraight, compreſſed-four-cornered, ſtriated column, narrower than its peduncle but twice its length, and naked with the nucleus.

According to Monſ. Villars, it resemble the *roſedifolia*, but the ſtem is upright, ſmooth and branched; the leaves are alſo narrower, and the diviſions are not quite ſo wide; the flowers are ſmall, in an angular calyx, the ſcales of which are terminated by a cottony button. After all, it ſeems doubtful whether this and the *roſedifolia* be really different; they appear at firſt view to be very diſtinct, but they are both ſubject to vary. They have each the character of the other in the ſcales of the calyx. The width and form of the leaves vary alſo. The ſtems ſeem to be more conſtant; but the diſpoſition to procumbency in the *roſedifolia* ſometimes changes a little, and the ſtems are raiſed enough to approach to this ſpecies. Haller, Gouan, Gerard, &c. do not appear to have diſtinguiſhed them [l].

Native of Germany, Switzerland, Auſtria, the South of France, Italy and Spain. Mr. Miller cultivated it before 1729; but Parkinſon had it in 1640 [m].

13. Root perennial, fuſiform, in thickneſs from that of the little finger to the thumb. Stem a finger or hand high, upright, ſtriated, tomentoſe hoary, naked or having a few (one to three) leaves at bottom, a little thickened under the flower. Root-leaves abundant, pubeſcent, (but with age becoming naked above,) acute, pinnatifid, wider in the middle: ſegments linear, acute, unequal, rather remote, quite entire or laciniated. Petioles channelled, ſtriated, widening at the baſe. Flower terminating, ſolitary, the ſame ſize as in *Sc. hiſpanica*. Calyx ovate-oblong, with the ſcales often tomentoſe at the edge; the outer ovate, the inner lanceolate, longer, membranaceous. Corolla longer by half than the calyx, ſulphur-coloured. Anthers brown or duſky purple. Seeds columnar, rugged with raiſed muricated lines. Down ſeſſile, feathered, or compoſed of many, unequal, cobwebbed briſtles. Receptacle naked, convex.—Native of the mountains of Barbary [n].

14. Leaves deeply toothed, almoſt like thoſe of Dandelion, with the edge toothletted, ſmooth. Stems ſhort, leafy. Lower calyx-ſcales, eſpecially at the ſides, widely membranaceous along the edge. Corolla yellow, the ſame ſize as in *Sc. humilis*.—Found in the Eaſt by Haſſelquiſt [o].

[a] Linn. ſpec. [b] Scopoli. [c] Haller. [d] Villars. [e] Linn. mant. [f] Gerard. [g] Hort. kew. [h] Vahl. [i] Idem. [k] Gerard. [l] Villars. [m] Hort. kew. [n] Deſfont. and Vahl. [o] Linn. ſpec.

15. The

15. The root of this is perennial, fuſiform, and white, and ſcarcely the thickneſs of one's little finger: the radical leaves are numerous, ſubruncinate, and ſcattered in a circular direction: they are obtuſe, laciniated, and edged with fine hairs: ſtalk ſmooth, ſtriated, leafleſs, branched, fiſtulous, and about a foot and half high: peduncles elongated, one-flowered: calycine ſcales greeniſh, and edged with a whitiſh membranaceous margin: flowers deep yellow [4].

Native of Bohemia; flowering from july to the end of auguſt.

16. Stem upright, ſmooth, branched. Leaves glaucous, ſmooth, ſomewhat fleſhy, unequally toothed and runcinate, rounded on both ſides at the baſe. Peduncles inflated at top, one-flowered, clothed with little ovate ſcales. Calyx ventricoſe; ſcales ovoid, looſiſh, acuminate, membranaceous at the edge. Corollets villoſe at bottom. Seeds truncate, four-cornered. Down villoſe, whitiſh, ſimple [5]. Hence Desfontaines makes this and the *picroides* of another genus, *picridium*. According to Hermann it is a *Chondrilla*; in Tournefort it is a *Sonchus*; in Vaillant a *Crepis*.—Linneus remarks, that though the pappus be ſimple, yet the calyx-ſcales are ſcarioſe at the edge.

It is an annual plant, native of Tangier on the Barbary coaſt; in clefts of rocks. Cultivated in the Chelſea garden in 1713 [6]: but not mentioned by Mr. Miller [8].

Mr. Curtis obſerves, that in the middle of ſummer, a hot unclouded ſun, which is favourable to the expanſion of moſt flowers in the claſs Syngeneſia, is too powerful for theſe, which appear to the greateſt advantage in warm hazy weather.

17. Stems ſeveral erect, round, ſmooth, ſtriated below, branched from the baſe: branches dichotomous, rigid. Moſt of the leaves radical, petioled, a long ſpan in length, ſmooth: ſegments lanceolate, tooth-angular, ottwardly larger, ſubciliate with minute whitiſh toothlets. Stem-leaves under the two firſt ramifications, ſeſſile, of the ſame ſtructure with the others: then ſmall lanceolate leaves, gradually ſmaller, ovate, quite entire, under each branch. Flowers terminating, ſolitary, on ſcaly peduncles not thickened under the flower: ſcales a little under the flowers crowded, ovate, membranaceous at the edge, ending in the calyx. Calyx cylindrical, very ſmooth: outer leaflets ovate, with a wide membranaceous margin, looſe; inner leaflets or ſcales linear. Corolla yellow, longer than the calyx. Pappus hairy or ſimple, ſeſſile. Allied to *Sc. picroides*, yet different.—Found by Vahl in the kingdom of Tunis [5].

18. The outer ſeeds are curved in and crenulate; the pappus is ſimple and ſeſſile: this plant therefore is intermediate between *Scorzonera* and *Sonchus* [1]. Hence it is a *Sonchus* in moſt of the old authors; and Desfontaines forms a new genus for this and other ſpecies reſembling it. He ſays, that it varies with entire, laciniate, and runcinate leaves.

It is an annual plant, native of the South of France, and of Barbary.

Monſ. Richard introduced it here, in 1773. It flowers from june to auguſt [3].

John Bauhin has it twice; the deſcription in p. 1018, but the true figure in p. 1021 [1].

19. Stem ſuffruticoſe, erect, weak, three feet high, branched. Leaves toothletted, thick, ſmooth. Flowers pale yellow, on ſubumbelled peduncles. Calyx oblong. Receptable naked. Down feathered.

Native of the continent of eaſtern Africa, near Mozambique [9].]

PROPAGATION AND CULTURE.

The firſt ſort only is cultivated for the uſe of its roots, the others are preſerved in botanic gardens for variety, but are ſeldom admitted into other gardens.

Theſe plants may be propagated by ſowing their ſeeds in the beginning of april, upon a ſpot of light freſh ſoil. The beſt method of ſowing them is, to draw ſhallow furrows by a line about a foot aſunder, into which you ſhould ſcatter the ſeeds, thinly covering them over about half an inch thick with the ſame light earth; and when the plants are come up, they ſhould be thinned where they are too cloſe in the rows, leaving them at leaſt ſix inches aſunder; and at the ſame time, you ſhould hoe down all the weeds to deſtroy them; and this muſt be repeated as often as is neceſſary, for if the weeds are permitted to grow among the plants, they will draw them up weak.

There are many people who ſow their ſeeds promiſcuouſly in a bed, and afterwards tranſplant them out the diſtance they would have them grow; but this is not ſo well as the former method, becauſe their roots commonly ſhoot downright, which in being tranſplanted, are often broken, ſo that they never will make ſuch fair roots as thoſe which remain in the ſame place where they are ſown; for when the extreme part of the root is broken, it never extends itſelf in length afterwards, but only ſhoots into many forked ſmall roots, which are not near ſo valuable as thoſe which are large and ſtraight. Theſe roots may be taken up when the leaves begin to decay, at which time they have done growing, though they may remain in the ground until ſpring, and may be taken up as they are uſed; but thoſe which remain in the ground till march, will ſhoot up their flower-ſtems, after which they are not ſo good, being ſticky and ſtrong.

If you intend to ſave ſeeds of theſe plants, you ſhould let a parcel of the beſt remain in the places where they grew; and when their ſtems are grown to their height, they ſhould be ſupported with ſtakes, to prevent their falling to the ground, or breaking. In june they will flower, and about the beginning of auguſt their ſeeds will ripen, when they ſhould be gathered, and preſerved dry till the ſpring following for uſe.

[SCORZONERA. See *Cotanaeche*.

SCORZONEROIDES. See *Scorzonera*.

SCOTCH FIR. See *Pinus*.

——— GRASS. See *Panicum*.

SCREW-PINE. See *Pandanus*.

SCREW-TREE. See *Helicteres*.]

SCROPHULARIA. (*From its ſuppoſed uſe in the cure of the Scrofula.*)

Lin. gen. n. 756. *Reich. n.* 814. *Schreb. n.* 1014. *Tournef. t.* 74. *Juſſ.* 119. *Gærtn. t.* 53.

Claſs. 14. 2. Didynamia Angioſpermia.

Nat. order of *Perſonatæ*. *Scrophularieæ*, Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* one-leafed, five-cleft, permanent: *ſegments* ſhorter than the corolla, rounded.

COR. one-petalled, unequal: *tube* globular, larger, inflated: *border* five-parted, very ſmall: *ſegments* the two upper larger, erect; two lateral, ſpreading a little; one loweſt, bent back.

STAM. *Filaments* four, linear, declining, length of the corolla; of which two are later. *Anthers* twin.

PIST. *Germ* ovate. *Style* ſimple, ſituation and length of the ſtamens. *Stigma* ſimple.

PER. *Capſule* roundiſh, acuminate, two-celled, two-valved: *partition* folded, conſtructed of the margins of the valves bent in; opening at the top.

SEEDS very many, ſmall. *Receptacle* roundiſh, inſinuating itſelf into each cell.

OBS. *In the throat of the corolla under the upper ſegment of the border is found a ſmall ſegment, reſembling a little lip, which is not common to all the ſpecies.*

The corolla in this genus ſhould be conſidered as reſupine or turned upſide down: the upper lip ſmaller recurved, to which the ſtamens are bent down, rounded; the lateral ſegments crenate, rounded, equal to the upper one; lower lip larger, patulous, two-parted; the middle one very ſmall in front.

The partition, when the capſule is ripe, has an oval hole through it. G.

ESSENTIAL CHARACTER.

Cal. five-cleft. *Cor.* ſubglobular, reſupine. *Capſ.* two-celled.

SPECIES.

[4] Jacquin. [5] Desfontaines. [6] Hort. kew. [8] Curtis. [1] Vahl ſymb. [3] Linn. ſpec. [9] Hort. kew. [7] Desfont. [2] Loureiro.

SPECIES.

1. Scrophularia marilandica. *Maryland Figwort.*
Lin. ſpec. 863. *Reich.* 3. 145. *hort. upſ.* 177. *Gron. virg.* 71. *Raii ſuppl.* 396. 14. *Knipb. cent.* 2. *n.* 80.
Leaves cordate ſerrate acute rounded at the baſe, ſtem obtuſe-angular.

2. Scrophularia nodoſa. *Knobby-rooted Figwort.*
Lin. ſpec. 863. *Reich.* 3. 145. *hort. cliff.* 322. *ſt. fuec. n.* 560. *mat. med.* 156. *Hudſ. angl.* 274. *Wither. arr. ed.* 3. 553. *Smith brit.* 663. *Relh. cant. n.* 467. *Sibth. oxon. n.* 556. *Abbot bedf. n.* 461. *Hall. belv. n.* 326. *Pollich pal. n.* 596. *Neck. gallob.* 270. *Scop. carn. n.* 775. *Gunn. norv. n.* 732. *t.* 4. *f.* 1—3. *Krock. ſilef. n.* 996. *Villars dauph.* 2. 417. *Allion. pedem. n.* 248. *Crantz auſtr.* 325. *Gron. virg.* 71. *Ludw. elt. t.* 72. *Knipb. cent.* 2. *n.* 81.
Scrophularia. *Camer. epit.* 866. *Dod. pempt.* 50. 1. *Matth.* 1130. *valgr.* 2. 474. *Riv. mon. t.* 107. *f.* 1. *Blackw. t.* 87.
S. nodoſa fœtida. *Bauh. pin.* 235.
S. radice nodoſa. *Mor. hiſt. ſ.* 5. *t.* 8. *f.* 3. *ord.* 3.
S. major. *Ger.* 579. 2. *emac.* 716. 1. *Raii hiſt.* 764. *ſyn.* *283. *Pet. brit. t.* 35. *f.* 9.—vulgaris. *Park. theat.* 610. *f.* 1.—et major. *Bauh. hiſt.* 3. 421.
β. S. major, caulibus foliis & floribus viridibus. *Bobart in Raii ſyn.* *283. 4.
Leaves cordate acute three-nerved at the baſe, ſtem acute-angled.

3. Scrophularia aquatica. *Water Figwort.*
Lin. ſpec. 864. *ſyſt.* 560. *Reich.* 3. 145. *hort. upſ.* 177. *mat. med.* 156. *Gærtn. fruct.* 1. 250. *Hudſ. angl.* 275. *Wither. arr. ed.* 3. 554. *Smith brit.* 663. *engl. bot. t.* 854. *Curt. lond. ſ. t.* 44. *Relh. cant. n.* 468. *Sibth. oxon. n.* 557. *Abbot bedf. n.* 462. *Fl. dan. t.* 507. *Hall. belv. n.* 325. *Pollich pal. n.* 597. *Neck. gallob.* 270. *Scop. carn. n.* 776. *Crantz auſtr.* 326. *Guett. ſtamp.* 2. 201. *Krock. ſilef. n.* 997. *Villars dauph.* 2. 417. *Allion. pedem. n.* 249. *D'Aſſo arag. n.* 568. *Blackw. t.* 56. *Knipb. cent.* 11. *n.* 92. *Sabb. hort.* 2. *t.* 89. *Reynault bot.*
S. radice fibroſa Betonicæ foliis. *Mor. hiſt. ſ.* 5. *t.* 8. *f.* 4. *ord.* 3.
S. aquatica major. *Bauh. pin.* 235. *Raii hiſt.* 764. *ſyn.* *283.—caule fimbriato. *Loef. pruſſ.* 248. *t.* 75.
S. ſemina. *Camer. epit.* 867.
S. maxima radice fibroſa. *Bauh. hiſt.* 3. 421.
Betonica aquatica. *Ger.* 579. 1. *emac.* 715.—major. *Park. theat.* 613. 1.
B. aquatilis. *Dod. pempt.* 50. 2.
Leaves cordate petioled decurrent blunt, ſtem winged.

[4. Scrophularia auriculata. *Ear-leaved Figwort.*
Lin. ſpec. 864. *ſyſt.* 560. *Reich.* 3. 146. *Desfont. atlant.* 2. 56. *Allion. pedem. n.* 250.
Betonica aquatica ſeptentrionalium. *Lob. ic.* 533.
Leaves cordate tomentoſe beneath appendicled at the baſe, racemes terminating.

5. Scrophularia lævigata. *Smooth Figwort.*
Vahl ſymb. 2. 67. *v. n.* 15.
Smooth, leaves cordate obtuſely tooth-gaſhed, raceme terminating compound leafleſs.]

6. Scrophularia Scorodonia. *Balm-leaved Figwort.*
Lin. ſpec. 864. *ſyſt.* 560. *Reich.* 3. 146. *mant.* 418. *Hudſ. angl.* 275. *Wither. arr. ed.* 3. 553. *Smith brit.* 664. *Dickſ. hort. ſicc.* 15. 9. *Gmel. ſib.* 3. 195. *n.* 5. *Desfont. atlant.* 2. 55. *Allion. pedem. n.* 251.
S. meliſſæ folio. *Tournef. inſt.* 166.
S. ſcorodoniæ folio. *Raii hiſt.* 766. **ſyn.* 283. *Petiv brit. t.* 35. *f.* 11. *Mor. hiſt.* 2. *ſ.* 5. *t.* 35. *f.* 6. *Pluk. phyt. t.* 59. *f.* 5.
Leaves cordate doubly ſerrate tomentoſe beneath, raceme leafy.

[7. Scrophularia altaica.
Lin. ſyſt. 560. *Murr. in comm. gott.* 1781. *p.* 35. *t.* 2.
Leaves cordate ovate doubly tooth-ſerrate, teeth tending towards the baſe, raceme compound leafleſs.

8. Scrophularia glabrata. *Spear-leaved Figwort.*
Ait. hort. kew. 2. 341.
Leaves oblong-lanceolate cordate doubly ſerrate ſmooth, panicles racemed terminating trichotomous, ſtem ſuffruticoſe.]

9. Scrophularia betonicifolia. *Betony-leaved Figwort.*
Lin. ſyſt. 560. *Reich.* 3. 147. *mant.* 87. *Allion. pedem. n.* 252.
S. betonicæ folio. *Tournef. inſt.* 166.
S. aquatica montana mollior. *Barrel. ic.* 274.
Leaves cordate oblong toothed, teeth quite entire thoſe of the baſe deeper.

[10. Scrophularia meridionalis.
Lin. ſyſt. 560. *ſuppl.* 280.
Leaves oblong-ovate ſerrate ſmooth, peduncles one-flowered.]

11. Scrophularia orientalis. *Hemp-leaved Figwort, Lin. ſpec.* 864. *ſyſt.* 560. *Reich.* 3. 147. *Pallas it.* 3. 655. *Knipb. cent.* 5. *n.* 80.
S. orientalis foliis cannabinis. *Tournef. cor.* 9.
Leaves lanceolate ſerrate petioled, ſtem-leaves in threes, branch-leaves oppoſite.

12. Scrophularia frutescens. *Shrubby Figwort.*
Lin. ſpec. 866. *ſyſt.* 560. *Reich.* 3. 147. *mant.* 418. *Desfont. atlant.* 2. 56.
S. luſitanica frutescens, verbenaceæ foliis. *Tournef. inſt.* 167. *Raii ſuppl.* 396.
S. peregrina frut. foliis Teucrii craſſiuſculis. *Herm. lugdb.* 545. *t.* 547.
Leaves ſomewhat fleſhy ſeſſile even recurved at the end.

13. Scrophularia vernalis. *Yellow Figwort.*
Lin. ſpec. 864. *ſyſt.* 560. *Reich.* 3. 148. *hort. cliff.* 322. *upſ.* 177. *ment.* 418. *Hudſ. angl.* 276. *Wither. arr. ed.* 3. 554. *Smith brit.* 664. *engl. bot. t.* 567. *Fl. dan. t.* 411. *Hall. belv.* [illegible] *Villars dauph.* 2. 418. *Allion. pedem.* [illegible]
S. flore luteo. *Bauh. pin.* 236. *Park. theat.* 612. *Ger. emac.* 717. *Park. theat.* [illegible] *Raii hiſt.* 765. *Riv. mon. t.* 107. *f.* 2. *Mor. hiſt. ſ.* 5. *t.* 8. *f.* 2. *ord.* 3.
S. lutea magna, amplo folio. *Barrel. hiſt.* 3. 422.
S. montana maxima latifolia. *Barrel. ic.* 273.
Lamium pannonicum 2. exoticum. *Cluſ. hiſt.* 2. 38.
Galeopſis altera luteo pallida. *Park. theatr.* 608. *f.* 4.
Leaves cordate doubly-ſerrate pubeſcent, peduncles axillary ſolitary dichotomous leaving ſmall leaves on them.

[14. Scrophularia argute. *Slender upright Figwort.*
Ait. hort. kew. 2. 342.
Leaves cordate ſmooth doubly ſerrate, panicles axillary dichotomous, capſules acuminate.]

15. Scrophularia trifoliata. *Three-leaved Figwort.*
Lin. ſpec. 865. *Reich.* 3. 148. *Desfont. atlant.* 54. *Pluk. phyt. t.* 313. *f.* 6. *Boce. muſ.* 2. 65. *t.* 60.
S. lævigata. *Vahl ſymb.* 2. 67. *ſec. Desfont. v. n.* 5.
Leaves ſmooth, lower ternate-pinnate obtuſe, upper ſimple, peduncles ſubtriflorous axillary.

16. Scrophularia sambucifolia. *Elder-leaved Figwort.*
Lin. ſpec. 865. *Reich.* 3. 148. *D'Aſſo arag. n.* 570. *Griſ. luſit.* 75. *Munting. phyt.* 45. *f.* 238. *Alp. exot.* 203. *t.* 202. *Knipb. cent.* 7. *n.* 84. *Mill. fig. t.* 231. *Park. theat.* 611. *f.* 8. *Mor. hiſt. ſ.* 5. *t.* 8. *f.* 6. *ord.* 3. *Raii hiſt.* 767. 12.
S. foliis laciniatis. *Bauh. pin.* 236. *prodr.* 112. *Raii hiſt.* 766.
β. S. luſitanica magno flore foliis diſſectis. *Raii ſuppl.* 396. 16.
Leaves interruptedly pinnate cordate unequal, raceme terminating, peduncles axillary in pairs dichotomous.

17. Scrophularia canina. *Cut-leaved Figwort.*
Lin. ſpec. 865. *Reich.* 3. 149. *vir. cliff.* 6. *hort. cliff.* 322. *Hall. belv. n.* 328. *Scop. carn. n.* 778. *Sauv. monſp.* 247. *Villars dauph.* 2. 418. *Allion. pedem. n.* 255. *Knipb. cent.* 4. *n.* 75. *Sabb. hort.* 2. *t.* 90. *D'Aſſo arag. n.* 571. *Desfont. atlant.* 2. 53.
S. Ruta canina dicta. *Bauh. pin.* 236. *Park. theat.* 609. 2. *t.* 610. *f.* 2. *Raii hiſt.* 766. 9. *Mor. hiſt. ſ.* 5. *t.* 9. *f.* 8.
S. tertia Dodonæa tenuifolia, Ruta canina quibuſdam vocata. *Bauh. hiſt.* 3. 423.
Ruta canina. *Cluſ. hiſt.* 2. 209. *Lob. ic.* 2. 55. *Ger. emac.* 1256. *Tabern. ic.* 136. *Dalech. hiſt.* 973.
Leaves pinnatifid, raceme terminating naked, peduncles biſid.

[18. Scro-

[18. Scrophularia mellifera. *Barbary Figwort.*
L'Herit. ſtirp. nov. 2. *t.* 31. *Ait. kew.* 2. 343.
Vahl ſymb. 2. 68. *Desfont. atlant.* 2. 53. *t.* 143.
Smooth, lower leaves pinnate, leaflets ovate tooth-ſerrate, flowers axillary, bottom of the corolla nectariferous.]

19. Scrophularia lucida. *Shining-leaved Figwort.*
Lin. ſpec. 865. *ſyſt.* 561. *Reich.* 3. 149. *Allion. pedem. n.* 256. *Desfont. atlant.* 2. 54.
S. foliis filicis modo laciniatis ſ. Ruta canina latifolia. *Bauh. pin.* 236. *Mor. hiſt.* 2. 483. *ſ.* 5. *t.* 9. *f.* 7. *Tournef. inſt.* 167.
S. ſaxatilis lucida, laſerpitii maſſilienſis folio. *Besc. muſ.* 2. 166. *t.* 117.
S. glauco folio in amplas lacinias diviſo. *Tournef. cor.* 9. *itin.* 1. 84. *t.* 85. (1. 221.)
S. cretica 1. *Cluſ. hiſt.* 2. 209. *Raii hiſt.* 766.
S. cret. latifolia. *Park. theat.* 610.
S. indica. *Ger. emac.* 716.
Lower leaves bipinnate ſomewhat fleſhy very ſmooth, racemes two-parted.

20. Scrophularia coccinea. *Scarlet-flowered Figwort.*
Lin. ſpec. 866. *Reich.* 3. 150.
S. flore coccineo, foliis urticæ quaternis caulem ambientibus. *Houſt. mſs.*
Leaves in fours ovate, flowers whorled ſpiked.

21. Scrophularia peregrina. *Nettle-leaved Figwort.*
Lin. ſpec. 866. *ſyſt.* 561. *Reich.* 3. 150. *mant.* 418. *hort. cliff.* 322. *Gouan monſp.* 304. *Allion. pedem. n.* 254. *Cam. hort.* 157. *t.* 43. *Park. theat.* 611.
S. folio urticæ. *Bauh. pin.* 236. *Raii hiſt.* 765.
Leaves cordate marked with lines ſhining, peduncles axillary two-flowered, ſtem hexangular.

[22. Scrophularia hiſpida.
Desfont. atlant. 55.
Stem ſome-cornered erect hiſpid, leaves pinnate doubly-crenate, terminating lobe cordate very large, raceme compound leafleſs.]

DESCRIPTIONS, *&c.*

1. Root perennial, fibrous. Stalks four-cornered. Flowers in bunches on the upper part of the ſtalk, like thoſe of the next ſpecies, but of an herbaceous colour.

[It very much reſembles our common knobby-rooted Figwort, but is double the height. Leaves cordate at the baſe, but not three-nerved or cut out to the very nerves. Petioles connected on each ſide by a very ſmall beard [a]. The flowers are diſpoſed more thinly and ſcatteringly than in our common ſort [b].

Native of North America: Miller ſays Maryland; Linneus Virginia. Ray names it *marilandica*; and ſays it was found, and brought from America by Krieg a German. Cultivated in 1759, by Mr. Miller; who having omitted in his eighth edition, n. 16. of his ſeventh; has numbered this 16, and deſcribed it as the 17th ſpecies in his eighth folio edition. This miſtake is rectified in his ſixth quarto edition.

2. Root tuberous, granulate, (or compoſed of many whitiſh knobs.) Stem three feet high, erect, ſimple, acutely quadrangular, ſmooth, leafy. Leaves oppoſite, petioled, ſmooth, acutely ſerrate, veined and at the baſe by the lateral veins cut out and as it were three-nerved. Raceme terminating, erect, with the peduncles oppoſite, dichotomous, having a pair of lanceolate acuminate little bractes. Flowers dark blood-red. Capſules ovate, acute [c].—To this Dr. Withering adds, the upper leaves are nearly ſeſſile and lanceolate; the peduncles cylindrical, with ſhort pellucid hairs terminated by globules; calyx toothed and membranaceous at the end; baſe of the corolla filled with a honey-like liquor; upper ſegments purple, the reſt pale green: the little heart-ſhaped ſegment within the baſe of the two upper ſegments ſeems to deſerve the name of nectary. The capſule ſometimes has three or four cells.

Native of Europe, in woods and hedges; flowering in july.

It has the name *Figwort*, and formerly *Kernelwort*, from its knobbed roots: *Brownwort*, from the brown tinge of the leaves, &c.

This plant is hardly known in modern practice; but the rank ſmell, like Elder, and bitter taſte of the leaves, ſeem to indicate ſome active properties. Swine that have the ſcab are cured by waſhing them with a decoction of the leaves. Waſps reſort greatly to the flowers. Goats eat the plant; but cows, horſes, ſheep and ſwine refuſe it [d].

There are ſome varieties. Pontedera mentions one with the leaves in threes, inſtead of two oppoſite in pairs. Ray has it without any of the brown colour uſual in this plant; but with the ſtems, leaves and flowers all green: found near Cumner by Bobart.—Parkinſon figures a third, under the name of *S. major altera elegans*, which, like the firſt, has ſometimes more than two leaves at a joint, eſpecially the lower-moſt.

3. Root perennial, fibrous. Stem from three to five feet in height, upright, branched, ſmooth, winged at the corners: branches leafy, like the ſtem. Leaves oppoſite, petioled, cordate-ovate, obtuſe, ſerrate, ſmooth, veined, running down at the baſe into the petiole.

Mr. Curtis remarks that they have ſometimes little appendages: and Dr. Withering, that the upper leaves are ovate. Flowers in an erect terminating raceme, commonly ſolitary: or, according to Mr. Curtis, in a panicle-like ſpike, with the branches oppoſite, trichotomous, ſupported by a pointed bracte; the lateral peduncles have often ſeveral flowers with a little bracte to each, and are ſomewhat viſcid; the middle one is ſolitary. Corolla of a deep blood-red colour. Capſule roundiſh, acuminate [e]; two-grooved, ſmooth, bipartile: receptacle ovate-oblong, ſpongy, faſtened to the partition on each ſide, when ripe contracted into a thick tubercle, faſtened to the baſe of the oval hole. Seeds ovate-globular, becoming by age grooved and tranſverſely wrinkled ſo as to appear latticed, dark brown [f].

Native of Europe, by the ſides of rivers, ponds and wet ditches; flowering from june to ſeptember.

The name of *Water Betony* has been given to this plant, from the ſimilitude of its leaves to thoſe of Wood Betony. It was formerly known by the name of *Brown-wort*, as well as the preceding; and in Yorkſhire, ſays Gerarde, it is called *Biſhop leaves*.

The leaves of this ſpecies are recommended medicinally for the ſame purpoſes as thoſe of the preceding: in taſte and ſmell they are ſimilar, but weaker. Mont. Marchant having reported, in the Memoires of the French Academy, that this plant is the ſame with the *ſquetaia* of the Braſilians, celebrated as a corrector of the ill flavour of Sena, the Edinburgh College, in their common infuſion of that drug, directed two thirds of its weight of Water-Figwort leaves to be joined; but as they have ſince diſcarded this ingredient, we may preſume that it was not found to be of much uſe.

The diſagreeable ſmell which attends this plant when bruiſed, makes it rejected by cattle in general; nevertheleſs both leaves and flowers are much reſorted to by different kinds of inſects. Bees and waſps collect much honey from the flowers, which continue a long time [g].]

There is a variety of this with variegated leaves.

4. [This has the ſtature of *S. nodoſa*. Stem four-cornered, by no means hairy, branchiate. Leaves doubly-ſerrate, obtuſe every where, opaque, naked, having two ovate acceſſory leaflets at the baſe, ſo that they are in a manner ternate; on the ſmaller branches the leaves are ſimple. Corollas of a more duſky purple colour, with the lip which is rolled back of a greeniſh livid colour [h]. The ſynonyms of Barrelier and Tournefort, given in the Species Plantarum, do not belong to this plant, but to *betonicifolia*, n. 9.

It has the appearance of *S. nodoſa*. Stem upright, ſeldom divided, ſmooth. Leaves petioled, wrinkled, oblong; teeth unequal, ovate, bluntiſh; the lower

[a] Withering. [b] Smith [c] Gaertner. [d] Curtis. [e] Linn. ſpec.

ones pinnate at the base, with two or four pinnules, the extreme lobe larger, cordate or ovate; the upper ones cordate, simple. Flowers in leafless racemes, whorled as it were. Peduncles in pairs, opposite, short, dichotomous. Bractes small, linear, shorter than the calyx, from the base of each pedicel. Segments of the calyx rounded, pressed close, membranaceous at the edge. Corolla purple, spreading, very like that of *S. nodosa*, but a little less: lamella of the palate orbicular. Capsule pear-shaped, acute, smooth, with a longitudinal furrow on each side. Seeds, black, oblong, dotted and wrinkled, fastened to the central receptacle [a].

It seems to be the *sulphurea* of Miller, *n.* 3. which he describes as having] stronger, taller and greener stalks than the *aquatica*; the leaves generally with small appendages at their base; the flowers greener, and growing thinner upon the stalks. [He supposes it to be the *Sc. aquatica flore sulphureo* of Micheli, and hence names it *sulphurea*.

Native of Spain, Italy and Algiers. Introduced in 1772, by Monf. Richard [b]; unless it is Miller's *sulphurea*, which he cultivated in 1759.

5. Stem upright, quite simple, a cubit high, four-cornered from four decurrent lines. Leaves two inches long, very smooth, shining, veined, on a petiole shorter than the leaf. Raceme erect, strict, a span long: peduncles alternate, distant, twice or thrice dichotomous; pedicels divaricating, one-flowered, solitary in the forkings. Bractes at the base of the peduncles and pedicels, linear, short. Segments of the calyx rounded, membranaceous with a white edge, shorter by half than the corolla; which is of the same size as that of *S. nodosa*; with the upper lip purplish, and the lower greenish yellow. Capsule longer than the calyx.

Native of Barbary, in the mountains near Zowan in Tunis [c].

According to Desfontaines, this is the same with the *trifoliata* of Linneus; which see under n. 15.

6. Stem four-cornered, hairy. Leaves cordate-oblong, acute, veined, very soft beneath, cut out and three-nerved at the base. Peduncles of the raceme decompounded, the upper ones alternate. Flowers paler. Calyx pubescent. Capsule smooth, roundish, acuminate [d].

Desfontaines distinguishes it from *auriculata*, by the flowers being panicled; the peduncles filiform, longer, patulous; the leaves not pinnate at the base, scarcely pubescent, with the teeth sharper.

Native of Portugal, Italy, Tunis in Africa, Siberia, and Britain. Discovered in the island of Jersey, between the Port and St. Hilary, by Sherard; and since by Mr. Edward Lhwyd and others, near the sea shore about St. Ives in Cornwall [e].]

Mr. Miller says, the stalks rise near four feet high, branching out on every side; that the leaves on the upper part of the stalks are alternate; that the flowers are produced in bunches at the axils, each pedicel supporting two flowers, which are small, of a brown colour, and appear in june.

He has another species, (n. 6.) which he names *italica*, and is a native of Sicily. The flowers are disposed in compound spikes, upon long foot-stalks from the axils, having generally two narrow leaves at the base; but the flowers terminate the stalks, as in *nodosa* and *aquatica*. [He quotes the same specific character as in the *Scorodonia* from Linneus, with a synonym from *Hort. Cathol.*—Sc. nemorensis folio urticæ rugoso, flore atro-punicante.—It is probably a variety of the *Scorodonia*.

7. Root consisting of thick fibres of about a finger's length: stem sometimes single, and sometimes multiple; upright, and about a quill's thickness at the base: branches spreading, about a span long, leaves ovate-oblong, doubly serrate, cordate, veiny, rather wrinkled, opposite, and horizontal: flowers collected in a terminal raceme on the stem and branches: corolla whitish externally, and of a deep green internally: border larger than usual in this genus, and with a very long obcordate upper segment.—Native of the Altaic mountains [f].

8. This is a biennial plant, native of the Canary Islands, where it was found by Masson, and introduced in 1779. It flowers in april and may [g].

9. Stem two feet high, erect, four-cornered, subpubescent, purplish at the base. Leaves opposite, petioled, subcordate, oblong, being three times as long as they are wide, wrinkled, subpubescent beneath, sharply toothed, with the teeth acuminate and quite entire, (therefore very like those of Ebulus or dwarf Elder,) deeper at the base. Petioles shorter than the leaves. Panicle terminating somewhat leafy. Corollas of a dull purple colour, with a greenish lip. Anthers very yellow.

Native of Portugal [h]: of Spain, according to the Kew catalogue; of Sicily, as Miller affirms; and Allione had it from the county of Nice. It was cultivated by Miller so far back as the year 1739 [i].]

He names it *cordata*, and says that the stalks rise near four feet high and have sharp angles; that the leaves are arrow-pointed, heart-shaped, and sharply serrate; that the flowers grow in loose terminating bunches, are in shape like those of *auriculata*, but of a dark-red colour.

[10. Stem quadrangular, herbaceous; with opposite branches. Leaves opposite, petioled, ovate or a little oblong, even, equally serrate, longer than the petioles. Racemes terminating, solitary. Bractes leafy, but smaller, commonly quite entire, remote; the lower opposite, the upper alternate. Peduncles leafless, longer than the flower. Corollas ovate, of the same size as in *S. fambucina*.—Found in New Granada, by Mutis [k].]

11. Root perennial, creeping. The [illegible] feet and a half high; their lower [illegible] with lanceolate leaves, which are [illegible] and cut at bottom. At the upper [illegible] bunches of small brown flowers [illegible] and are succeeded by [illegible] capsules.—Native of the Levant.

[Linneus remarks, that the stem-leaves are sometimes in fours as well as threes; and that the raceme is composed of three or four dichotomous peduncles.—It was cultivated in the Chelsea garden in 1712; and flowers in july and auguſt, according to the Kew catalogue.

12. Stem perennial, (or becoming woody,) four-cornered, acute-angled, brachiate below. Leaves ovate, toothed, shining, smooth, small, opposite: the lower obovate; the upper oblong. Raceme terminating, leafy, with quite entire bractes, and opposite trifid peduncles, the length of the bractes. Corollas small, very dark purple, with the lateral segments white, and the lowest segment very small [l].

Native of Portugal; and also, as Monf. Desfontaines informs us, of the kingdom of Tunis, near Elhammah.—It was cultivated in 1768, by Mr. Miller [m]: and is the 17th species of his Dictionary, but described as the 16th.

13. Root fibrous, biennial. Stem hairy, about two feet high, square or five-cornered, and in the latter case the leaves grow three together, as Linneus in his manuscripts defines them; but they are full as often opposite: they are pointed, sharply and doubly serrate, veined, most hairy beneath, and petioled. Peduncle the length of the leaves, bearing many flowers, in clusters. Calyx hairy. Corolla inflated, yellow, contracted at the mouth. Capsule ovate, acute [n].

Dr. Smith has a curious remark on the affinity between this plant and the pretty Peruvian genus of *Calceolaria*, one species of which, the *pinnata*, is now frequent in our gardens; the fruit and seeds, the calyx, the habit and hue of the whole plant strikingly agree: and there is another species, *Calc. ovata*, between which and this *Scrophularia* the conformity is still greater; so that a somewhat different form of corolla, and having only two stamens, are

[a] Desfontaines. [b] Hort. kew. [c] Vahl. [d] Smith. [e] Ray syn. [f] Murray. [g] Hort. kew. [h] Linn. mant. [i] Hort. kew. [k] Mutis. [l] Hort. kew. [m] Smith.

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the only generic diſtinctions of that *Calceolaria* from this *Scrophularia*. In every thing elſe they are much nearer akin than this plant and the other ſpecies of the ſame genus [1].

Native of Italy, the South of France, Switzerland, Auſtria, Denmark, England, and Wales. About Bury in Suffolk by Sir Thomas Gery Cullum; Bart. who aſſures me that it grows alſo at Hemſted in Eſſex, where our famous phyſician Harvey lies buried. Mr. Woodward has alſo obſerved it at Fornham near Bury: Archdeacon Peirſon about Newburgh in Yorkſhire. Dr. Withering likewiſe mentions that it grows at Gloddaeth in Caernarvonſhire. But it was firſt diſcovered by Mr. Alexander Smith, ſurgeon at Croydon, in april 1759, near Mitcham in Surry, by the common field in the way to Merton [2]. There Mr. Hudſon afterwards, and Mr. Lyſons lately have found it.

Our four Britiſh ſpecies are thus well diſtinguiſhed by Mr. Woodward:—*Scrophularia nodoſa* has the leaves cordate, acute, and acutely ſerrate: the flowers on dichotomous branches, with a pair of lanceolate, acuminate bractes.—*Scroph. aquatica* has the leaves cordate-ovate and crenate: the flowers in a naked branched panicle, with the lower branches oppoſite, the upper alternate, dichotomous; and a pair of ſubulate bractes at the baſe of each branch.—*Scr. Scorodonia* has the leaves downy; the upper ones terminating in an awn, as do the ſerratures; and beneath each branching of the peduncles a pair of awl-ſhaped bractes. *Sc. vernalis* has the ſtem, leaves and peduncles hairy; the leaves doubly ſerrate; the primary peduncles longer than the leaves, the ſecondary ſhort; and beneath theſe a pair of lanceolate hairy bractes [3].

14. This differs from the preceding in having the ſtem and leaves ſmooth, with the flowers ſmaller and red. It was found in the iſlands of Madeira and Teneriffe, by Mr. Fr. Maſſon, and was introduced in 1778. It flowers in may and june; and is an annual plant [4].

15. Stem ſimple or ſparingly branched, erect, ſmooth, four-cornered, ſtriated. Leaves cordate, ſmooth and even, ſhining, veined, obtuſe, unequally and obtuſely double toothed, petioled; the lower ones often eared at the baſe. Raceme interrupted. Peduncles alternate. Flowers pedicelled, in racemelets. Bractes linear, ſome longer, ſome ſhorter than the pedicels. Segments of the calyx ovate, obtuſe, membranaceous at the edge. Corolla as in *aquatica*, purple. Capſule pear-ſhaped, longer than the calyx, even, mucronate [5]. According to Pluknet, the flower is beautifully variegated with red and yellow. Boccone ſays it is pale yellow; and Miller, that it is bright red with a greeniſh bottom.

Native of Corſica and Africa, on the borders of fields, and on the ſea-coaſt. Linneus marks it as biennial; Miller and Deſfontaines as perennial.

16. Stem erect, four-cornered from the decurrent petioles. Leaves pinnate, with five or ſeven leaflets, (beſides the ſmaller ones placed between them) cordate, wrinkled, ſmooth above, ſerrate, with the end one larger. Raceme terminating, compoſed of very ſhort, ſubdichotomous, axillary peduncles in pairs. Flowers large, purple with the lower lip greeniſh [6].

This reſembles the preceding, but the ſtalks are larger, riſe higher, and are hairy. The leaves are much longer, and have four appendages, are irregularly ſerrate, and run out into longer points. The flowers, which are in compound axillary bunches, are larger, and have a greater mixture of green.

Native of Portugal, [and Spain. Cultivated before 1629, by Parkinſon. It flowers from july to ſeptember; and is perennial [7].

17. Root annual. Stem four-cornered. Branches numerous, panicled, dichotomous. Leaves ſmooth; the lower gaſhed, the upper pinnate or pinnatifid, with the diviſions remote, widiſh, linear, ſimple or ſublobed, acute. Flowers in panicles. Corolla ſmall, deep purple; without any lamella in the palate [8].

[1] Engl. bot. [2] Plantæ Cantabr. app. [3] Miſs. [4] Hort. kew. [5] Deſfontaines. [6] Linn. ſpec. [7] Hort. kew. [8] Deſfontaines.

Linneus remarks, that the peduncles are bifid; and the flowers ſeſſile, the firſt being axillary, the reſt alternate.]

Root compoſed of a few thick fleſhy fibres. Stalks ſlender, two feet high. Lower leaves compoſed of ſeveral pinnæ or lobes which are ſharply ſerrate; but thoſe on the ſtalks are entire: on the lower part of the ſtalk they are oppoſite, but towards the top alternate and ſmall. Flowers in axillary bunches, ſmall, and of a dark purple colour with a mixture of green. Seed-veſſels ſmall and roundiſh.

Native of the South of Europe, and of Barbary. Cultivated in 1683, by Mr. James Sutherland. It flowers from june to auguſt [1].—Linneus and Deſfontaines mark it as annual; the Kew catalogue as perennial.

18. Stem herbaceous, erect, from two to three feet in height, ſimple, four-cornered, with four decurrent lines, ſmooth, as is the whole plant. Leaves petioled, oppoſite, a hand in length; the lower pinnate; the upper ternate-pinnate. Leaflets petioled, alternate, diſtant, about five, the lower one ſmaller, the end one three-parted, all the parts ſeſſile, oblong or lanceolate, unequally tooth-gaſhed, with the teeth blunt. Peduncles axillary, oppoſite, four-cornered, three-flowered. Flowers pedicelled. Bractes three or four, linear-lanceolate, length of the pedicels. Segments of the calyx roundiſh, membranaceous at the edge. Corolla nearly of the ſame ſize as in *S. ſcorodonia*, purpliſh green. Capſule ovate, bigger than a pea [2].

Native of Barbary. Introduced in 1786, by Monſ. Thouin. It flowers in july and auguſt, and is perennial [3].

19. Stem round, ſtraight, green. Leaves reſembling thoſe of *S. canina*, but ſomewhat fleſhy. Raceme rigid, erect. Corollas pale, with the upper lip red [4]. Leaflets thickiſh, gaſhed, ſhining. Palate of the corolla furniſhed with a little orbicular lamella [5].

Miller, following Tournefort, makes the *Scr. foliis filicis*, &c. of Caſp. Bauhin, a diſtinct ſpecies, under the name of *filicifolia*. This he deſcribes as having] a root compoſed of fleſhy fibres; the lower leaves broad and jagged, not much unlike thoſe of the Indian Scabious; the ſtalk near three feet high, four-cornered, green and ſmooth, with pinnate leaves on very long foot-ſtalks; they are compoſed of two or three pairs of ſmall leaflets, terminated by a large one, acutely indented, and ending in ſharp points. Flowers in terminating ſlender bunches, placed ſcatteringly, ſmall, of a purpliſh colour at their rims and edged with white. Seed-veſſels ſmall and roundiſh.—Native of Crete.

He deſcribes the *lucida* as a biennial plant, with ſtalks fifteen inches high, thick, ſmooth, and having ſcarcely any corners; leaves pinnate, narrow, of a lucid green, thick, ſucculent, and divided into many leaflets, which are again divided (bipinnate;) flowers in looſe bunches on the ſide and at the top of the ſtalk, of a dark brown colour with a mixture of green; capſules roundiſh, pretty large, filled with angular dark-coloured ſeeds.—Native of the kingdom of Naples, where it is frequent upon rocks and old ſtone walls.

[Native of the Levant, the county of Nice, and Barbary. Cultivated before 1680, by Robert Moriſon, M.D.[6]]

20. Root biennial. Stalk two feet high. Leaves ovate, acute, ſerrate, ſeſſile; at the bottom and top of the ſtalk placed by pairs, but in the middle there are three or four at each joint; all of a pale green colour. The flowers are produced at the top of the ſtalk in roundiſh bunches; they are about the ſame ſize with thoſe of the *nodoſa*, but of a fine ſcarlet colour.—Diſcovered by Dr. Houſtoun, at La Vera Cruz in New Spain.

21. Leaves ending in acute points, ſerrate, of a lucid green, and on the upper part of the ſtalk alternate. The peduncles each ſuſtain two or three flowers, which are of a dark-red or purple colour. They appear in may and june, and the ſeeds ripen in july and

[1] Hort. kew. [2] Vahl. [3] Hort. kew. [4] Linn. [5] Deſfontaines. [6] Hort. kew.

auguſt.

auguſt, after which the plants die. [According to Linnæus and the Kew catalogue, the root is annual.—Native of Italy. Cultivated in 1683, by Mr. James Sutherland [b].

Linnæus remarks, that the ſtem is dark-purple, and has four, five or ſix acute angles; that the peduncles have from two to five flowers; and that the corolla is purple [c].

22. Stem ſimple or but ſparingly branched, firm, hiſpid with ſhort and very numerous hairs. Leaves oppoſite, on ſhort petioles, villoſe, ſoft, aſh-coloured: pinnules ovate, few, often cut out in front, ſubpetioled, with the terminating leaflets ſometimes ſublobed. Raceme interrupted: racemelets oppoſite or alternate, hirſute, branched. Flowers pedicelled, Bractes linear, longer or ſhorter than the pedicel. Calyx permanent, ſmooth, five-parted: ſegments roundiſh, preſſed cloſe, ſurrounded by a membranaceous margin. Corolla ſpreading, the ſame ſize as in *S. nodoſa*; tube ſhort, globular; upper lip longer, horizontal, two-lobed, with the lobes rounded, the lower three-lobed; lamella of the palate orbicular. Capſule even, very ſmooth, pear-ſhaped, mucronate. Seeds brown, oblong, obtuſe, dotted and wrinkled, faſtened to a central fleſhy receptacle.

Native of mount Atlas near Tlemſen, in the clefts of the rocks [d].]

PROPAGATION AND CULTURE.

Theſe plants are propagated by ſeeds, which if ſown in the ſpring, the plants ſeldom riſe the ſame ſeaſon. Some of them may come up in autumn, and others the ſpring following; but if they are ſown in autumn, ſoon after they are ripe, the plants will come up the ſpring following. Theſe ſeeds may be moſt of them ſown in the place where the plants are to remain, for the plants are in general all of them hardy enough to bear the cold of our ordinary winters in the open air (except the laſt ſort, which is tender;) therefore when the plants come up, they will require no other care but to thin them where they are too cloſe, and keep them clear from weeds. The ſecond year the plants will flower and produce ripe ſeeds; after which thoſe ſorts which are biennial will die, but the others will continue ſome years.

The 15th and 16th ſorts being ornamental plants, may be allowed a place in the pleaſure-garden, where, when the plants are ſtrong, they will make a good appearance during their continuance in flower, which is generally two months, unleſs the ſeaſon prove very hot and dry. The roots of theſe ſorts will abide many years, unleſs by a very ſevere winter they are deſtroyed; therefore it will be proper to put ſome of theſe plants in pots, which may be ſheltered under a common frame in winter; but, as young plants flower ſtronger than the old ones, there ſhould be a ſucceſſion of them annually propagated by ſeeds.

The other ſorts are proper furniture for botanic gardens, but are ſeldom cultivated in any other. The 17th and 19th ſorts ſhould have a dry ſoil, for as they naturally grow upon rocks and old walls, if they are in good ground, the plants will grow vigorous in ſummer, and thereby will be ſo replete with moiſture, as that they are often killed by ordinary froſts, or rot with wet in winter; whereas in a poor dry ſoil, they are ſeldom injured by the cold in England.

The 20th is too tender to live through the winter in the open air in this country, but the ſeeds ſhould be ſown in pots in autumn, which may be ſheltered under a common frame in winter, and in the ſpring plunged into a moderate hot-bed, which will bring them up. When theſe are fit to remove, as many of them as are required ſhould be planted into ſeparate ſmall pots, and plunged into a very moderate hot-bed, ſhading them from the ſun till they have taken new roots; after which they muſt be gradually hardened to bear the open air whereinto they may be removed at the end of June, placing them in a ſheltered ſituation, where they may remain till ſeptember, when they ſhould be removed into ſhelter before any morning froſts come on, and in winter they muſt be placed in a ſtove, kept moderately warm, where they will thrive and produce flowers the following ſummer.

[SCULL-CAP. See *Scutellaria*.

SCUNKWEED. See *Dracontium* and *Pothos*.

SCURRULA. See *Loranthus*.

SCURVY-GRASS. See *Cochlearia*.]

SCUTELLARIA. (*From the form of the calyx, like a* ſcutellum, *a little diſh or ſaucer.*)

Lin. gen. n. 734. *Reich. n.* 792. *Schreb. n.* 989. *Juſſ.* 117. Caſſida. *Tournef. t.* 84.

Claſſ. 14. 1. Didynamia Gymnoſpermia.

Nat. order of *Verticillatæ*. *Labiatæ*, Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* one-leafed, very ſhort, tubular: *mouth* almoſt entire; after flowering cloſed with a lid.

COR. one-petalled, ringent: *tube* very ſhort, bent backwards: *throat* long, compreſſed: *upper lip* concave, trifid; *middle little ſegment* concave, emarginate; *ſide ones* flat, ſharpiſh, lying under the middle one: *lower lip* wider, emarginate.

STAM. *Filaments* four, concealed beneath the upper lip, of which two are longer. *Anthers* ſmall.

PIST. *Germ* four-parted. *Style* filiform, ſituation and length of the ſtamens. *Stigma* ſimple, curved in, acuminate.

PER. none. *Calyx* cloſed by a lid, helmet-ſhaped, doing the office of a capſule, three-ſided, opening by the lower margin.

SEEDS four, roundiſh.

OBS. *It is clearly diſtinguiſhed from all others by the fruit alone; for the calyx reſembles a helmet both in the lid and creſt. Hence Columna's and Tournefort's name of* Caſſida.

ESSENTIAL CHARACTER.

Calyx with an entire mouth, after flowering cloſed by a lid.

SPECIES.

1. Scutellaria orientalis. *Yellow-flowered Skull-cap.*
Lin. ſpec. 834. *Juſſ.* 117. *Reich.* 3. 97. *hort. upſ.* 173. *cliff.* 316. *Knipb. cent.* 5. *n.* 82.
Caſſida orientalis, folio chamædryos, flore luteo. *Tournef. cor.* 11. *inſt.* 3. 306. *ic.* 3. 159. *ed. lugd. bat.* 18. *Comm. rar.* 30. *ic. Mart. cent. t.* 18.
β. C. orient. incana, foliis laciniatis, flore luteo. *Tournef. cor.* 11.
Leaves gaſhed tomentoſe beneath, ſpikes rounded-four-cornered.

[2. Scutellaria albida. *Hairy Skull-cap.*
Lin. ſyſt. 546. *Reich.* 3. 97. *mant.* 248. *Sabb. hort. rom.* 3. *t.* 29. *Lour. cochinch.* 367. *ed. Willd.* 445.
S. teucrii facie, flore albo. *Bauh. hiſt.* 3. 291.
Caſſida flore ex albo pallente. *Col. ecphr.* 1. 196. *var.*
C. flore exalbido. *Tournef. inſt.* 182.
Leaves ſubcordate ſerrate wrinkled opoque, ſpikes directed one way, bractes ovate.

3. Scutellaria alpina. *Alpine Skull-cap.*
Lin. ſpec. 834. *Juſſ.* 546. *Reich.* 3. 97. *hort. cliff.* 317. *upſ.* 173. *Krock. ſilef. n.* 963. *Villars dauph.* 2. 399. *Allion. pedem. n.* 142. *t.* 26. *f.* 3. *Knipb. cent.* 9. *n.* 87. *Lour. cochinch.* 367. *ed. Willd.* 446.
Caſſida procumbens, foliis ovatis crenatis, ſpicis raris foliofis. *Hall. helv. n.* 281.
Teucrium alpinum inodorum, magno flore. *Bauh. pin.* 247. *prodr.* 116. *Rati hiſt.* 526. 4.
Leaves cordate gaſh-ſerrate crenate, ſpikes imbricate rounded-four-cornered.]

4. Scutellaria lupulina. *Great-flowered Skull-cap.*
Lin. ſpec. 835. *Juſſ.* 546. *Reich.* 3. 98. *hort. upſ.* 173. *Pallas it.* 2. 29. *Willich in nov. act. nat. cur.* 4. 117.
Caſſida alpina lupina, magno flore. *Tournef. inſt.* 182.
Leaves cordate gaſh-ſerrate acute ſmooth, ſpikes imbricate rounded-four-cornered.

[5. Scutellaria lateriflora. *Virginian Skull-cap.*
Lin. ſpec. 835. *Reich.* 3. 98. *Gron. virg.* 91. *Mor. hiſt.* 3. 416. *n.* 7.
Flowers ſmooth with a rugged keel, racemes lateral leafy.

6. Scutellaria

[b] Hort. kew. [c] Mant. [d] Desfontaines.

6. Scutellaria galericulata. *Common Skull-cap.*
Lin. ſpec. 835. *ſyſt.* 546. *Reich.* 3. 98. *fl. lapp.* *n.* 239. *ſuec. n.* 538. *hort. cliff.* 316. *Huſſ. angl.* 265. *Wither. arr. ed.* 540. *Smith brit.* 645. *engl. bot. t.* 523. *Curt. lond.* 3. *t.* 36. *Relh. cant. n.* 451. *Sibth. oxon. n.* 541. *Fl. dan. t.* 637. *Politch pal. n.* 576. *Krock. ſilef. n.* 961. *Neck. gallob.* 262. *Crantz auſtr.* 275. *Villars dauph.* 2. 399. *Allion. pedem. n.* 143. *Gmel. ſib.* 3. 227. *Rivin. mon. t.* 77. *f.* 1. *Blackw. t.* 516. *Kniph. cent.* 8. *n.* 83. *Sabb. hort.* 3. *t.* 30.
S. paluſtris repens cærulea. *Mor. hiſt. ſ.* 11. *t.* 20. *f.* 6. *ord.* 3.
Caſſida galericulata. *Scop. carn. n.* 741. *Hall. helv.* *n.* 280.
C. paluſtris vulgatior flore cæruleo. *Tournef. inſt.* 182. *Vaill. bot.* 31. *Raii ſyn.* 244. *Petiv. brit.* *t.* 34. *f.* 10.
Lyſimachia cærulea galericulata. ſ. Gratiola cærulea. *Bauh. pin.* 246. *Raii hiſt.* 572.
L. galericulata. *Dalech. hiſt.* 1060. *Lob. obſ.* 186. 3. *ic.* 1. 344. 2. *Ger.* 387. *n.* 6. *emac.* 477. *f.* 10.
L. galer. cærulea ſ. latifolia major. *Park. theat.* 221.
Judaicæ herbæ altera ſpecies. *Dod. pempt.* 93. *f.* 2.
Tertianaria, aliis Lyſimachia cærulea. *Bauh. hiſt.* 3. 435.
Leaves cordate-lanceolate crenate wrinkled, flowers axillary.
7. Scutellaria haſtifolia. *Haſtate-leaved Skull-cap.*
Lin. ſpec. 835. *Reich.* 3. 98. *fl. ſuec. n.* 539. *Crantz auſtr.* 276. *Krock. ſilef. n.* 962.
S. folio non ſerrato. *Rivin. mon. t.* 77. *f.* 2.
Caſſida haſtifolia. *Scop. carn. n.* 742.
Leaves quite entire, the lower haſtate, the upper ſagittate.
8. Scutellaria minor. *Small Skull-cap.*
Lin. ſpec. 835. *Reich.* 3. 99. *Allion. pedem. n.* 144. *Huſſ. angl.* 265. *Wither. arr. ed.* 3. 540. *Smith brit.* 645. *engl. bot. t.* 524. *Curt. lond.* 4. *t.* 43. *Dickſ. hort. ſicc.* 5. 6.
S. minor repens flore rubente. *Mor. hiſt. ſ.* 11. *t.* 20. *f.* 8.
Caſſida paluſtris minima flore purpuraſcente. *Tournef. inſt.* 182. *Raii ſyn.* 244. *Petiv. brit. t.* 34. *f.* 11. *Linds. aſſat.* 216. *t.* 9.
Lyſimachia galericulata minor. *Raii hiſt.* 572. 2.
Gratiola latifolia. *Ger.* 466. 2. *emac.* 581. 3.— ſ. noſtras minor. *Park. theat.* 221.
Leaves cordate-ovate almoſt quite entire, flowers axillary.]
9. Scutellaria integrifolia. *Entire-leaved Skull-cap.*
Lin. ſpec. 836. *Reich.* 3. 99. *Gron. virg.* 91. *Pluk. phyt. t.* 313. *f.* 4.
S. Teucrii folio Marilandica. *Raii ſuppl.* 310.
Leaves ſeſſile ovate, lower indiſtinctly ſerrate, upper quite entire.
[10. Scutellaria havanenſis.
Lin. ſyſt. 547. *Reich.* 3. 99. *Jacqu. obſ.* 2. *t.* 29. *amer. pict.* 85. *t.* 165.
Leaves cordate-ovate crenate, flowers ſolitary axillary, both lips of the corolla trifid.
11. Scutellaria hyſſopifolia. *Hyſſop-leaved Skull-cap.*
Lin. ſpec. 836. *ſyſt.* 547. *Reich.* 3. 99. *mant.* 414. *Gron. virg.* 91.
Caſſida marina hyſſopifolia. *Petiv. in act. angl.*
Leaves lanceolate.
12. Scutellaria purpuraſcens. *Purple Skull-cap.*
Swartz prodr. 89. *Vahl ſymb.* 2. 66.
Leaves petioled cordate-ovate toothed, racemes naked terminating, both lips of the corolla trifid, (bifid, Vahl.)]
13. Scutellaria peregrina. *Florentine Skull-cap.*
Lin. ſpec. 836. *ſyſt.* 547. *Reich.* 3. 99. *hort. cliff.* 317. *upſ.* 172. *Gmel. ſib.* 3. 228. *Kniph. cent.* 5. *n.* 83.
S. Columnæ. *Allion. pedem. n.* 145. *t.* 84. *f.* 2.
Caſſida latifolia, menthæ facie, ſeminе ſavicante. *Amm. ruth. n.* 52.
Caſſida. *Column. ecphr.* 1. 187. *t.* 189.
Lamium peregrinum, ſ. Scutellaria. *Bauh. pin.* 231. *Raii hiſt.* 572. *Park. theat.* 606. *n.* 8.
Leaves ſubcordate ſerrate, ſpikes elongated, directed one way.

[14. Scutellaria indica.
Lin. ſpec. 836. *Reich.* 3. 100. *Oſb. it.* 244. *edit. angl.* 2. 3. *Tbunb. jap.* 250. *Pluk. amalth. t.* 441. *f.* 1.
Serratula amara. *Rumph. amb.* 5. 459. *t.* 170. *f.* 1, 2.
Leaves ſubovate crenate petioled, racemes almoſt naked.]
15. Scutellaria altiſſima. *Tall Skull-cap.*
Lin. ſpec. 836. *Reich.* 3. 100. *Leur. cochinch. ed. Willd.* 445.
Caſſida orientalis altiſſima, urticæ folio. *Tournef. cor.* 11.
Leaves cordate-oblong acuminate ſerrate, ſpikes almoſt naked.
16. Scutellaria cretica.
Lin. ſpec. 836. *Reich.* 3. 100.
Caſſida cretica fruticoſa, Catariæ folio, flore albo. *Tournef. cor.* 11.
Villoſe: leaves cordate obtuſe and obtuſely ſerrate, ſpikes imbricate, bractes ſetaceous.

DESCRIPTIONS, *&c.*

[Theſe are all perennial plants, moſtly herbaceous, with ſquare ſtalks and oppoſite leaves: the flowers either ſolitary, axillary and naked, or elſe in terminating bracted ſpikes, with one bractе or floral leaf to each flower. Chiefly natives of the South of Europe and the Levant; two only indigenous of Britain. They flower in july and auguſt; ſome from june to october.]

1. Stems ſhrubby, ſpreading on the ground, and dividing into ſmall branches. Leaves cut, almoſt triangular, light green on the upper ſide, and downy on the under, ſtanding upon ſlender foot-ſtalks. Spikes ſhort. Corollas of a bright yellow colour. Seeds gray. It begins to flower at the end of may, and there is commonly a ſucceſſion of flowers for two months, and upwards.

[Stems about eight inches high, branched from the bottom, a line thick, hard, putting out fibres at the joint in that part which lies on the ground. Leaves eight or nine lines in length, and four or five in width, brownith green but white beneath, cut like thoſe of Germander, on a petiole three or four lines long. Spike an inch and half in length, with pale-green bractes, ſeven or eight lines long; a yellow flower ſpringing from the axil of each. The whole plant is bitter[a].

In the Syſtema Vegetabilium it is ſaid that the corollas are purple with a white lip.

Tournefort has a variety, which is hoary, with the leaves more cut.

Native of the Levant and Barbary. Tournefort firſt introduced it into the Paris garden, and thoſe of Holland. Whence Mr. Miller had it in 1729[b].

2. Very nearly allied to the preceding, but the corollas are white and larger[c]. In the Mantiſſa it is ſaid, that it very much reſembles the *peregrina*; but the leaves are more hairy, wrinkled and blunt, by no means ſhining; the bractes moré ovate, pubeſcent, and ſofter; the corollas white, more cluſtered, and larger.

According to Loureiro, the ſtem is perennial, a foot high, tomentoſe, reddiſh, almoſt upright, but ſometimes creeping. Leaves blunt, petioled. Flowers pale, in ſhort leafy ſpikes.

Native of the Levant and Cochinchina. Introduced in 1780, by Monſ. Thouin[b].

3. This is very like the next ſpecies, but the corolla is violet-coloured with a whitiſh lip, and not yellow; the bractes are ovate, acute but not acuminate, ſhorter than the corolla, not equal to it. Leaves leſs oblong[c].

Stem procumbent and then erect, very much branched, from ſix inches to a foot in height. Leaves on ſhort petioles. Corolla pale violet, with the upper lip wholly white and ſomewhat hirſute[b]. According to Villars, it is of a fine blue, or whitiſh.

According to Loureiro, the ſtem is perennial, erect, a foot and half high. Leaves obtuſe, deeply crenate, tomentoſe. Corolla violet. Calyx entire, rounded, hairy.

[a] Tournef. voy. [b] Hort. kew. [c] Hort. kew. [d] Linn. ſpec. [e] Linn. ſyſt. [f] Krocker.

Native of Switzerland, Sileſia, Dauphiné, Piedmont, Cochinchina. Cultivated by Mr. Miller in 1752[l]: but omitted in the ſeventh and eighth editions of his Dictionary.]

4. Stems ſhrubby and trailing. Leaves cut on their edges, and ſmooth on both ſides. Corollas white or blue, larger than in any of the other ſpecies. [In Syſtema Vegetabilium it is ſaid that they are yellowiſh-white.

Native of Siberia. Cultivated by Mr. Miller in 1739[m].

5. Racemes lateral, with ſmaller, lanceolate, ſerrate leaves, and beſides theſe each pedicel has a briſtle on each ſide, as in *galericulata* and *peregrina*[n].

It has very much the air of the common ſort, but is higher and larger, with wider leaves more deeply toothed, and ſmaller flowers[o].

Native of Canada and Virginia. Cultivated in 1752, by Mr. Miller[p]: but diſcarded, with other ſpecies of little beauty, in the two laſt editions of his Dictionary.

6. Root ſlender, jointed, white and creeping. Stems from one to two feet high, upright, acutely quadrangular, with the ſides a little hollowed, and marked with two lines, jointed, ſtiffiſh, leafy, ſomewhat rugged, branched in the middle; the branches oppoſite and nearly upright. Leaves on very ſhort petioles, ſpreading, crenate almoſt equally from the baſe to the end, wrinkled, veined, pubeſcent with very ſhort hairs, paler beneath. The lower leaves are rather blunt, and the upper ones more pointed. According to Mr. Woodward, the ſtem and leaves are both nearly ſmooth; and the latter crenate at the baſe, but entire upwards. Mr. Curtis ſays that they are unequally crenate. Bractes two, very ſmall, briſtle-ſhaped, at the baſe of the peduncle. Flowers one on each ſide, ſubſeſſile, in pairs directed one way, nodding a little, blue and whitiſh underneath, hairy on the outſide. Calyx hairy, emarginate, fenced above with an arched ſcale, cloſing when the corolla falls off, and covered by the ſcale, which then increaſes in ſize, as with a lid. Seeds from one to four, of a pale brown colour, with a rugged ſurface[q].

The ſingular conſtruction of the calyx, ſays Mr. Curtis, is very deſerving of a minute attention. Accordingly it is remarked in Dr. Withering's arrangements, that when the bloſſom falls off the cup cloſes upon the ſeeds, which, when ripe, being ſtill ſmaller than the cup, could not poſſibly open its mouth, or overcome its elaſtic force, as the down of the ſeeds does in the compound flowers, and muſt conſequently remain without a poſſibility of eſcaping. But nature, ever full of reſources, finds a method to diſcharge them. The cup grows dry, and then divides into two diſtinct parts; and thus the ſeeds, already detached from the receptacle, fall to the ground.

Native of Europe, by the ſides of ditches, ponds and rivers. By our old authors called *Hooded Willow-herb* or *Looſe-ſtrife*.

It is ſingular that Ray, who ſeems to have enquired much after the medical qualities of plants, ſhould ſay, "de hujus viribus nihil invenimus a Botanicis traditum." When John Bauhin, whom he copies ſo frequently, calls it *Tertianaria*, from its ſuppoſed efficacy in curing intermittents. Haller ſays it is bitter, ſmells like Garlick, and has the ſame qualities with Scordium, but in a leſs degree. Curtis ſays it has ſcarcely any ſmell of Garlick; and Krocker that it has not either the ſmell or taſte of Scordium. Allione on the contrary affirms, that the ſmell is weaker than that of Scordium, but that it is more bitter; and that it has abſtergent qualities uſeful in correcting the bile, not without ſome degree of antiſeptic power. He adds, that it is not adequate to the removal of a violent Tertian, but that it is of ſervice where the fits are leſs violent, but more obſtinate. In ſuch caſes the expreſſed juice is given from one ounce to two ounces, or an infuſion of a handful or two of the herb.—With us it has never been received into practice.

7. Root creeping. Stem quite ſimple, ſcarcely the length of the finger, with about ſeven joints. Spike almoſt as long as the ſtem, directed one way, looſe, ſpreading, blue. Flowers ſolitary from each axil of the leaves, which being oppoſite, the flowers are in pairs. Leaves haſtate or ſagittate and eared together, eſpecially the lower ones, which are on longer petioles; whereas the upper ones are ſubſeſſile and ſagittate, but by no means eared; the floral-leaves are ovate-lanceolate; all are quite entire. The lower lip of the corolla is flexuoſe and quite entire. Branches ſeldom break out near the ground[r].

Stem ſtriated, villoſe at the joints, ſeldom branched at the axils. Leaves blunter than in the preceding, petioled, little or not at all notched, eared at the baſe. Flowers commonly in pairs: calyx hirſute, coloured, corolla blue; tube very long, angular, hirſute, erect, recurved at a right angle, white at the extremity; upper lip deep blue, trifid, with the middle ſegment arched; lower lip entire, convex in the middle, depreſſed at the ſides, having a groove along the middle and two riſings, emarginate in front, all blue; throat wide, having two cavities[s].

Scopoli remarks, that it is like the preceding, but the leaves are obtuſe, and the flowers larger. Linnæus, in his Species Plantarum, doubts whether it may not be a variety of that; it being certainly very nearly allied to it.

Native of Sweden, on the coaſt, Auſtria, Goritia, Sileſia.

8. This is only one fourth of the ſize of the common ſort. The ſtem is branched at the baſe; the leaves are wider, leſs wrinkled, commonly quite entire, but ſometimes toothed at the baſe, and now and then haſtate. Flowers red or purple-fleſh-coloured, with a white lip, and blood-red dots[t].

Height four or ſix inches, ſometimes eight; often little or not at all branched in a wild ſtate, but in a garden becoming much branched, ſomewhat rigid and hirſute, purpliſh at the baſe. Leaves ſometimes ovate-lanceolate, having only a notch or two near the baſe, on very ſhort petioles, in ſhady ſituations ſmooth, in expoſed ones hirſute, ſometimes reddiſh. Flowers ſmall, pale red, or reddiſh-purple, the lateral ſegments of the upper lip ſomewhat diſtant, not under the middle one, the lower lip mottled within with deeper-coloured lines and dots. (Mr. Curtis found a ſingle plant with blue flowers.) Calyx with two lips, but very ſlightly cloven: upper lip with a flat ridge running acroſs it, which, when the bloſſom falls, enlarges, and preſſing down the upper lip, cloſes the mouth of the calyx, giving it the appearance of a helmet; middle ſegment rather ſhorter, nearly flat; lower lip broad, rather reflected, but neither notched at the end nor keeled beneath. Anthers white, ſlightly hirſute. Stigma a little hooked and pointed, ſlightly cloven[u].

Native of England, France, Alſace and Piedmont; on wet heaths and commons, in boggy ground, and at the edges of ponds, in a gravelly ſoil.

Gerarde firſt diſcovered this plant, "upon the bog (as he tells us) at the further end of Hampſtead-heath, and upon the ſame heath towards London, neer unto the head of the ſprings that were digged for water to be conveyed to London 1590, attempted by that careful citizen Sir John Hart, Knight, Lord Maior of the city of London: at which time myſelf was in his Lordſhip's company, and viewing for my pleaſure the ſame goodly ſprings, I found the ſaid plant, not heretofore remembred." It is ſaid ſtill to exiſt on Hampſtead-heath, but has been found more plentifully on Putney, Shirley, Streatham and other commons in Surry[x]; on Leweſdon-hill, by Mr. Baker; in Goldmire near Dalton, by Mr. Atkinſon; on Seaman's Moſs, next to Altringham, Cheſhire, by Mr. Caley[y]. On Wareham-heath and in Purbeck, Dorſetſhire, by Dr. Pulteney.

Linnæus inſiſts that this is too nearly allied to the two preceding ſpecies; which, ſays Mr. Curtis, he

[l] Hort. kew. [m] Idem. [n] Linn. ſpec. [o] Moriſon. [p] Hort. kew. [q] Smith and Curtis. [r] Linn. ſuec. [s] Krocker. [t] Smith. [u] Curtis, Withering. [x] Curtis. [y] Withering.

would not have done, if he had poſſeſſed the opportunity of ſeeing it frequently and cultivating it.

Allione, who as well as Ray has deſcribed the plant accurately, remarks that the ſeeds, which are kidney ſhaped and black, when they are ripe remove the lip and ſpring out with an elaſtic force. This is a different proceſs from that which was related from Withering, in treating of the common ſort.]

9. Stems two feet high, ſending out many ſide branches. Lower leaves heart-ſhaped and ſerrate, ſtanding upon pretty long foot-ſtalks; upper leaves ovate and entire. Flowers in very long looſe ſpikes at the end of the branches; they are of a purple colour, and appear at the end of June: the ſeeds ripen in ſeptember.

Native of North America. [Cultivated by Mr. Miller in 1759.

10. This is a little tender herbaceous branching plant, procumbent with the branches riſing. Leaves blunt, ſmoothiſh, petioled, ſcarcely half an inch in length. Peduncles one-flowered. Flowers inodorous, blue: ſegments of the calyx roundiſh, quite entire and almoſt equal: lower lip of the corolla ſemitrifid and a little longer than the upper lip, the ſegments roundiſh, the middle emarginate and wider, the ſide ones quite entire.

Native of the Havannah, on maritime rocks; flowering in December [a].

11. Stem erect. Leaves ſeſſile, quite entire, rugged. Upper lip of the corolla with a hairy keel.—Native of Virginia [a].

12. Stems herbaceous, proſtrate, a ſpan high, ſimple, obſcurely four-cornered, ſmooth. Leaves an inch long, ſmooth on both ſides, paler beneath, almoſt veinleſs, remotely and bluntly toothed. Raceme flexuoſe, an inch and half long. Common peduncle pubeſcent. Flowers diſtant, alternate. A ſmall bracte on the pedicel, but none on the common peduncle. Calyx obliquely truncate, quite entire. Corolla pubeſcent, twice as long as the calyx [b].—Native of the Weſt Indies, Guadaloupe, &c.]

13. Stem hairy, two feet high. Flowers purple or white.

[According to Allione, the *Sc. peregrina* of Linneus is not the *Caſſida* of Columna, but the *Caſſida caule quadrangulo rubente, Teucrii ſerrato folio, flore cæruleo, labro albo*, of Tilli, in *hort. piſan.* He thus diſtinguiſhes them. Tilli's plant has the leaves ſmooth, veined beneath, dark green, firm, ovate, crenate-toothed, firſt with four teeth on each ſide, then three, and afterwards two. The floral leaves or bractes are entire and elliptic. The flowers are purple-violet with a white lip, five lines in length, not exceeding the internodes. The ſtems are brownish-red, ſhining, ſmooth, bearing very long flowering-branches, which are ſcarcely erect. The flowering branchlets are ſomewhat hairy. The calyx is a little hirſute. The upper lip of the corolla ſomewhat hairy. But in the reſt of the flower there are ſcarcely any viſible hairs. Columna's Caſſida is only half the height of the other, and brachiate with the branches erect. The whole plant is hirſute, but extremely ſo next the flowers, and viſcid. The ſtems are green; the leaves alſo are green, ſoft, cordate, bluntly toothed, on longer petioles, and much bigger. Flowers large, blue, with the lower lip blue-purple not white, but ſpotted with white. The flowers alſo are longer than the internodes, and are about nine lines in length. The bractes are acuminate, awned, ſmaller than in Tilli's plant, but very hirſute.

Linneus ſays, there is another very like this, with the calyxes woolly, with gray hairs; the upper lip of the corolla hairy at the tip; the bractes ſhort and ovate [c]. And that there is a variety with white flowers, which is thicker, and has the leaves ſomewhat hairy [d].

Allione ſays, that the *Caſſida flore ex albo pallente* of Columna, which Linneus refers to his *albida*, is only a variety of his *Scutellaria Columnæ*.

[a] Jacqu. amer. pict. [b] Linn. mant. [c] Vahl. [d] Spec. [e] Syſt.

Native of Italy and Siberia. Cultivated in 1683, by Mr. James Sutherland [a].

14. The plant lies on the ground and has the appearance of Ground Ivy (*Glecoma hederacea.*) Stem ſomewhat rough, compoundly branched at top. Leaves ſuborbiculate, ſubovate (except the ſmall leaves coming from the corners of the greater ones, which are kidney-ſhaped:) obſcurely ſerrate, petioled, hairy. Flowers on ſhort pedicels, commonly by pairs, in terminating racemes. Bractes linear, very ſhort. Calyxes very ſhort without the tube of the mouth. Corollas narrow, longiſh [b].

Stem weak but upright, villoſe, a ſpan high. Branches few, oppoſite, like the ſtem. Leaves ovate, cordate, bluntly ſerrate, very finely villoſe, ſpreading, an inch long. Petiole the length of the leaf. Racemes directed one way, a finger's length. Corollas white [c].

Native of China, where it is called *Tim-gam-ſa*, and Japan.]

15. Stems three or four feet high, ſending out a few ſlender branches. Flowers purple, with longer tubes than any of the other ſorts.

Native of the Levant. [Cultivated in 1731, by Mr. Miller [a].

16. Stature of Nepeta; wholly hirſute. Calyxes of Scutellaria. Corollas almoſt of Teucrium, minute, rough-haired on the outſide: the upper lip ſeems to be very ſmall and emarginate. It may be doubted therefore whether it be a true ſpecies of Scutellaria or of Teucrium [b].]

Stalk woody, about two feet high, ſending out ſlender ſide-branches. Leaves hoary on their under ſides, and of a light green above. Flowers in pretty long terminating ſpikes, white, with ſmall bractes.

Native of Crete or Candia. Cultivated by Mr. Miller in 1759.

PROPAGATION AND CULTURE.

Theſe plants are all propagated by ſeeds. If theſe are ſown in autumn ſoon after they are ripe, they will more certainly ſucceed than when they are ſown in the ſpring, for ſometimes theſe miſcarry, and, if they ſucceed, the plants ſeldom come up the ſame ſeaſon. The ſeeds may either be ſown where the plants are to remain, or in a border to be afterwards removed; but as the firſt ſort does not bear tranſplanting well, unleſs removed young, the ſeeds of that had better be ſown where the plants are to ſtand. This ſhould be on a dry warm border of poor earth, where the plants will live much longer, and make a better appearance than on a rich ſoil, though they ſeldom continue more than two or three years. When the plants come up, they will require no other care but to thin them, and keep them clean from weeds.

When the other ſorts come up, and are fit to remove, they may be tranſplanted into a nurſery-bed at five or ſix inches diſtance, where they may ſtand till autumn, keeping them clean from weeds; then they may be tranſplanted into the borders of the flower-garden, where they are to remain.

[SCUTELLARIA. See *Panax* and *Trichoſtema.*

SCYTALIA. See *Sapindus edulis.*

SCYTHIAN LAMB. See *Polypodium.*

SEA BINDWEED. See *Convolvulus.*

—— BUCKTHORN. See *Hippophae.*

—— CABBAGE. See *Braſſica* and *Crambe.*

—— CHAMOMILE. See *Anthemis.*

—— CHICKWEED. See *Glaux.*

—— COLEWORT. See *Bunias.*

—— DAFFODIL. See *Pancratium.*

—— GRAPE. See *Coccoloba.*

—— HEATH. See *Frankenia.*

—— HOLLY. See *Eryngium.*

—— LAVENDER. See *Statice Limonium.*

—— LAUREL. See *Phyllanthus.*

—— MEDICK. See *Medicago.*

—— MILKWORT. See *Glaux.*

—— ONION. See *Scilla.*

—— PEA. See *Piſum.*

[a] Hort. kew. [b] Linn. ſpec. and Oth. it. [c] Thunberg. [d] Hort. kew. [e] Linn. ſpec.

SEA PINK. See *Ceraſtium* and *Statice*.
—— PURSLANE. See *Atriplex*.
SEA-SIDE GRAPE. See *Coccoloba*.
—— LAUREL. See *Xylophylla*.
—— PIGEON-PEA. See *Sophora*.
SEAL, SOLOMON'S. See *Convallaria*.
SEBESTENA. See *Cordia*.]
SECALE (*of Pliny. A ſecando. Frumenta ſecantur; Legumina leguntur.* Voſſius. *Others derive it from the Celtic* Segal.)
Lin. gen. n. 97. *Reich. n.* 103. *Schreb. n.* 127. *Gærtn. t.* 81. *Juſſ.* 32.
Claſſ. 3. 2. Triandria Digynia.
Nat. order of *Gramina* or *Graſſes*. *Gramineæ*, Juſſ.

GENERIC CHARACTER.

CAL. the common *Receptacle* lengthened out into a *ſpike*. *Glume* two-flowered, two-leaved: *leaflets* oppoſite, diſtant, erect, linear, acuminate, leſs than the corolla. Florets ſeſſile.
COR. two-valved: *outer valve* more rigid, ventricoſe, acuminate, compreſſed, keel ciliate, ending in a long *awn*; *inner valve* flat, lanceolate.
Nectary two-leaved; *leaflets* lanceolate, ſharpiſh, ciliate, gibbous on one ſide at the baſe.
STAM. *Filaments* three, capillary, hanging out of the flower. *Anthers* oblong, forked.
PIST. *Germ* turbinate. *Styles* two, reflexed, villoſe. *Stigma* ſimple.
PER. none. Corolla embraces the ſeed, gapes and drops it.
SEED one, oblong, ſemicylindrical, naked, pointed at one end.
OBS. *There is frequently a third flower which is pedunculed between the two larger ſeſſile ones.*

ESSENTIAL CHARACTER.

Cal. oppoſite, two-valved, two-flowered, ſolitary.

SPECIES.

1. Secale cereale. *Rie.*
Lin. ſpec. 124. *Juſſ.* 125. *Reich.* 1. 234. *Willd.* 1. 471. *hort. upſ.* 22. *Gærtn. fruct.* 2. 9. *Hall. helv. n.* 1421. *comm. nov. gott.* 6. 12. *Villars dauph.* 2. 168.
Secale. *Fuchſ. ic.* 439. *Dod. cereal.* 50. *pempt.* 499. *Matth.* 402. *Camer. epit.* 190. *Ger.* 61. *emac.* 68. *Raii hiſt.* 1241. *Mor. hiſt.* 3. *ſ.* 8. *t.* 2. *f.* 1. *Blackw. t.* 424. *Plenck, ic.* 46.
α. S. hybernum vel majus. *Baub. pin.* 22. *theat.* 425. S. vulgatius. *Park. theat.* 1128.
Common or winter Rie.
β. S. vernum vel minus. *Baub. pin.* 23.
S. æſtivum ſ. minus. *Park. theat.* 1129. *n.* 2.
Spring or Summer Rie.
γ. S. latifolia peregrina, C. Bauhini. *Baub. hiſt. Raii hiſt.* 1241. 2.
S. latifolium. *Park. theat.* 1129. *n.* 3.
Ciliæ of the glumes rugged.
[2. Secale villoſum. *Villoſe Rie-graſs.*
Lin. ſpec. 124. *Reich.* 1. 235. *Willd.* 1. 471.
Gramen ſpicatum ſecalinum, glumis villoſis in ariſtas longiſſimas deſinentibus. *Tournef. inſt.* 518.
Gr. ſecal. maximum. *Park. theat.* 1144.
β. Gr. creticum ſpic. ſeeal. glumis ciliaribus. *Tournef. cor.* 39. *Buxb. cent.* 5. 21. *t.* 41.
Ciliæ of the glumes villoſe, calycine ſcales wedge-ſhaped.
3. Secale orientale. *Oriental Rie-graſs.*
Lin. ſpec. 124. *Reich.* 1. 235. *Willd.* 1. 471.
Gramen orientale ſecalinum ſpica brevi & lata. *Tourn. cor.* 39.
Glumes birſute, calycine ſcales awl-ſhaped.
4. Secale creticum. *Cretan Rie-graſs.*
Lin. ſpec. 125. *Reich.* 1. 235. *Willd.* 1. 472.
Gramen creticum ſpicatum ſecalinum altiſſimum, tuberoſa radice. *Tournef. cor.* 39. *Schreb. gram.* 22.
Glumes ciliate on the outſide.

DESCRIPTION, &c.

1. Root annual. Stem higher and weaker than Wheat, ſometimes attaining the height of ſix feet. Leaves a quarter or a third of an inch in breadth, rough to the touch, if the finger be drawn from point to baſe, but not hairy; they are wider, and form a more conſiderable tuft than Wheat commonly does. Spike very cloſe, of a gray colour from its pubeſcence, in a good ſoil and ſituation having four rows, containing from ſixty to eighty or even 120 grains, which are ſmaller and more ſlender than in Wheat. Haller mentions a variety with fourteen ſpikes, ſome of which were branched.
Gærtner deſcribes the ſeed as oblong, at top pubeſcent and as it were truncated, narrowed below and much acuminated, convex three-ſided on one ſide, and having a deep groove on the other: coat very thin membranaceous: albumen or body of the ſeed farinaceous, hardiſh, white: ſcutellum ovate-oblong, equal to about a third part of the ſeed, milky: embryo oblong, yelloviſh; plume oblong, compreſſed; radicles three, ſubcylindrical.
Some ſay that Rie is a native of Crete, and others of Siberia; but there is no reaſon to think that there is any country in which it is found wild. It flowers in June, and the grain is ripe in England about the middle of July.
Rie is eſteemed leſs nouriſhing than the other common grains, more ſuſceptible of fermentation, and in a ſmall degree laxative. It is uſed principally for making bread in northern countries, either alone or mixed with Wheat; and for extracting an ardent ſpirit.
2. This is an annual graſs, native of the South of Europe and the Levant.
3. Native of the Archipelago.
4. Native of Candia or Crete.]

PROPAGATION AND CULTURE.

The farmers diſtinguiſh the two varieties by the titles of Winter and Spring Rie, but when theſe are ſown three or four years, at the ſame ſeaſon, and on the ſame ſoil, it will be difficult to know them aſunder; but, where Rie is ſown upon a warm land, it will ripen much earlier than on cold ſtiff ground, and by continuing it two or three years, it will be forwarded ſo much, as to ripen a month earlier than the ſeeds which have long grown upon a ſtrong cold ſoil; ſo thoſe who are obliged to ſow Rie toward ſpring, generally provide themſelves with this early ſeed.
The Winter Rie is what the generality of farmers propagate; it is uſually ſown in autumn at the ſame ſeaſon with Wheat, and in many of the northern counties, as alſo in Wales, they are often mixed together, though I think it muſt be very bad huſbandry, for the Rie will always ripen ſooner than Wheat, ſo that if the latter is permitted to be fully ripe, the former will ſhatter.
It is generally ſown two buſhels and a half to the acre, upon poor, dry, gravelly, or ſandy land, where Wheat will not thrive, and in ſuch places may anſwer very well; but on ſuch land as will bear Wheat it is not proper to ſow Rie, as the value of it is greatly inferior to that of Wheat.
When Rie is ſown, the ground ſhould not be too wet; and if it ſhould happen that much rain falls before the Rie is come up, it often rots in the ground; but it is not long in coming up, it being much ſooner out of the ground than Wheat.
The ſmall Rie may be ſown in the ſpring about the ſame time with Oats, and is uſually ripe as ſoon as the other ſort; but if the ſeaſon proves wet, it is apt to run much to ſtraw, and then the grain is generally lighter than the other: ſo the only uſe of this ſort, is to ſow upon ſuch lands where the autumnal crop may have miſcarried.
The general uſe of Rie is for bread, either alone, or mixed with Wheat.
Rie is alſo ſown in autumn to afford green feed for ewes and lambs in the ſpring, before there is plenty of Graſs. When this is intended, the Rie ſhould be ſown early in autumn that it may have ſtrength to furniſh early feed. The great uſe of this is to ſupply the want of Turneps in thoſe places where they have failed, as alſo, after the Turneps are over, and before the Graſs is grown enough, to ſupply green feed for the ewes; ſo that in thoſe ſeaſons, when the Turneps in general fail, it is very good huſbandry to ſow the

land

land with Rie, eſpecially where there are ſtocks of ſheep, which cannot be well ſupported, where green feed is wanting early in the ſpring; therefore thoſe farmers who have live large ſtocks, ſhould have ſeveral methods of ſupplying themſelves with ſufficient feed, leſt ſome ſhould fail; for as Turneps are a very precarious crop, ſome land ſhould be ſown with Cole-ſeed, which will ſupply the want of Turneps in winter; and if ſome of the ground, which was ſown late with Turneps which had failed, was ſown in autumn with Rie, that would be fit to ſupply the want of Cole-ſeed afterward.

[Rie is alſo uſed for ſoiling great cattle and horſes. A good acre will keep ſix horſes a fortnight[a].

As a grain for making bread, &c. Rie is ſown to a much greater extent in Germany, Switzerland, and the northern and alpine countries, than in England. In cold and moiſt vallies among the mountains it is their moſt uſeful crop, and in many places the chief reſource of the hardy inhabitants.

In Le Devoluy, a diſtrict of Dauphiné, elevated from twelve to eighteen hundred yards above the level of the ſea, they grow abundance of this grain, which they keep two or three years in the ſtraw, in round ſtacks ſet up in the field, containing from four or ſix hundred to a thouſand ſheaves; the ears being all turned into the middle, the grain thus keeps extremely well, provided it is dry before it is put off, and that there be no graſs or weeds among the ſtraw: the grain is fine, well fed, and fit for ſeed after three or four years; it has not that pale colour which is uſual in Rie, but acquires a yellow hue approaching to that of Wheat. Hardened by the climate, like the men and animals of the ſame country, it carries better, and furniſhes ſeed for thoſe milder ſituations, where the crop is apt to be choked by weeds, and weakened by the ſtifled air of the cloſe vallies.

Spring Rie produces a leſs crop of ſmaller, lighter grain than Winter Rie; it is eſteemed leſs nouriſhing, and bread made of it is of a darker colour[b].

Rie-flour is uſed in the Limoſin, a province of France, with great ſucceſs, for fattening of oxen; after they have had a ſummer's graſs, and have been put to Turneps the beginning of november, or end of october. When theſe fail, they mix the flour with water to the conſiſtency of a paſte, and leave it three, four or five days to ferment and become ſour; when they dilute it with water, and thicken this water with hay cut. Some add leaven to the paſte, to ſecure a fermentation, but none give it, till it is four: it is given thrice a day, and a large ox will eat a boiſſeau, weighing twenty-two pounds. The moſt approved method is to give the four regimen for the laſt three weeks[c].

SECALE. See *Elymus*.

SECAMONE. See *Periploca*.

SECHIUM. (*So named by Browne; perhaps from σηκος or σηκιζω, ſaginо. The fruit being uſed to fat hogs: but then it ſhould have been* Secium.)

Lin. gen. Schreb. n. 1482. *Juſſ.* 391. Chayota. *Jacqu. amer.* 2.

Claſſ. 21. 9. Monoecia Syngeneſia.

Nat. order of *Euphorbiæ*, Juſſ.

GENERIC CHARACTER.

* *Male Flowers.*

CAL. *Perianth* one-leafed, half-five-cleft: *tube* bell-ſhaped, ſpreading; *ſegments of the border* lanceolate, flat, acuminate, ſpreading very much.

COR. one-petalled: *tube* ſize and figure of the calyx, and faſtened to it; *border* five-cleft; *ſegments* ovate, flat, acute, almoſt double the length of the calyx, ſpreading very much.

Nectary, ten hollows in the upper part of the tube of the corolla.

STAM. *Filaments* five, connected into an upright cylinder, five-cleft at top, and ſpreading very much. *Anther* on the top of each filament a line creeping twice downwards and once upwards, fariniferous.

* *Females in the ſame plant.*

CAL. as in the Male, placed on the germ by a pedicel, deciduous.

COR. as in the Male; but the hollows or pits bigger.

PIST. *Germ* obovate, tomentoſe, five-grooved, inferior. *Style* cylindrical, erect, length of the calyx. *Stigma* very large, peltate-reflexed, with the margin five-cleft.

PER. very large, ovate-turbinate, five-grooved, fleſhy, unequally gibbous at the top, muricated with harmleſs prickles, one-celled above.

SEED one, ſubovate, plano-compreſſed, fleſhy, bilamellate, blunt at each end.

ESSENTIAL CHARACTER.

Cal. half-five-cleft. *Cor.* five-cleft, with ten hollows in the upper part of the tube. *Nectary.*

MALE. *Filam.* five connected.

FEM. *Stigma* very large, peltate-reflexed, five-cleft. *Per.* large, ovate-turbinate, one-ſeeded.

SPECIES.

1. Sechium edule. *The Chocho Vine.*

Brown. jam. 355.

Chayota edulis. *Jacqu. amer. pict. t.* 245.

DESCRIPTION, *&c.*

This plant has the habit of the Cucurbitaceæ or Cucumber and Melon tribe, and climbs like them by tendrils. Leaves cordate-angular, rugged on the upper ſurface, with the angles toothed and acute, alternate, on a ſmooth petiole. Flowers ſmall, without ſcent. Corollas yellow. The males on many-flowered axillary peduncles; the females one or two only on a peduncle from the ſame axil. Fruit green and ſhining on the outſide; whitiſh and fleſhy within; differing in ſize and ſingular in ſtructure. The ſeed is green and naked, and in larger fruits an inch long; it is placed at the very apex of the fruit. When it is ripe, it protrudes itſelf a little, and puts forth many fibres at its extremity, which it lets drop into the earth. In the oppoſite part, between the lamellæ, it puts forth a leafy ſtem, and then the fruit gradually putrefies. Although the moiſture of the fruit itſelf be ſufficient to make the ſeed vegetate, and to afford it nutriment, until the fibres reach the ſoil and imbibe nutriment from thence; yet the people of the country bury it in the ground, probably to accelerate the growth, or to infuſe it with more certainty: it will however grow, if it fall on the ground, or even if it be preſerved any where. In the iſland of Cuba they eat it in their ſoup, or pudding, or boiled with their meat conſtantly[d]. Browne ſays, that the fruit is ſometimes boiled in Jamaica, and ſerved up at table by way of green, in which ſtate it is generally looked upon as wholeſome and refreſhing; but it is too inſipid to be much liked. The apples ſerve to fatten the hogs in the mountains and inland parts, where the plant is moſtly cultivated.

Native of the Weſt Indies. Flowering and fruiting there in december.

The natives of Cuba notice two varieties: one, which is moſt common, they call ſimply *Chayote*; it is beſet with harmleſs prickles, ſometimes in great abundance, and ſometimes with very few; it is about four inches in length: the other, leſs frequent, called *Chayote francès*, is for the moſt entirely deſtitute of prickles, and is the ſize of a hen's egg[e].

SECURIDĀCA. (*So named from the pod being in the ſhape of a* ſecuris, *ax or bill-hook.*)

Lin. gen. n. 852. *Reich. n.* 922. *Schreb. n.* 1156. *Jacqu. amer.* 197. *Juſſ.* 366.

Claſſ. 17. 3. Diadelphia Octandria.

Nat. order of *Papilionaceæ* or *Leguminoſæ*.

GENERIC CHARACTER.

CAL. *Perianth* three-leaved, ſmall, deciduous; *leaflets* ovate, coloured; the uppermoſt reſpecting the ſtandard, and two the keel.

COR. papilionaceous, five-petalled.

Wings ſpreading wide and very blunt.

Standard two-leaved, oblong, ſtraight, connate with the keel at the baſe, reflexed at the tip.

Keel length of the wings, ſubcylindrical, with the limb or border wider, augmented by a plaited blunt appendicle.

STAM. *Filaments* eight, connate at bottom. *Anthers* oblong, erect.

[a] Young's Ann. 7. 71. [b] Villars. [c] Young's Ann. [d] Jacquin. [e] Idem.

PIST. *Germ* ovate, ending in an awl-ſhaped *Style*. *Stigma* flat, widening, toothed at the tip.

PER. *Legume* ovate, one-celled, ending in a ligulate wing.

SEED one, oblong.

OBS. *The affinity of this to Polygala hence appears.*

ESSENTIAL CHARACTER.

Cal. three-leaved. *Cor.* papilionaceous, with the ſtandard two leaved within the wings. *Legume* ovate, one-celled, one-ſeeded, ending in a ligulate wing.

SPECIES.

1. Securidaca erecta. *Upright Securidaca.*
   Lin. ſpec. 962. *ſyſt.* 640. *Reich.* 3. 392. *Jacqu. amer.* 197. *t.* 183. *f.* 93. *pict.* 97. *t.* 261. *f.* 56. *quoad fructif.*
   Stem upright, leaves oblong.
2. Securidaca ſcandens *Climbing Securidaca.*
   Lin. ſpec. 992. *ſyſt.* 640. *Reich.* 3. 392. *Brown. jam.* 288. 2. *Jacqu. amer.* 197. *t.* 183. *f.* 38. *t.* 186. *Murr.—Plum. ſpec. ic.* 247. *f.* 1.
   Stem climbing, leaves oblong-ovate.
3. Securidaca virgata.
   Swartz prodr. 104. *Brown. jam.* 287. 1. *Plum. ic.* 144. *f.* 1.
   Stem climbing, branches rod-like, leaves roundiſh.

DESCRIPTIONS, *&c.*

1. This is an upright tree twelve feet in height, with few long ſlender weak branches. Flowers in racemes, purple: ſtandard obtuſe, wings roundiſh, appendix of the keel compreſſed and reflexed.

Native of Martinico, flowering there in april[2].

2. This is a ſhrubby, ſcandent plant: the younger leafy branchlets are changed into very ſtrong tendrils. Leaves oblong-ovate, obtuſe, quite entire, ſmooth, alternate, petioled. Racemes looſe, lateral, oppoſite to the leaves. Flowers without ſcent, red, with the ſtandard acute, the wings oblong and attenuated at the baſe, and a wide appendix to the keel[3].—Native of South America and the Weſt Indies. Found in Jamaica by Browne, and at Carthagena by Jacquin. Introduced in 1786, by Mr. Alexander Anderſon[4].

3. Native of Jamaica and Hiſpaniola. Browne's firſt ſpecies belongs to this, and not to the *erecta*, where Linnæus had placed it. In that the leaves are oblong, and the branches thicker, more ſtraight, ſtiff and upright[5].

SECURIDACA of Tournefort, Miller and Gærtner. See *Coronilla.*

———. See *Aſtragalus, Biſerrula, Galega.*

SEDGE. See *Carex* and *Schœnus.*

SEDO AFFINIS. See *Butomus.*

SEDOIDES. See *Craſſula.*]

SEDUM (*of Pliny*; a ſedendo in rupibus, *from its ſitting or growing cloſe to rocks, or from the leaves ſitting cloſe to the roots.*)
Lin. gen. n. 579. *Reich. n.* 629. *Scbreb. n.* 789. *Tournef. t.* 140. A. B. G. H. K. M. *Juſſ.* 307. *Gærtn. t.* 65. Anacampſeros. *Tournef.*
Claſſ. 10. 4. Decandria Pentagynia.
Nat. order of *Succulentæ*. *Sempervivæ*, Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* five-cleft, acute, erect, permanent.
COR. *Petals* five, lanceolate, acuminate, flat, ſpreading. *Nectaries* five, each a very ſmall emarginate ſcale: inſerted into each germ at the baſe on the outſide.
STAM. *Filaments* ten, awl-ſhaped, length of the corolla. *Anthers* roundiſh.
PIST. *Germs* five, oblong, ending in more ſlender *Styles*. *Stigmas* obtuſe.
PER. *Capſules* five, ſpreading, acuminate, compreſſed, emarginate towards the baſe, opening on the inſide longitudinally by a ſuture.
SEEDS numerous, very ſmall.

ESSENTIAL CHARACTER.

Cal. five-cleft. *Cor.* five-petalled. *Scales* nectariferous five, at the baſe of the germ. *Capſ.* five.

SPECIES.

* *With flat leaves.*

[1. Sedum verticillatum. *Whorled Stonecrop.*
Lin. ſpec. 616. *Reich.* 2. 379. *Willd.* 2. 760. *amœn.* 2. 252. *t.* 4. *f.* 14.
S. aparines facie, tauromontanum. *Raii enter.* 235. *Mor. hiſt.* 3. 473.
Leaves in fours.]
2. Sedum Telephium. *Orpine Stonecrop.*
Lin. ſpec. 616. *ſyſt.* 429. *Reich.* 2. 380. *Willd.* 2. 760. *hort. cliff.* 176. *fl. ſuec. n.* 400. *mat. med.* 111. *Gertn. fruct.* 1. 313. *Hudſ. angl.* 107. *Wither. arr. ed.* 3. 426. *Smith brit.* 485. *Lightf. ſcot.* 234. *Curt. lond.* 3. *t.* 25. 210. *Relhs. cant. n.* 328. *Silth. oxon. n.* 417. *Abbot lecſ. n.* 329. *Fl. dan. t.* 686. *Hall. helv. n.* 954. *Hoffm. germ.* 155. *Roth. germ.* 1. 194. 2. 497. *Pollich pal. n.* 428. *Krock. ſileſ. n.* 684. *Neck. gallob.* 199. *Scop. carn. n.* 553. *Villars dauph.* 3. 677. *Allion. pedem. n.* 1737. *Gmel. ſib.* 4. 171. *Thunb. jap.* 186. *Blackw. t.* 191. *Ludov. ect. t.* 200. *Knipb. cent.* 4. *n.* 76. *Knorr. del.* 1. *t.* F. 5. *Plenck, ic. t.* 350.
α. Telephium vulgare. *Bauh. pin.* 287. *Raii hiſt.* 689. *Mor. hiſt. ſ.* 12. *t.* 10. *f.* 1.
T. 2. vulgare. *Cluſ. hiſt.* 2. 66. *f.* 2.
T. album. *Fuchſ. hiſt.* 800.
T. alterum ſ. Craſſula. *Dod. pempt.* 130. *f.* 2.
T. ſ. Craſſula major vulgaris. *Park. theat.* 726. 2.
Craſſula ſ. Faba inverſa. *Ger.* 416. 2. *emac.* 518. 2.
Anacampſeros vulgo Faba craſſa. *Bauh. hiſt.* 3. 681. *Raii ſyn.* 269.
Fabaria. *Matth.* 636.
Small common white Orpine.
β. Telephium purpureum majus. *Bauh. pin.* 287. *Kniph. cent.* 4. *n.* 77. *Mor. ſ.* 2.
T. floribus purpureis. *Park. theat.* 726. 3. *t.* 727. *f.* 3. *Ger.* 417. 1. *emac.* 520. 1.
T. purpuraſcens. *Fuchſ. hiſt.* 801. *Dalech. hiſt.* 1315.
Anacampſeros purpurea. *Bauh. hiſt.* 3. 682. *Raii hiſt.* 689.
Great purple Orpine.
γ. Telephium purpureum minus. *Bauh. pin.* 287. *prodr.* 133. *Raii hiſt.* 689.
T. minus flore purpureo. *Park. theat.* 726.
Small purple Orpine.
δ. Telephium latifolium peregrinum. *Bauh. pin.* 287. *Mor. ſ.* 6.
ε. Sedum Telephium maximum. *Krock. ſileſ. n.* 685. *Hall. helv. n.* 955.
Telephium 1. hiſpanicum. *Cluſ. hiſt.* 2. 66.
T. ſ. Craſſula major hiſpanica. *Park. theat.* 726. *f.* 1.
Anacampſeros maxima. *Bauh. hiſt.* 3. 682. *Blackw. t.* 191.
Craſſula major hiſpanica. *Ger.* 416. *f.* 1. *emac.* 518. 1
Sedum hæmatodes. *Mill. dict. n.* 15.
Greateſt white (and purple) Orpine.
Leaves flattiſh ſerrate, corymb leafy, ſtem erect.
3. Sedum Anacampſeros. *Evergreen Orpine.*
Lin. ſpec. 616. *ſyſt.* 430. *Reich.* 2. 380. *Willd.* 2. 761. *Hoffm. germ.* 156. *Hall. helv. n.* 956. *Sauv. monſp.* 77. *Villars dauph.* 3. 677. *Allion. pedem. n.* 1738. *Thunb. jap.* 186. *Lour. cochinch.* 287. *ed. Willd.* 353. *Curt. magaz.* 118. *Plenck, ic.* 353.
Telephium repens folio deciduo. *Bauh. pin.* 287.
T. 6. Cepæa Pancii. *Cluſ. hiſt.* 2. 67.
T. minus repens ſ. Cepæa Pancii. *Park. theat.* 726. 4. *t.* 727. *f.* 4.
T. minus ſempervirens. *Lob.* 340. *Dalech. hiſt.* 1316.
T. tertium. *Dod. pempt.* 130. *f.* 3.
T. ſempervirens. *Ger.* 417. 2. *emac.* 520. 2. *Raii hiſt.* 689.
Anacampſeros minor, rotundiore folio, ſempervirens. *Bauh. hiſt.* 3. 682. *Tournef. inſt.* 264.
Leaves wedge-ſhaped attenuated at the baſe ſubſeſſile, ſtems decumbent, flowers in corymbs.
[4. Sedum divaricatum. *Spreading Stonecrop.*
Ait. kew. 2. 108. *Willd. ſpec.* 2. 761.
Leaves wedge-rhombed emarginate petioled, ſtems branched, panicles terminating ſpreading.]
5. Sedum Aizoon. *Yellow Stonecrop.*
Lin. ſpec. 617. *ſyſt.* 430. *Reich.* 2. 381. *Willd.* 2. 761. *hort. upſ.* 116. *Gærtn. fruct.* 1. 314. *Gmel. ſib.* 4. 173.

[2] Jacquin. [3] Idem. [4] Hort. kew. [5] Swartz.

* Anacampſeros

Anacampſeros flore flavo. *Amm. ruth.* 96. *t.* 11.
Leaves lanceolate ſerrate flat, ſtem erect, cyme ſeſſile terminating.
[6. Sedum hybridum. *Germander-leaved Stonecrop.*
Lin. ſpec. 617. *ſyſt.* 430. *Reich.* 2. 381. *Willd.* 2. 761. *hort. upſ.* 116. *Gmel. ſib.* 4. 171. *n.* 85. *t.* 67. *f.* 1. *Murr. in comm. nov. gott.* 6. 35. *t.* 5.
S. minus repens, chamædryos foliis, e fingulis foliorum alis radices agens. *Amm. ruth.* 93.
Leaves wedge-ſhaped concave ſomewhat toothed aggregate, branches creeping, cyme terminating.
7. Sedum populifolium. *Poplar-leaved Stonecrop.*
Lin. ſyſt. 430. *Willd.* 2. 762. *ſuppl.* 242. *Pallas it.* 3. 730. *t.* O. *f.* 2. *Ait. kew.* 2. 109. *Curt. magaz. t.* 211.
Leaves flat cordate toothed petioled, corymbs terminating.]
8. Sedum ſtellatum. *Starry Stonecrop.*
Lin. ſpec. 617. *Reich.* 2. 381. *Willd.* 2. 762. *hort. cliff.* 176. *Hall. helv. n.* 957. *Hoffm. germ.* 156. *Roth. germ.* 1. 194. 2. 498. *Allion. pedem. n.* 1739. *Retz. obſ.* 5. 25. *Lour. cochinch.* 287. *ed. Willd.* 353.
S. echinatum vel ſtellatum, flore albo. *Baub. biſt.* 3. 680. *Raii biſt.* 691.
Sempervivum tertium. *Col. phyt.* 32. *t.* 11.
Cotyledon ſtellata. *Baub. pin.* 295.
Aizoon peregrinum. *Camer. hort.* 7. *ic.* 2.
Leaves flattiſh angular, flowers lateral ſeſſile ſolitary.
[9. Sedum alſineſolium. *Chickweed-leaved Stonecrop.*
Lin. ſpec. ed. Willd. 2. 762. *Allion. pedem. n.* 1740. *t.* 22. *f.* 2.
Leaves flat ovate, ſtem panicled, petals obtuſe.]
10. Sedum Cepæa. *Purſlane-leaved Stonecrop.*
Lin. *ſpec.* 617. *ſyſt.* 430. *Reich.* 2. 381. *Willd.* 2. 763. *hort. cliff.* 176. *Hoffm. germ.* 156. *Roth. germ.* 1. 194. 2. 499. *Hall. helv. n.* 958. *Sauv. monſp.* 76. *Villars dauph.* 3. 678. *Allion. pedem. n.* 1741. *Berg. phyt.* 2. 239.
S. annuum album, oblongo portulacæ minoris folio. *Mor. biſt.* 3. 473. *ſ.* 12. *t.* 7. *f.* 37.
Cepæa. *Baub. pin.* 288. *Cluſ. biſt.* 2. 68. *Camer. epit.* 673. *Matth.* 933. *Ger. emac.* 621. *f.* 5. *Park. theat.* 728. *f.* 6. *Raii biſt.* 690.
β. Sedum gallioides. *Allion. pedem. n.* 1742. *t.* 65. *f.* 3.
Leaves flat lanceolate, ſtem branched, flowers panicled, petals acute awned.
[11. Sedum libanoticum.
Lin. ſpec. 617. *Reich.* 2. 382. *Willd.* 2. 763.
Root-leaves in bundles ſpatulate lanceolate, ſtem almoſt naked quite ſimple.]
** *With round leaves.*
12. Sedum daſyphyllum. *Thick-leaved Stonecrop.*
Lin. ſpec. 618. *ſyſt.* 430. *Reich.* 2. 382. *Willd.* 2. 763. *Hudſ. angl.* 197. *Wither. arr. ed.* 3. 428. *Smith brit.* 486. *engl. bot.* 1. 656. *Curt. lond.* 3. *t.* 26. 147. *Relh. cant. n.* 333. *Sibth. oxon. n.* 418. *Abbot bedf. n.* 330. *Hall. helv. n.* 961. *Scop. carn. n.* 555. *Jacqu. hort.* 2. 71. *t.* 153. *Sauv. monſp.* 8. *Villars dauph.* 3. 678. *Allion. pedem. n.* 1743. *Deſfont. atlant.* 361. *Bulliard herb. t.* 11. *Berg. phyt.* 2. 117.
S. parvum, folio circinato, flore albo. *Baub. biſt.* 3. 691. *Raii biſt.* 1040.
S. minus folio circinato. *Baub. pin.* 283. *Mor. biſt.* 3. 473. *ſ.* 12. *t.* 7. *f.* 35. *Dill. in Raii ſyn.* 271. *Tournef. inſt.* 263.
Aizoon daſyphyllum. *Dalech. biſt.* 1133.
Leaves oppoſite ovate obtuſe fleſhy, ſtem weak, panicle glutinoſe.
13. Sedum reflexum. *Yellow Stonecrop.*
Lin. ſpec. 618. *ſyſt.* 430. *Reich.* 2. 382. *Willd.* 2. 764. *fl. ſuec. opp. n.* 1296. *p.* 463. *Hudſ. angl.* 195. *Wither. arr. ed.* 3. 429. *Smith brit.* 490. *Lightf. ſcot.* 234. *Relh. cant. n.* 329. *Sibth. exon. n.* 419. *Hall. helv. n.* 967. *Hoffm. germ.* 156. *Roth. germ.* 1. 195. 2. 499. *Pollich pal. n.* 429. *Leers herborn. n.* 335. *Krock. ſilef. n.* 686. *Villars dauph.* 3. 679. *Allion. pedem. n.* 1744. *Berg. phyt.* 2. 119.
S. minus 5. *Cluſ. biſt.* 2. 60.
S. minus luteum folio acuto. *Baub. pin.* 283. *Mor. biſt. ſ.* 12. *t.* 6. *f.* 6.
S. minus flore luteo. *Raub. biſt.* 3. 692.
S. minus mas. *Fuchſ. biſt.* 33.
S. minus hæmatoides. *Ger.* 413. *emac.* 512. *f.* 1. *Raii biſt.* 691. *ſyn.* 269.
Vermicularis & Craſſula minor vulgaris, ſ. Illecebra major. *Park. theat.* 733. 1. *t.* 734. *f.* 1.
Sempervivum minus primum. *Dod. pempt.* 129. *f.* 1.
Common Yellow Sengreen. *Petiv. brit. t.* 42. *f.* 5.
β. Sedum minus luteum ramulis reflexis. *Boub. pin.* 283. *Raii biſt.* 691. *ſyn.* 270. *Mor. ſ.* 7.
S. minus luteum flore ie circumflectente. *Baub. biſt.* 3. 693.
Aizoon ſcorpioides. *Lab. ic.* 377. *Ger. emac.* 513. *f.* 6.
Vermicularis ſcorpioides. *Park. theat.* 733. 2. *t.* 734. *f.* 2.
Crooked Yellow Sengreen. *Petiv. brit. t.* 42. *f.* 6.
γ. Sedum crifpum. *Munting.* 561.
Leaves awl-ſhaped ſcattered looſe at the baſe, the lower ones recurved, flowers ſubcymoſe.
[14. Sedum hiſpidum. *Hiſpid Stonecrop.*
Deſfont. atlant. 361.
Branches filiform panicled villoſe, leaves half-round.
15. Sedum virens. *Green Stonecrop.*
Ait. kew. 2. 110. *Willd. ſpec.* 2. 764.
Leaves awl-ſhaped ſcattered looſe at the baſe, flowers in cymes, petals half as long again as the lanceolate calyx.]
16. Sedum rupeſtre. *Rock Stonecrop.*
Lin. ſpec. 618. *Reich.* 2. 383. *Willd.* 2. 764. *hort. cliff.* 176. *fl. ſuec. n.* 401. *Hudſ. angl.* 195. *Wither. arr. ed.* 3. 429. *Smith brit.* 491. *engl. bot. t.* 170. *Hoffm. germ.* 156. *Roth. germ.* 1. 195. 2. 501. *Scop. carn. n.* 557. *Krock. ſilef. n.* 687. *Villars dauph.* 3. 679. *Allion. pedem. n.* 1745.
S. rupeſtre repens foliis compreſſis. *Dill. elth.* 343. *t.* 256. *f.* 333.
S. minus e rupe Sancti Vincentii. *Raii ſyn.* 270.
Petiv. brit. t. 42. *f.* 8.
Leaves awl ſhaped erect cluſtered in five rows, looſe at the baſe, flowers ſubcymed.
[17. Sedum laxatile. *Mountain Stonecrop.*
Lin. ſpec. ed. Willd. 2. 765. *Wiggers primit.* 35. *Roth. germ.* 2. 500. *Hoffm. germ.* 156. *Allion. pedem. n.* 1749. *t.* 65. *f.* 6. *Hall. helv. n.* 964.
S. rupeſtre. *Fl. dan.* 59. *Mænch. haſſ. n.* 370. *Gunn. norv. n.* 636.
S. Oederi. *Retz. prodr. ſcand. ed.* 2. *n.* 562.
S. rubens. *Hoenke it. ſudet. p.* 114.
S. alpeſtre. *Villars proſp.* 49.
S. ſaxatile tenuifolium, floſculis luteis, conceptaculis ſeminum ſtellatis & viridantibus. *Schreuch. it.* 6. *p.* 462.
S. alpinum ſileſiacum. *Schwenkf. ſileſ.* 195.
S. minimum luteum non acre. *Baub. biſt.* 3. 695.
Leaves ſcattered half-round obtuſe looſe at the baſe, ſtem branched decumbent.
18. Sedum quadrifidum. *Four-petalled Stonecrop.*
Lin. ſpec. ed. Willd. 2. 766. *Pallas it.* 3. *opp. n.* 90. *t.* P. *f.* 1.
Leaves ſcattered round obtuſe, ſtem ſimple, flowers umbelled four-petalled.]
19. Sedum hiſpanicum. *Spaniſh Stonecrop.*
Lin. ſpec. 618. *ſyſt.* 430. *Reich.* 2. 383. *Willd.* 2. 766. *amoen.* 4. 273.
S. hiſp. folio glauco acuto, flore albido. *Dill. elth.* 342. *t.* 256. *f.* 332.
Leaves linear round-depreſſed ſcattered, cymes patulous, flowers ſix-petalled.
[20. Sedum lineare. *Linear-leaved Stonecrop.*
Lin. ſyſt. 430. *Willd.* 2. 766. *Thunb. jap.* 187.
Leaves round-linear oppoſite, cyme trifid.
21. Sedum cæruleum. *Blue Stonecrop.*
Lin. ſpec. ed. Willd. 2. 766. *Vahl ſymb.* 2. 51.
S. vermiculare pumilum glabrum, floribus parvis cæruleis. *Shaw it.* 46. *n.* 550. *ic.*
Leaves oblong alternate obtuſe looſe at the baſe, cyme bifid ſmooth.]
22. Sedum album. *White Stonecrop.*
Lin. ſpec. 619. *ſyſt.* 430. *Reich.* 2. 383. *Willd.* 2. 766. *hort. cliff.* 177. *fl. ſuec. n.* 402. *Retz. obſ.*

6. 28. *n.* 45. *Hudſ. angl.* 196. *Wither. arr. ed.* 3. 427. *Smith brit.* 489. *Curt. lond.* 1. *t.* 31. *Relh. cant. n.* 330. *Abbot bedf. n.* 331. *Fl. dan. t.* 66. *Hall. helv. n.* 959. *Scop. carn. n.* 556. *Hoffm. germ.* 156. *Roth. germ.* 1. 195. 2. 501. *Pollich pal. n.* 450. *Neck. gallob.* 199. *Krock. ſilef. n.* 689. *Villars dauph.* 3. 681. *Allion. pedem. n.* 1751. *t.* 65. *f.* 2. *Blackw. t.* 428. *Berg. phyt.* 2. 121. *Plenck, ic.* 352.

S. minus teretifolium album. *Baub. pin.* 283. *Mor. hiſt. ſ.* 12. *t.* 7. *f.* 23. *Raii ſyn.* 271. *hiſt.* 1040.

S. minus, folio longiuſculo tereti, flore candido. *Baub. hiſt.* 3. 690.

S. minus 1. *Cluſ. hiſp.* 2. 59.—officinarum. *Ger.* 413. 2. *emac.* 512. 2.

S. minus fœmina. *Fuchſ. hiſt.* 35.

Vermicularis ſ. Illecebra major. *Lob. obſ.* 205. 2.

V. flore albo. *Park. theat.* 733. *deſcr.*—item. V. ſ. Craſſula minor vulgaris, *ejuſd.* 734. 1. *ic.*

Sempervivum minus. *Matth.* 1118.—alterum. *Dod. pempt.* 129. *f.* 2.

Aizoon minus fœmina. *Dalech. hiſt.* 1129.

Leaves oblong round blunt ſpreading ſmooth, panicle very much branched.

23. Sedum acre. *Biting Stonecrop*, or *Wall Pepper.*

Lin. ſpec. 619. *Reich.* 2. 384. *Willd.* 2. 767. *hort. cliff.* 177. *fl. ſuec. n.* 403. *mat. med.* 118. *Woodv. ſuppl.* 54. *t.* 231. *Hudſ. angl.* 196. *Wither. arr. ed.* 3. 427. *Smith brit.* 487. *Lightf. ſcot.* 235. *Curt. lond.* 1. *t.* 32. *Relh. cant. n.* 331. *Sibth. oxon. n.* 420. *Hall. helv. n.* 966. *Hoffm. germ.* 157. *Roth. germ.* 1. 195. 2. 502. *Pollich pal. n.* 431. *Neck. gallob.* 199. *Krock. ſilef. n.* 690. *Villars dauph.* 3. 683. *Allion. pedem. n.* 1748. *Knorr. del.* 2. *t.* S. 12. *f.* 1. *Berg. phyt.* 2. 123. *Plenck, ic.* 351.

S. parvum acre flore luteo. *Baub. hiſt.* 3. 694. 2. *Tournef. inſt.* 263. *Rail hiſt.* 1041. *ſyn.* 270. *Petiv. brit. t.* 42. *f.* 9.

S. minus 8. cauſticum. *Cluſ. hiſp.* 2. 61. *f.* 1.

S. minimum. *Tabern.* 844. *Camer. epit.* 836. *Blackw. t.* 232.

S. minus tertium & Vermicularis. *Trag.* 379.

Sedi tertium genus. *Fuchſ. hiſt.* 36.

Sempervivum minus vermiculatum acre. *Baub. pin.* 283. *Mor. hiſt. ſ.* 12. *t.* 6. *f.* 12. *ord.* 3.

Semp. minimum. *Matth.* 1119.

Illecebra ſ. Sempervivum tertium. *Dod. pempt.* 129. *f.* 3.

I. minor, ſ. Sedum tertium Dioſcoridis. *Park. theat.* 735. 7.

Vermicularis ſ. Illecebra minor acris. *Ger.* 415. *emac.* 517. 2.

Leaves alternate, ſubovate fleſhy gibbous adnate-ſeſſile, cyme triſid leafy.

24. Sedum ſexangulare. *Inſipid Stonecrop.*

Lin. ſpec. 620. *Reich.* 2. 384. *Willd.* 2. 767. *fl. ſuec. n.* 404. *Retz. obſ.* 1. 18. *n.* 50. *Hudſ. angl. ed.* 1. 171. *Wither. arr. ed.* 3. 428. *Smith brit.* 488. *Curt. lond.* 4. *t.* 33. 225. *Relh. cant. n.* 332. *Hall. helv. n.* 965. *Scop. carn. n.* 558. *Hoffm. germ.* 157. *Roth. germ.* 1. 195. 2. 502. *Pollich pal. n.* 432. *Krock. ſilef. n.* 691. *Villars dauph.* 3. 683. *Allion. pedem. n.* 1747.

S. acre β. *Hudſ. angl.* 196.

Sempervivum minimum. *Lob. ic.* 379?

S. minus vermiculatum inſipidum. *Baub. pin.* 284.

Leaves ſubtern roundiſh obtuſe fleſhy adnate-ſeſſile ſpreading, cyme triſid, leafy.

[25. Sedum anglicum. *Engliſh* or *mild white Stonecrop.*

Lin. ſpec. ed. Willd. 2. 768. *Hudſ. angl.* 196. *Wither. arr. ed.* 3. 428. *Smith brit.* 487. *engl. bot. t.* 171. *Retz. prodr. ſcand. ed.* 2. *n.* 567.

S. annuum. *Hudſ. angl. ed.* 1. 172. *Gunn. norv. n.* 331.

S. rubens. *Lightf. ſcot.* 235.~ *Fl. dan. t.* 82.

S. minimum non acre, flore albo. *Raii ſyn.* 270. *t.* 12. *f.* 2.

Leaves ſubalternate ovate fleſhy gibbous adnate-ſeſſile, cyme biſid even.]

26. Sedum annuum. *Annual Stonecrop.*

Lin. ſpec. 620. *Reich.* 2. 385. *Willd.* 2. 768. *fl. ſuec. n.* 405. *Krock. ſilef. n.* 692. *Villars dauph.* 3. 684. *Allion. pedem. n.* 1753? *Retz. obſ.* 1. 19. *t.* 51.

S. montanum perpuſillum luteum. *Lob. illuſtr.* 100. *Raii ſuppl.* 364. *ſec. Villars.*

Stem erect ſolitary annual, leaves ovate ſeſſile gibbous alternate, cyme recurved.

[27. Sedum pubeſcens. *Pubeſcent Stonecrop.*

Lin. ſpec. ed. Willd. 2. 768. *Vahl ſymb.* 2. 52. *Deſcript. atlant.* 360.

Pubeſcent, leaves oblong obtuſe flattiſh above, cyme biſid, petals lanceolate.]

28. Sedum villoſum. *Hairy Stonecrop.*

Lin. ſpec. 620. *ſyſt.* 431. *Reich.* 2. 385. *Willd.* 2. 768. *Vahl ſymb.* 2. 52. *Hudſ. angl.* 197. *Wither. arr. ed.* 3. 426. *Smith brit.* 488. *engl. bot. t.* 394. *Lightf. ſcot.* 237. *Fl. dan. t.* 24. *Hall. helv. n.* 962. *Hoffm. germ.* 157. *Roth. germ.* 1. 196. 2. 503. *Pollich pal. n.* 433. *Leers herborn. n.* 339. *Krock. ſilef. n.* 693. *Villars dauph.* 3. 684. *Allion. pedem. n.* 1755.

S. paluſtre ſubhirſutum purpureum. *Baub. pin.* 283. *Mor. hiſt. ſ.* 12. *t.* 8. *f.* 48.

S. purpureum pratenſe. *Baub. hiſt.* 3. 692. *Raii ſyn.* 270. *Petiv. brit. t.* 42. *f.* 7.

S. minus 3. f. paluſtre. *Cluſ. hiſt.* 2. 59. 3.

S. minus paluſtre. *Ger. emac.* 516. 1.

S. arvenſe ſ. paluſtre flore rubente. *Park. theat.* 734. *f.* 6.

Leaves alternate linear flattiſh ſomewhat hairy as are alſo the peduncles, ſtem erect.

[29. Sedum atratum. *Red Sedum*, or *Stonecrop.*

Lin. ſpec. 1673. *ſyſt.* 431. *Reich.* 2. 386. *Willd.* 2. 769. *Jacqu. auſtr.* 1. *t.* 8. *Hoffm. germ.* 157. *Hall. helv. n.* 963.

S. ſaxatile, atrorubentibus floribus. *Baub. pin.* 238. *prodr.* 132. *Scheuch. it.* 1. 48. *t.* 6. *f.* 34. *Seguier veron.* 3. 207.

S. ſaxat. variegato flore. *Baub. prodr.* 132.

Stem erect, flowers corymbed faſtiviate.

30. Sedum nudum. *Naked-branched Stonecrop.*

Willd. ſpec. 769. *Ait. kew.* 2. 112.

Leaves ſcattered oblong-cylindrical blunt, ſtems ſcrubby very much branched, branches twiſted, cymes terminating.

DESCRIPTIONS, &c.

1. Stem a foot high, erect, round. Leaves lanceolate, ſcarcely a finger's length, equally ſerrate, even, ſharpiſh, not very fleſhy. Racemes axillary, ſmall, ſolitary. Flowers ſmall, with a five-toothed calyx, five petals, ten ſtamens, and five piſtils.

Native of the moſt ſouthern parts of Europe and of Siberia[t].

2. Root perennial, tuberous. Stems from one to two feet high and upwards, upright, ſimple or unbranched, leafy, round, ſmooth, ſolid, reddiſh and often dotted with red. Leaves almoſt covering the ſtem, ſeſſile, ovate, fleſhy, tooth-ſerrate, ſmooth and even, of a blueiſh green colour. Corymbs terminating, many-flowered, cloſe or heaped together. Flowers deep purple, very rarely white in England[u]; though that ſeems to be the moſt common colour in ſome foreign countries.—Capſules leguminous, oblong, filiform-beaked, membranaceous. Seeds irregular, ſomewhat like ſawduſt, very finely ſtriated longitudinally, pale, faſtened in ſeveral rows to the margin of the gaping future[w].

This is the only Engliſh Sedum with flat leaves. Being a handſome plant and eaſily cultivated, it is met with in moſt gardens, where it will ſometimes grow a yard high. The leaves are ſometimes found entire at the edge; the flowers vary in colour[x]; and the plant in ſize. Hence ſeveral varieties noticed by old authors, by Linneus, and by Aiton in the Hortus Kewenſis. Haller conſiders the laſt variety as a diſtinct ſpecies. It has branches from all the axils, and is naked between the branches. The leaves are conjugate, patulous, ovate, toothed here and there. Flowers white, very ſlightly tinged with red, with a greeniſh

[t] Linn. amœn. [u] Smith and Curtis. [w] Gærtner. [x] Curtis.

line

line along the middle, in close umbels on the stem and branches. Anthers scarlet. Whereas in the common Orpine, the stem is quite simple, wholly covered with leaves, which are sharper, more sharply serrate, ascending, and disposed irregularly. Anthers ferruginous.

The *hæmatodes* of Miller seems to be the same with this large variety.] The stalks are thick, succulent, round, near three feet high; leaves ovate, entire, three inches long by two and a quarter wide, placed by pairs, of a pale herbaceous colour, the upper ones embracing. Flowers in large terminating bunches, white or purple.

Native of Portugal; [as is also variety γ. Spain and Switzerland. The common white and purple Orpine (α and β) are common in most parts of Europe, Japan and Siberia: on old walls, by the side of woods, in hedges, among bushes in pastures, in fields, in vineyards, chiefly in a chalky or sandy soil; flowering in july and august. The purple-flowering Orpine is most common in Britain. This name is from the French. It was also called *Live-long*, because a branch of it hung up will keep its verdure a long time.

Near London it occurs about Charlton, Shooter's-hill, Norwood, &c. Shelford and Burrough-green in Cambridgeshire: Aspley-wood in Bedfordshire: Headington-Wick copse, and Shotover-hill, Oxfordshire: in Suffolk frequent: near Ashburne in Derbyshire: Malvern Chace: about Manchester: near Shrewsbury: Tettenhall in Staffordshire. Castle Dikes, Preston woods, &c. in Northamptonshire. Between Glasgow and Dumbarton, and two miles eastward of the latter, Scotland.

A decoction of the leaves in milk is a forcible diuretic. It has been given with success to cure the piles. Kine, goats, sheep and swine eat it, but horses refuse it, according to the observations of Linneus [a].]

3. Roots fibrous, perennial. Stems trailing. Leaves standing alternate round the stems, almost an inch long, and half an inch broad. Flowers in a compact corymb, sitting close on the top of the stem: they are star-shaped, of a purple colour, and appear in july. It is an evergreen. [Linneus says that the leaves fall in winter; so also says Caspar Bauhin: Loureiro agrees with Miller. But he attributes yellow flowers to his plant.—Mr. Curtis remarks, that the singular manner in which the leaves are attached to the flowering stem deserves to be noticed.

Native of Germany; Switzerland about Aigle and in the Valais; the South of France; Italy; China, Cochinchina and Japan, growing out of the crevices of rocks. Cultivated in 1596, by Gerarde [b].

4. Native of Madeira; where it was found by Masson, and introduced in 1777. It is shrubby, and flowers in june and july [c].]

5. Root perennial, composed of many thick fleshy fibres, from which come out several stalks rising near a foot high. Leaves alternate on every side, thick, two inches and a half long, and three quarters of an inch broad, and slightly serrate. Flowers bright yellow; petals lanceolate, erect, spreading out at the top: stamens large, erect, with oval, sulphur-coloured anthers. [Capsules ovate-oblong, compressed, united at the base, from upright spreading, purplish, with the gaping future white and reflexed. Seeds oblong, subcylindrical, thicker outwards, obtuse, rugged-striated, ferruginous. Embryo the size of the seed [d].

Native of Siberia. Cultivated by Mr. Miller in 1759. It flowers from july to september [e].

6. This rises with very numerous slender stems of about two feet in height, and often of a red cast on the upper part: the leaves are cuneiform, sessile, fleshy, smooth, and either crenated or obtusely serrated; the serratures being generally three or four on each side: the leaves on the upper part of the stems are longer and narrower than on other parts: the terminal cyme is commonly three-parted, and sometimes, though rarely, many-parted: the peduncles flexuous, often dichotomous, and sometimes farther subdivided: the bractes are double, one large and cuneiform, the other setaceous and very short: the flowers are sulphur-coloured, with carinated, sharp-pointed petals [f].

Native of Tartary, at the foot of the Uralian mountains, about Trebisond. Cultivated in 1766, by Peter Collinson, Esq. [g]

7. This is extremely like *Saxifraga rotundifolia*, but the leaves are cordate, thick and fleshy, and the fructification is that of *Sedum*.—Stem herbaceous, branched, erect, paniculous, even, a foot high. Leaves alternate, remote, only at the ramifications, blunt, fleshy, smooth. Panicles short, not longer than the leaves. Calyx small. Petals lanceolate, sessile, white, unspotted, spreading. Anthers red.

Native of Siberia [h]; where it was discovered by Professor Pallas, the celebrated Russian naturalist; and introduced by him, in the year 1780, into the royal garden at Kew [i].

When the plant grows in an open situation, exposed to the sun, the leaves and stalks become of a bright red colour. It is the only hardy Sedum cultivated with us that has a shrubby stalk: the leaves are deciduous. It flowers in july and august, and is proper for a rock plant, with most of the other Sedums [k].]

8. This is a low annual plant. The stalks rise three inches high, dividing at top into two or three parts. The flowers come out singly from the side of the stalk; they are white, star-pointed, and are succeeded by star-pointed rough capsules.

[Stem erect, angular. Lowest leaves commonly opposite, the rest scattered, wedge-shaped, angular seven-toothed, ciliate with pellucid scalelets, each surface very finely striated, and having very small shining dots. Cyme bifid, leafy. Flowers sessile in the axils of the floral leaves; which are obovate; the lower five or three-toothed, the upper entire. Calyx-leaves lanceolate, acute, erect. Petals narrower but scarcely shorter, lanceolate, acute, compressed, white with a red keel. Stamens and germs shorter than the petals, white. Stigmas purple. Capsules diverging. The five scales, which are the nectaries, in this species are lemon-coloured, somewhat oblong, under the germs. In the *populifolium* they are roundish, and white tending a very little towards yellowness. In the *Telephium*, they are truncate, linear, longer. In the *hispanicum* truncate, emarginate, reddish-yellow. In the *rupestre* truncate and yellow [l].

Native of Germany, France, Switzerland, Italy; and, according to Loureiro, of China, about Canton. Cultivated in the botanic garden belonging to the Company of Apothecaries at Chelsea, in 1739 [m].

9. Root biennial. Stem erect, branched. Flowers white, on long peduncles.—Native of Piedmont, in shady stony places [n].]

10. Root annual. Stalks six or seven inches high, dividing into smaller branches, which sustain small white flowers growing in large panicles.

[Lower leaves like those of wild Thyme, only succulent; upper alternate, from a thick petiole reflexed, wide, ovate. Flowers on tender peduncles. Calyx hirsute, not more than a third of the petals in length. Petals lanceolate, awned, white divided by a purple line [o].

Native of Germany, France, Switzerland and Italy. Cultivated here in 1640, as appears from Parkinson [p].

β. Stem erect. Lower leaves in threes and fours, the next opposite, the uppermost alternate. Racemes axillary, but nearer. Petals purple.—Native of Piedmont [q].

11. This has the appearance of *Sempervivum montanum*. Root-leaves acute, smooth, quite entire. Stem by the side of the root, ascending, half a foot high, having a few scattered linear sharp leaves at bottom. Raceme terminating, length of the stem; pedicels scattered, commonly two-flowered. Capsules not diverging, surrounded by the calyx. It is a perennial plant, found in Palestine, by Hasselquist [r].

[a] Murray. [b] Hort. kew. [c] Hort. kew. [d] Curtis. [e] Retzius. [f] Linn. suppl. [g] Hort. kew. [h] Allion. [i] Haller. [k] Hort. kew. [l] Allion. [m] Linn. spec. [n] Withering. [o] Hort. kew. [p] Idem. [q] Gærtner. [r] Hort. kew.

12. Root perennial, compoſed of ſmall white fibres. Stems numerous, weak, proſtrate and creeping, about three inches long or ſomewhat more, branched, in tufts, round, weak, clammy, leafy. Flowering branches erect. Leaves moſtly oppoſite, cloſely imbricate, ſeſſile, very thick and fleſhy, broader than long, convex on the lower, nearly plane on the upper ſurface, glaucous often with a tinge of purple, dotted and ſometimes having a net of red veins: on the flowering-branches they are alternate. Panicle terminating, ſpreading, few-flowered. Calyx downy, clammy. Petals white, with a purple keel, three times the length of the calyx. Nectaries, ſmall yellow glands, placed externally at the baſe of each germ. Anthers dark red. Capſules pale brown. Seeds yellowiſh. This ſpecies has generally one ſixth part more through the whole of the fructification than the other Sedums: as ſix ſegments to the calyx; ſix petals to the corolla; ſix nectaries; twelve ſtamens; and ſix piſtils'.

Linnæus marks it as annual; Dr. Smith has ſometimes thought it biennial, but he reſts in ſuppoſing it to be perennial; frequently however diſappearing in one ſpot, and re-appearing in another.

Native of many parts of Europe, as France, England, Switzerland, Auſtria, Spain, Portugal, Italy; alſo of Barbary; in the fiſſures of rocks and on walls: flowering in june. In England it is not uncommon on walls near London, as near Chelſea Hoſpital; between Kenſington gravel-pits and Acton; Hammerſmith, Kew, &c.; at Fulhourn, in Cambridgeſhire; Market-ſtreet, in Bedfordſhire, and Market-Eit near that, where it ſeems to have been firſt found by Mr. Thomas Knowlton; at Bugden in Huntingdonſhire, obſerved by Mr. Woodward; at Malton in Yorkſhire, by Archdeacon Pierſon; at Cliſton near Briſtol, by Mr. T. W. Dyer.

This pretty little Sedum, introduced into a garden, propagates itſelf freely upon walls, in waſte places, and about garden pots. No plant is better adapted to the purpoſe of decorating rock-work; where it grows without any trouble, in any aſpect, multiplying very much by young ſhoots, and looking beautiful throughout the year'.

13. Root perennial. Stems round, leafy, branched at the baſe, often hanging down, erect at the top. Leaves ſcattered, alternate, adnate-ſeſſile, looſe at the baſe and produced, erect above, compreſſed, acuminate, extremely ſucculent, ſmooth, rather glaucous, frequently tinged with red; the lower ones turned back; when old they eaſily fall off. Flowers in a terminating ſubcymed panicle, with many-flowered branches, for the moſt part recurved. Flowers erect, bright yellow, with a fifth part added very frequently to the natural number in the fructification; as is common in this natural order. Calyx acute, divided almoſt to the baſe, ſmooth'.

Leers remarks, that it very frequently varies with ſix, ſeven, eight or nine petals, with as many germs, and double the number of ſtamens. Haller alſo ſays he has ſeen from five to eight petals; and that it has commonly ſix petals and as many capſules, with twice the number of ſtamens. And Villars, that it has ſeven petals and fourteen ſtamens in the firſt and principal flower; but ſix petals and twelve ſtamens in the others.

Native of Europe. Common in England on walls and thatched roofs; and on rocks in the northern counties; flowering in july. Haller ſays it is eaten in ſalads.

14. This is a villoſe plant, with an upright ſtem, branched at top. Branches filiform, panicled. Panicle patulous. Leaves ſcattered, fleſhy, ſpreading, compreſſed above. Flowers numerous; each on a capillary pedicel. Calyx very ſmall, five or ſix-parted. Corolla gold-coloured, five or ſix-petalled: petals lanceolate, acute. Stamens ten or twelve, ſhorter than the corolla.—It is allied to the preceding, but differs in the ſtem, leaves and branchlets being pubeſcent; the panicle patulous; the flowers on longer pedicels, and not all directed one way. Annual.—Native of Barbary'.

15. Native of Portugal. Perennial. Introduced in 1774, by Meſſrs. Kennedy and Lee. It flowers in june and july'.

16. This is a little ſmaller than the *reflexum*. Leaves cloſely imbricate (before flowering) in five or ſix rows, glaucous, flatted a little, acuminate; on the flowering ſtem ſomewhat remote; as in *S. reflexum*, all erect, not bent back at the point. Dr. Withering remarks, that the diſpoſition of the leaves in five or ſix rows may be beſt obſerved by viewing the plant with the ends of the branches oppoſed to the eye. Panicle ſubcymed, many-flowered, with the branchlets ſcarcely reflexed. Flowers of a bright yellow or gold colour, often ſix-cleft. Calyx bluntiſh, glaucous, reddiſh, one-leafed at the baſe'.—According to Withering, the flowers have frequently ſix or ſeven parts.

Reichard diſtinguiſhes this from *Sempervivum ſediforme*, by its having the leaves gradually narrowed into a ſharp point: the petals yellow, and a great deal of the upper part of the ſtem always nodding, till it is in full flower.

Native of England and Wales, Germany, Carniola, Sileſia, Dauphiné, Piedmont, on rocks and walls: flowering in july. Perennial.

It was firſt obſerved by Merret, on St. Vincent's rocks near Briſtol; next by Lhwyd and Richardſon in Wales; thirdly by Dillenius, in 1726, on Cheddar rocks in Somerſetſhire; and fourthly by Robſon, on walls about Darlington.—Both this and *reflexum* are cultivated in Holland and Germany, to mix with lettuces in ſalads; the taſte is acrid'.

17. Root annual. Stems woody, half a foot high, branched, brachiate, diffuſed, procumbent. Leaves ſeſſile, alternate, green never red, ſparkling in the ſun. Flowers ſeſſile on one ſide of the branches, on hard pedicels a line or two in length. Calyx leaves blunt, green. Petals yellow, lanceolate'.

Native of Norway, Germany, Switzerland, Dauphiné, Mont Cenis, &c. on rocks.

18. Flowers yellow, four-petalled.—Native of the moſt northern part of Aſia, on rocks. Perennial'.

19. Root ſlender, fibrous, perennial. Stems ſeveral, a hand high, reclining at the baſe, and then erect, round, tinged with red. Leaves, on the flowering ſtems, pale green dotted with purple, oblong, thickiſh, round on one ſide and flat on the other; towards the top, under the flowers, more ſwelling and ſhorter: leaves on young plants or barren ſhoots, in bundles, glaucous without any purple dots, thinner, from a narrow baſe widening gradually, and ending in a blunt point. The ſtems divide at top into a few branchlets, forming a ſort of umbel, (or rather cyme,) bearing ſeſſile, ſtar-like white flowers, ſtained with pale purple from a purple groove running along the petals: theſe are ſix, ſometimes ſeven in number, keeled and cuſped. Capſules as many; and ſtamens twice as many as the petals; with round brown anthers. Calyx ſhort, having as many ſegments as there are petals in the corolla. The flowering branches lengthen out in time into a ſort of ſpike moderately reflexed: and then they, with the leaves under the flowers, calyxes, capſules, and even the corollas on the outſide, become covered with a fine pubeſcence. The leaves alſo on the ſtems and ſhoots are ſomewhat harſh to the touch'.

Native of Spain and Carinthia. Cultivated in 1732, by James Sherard, M. D. at Eltham. It flowers in july'.

20. Stem ſmooth, ſimple, ſeldom branched. Leaves embracing, acute, ſmooth, ſpreading, an inch long. Flowers yellow, in a compound cyme, which is trifid, with the middle flower ſeſſile.—Native of Japan: flowering there in june'.

21. The whole plant ſmooth. Stem a finger's length, purpliſh, in a poor ſoil ſimple, but branched in a richer ſoil. Branches of the ſame height and ſtructure with the ſtem, alternate or ſcattered, ſimple.

[1] Smith. Curtis. Woodv. Mſs. [2] Engl. bot. and Curtis. [3] Smith.

[4] Desfontaines. [5] Hort. kew. [6] Smith. [7] Withering. [8] Haller. [9] Pallas. [10] Dillenius. [11] Hort. kew. [12] Thunberg.

Leaves green tinged with purple, or wholly red. Peduncles divaricating, flexuose, ſometimes bifid, having a ſingle leaf under each ramification of the ſame ſtructure with the others. Pedicels alternate, ſpreading very much. Flowers ſmall. Calyx ſhorter than the petals; which are lanceolate, of a violet-purple colour. Nectareous ſcales, truncate, mucronate, at the baſe of the germ. Filaments the length of the petals; ſometimes, but rarely, there are twelve. Anthers globular, purple. Germs five, ovate, acuminate, white, length of the filaments.

Found by Vahl, in the cleſts of rocks by Manub in Tunis[1].

The above is different from the *Sedum cæruleum* of Linneus's mantiſſa, (p. 241.) which he took up on the authority of Willich. But Thunberg did not find any ſpecies of Sedum at the Cape of Good Hope[2].

22. Root perennial, fibrous. Stems decumbent at bottom, and there throwing out fibres; flowering ſtems upright, from three inches to a ſpan in height, round, leafy, branched, ſmooth. Leaves ſcattered thinly, ſpreading out horizontally, ſeſſile, cylindrical, very blunt, ſmooth, fleſhy, ſomewhat glaucous and generally reddiſh. Panicle terminating, alternately branched, ſubcymoſe, many-flowered, ſmooth. Calyx blunt, even. Petals white or red: generally white with a red ſtreak, and a general tinge of red. The whole plant has ſometimes a purpliſh hue. Anthers deep red. The cylindric oblong ſhape of the leaves readily diſtinguiſhes this from other Engliſh Stonecrops[3].

Native of Europe, on rocks, walls and roofs, flowering in july. Near London, at Kentiſh-town, and between Bromley and Bromley-hall in Middleſex. At Peterborough, on walls. On rocks above Great Malvern. Wick Cliffs. At Chatteres in the Iſle of Ely. At Stevington and Sharnbrook in Bedfordſhire, by the Rev. Mr. Abbot.

Haller informs us, that it poſſeſſes all the virtues of the large Houſeleek, and that he has uſed the juice of it in uterine haemorrhages. By way of cataplaſm it is applied to the piles when in a painful ſtate. It is eaten by ſome as a pickle[4].

23. Root perennial, fibrous. Stems numerous, growing in tufts, much branched, decumbent, and creeping at the baſe, then upright, three inches high, ſmooth, round, very leafy. Leaves cloſely imbricate, blunt, flatted a little, from upright ſpreading, looſe at the baſe. Cymes terminating, ſolitary, few-flowered. Flowers erect, ſeſſile. Calyx blunt iſh, even. Petals acute, yellow, twice the length of the calyx. Filaments the length of the corolla. Anthers and germs yellow. Seeds reddiſh brown. The whole plant is acrid[5]; and chewed in the mouth has a very hot biting taſte; whence, and from its common place of growth, it has the name of *Wall-Pepper*. Applied to the ſkin it bliſters; and taken inwardly it excites vomiting. In ſcorbutic caſes, and quartan agues, it is an excellent medicine under proper management[6].—For the former, a handful of the herb is directed to be boiled in eight pints of beer till they are reduced to four, of which three or four ounces are to be taken every morning. Milk has been found to anſwer this purpoſe better than beer. Not only ulcers ſimply ſcorbutic, but thoſe of a ſcrophulous or even cancerous tendency, have been cured by the uſe of this plant. It is likewiſe uſeful as an external application, in deſtroying fungous fleſh, and in promoting a diſcharge in gangrenes and carbuncles[7].

Native of Europe, in dry ſandy and gravelly paſtures, on houſes, walls, banks and rocks. Common in England; flowering in june. Planted in a pot, it will hang over the ſides, and cover the pot completely. It will continue to grow, when hung up in the open air or in a room; which has been conſidered as a proof that it receives its nouriſhment principally from the air; but it is juſtly remarked by Dr. Withering, that though the life of the plant be thus retained for ſome weeks, yet it is at the expenſe of the juices which its ſucculent leaves had previouſly imbibed. At the end of three weeks, a plant, ſuſpended by Mr. Gough of Kendal before a window with a northern aſpect, had loſt about half its weight, though it had put out ſome fine fibres from the root, and had yet life enough to enable it to turn to the light, after having been purpoſely turned from it. After being kept in water for twenty-four hours, it regained more than half of what it had loſt. Mr. Gough therefore juſtly conſiders the ſucculent leaves as reſervoirs, which ſupport the plant in dry weather, and are again repleniſhed in rainy ſeaſons; but does not admit that ſuch plants attract nouriſhment from the air more than others[8]. It muſt be allowed however that they ſubſiſt much upon the humidity of the atmoſphere, ſince their ſucculent ſtems and leaves cannot derive much nutriment from the arid ſoil in which they generally grow.

24. Inſipid Stonecrop has the habit of the preceding or biting Stonecrop, but is ſomewhat larger. The leaves are ſubcylindrical; not ovate, and come out moſtly by threes in a double row, and hence appear to be imbricate in ſix rows; this is moſt obvious in the young ſhoots: they are very ſpreading, looſe at the baſe, and ſcarcely gibbous. The cyme is leafy. The flowers of a golden-yellow colour. The herb not acrid[9].

The leaves of the *acre* are ſhort, broad at the baſe, and remote; but in this they are nearly of the ſame thickneſs throughout, longer and more numerous; they are alſo in general much redder. The *acre* flowers a fortnight ſooner than the *ſexangulare*[10]. Dr. Withering obſerves, that the number of ſtamens, &c. is uncertain, varying from eight to twelve.

Native of ſeveral parts of Europe, on walls, roofs and dry paſtures; flowering at the end of june.—On Greenwich Park wall. Near Northfleet, Sheerneſs, and in the Iſle of Shepey. Near Trinity Conduit head, between Cambridge and Madingley, and on Ely Minſter.

25. Root annual, fibrous. Stems in tufts, decumbent at the baſe, ſmooth, red, leafy. Leaves moſtly alternate or nearly oppoſite, blunt iſh, ſomewhat glaucous, produced and looſe at the baſe. Cymes terminating, ſolitary, almoſt leafleſs, racemed. Flowers erect, five-cleft. Calyx blunt, even. Petals acuminate, white with a red keel, ſometimes dotted with a red point. Capſules membranaceous, even[11]. It has been confounded with the next ſpecies.

Native of Britain and Norway: on rocks, ſandy coaſts, roofs and walls. On the ſandy downs of the Norfolk and Suffolk coaſt plentifully; as well as in Devonſhire, Dorſetſhire, Cornwall, Wales and Scotland. On the mountains of Weſtmoreland and Lancaſhire.]

26. This is an annual plant, with an erect ſtalk, ſeldom riſing above two or three inches high. The leaves are of a grayiſh colour. The flowers are ſmall and white, and grow at the top of the ſtalk in a reflexed ſpike.

[It is thus deſcribed by Retzius.—Root annual, fibrous. Stem branched, ſmooth. Leaves ſcattered, ovate, gibbous, ſeſſile, ſpotted with purple. Cyme properly none, but the branches recurved and flowering. Flowers on the interior or upper ſide of the branches, on ſhort pedunicles, alternate, having for the moſt part a leaf to each flower. Calyx-leaves ovate, gibbous, ſpotted. Petals ovate-lanceolate, concave, leſs than the calyx, yellow. Stamens a little ſhorter than the petals. Germs erect, compreſſed, lanceolate, with very ſhort ſtyles and ſtigmas. Capſules diverging, ſpotted with red, with a groove running along the upper part.

Native of the North of Europe. Cultivated in 1768, by Mr. Miller[12] who miſtook it for the preceding ſpecies.

27. Root annual. Stem a hand or more in height, upright, fleſhy, very much branched, ſhrubby at

[1] Vahl. [2] Willdenow. [3] Smith, Curtis, Withering. [4] Curtis. [5] Smith and Curtis. [6] Withering. [7] Woodville. [8] Wither. &c. [9] Smith. [10] Curtis. [11] Smith. [12] Hort. kew.

bottom.

bottom. Branches frequent, scattered or alternate, but sometimes opposite, upright, round, frequently tinged with purple. Leaves adnate a little above the base, alternate, flattish above, channelled towards the base, convex beneath, glaucous, often purplish; the uppermost ovate. Cyme terminating, bifid, many-flowered. Peduncles scarcely branched: pedicels alternate, solitary, one-flowered; and sometimes a flowering branchlet or two below the cyme. Calyx-leaves ovate, obtuse, not fleshy. Petals channelled, villose on the outside, yellow, dotted with purple within, the same size as in *S. acre*; according to Desfontaines six in number. The whole plant is pubescent.

Found by Vahl in clefts of rocks in the kingdom of Tunis [a].

28. Root perennial, small, fibrous. Stem from three to five inches high, upright, leafy, round, spotted; the lower part and the lower leaves smooth, the upper part viscid and hairy; branched at bottom. Leaves blunt, fleshy, convex at the back, flat above, often red, sometimes a little rough at the back with viscid-pointed hairs, especially the uppermost. Panicle cymed, terminating, pubescent, viscid. Calyx also hairy-viscid and blunt. Petals white or rose-coloured, with a red rib. Anthers red. Capsules acuminate, rugged, brown or purplish [b].

Native of Britain, Germany, France, Italy, Switzerland, Denmark. In bogs and moist meadows in the northern counties of England, and in Scotland. It flowers in june and july.

29. Root annual. It is a very different plant from *Crassula rubens*. Stem an inch high, with two opposite branches next the root of the same height with the stem. Leaves oblong, loose at the base. Peduncles alternate, one-flowered, forming a fastigiate corymb. Calyxes dark purple. Petals white, ovate, length of the calyx. Stamens ten. Germs dark-purple [c].

30. Native of Madeira, where it was found by Mr. Francis Masson, and introduced in 1777. It flowers in july and august [d].]

PROPAGATION AND CULTURE.

The Orpines may be easily increased by cuttings during the summer months, or by parting their roots either in spring or autumn; these thrive best in a dry soil and a shady situation, but may also be planted for the same purposes as the other sorts, especially the third sort, which is evergreen. The stalks of this kind hang down, and have a very good effect in rock-work, and the plants require no care; for when they are fixed in the place, they will spread and propagate fast enough.

All the sorts of Stonecrop are easily propagated, by planting their trailing stalks either in spring or summer, which soon put out roots; but, as these thrive much better upon rocks, old walls or buildings, than in the ground, they may be disposed upon rock-work in such a manner as to have a good effect; and where there are unsightly buildings, their tops may be covered with these plants so as to hide their deformity: in such places, these plants will appear to greater advantage than on the ground. If the cuttings or roots of the perennial sorts are planted in some soft mud laid upon the walls or buildings, they will soon take root, and then spread into every joint or crevice, and in a short time will cover the place; or if the seeds of those annual sorts which grow naturally in dry places are sown soon after they are ripe on the top of walls, the plants will come up, and maintain themselves without farther care.

[SEDUM. See *Androsace*, *Aretia*, *Bupleurum*, *Cherleria*, *Cotyledon*, *Chrysosplenium*, *Crassula*, *Draba*, *Portulaca*, *Reaumuria*, *Rhodiola*, *Saxifraga*, *Sempervivum*, *Tillæa*.

——— alpinum. See *Androsace*, *Aretia*, *Draba*.

——— montanum. See *Cherleria*.

——— palustre. See *Chrysosplenium*.

——— petræum. See *Bupleurum*.

[a] Vahl. symb. [b] Smith. Hort. kew. [c] Linn. spec. [d] Jacquin.

SEDUM roseum. See *Rhodiola*.

SEGUASTER. See *Caryota*.

SEGUIERIA. (*So named in honour of Jean Francois Seguier, secretary to the academy of sciences at Nismes in Languedoc. Author of* Bibliotheca Botanica, 1740. 4°.—Catalogus plantarum in agro Veronensi, 1745, 8°.—Plantæ Veronenses, 1745, 8°. vol. 1. 2. and Supplementum, f. vol. 3. 1754.—*He died in* 1784.)

Lin. gen. n. 676. *Reich. n.* 731. *Schreb. n.* 918. *Loefl. it.* 191. *Juss.* 440.

Class. 13. 1. Polyandria Monogynia.

GENERIC CHARACTER.

CAL. *Perianth* five-leaved, spreading: *leaflets* oblong, concave, coloured, permanent.

COR. none; unless the calyx be taken for it.

STAM. *Filaments* very many, capillary, spreading, longer than the calyx. *Anthers* oblong, flattish.

PIST. *Germ* oblong, compressed, at top membranaceous with one side thicker. *Style* very short, at the thicker side of the germ. *Stigma* simple.

PER. *Capsule* oblong, augmented by a very large wing, on the straighter side thicker, with three little wings on each side at the base, one-celled, not opening.

SEED one, oblong, smooth.

ESSENTIAL CHARACTER.

Cal. five-leaved. *Cor.* none. *Capf.* one-seeded, terminated by a large wing, and having small lateral ones.

SPECIES.

1. Seguieria americana.
   Lin. spec. 747. *fist.* 501. *Reich.* 2. 608. *Willd.* 2. 1219.
   S. aculeata. *Loefl. it.* 191. *Jacqu. amer.* 170. *pict.* 82.
   Stem climbing prickly, leaves lanceolate emarginate, racemes branched leafy.
2. Seguieria asiatica.
   Lour. cochinch. 341. *ed. Willd.* 417.
   Stem scandent unarmed, leaves ovate quite entire, racemes long, axillary and terminating.

DESCRIPTIONS, &c.

1. This is a shrub about twelve feet in height, with very long, round, green, shining branches, by which it supports itself. Prickles recurved, acuminate, very short, single on each side of the petiole; but sometimes wanting. Leaves lanceolate ovate or oval, emarginate with a point, entire, shining, petioled, alternate, two or three inches long. Racemes terminating, branched, leafy. Flowers numerous, whitish, ill-scented. The calyx with the increasing germ becomes green. The unripe fruit is like that of Securidaca.

Native of South America, about Carthagena in woods and coppices, especially by way-sides; flowering in september [e].

2. Stem shrubby, climbing but without tendrils, branched, round, long, not thick, very tough and fit for binding. Leaves alternate, rough, on short petioles. Flowers greenish-white, void of scent. Calyx corolline, of five roundish concave spreading leaflets. Filaments shorter than the calyx. Style still shorter, with a thickish stigma. Capsule ovate, acuminate, red, two-valved. Seed roundish, pedicelled, connected by a large many-cleft wing, the segments of which are linear; but it has not any lateral little wings at the base.

Native of Cochinchina, in woods [f].

SELAGINOIDES. See *Lycopodium*.]

SELAGO (*of Pliny.* Selego? *quod certo ritu seligeretur; being gathered with ceremony for religious purposes.*)

Lin. gen. n. 769. *Reich. n.* 829. *Schreb. n.* 995. *Gaertn. t.* 51. *Juss.* 110.

Class. 14. 1. Didynamia Gymnospermia.

Nat. order of *Aggregatæ*. *Vitices*, Juss.

GENERIC CHARACTER.

CAL. *Perianth* one-leafed, four-cleft (five-cleft,) small, permanent: lower segment larger.

COR. one-petalled: *tube* very small, filiform, scarcely perforated: *border* spreading, five-parted, almost equal; the two upper segments smaller; the lowest larger.

[e] Jacquin. [f] Loureiro.

STAM. *Filaments* four, capillary, length of the corolla into which they are inserted; the two upper ones longer. *Anthers* simple.

PIST. *Germ* roundish. *Style* simple, length of the stamens. *Stigma* simple, acute.

PER. none. *Corolla* (*Calyx*, G.) involving the seed.

SEED one or two, roundish.

ESSENTIAL CHARACTER.

Cal. five-cleft. *Cor.* tube capillary; border almost equal. *Seed* one or two.

SPECIES.

1. Selago corymbosa. *Fine-leaved Selago.*
Lin. spec. 876. *syst.* 568. *Reich.* 3. 170. *hort. cliff.* 321. *Berg. cap.* 156. *Kniph. cent.* 8. *n.* 84.
Camphorata africana umbellata frutescens. *Comm. hort.* 2. 79. *t.* 40. *Raii suppl.* 130.
Millefolio affinis maderaspatana, camphoratæ foliis, radiatim nascentibus, *Mor. hist.* 3. 39. *Raii suppl.* 219.
Corymb manifold, flowers disjointed, leaves filiform fascicled.

[2. Selago polystachya. *Many-spiked Selago.*
Lin. syst. 568. *Reich.* 3. 171. *mant.* 250.
Valeriana africana fruticans, ericæ folio. *Comm. hort.* 2. 221. *f.* 111?
Corymb with spikes fascicled, leaves filiform aggregate.

3. Selago rapunculoides. *Rampion-like Selago.*
Lin. spec. 877. *syst.* 568. *Reich.* 3. 171. *amoen.* 4. 319. & 6. *afr.* 20.
Rapunculus foliis angustissimis dentatis, floribus umbellatis. *Burm. afr.* 113. *t.* 42. *f.* 1.
Spikes corymbed, leaves toothed.

4. Selago spuria. *Linear-leaved Selago.*
Lin. spec. 877. *syst.* 568. *Reich.* 3. 171.
Melampyrum africanum spicatum, foliis angustissimis. *Burm. afr.* 115. *t.* 42. *f.* 3.
Spike corymbed, leaves linear toothletted.

5. Selago fasciculata. *Cluster-flowered Selago.*
Lin. syst. 568. *Reich.* 3. 171. *mant.* 250. *Gærtn. fruct.* 1. 239.
Corymb manifold, leaves obovate smooth serrate.

6. Selago coccinea. *Scarlet Selago.*
Lin. spec. 877. *Reich.* 3. 172. *amoen.* 6. *afr.* 21.
Spikes corymbed, lower leaves linear quite entire, upper lanceolate-subulate somewhat toothed.

7. Selago capitata. *Headed Selago.*
Lin. syst. 568. *Reich.* 3. 172. *mant.* 568. *Berg. cap.* 157.
Head terminating, leaves fascicled linear fleshy smooth.

8. Selago fruticosa. *Shrubby Selago.*
Lin. syst. 568. *Reich.* 3. 172. *mant.* 87.
Heads roundish terminating, leaves scattered linear obtuse quite entire, stem shrubby.

9. Selago divaricata. *Spreading Selago.*
Lin. syst. 568. *suppl.* 284.
Heads terminating, leaves filiform-linear fascicled smooth.

10. Selago canescens. *Hoary Selago.*
Lin. syst. 568. *suppl.* 284.
Spikes terminating, leaves filiform fascicled smooth.

11. Selago geniculata. *Jointed Selago.*
Lin. syst. 568. *suppl.* 284.
Spikes terminating, leaves linear fascicled smooth with the margin bent back.

12. Selago triquetra. *Three-sided Selago.*
Lin. syst. 568. *suppl.* 284.
Spikes terminating, leaves three-sided imbricate recurve-reflex smooth.

13. Selago hispida. *Hispid Selago.*
Lin. syst. 568. *suppl.* 284.
Spikes terminating, leaves linear scattered reflex hispid.

14. Selago Polygaloides. *Milkwort-like Selago.*
Lin. syst. 568. *suppl.* 284.
Spikes terminating, bractæ and calyxes keeled, laminæ rugged, leaves linear smooth with a reflex margin.

15. Selago cinerea. *Ash-coloured Selago.*
Lin. syst. 568. *suppl.* 285.
Corymb compound, leaves linear fascicled smooth reflex at the edge.

16. Selago rotundifolia. *Round-leaved Selago.*
Lin. syst. 568. *suppl.* 285.
Corymb compound, leaves ovate smooth obtuse.

17. Selago ciliata. *Fringed Selago.*
Lin. syst. 568. *suppl.* 285.
Flowers in spikes, leaves ovate ciliate acute.

18. Selago verbenacea. *Vervain Selago.*
Lin. syst. 569. *suppl.* 285.
Spikes fascicled, leaves oblong smooth, stem four-cornered right-angled.

19. Selago hirta. *Rough-haired Selago.*
Lin. syst. 569. *suppl.* 285.
Rough-haired, spikes very long, leaves obovate.

20. Selago ovata. *Ovate-headed Selago.*
L'Herit. sert. nov. tom. 2. *t.* 33. *Ait. kew.* 2. 355. *Curt. magaz. t.* 186.
Lippia ovata. *Lin. mant.* 89. & *Diff. nostr.*
Spikes frobline ovate terminating, leaves scattered linear, stem shrubby.

DESCRIPTIONS, *&c.*

These plants are herbaceous or shrubby, all natives of the Cape of Good Hope. Leaves alternate. Flowers in most of the species allied to those of *Iranthemum* and *Verbena*, irregular, tubular, in alternate terminating spikes, which are simple or manifold: in a few, the flowers are regular, with a short two-seeded tube, in a sort of terminating corymb [a].]

1. Stems slender woody, rising seven or eight feet high, but so weak as to require support: they send out many slender branches. Leaves short, linear, hairy, coming out in clusters. Flowers small, and of a pure white; appearing in july and auguſt, but not followed by seeds in England.

This plant is preserved in gardens more for the sake of variety than beauty: for the branches grow very irregular and hang down, and both leaves and flowers are small.

[The fruit is said to have two seeds in it [b]. It was cultivated in 1759, by Mr. Miller [c].

2. Stem fruticose, erect, even, branched, half a foot high. Leaves in clusters at each germ, linear, somewhat rigid, naked, twice as thick as, and shorter by half than in the preceding. Corymb terminating, as in that: the spikes having a small hispid calyx; the corollas being white; and the fruits ovate, bipartile into two seeds [d].

3. Border of the corolla four-parted, with the two outer segments larger [e].

4. Stem suffruticose. Leaves like those of *Helenstreitia dentata*, alternate, clustered. Spike ovate-oblong, blunt, closely imbricate; with oblong, membranaceous bractes. Corollas five-cleft, violet; with a long filiform tube. Capsule six-valved [f]. Introduced in 1786, by Mr. Francis Masson. It is biennial, and flowers in june [g].

5. Stem quite simple, erect, even, two feet high. Leaves alternate, oblong, even, acutely serrate except at the base where they are quite entire and very slightly decurrent. Corymb terminating, close. Calyx with five awl-shaped teeth, length of half the tube of the corolla. Corolla purple. Stigma blunt [h]. Introduced in 1774, by Masson. It is biennial and flowers in june [i]. Seeds two, small, oblong, convex on one side, excavated with a groove on the other, brown, clothed by the calyx [k].

6. This much resembles the *rapunculoides*, but the leaves are thicker and smooth; the lower ones not at all toothed. Stems from the root several, a foot high, quite simple. Corollas very deep purple, with the outer segment larger [l].

7. Stem suffruticose, erect, pubescent. Leaves blunt, smooth, like those of *S. corymbosa*, but thicker. Spike subovate, close, solitary, imbricate with bractes and flowers. Bractes rhombeal, scarious, length of the flowers.

8. This is a lofty shrub with unequal branches. Leaves small, unequal, in clusters, naked. Heads sessile [m].

9. 10. Found at the Cape by Chevalier Thunberg.

11. The branches in this are more spreading and divaricating.

[a] Jussieu. [b] Linn. syst. [c] Hort. kew. [d] Linn. mant. [e] Linn. mant. [f] Linn. spec. [g] Hort. kew. [h] Gærtner. [i] Amoen. [k] Linn. mant. [l] Hort. kew. [m] Linn. mant.

12. 13. Theſe, with the eleventh, were alſo found at the Cape by Thunberg.

14. This has the habit of *Polygala*, with long linear leaves, and pendulous ſpikes.

15. Very like *S. corymboſa*, and perhaps a variety of it.

16. 17. 18. 19. All theſe were found at the Cape by Thunberg.

20. Flowers white, with a yellow ſpot on the two uppermoſt ſegments, and ſometimes on all of them, and an orange ſpot at the mouth of the tube. It is valuable not ſo much on account of its beauty, as the curious ſtructure of its ſpikes, and the fragrancy of its flowers. Linneus deſcribed it from a dried ſpecimen, which accounts for his ſaying that the flowers are of a dark violet-colour. The trivial name of *bracteata* would have been better than *ovata*; for though its ovate inflorescence may be peculiar to the ſpecies, its bractes are ſo very ſingular, that they conſtitute the moſt prominent feature of the plant *.

Like all the reſt it is a native of the Cape, whence it was introduced by Maſſon in 1774. It flowers in june and july *.

Linneus thus deſcribes his *Lippia ovata* in the Mantiſſa.—It is a proſtrate ſhrub, a foot long, with pea-ſhaped knobs all over it, and round branches. Leaves ſomewhat ſucculent, even: from each axil are ſeveral ſmaller leaves, which are ſometimes ternate. Strobiles terminating, ovate, imbricate; with ſcarioſe, ovate, ſmooth bractes, longer than the calyx, reflex at the tip; within each of theſe is a tubular, five-toothed calyx. Corolla funnel-form, five-cleft, dark-violet. Stamens twin, within the tube. Germ one. Style filiform. Stigma ſimple.]

PROPAGATION AND CULTURE.

Plant cuttings, during any of the ſummer months, in a bed of freſh earth, covering them cloſe with a bell or hand-glaſs, ſhading them from the ſun, and refreſhing them now and then with water. Harden them gradually, and then tranſplant them into ſmall pots, placing them in the ſhade till they have taken root. Place them with other hardy greenhouſe plants; and about the end of october remove them into the dry ſtove. They only require protection from froſt, and may be treated in the ſame manner with the hardier greenhouſe plants.

[SELAGO. See *Camphoroſma*, *Eranthemum*, *Lippia*, *Lycopodium*, *Manulea*, and *Stilbe*.

SELF-HEAL. See *Prunella*.

SELINUM. (Σελινον *of Theophraſtus and Dioſcorides. Some derive it* παρα το ν τοις φυτοις, *from its growing in mud. Whence Homer's* ελειοφωτον σελινον.

Lin. gen. n. 337. *Reich. n.* 368. *Schreb. n.* 470. *Gærtn. t.* 21. *Juſſ.* 223. Thyſſelinum. *Tournef.*

Claſſ. 5. 2. Pentandria Digynia.

Nat. order of *Umbellatæ* or *Umbelliferæ*.

GENERIC CHARACTER.

CAL. *Umbel univerſal* manifold, ſpreading, flat: *partial* ſimilar.

Involucre univerſal many-leaved: *leaflets* lanceolate-linear, reflex: *partial* ſimilar, ſpreading, length of the corollet.

Perianth proper ſcarcely obſervable.

COR. *univerſal* uniform. *Florets* all fertile. *Proper* of five cordate equal petals.

STAM. *Filaments* five, capillary. *Anthers* roundiſh.

PIST. *Germ* inferior. *Styles* two, reflex. *Stigmas* ſimple.

PER. none. *Fruit* compreſſed-flat, oval-oblong, ſtriated in the middle on both ſides, bipartile.

SEEDS two, oval-oblong, flat on both ſides, ſtriated in the middle, with the ſides membranaceous.

OBS. *The ſeeds vary in form, and the involucres in number of leaflets.*

ESSENTIAL CHARACTER.

Pet. cordate, equal. *Involucre* reflex. *Fruit* oval-oblong, compreſſed-flat, ſtriated in the middle.

SPECIES.

1. Selinum ſylveſtre. *Wild Selinum.*

Lin. ſpec. 350. *ſyſt.* 278. *Reich.* 1. 673. *Willd.* 1. 1396. *ſuppl.* 180. *mant.* 353. *hort. cliff.* 93. *upſ.* 59. *Fl. dan. t.* 412. *Roth. germ.* 1. 132. 2. 352. *Hall. helv. n.* 806? *Krock. ſileſ. n.* 409. *Allion. pedem. n.* 1300.

Apium ſylveſtre Dodonæi, Thyſſelinum quorundam. *Bauh. hiſt.* 3. 188.

A. ſylv. lacteo ſucco turgens. *Bauh. pin.* 153. *Ray hiſt.* 413.

Thyſſelinum Plinii. *Lob. hiſt.* 409. *Mor. hiſt.* 3. 319. *ſ.* 9. *t.* 17. *f.* 2.

Stem even, root fuſiform manifold.

2. Selinum paluſtre. *Marſh Selinum.*

Lin. ſpec. 350. *ſyſt.* 278. *Reich.* 1. 673. *Willd.* 1. 1397. *Fl. lapp. n.* 110. *ſuec. n.* 239. *hort. cliff.* 92. *Hudſ. angl.* 115. *Wither. arr. ed.* 3. 293. *Smith brit.* 393. *engl. bot. t.* 229. *Reh. cant. ſuppl.* 1. 11. *n.* 1002. *Fl. dan. t.* 257. *Jacqu. vind.* 49. *Hall. helv. n.* 799? *Pollich pal. n.* 276. *Scop. carn. n.* 232. *Roth. germ.* 1. 132. 2. 353. *Hoffm. germ.* 95. *Krock. ſileſ. n.* 410. *Villars dauph.* 2. 632. *Allion. pedem. n.* 1303.

S. ſylveſtre. *Jacqu. auſtr. t.* 152. *Hoff. ſynopſ.* 145. *Hoffm. germ.* 95.

Thyſſelinum anguſtifolium. *Riv. pent. t.* 13.

T. ſ. Apium ſylveſtre. *Park. theat.* 928.

Seſeli paluſtre lacteſcens. *Bauh. pin.* 162. *prodr.* 85. *Park. theat.* 904. 6. *Mor. hiſt.* 3. 317.—acre ſolii ferulaceis, flore albo ſemine lato. *Bauh. hiſt.* 3. 188. *Raii hiſt.* 414.

Apium ſilveſtre ſ. Thyſſelium. *Dod. pempt.* 699. *Ger. emac.* 1020.

Stem ſtriated, root almoſt ſimple, rays of the umbel biſpid.

[3. Selinum auſtriacum. *Auſtrian Selinum.*

Lin. ſyſt. 278. *Willd.* 1. 1397. *Jacqu. auſtr.* 1. *t.* 71. *vind.* 49. *Scop. carn. n.* 329. *Hoff. ſynopſ.* 145. *Crantz. faſc.* 3. 43. *t.* 14. *f.* 2.

S. argenteum. *Villars dauph.* 2. 636. *Allion. pedem. n.* 1304.

Stem grooved, univerſal involucre many-leaved, leaflets wedge-form gaſhed.

4. Selinum Sibiricum. *Siberian Selinum.*

Lin. ſpec. ed. Willd. 1. 1398. *Retz. obſ.* 2. 16.

Leaves tripinnate, univerſal and partial involucres coloureleſs nine-leaved.

5. Selinum Caruifolia. *Carowey-leaved Selinum.*

Lin. ſpec. 350. *ſyſt.* 278. *Reich.* 1. 674. *Willd.* 1. 1398. *ſuppl.* 180. *mant.* 353. *Retz. obſ.* 2. 16. *Gærtn. fruct.* 1. 89. *Willich obſ. n.* 78. *De la Chenal in act. helv.* 7. 376. *Hoff. ſynopſ.* 145. *Fl. dan. t.* 667. *Roth. germ.* 1. 132. 2. 354. *Hoffm. germ.* 95. *Pollich pal. n.* 277. *Leers herborn. n.* 204. *Hall. helv. n.* 802. *t.* 20. *Jacqu. auſtr.* 1. 13. *t.* 16. *Gmel. ſib.* 1. 204. *t.* 48. *Krock. ſileſ. n.* 411.

S. pſeudo-carvifolia Crantz. *Allion. pedem. n.* 1306.

Seſeli pratenſe tenuifolium ſ. Daucus. *Caſp. Bauh. Burſ. herb.* 8. 74.

Carvifolia. *Bauh. pin.* 158. *Bauh. hiſt.* 3. 171. *Raii hiſt.* 415. *Villars dauph.* 2. 629.

Carum pratenſe. *Park. theat.* 910. *n.* 3.

Angelica tenuifolia. *Riv. pent. t.* 18. *Rupp. gen.* 277. *Dill. giſſ.* 137.

Laſerpitium ſelinoides. *Scop. carn.* 325.

Thyſſelinum paluſtre. *Vaill. bot. par.* 191. *t.* 5. *f.* 2.

Stem grooved acute-angled, univerſal involucre none, leaflets lanceolate gaſhed calleſe mucronate at the top.

6. Selinum Chabræi.

Lin. ſyſt. 279. *Willd.* 1. 1399. *Jacqu. auſtr.* 1. *t.* 72. *Hoff. ſynopſ.* 146. *Hoffm. germ.* 95.

S. Carviſolia Chabræi. *Crantz umb.* 62. *t.* 3. *faſc.* 3. 162. *t.* 3. *f.* 2. *Allion. pedem. n.* 1305.

Peucedanum Carvifolia. *Villars dauph.* 2. 630.

Carvifolia. *Chabr. ſtirp.* 389.

Stem round ſtriated, univerſal involucre none, ſheaths of the leaves looſe, leaflets filiform-linear.

7. Selinum Seguieri. *Fennel-leaved Selinum.*

Lin. ſyſt. 279. *Reich.* 1. 675. *Willd.* 1. 1399. *ſuppl.* 179. *Jacqu. hort.* 1. 24. *t.* 61. *Hoff. ſynopſ.* 146.

Ligulticum alpinum perenne, ferulæ folio, floribus albis. *Seguier veron.* 2. 41. *t.* 13. *Till. piſ.* 98. *t.* 39. *f.* 2?

Stem roundiſh ſtriated, univerſal involucre none, leaflets trifid linear mucronate.

* Curtis. * Hort. kew.

8. Selinum

8. Selinum Monnieri. *Annual Selinum.*
Lin. ſpec. 351. *ſyſt.* 279. *Reich.* 1. 675. *Willd.* 1. 279. *amoen.* 4. 269. *Jacqu. hort.* 1. 25. *t.* 62. *Gouan illuſtr.* 11.
Umbels cluſtered, univerſal involucre reflex, five membranaceous ribs to the ſeed.

9. Selinum decipiens.
Lin. ſpec. ed. Willd. 1. 1400. *Schrad. & Wandl. ſert. hannov.* 3. 23. *t.* 13.
Stem woody naked below, lower leaves bipinnate, pinnules lanceolate entire and gaſhed ſerrate.

DESCRIPTIONS, *&c.*

1. The herb is a little milky, with numerous even ſtems, not ſtriated. Leaflets linear. Umbel pàtulous. Umbellets remote. Seeds oval-oblong, with three raiſed obtuſe approximating grooves. It has both involucres [a].

Native of Denmark, Germany, Sileſia, France and Piedmont.

2. Root ſubfuſiform, thick, branching, yelloviſh without, white within. The whole plant, when wounded, pours forth a milky thick bitter fetid juice. Stem three or four feet high, ſingle, erect, hollow, deeply grooved, ſmooth, leafy, purple at the bottom, branched at the top. Leaves of a pleaſant green, triangular, in more luxuriant plants upwards of a foot and half in length, and as much or more in breadth, bipinnate or tripinnate; the leaflets oppoſite and pinnatifid; the cleſts varying from linear to oval-lanceolate, very entire, reddiſh at the points. Umbels erect, flat, large and beautiful, with many (about thirty) rays. The umbellets have upwards of forty. Involucre and involucret many-leaved, (nine and twelve,) ſhorter than the rays, bent down, membranaceous at the edge. Petals white, involute-cordate, equal: before flowering reddiſh on the outſide. Fruit elliptical, ancipital. Seeds roundiſh, blunt, edged with a kind of border, ſcored in the centre [b].

Native of the North of Europe, Germany, Auſtria, Dauphiné and Piedmont; in ſwamps and moors. Not known to be indigenous of England till very lately. Johnſon (in Gerarde) ſays expreſsly, "I have not as "yet obſerved this plant growing wild with us."—Mr. Hudſon, in the ſecond edition of his Flora Anglica (1778) ſays, it was found near Doncaſter by Mr. Tofield. According to Dr. Withering, it was found in 1779 or 1780, by Mr. Seatle, at Cannon Winder, near Flookburgh in Lancaſhire; and ſince, round the ſides of Ayſide Tarn, three miles north of Cartmell, by Mr. Hall. Brought to Mr. Woodward and Mr. Crowe, when in Lancaſhire in 1781, by the Rev. Mr. Jackſon. In great plenty, in low wet moors near Whitgift, Yorkſhire, four miles from the confluence of the Ouſe and Trent, by Mr. Wood. At Weel Carr, and other wet places near Beverley, by Sir Thomas Frankland. In Alder ſwamps near Yarmouth, by Mr. Wigg. Between Norwich and Heigham towards the river, by Mr. Pitchford. Near Prickwillow bank in the Iſle of Ely, by Mr. Relhan and Dr. Goodenough.—It flowers in july [c].

3. Root perennial, at the beginning of autumn pouring out a moderate quantity of yelloviſh white milk. Stem ſtriated, ſmooth. The radical leaf is divided by a round petiole into three branches, which are again ſubdivided. Petioles ſtriated with eight or ten whitiſh raiſed lines. The ſecond branches bear pinnas that are ſeſſile and divided almoſt to the baſe into lanceolate ſimple bifid and trifid ſegments. Theſe leaves are flat, dark green above and paler beneath: the tips are whitiſh and ending as it were in a ſoft ſpinule. Involucre reflex, ſcarcely half an inch in length, with the leaflets white and as it were membranaceous at the edge. Rays of the umbel as far as twenty-two, ſomewhat villoſe. Involucrets ſpreading. The umbellets have forty rays and upwards. Petals white, equal, cordate. Styles erect, but finally divaricating. All the flowers are not fertile [d].

Native of Auſtria, Idria, and perhaps of Dauphiné and Piedmont. Villars ſuſpects that his plant may be different.

4. Root biennial, fuſiform. Stem erect, three feet high, hollow, ſtriated, glaucous. Leaves tripinnate: pinnas laciniate, acute, white at the tip; petioles compreſſed, channelled above; ſheaths of the upper ones white. Peduncles grooved. Involucre nine-leaved, preſſed cloſe to the rays: leaflets lanceolate, white-membranaceous and pellucid, about half the length of the rays, with a green rib. Involucrets ſimilar, nine-leaved, a little wider and overtopping the flowers. Umbel with from twenty to thirty rays: umbellets with as many white flowers. Seeds with three dorſal ribs beſides the marginal wings, oblong-rounded. It has the ſmell of a freſh Carrot-root; and carries a ſingular appearance on account of the white involucrets entirely involving the umbellets before they are completely unfolded [e]. Retzius received the ſeeds among others from Siberia.

5. Root perennial. Stems acutely ſtriated. All the leaflets have a white apex or dagger-point. Petals converging, concealing the receptacle. Styles erect. Seeds ovate, with three compreſſed ridges, as in *Laſerpitium*: the ſeeds gape from each other at the ſides [f].

Univerſal involucre none; partial many-leaved. Fruit compreſſed, rounded, membranaceous-winged; conſiſting of two ſmall rounded ſeeds, emarginate at top and bottom, five-winged: the two marginal wings very wide and ſpreading; the three dorſal wings narrower by half than the others, approximating nearly upright: the ventral part flat or ſlightly concave [g].

The above deſcription by Gærtner is taken from Gmelin's plant. If we may depend upon Vaillant's (bot. par. *t.* 5. *f.* 2.) and Haller's figures, their plant is quite different from this. The figure of the ſeeds in Rivinus and Crantz agrees with that of Gmelin; but the habit of the plant is different: we are to conſider however that moſt of Gmelin's figures are rather in a rough ſtyle [h].

Retzius remarks, that Gmelin's *Selinum* has the leaves of Jacquin's, but ſmaller, and in the figure, the long wide ſheaths, ſimply pinnate at the end, are wanting; it rather belongs however to this, than to the *carvifolia* of Linneus. In the *carvifolia* of Crantz, the conformation of the ſheaths is the ſame as in Jacquin's, but the leaves are diſſimilar.

Retzius affirms that three diſtinct plants have been confounded under the name of *carvifolia*.

1. *Selinum carvifolia* of Linneus, Haller and Flora Danica.

2. *Sel. Carvifolia* of Jacquin.

3. *S. Carvifolia* of Crantz. See the next ſpecies.

Native of Denmark, Germany, Switzerland, Auſtria and Siberia. Introduced in 1774, by Monſ. Richard. It flowers in july and auguſt [i].

6. Height from eight inches to a foot. Stems ſmooth, channelled, ſupporting two or three umbels. Root-leaves very much reſembling thoſe of *Carui*, but not quite ſo fine: leaflets branched, unequal, and diſpoſed ſo as to form ſeveral croſſes round the common petiole: ſtem-leaves very different, being ſimply pinnate, with ſome forked leaflets at their baſe, rendering them bipinnate; the ſegments four or ſix times as long as in the root-leaves: thus approaching to Peucedanum, and deſtroying all reſemblance between this plant and that figured by Vaillant in *t.* 5. *f.* 2. which Crantz has referred to this. The umbels have ſometimes an involucre of ſeveral very narrow leaves, but frequently are without any: they have eight or ten unequal rays: the umbellets have an involucre of ſeveral leaves. Seeds a little oblong, with a marginal wing, and three apparent ribs, but not riſing much, on the back. This ſpecies is intermediate between *Peucedanum* and *Selinum* [k].

Native of Germany, Auſtria, France and Italy.

7. Stem manifold, four feet high, even, not ſtriated except at the top, where it is very obſcurely ſo. Upper branches oppoſite, as are alſo the leaves. Leaves

[a] Linn. mant. [b] Smith and Woodw. in Withering. [c] Smith and Withering. [d] Scopoli. [e] Retzius [f] Idem. [g] Lin. ſyſt. mant. ſuppl. [h] Hort. kew. [i] Gærtner. [k] Villars.

tripinnate,

tripinnate, ſpreading; partial ones divaricate or ſpreading very much. Pinnas linear, acute, ſeſſile, ſubdecurrent, with an unarmed point. Umbel compound, with rays as far as forty. Umbellet with many rays. Common peduncle indiſtinctly ſtriated. Involucre none. Involucrets briſtle-ſhaped, many, ſhorter than the florets. Corollas expanded. Petals white. Styles of the fruit ſpreading horizontally. Perennial.

Native of Italy and Carniola [b]. Introduced in 1774, by Joſeph Nicholas de Jacquin, M. D. It flowers in july [c].

8. This has the ſame ſtructure of the ſeeds as in *Laſerpitium*; but the habit and every thing elſe of *Selinum* [d]. Stem ſometimes purpliſh, with very numerous ſtreaks. Peduncles oppoſite to the leaf, ſtriated alſo, thicker at the top. Involucre of ſeven or nine unequal briſtle-ſhaped leaflets, ſcarcely two lines long. Involucrets of ſeven or nine briſtle-ſhaped leaflets, the length of the pedicels or umbellets. Hairs on the branches and upper part of the ſtem few; towards the bottom and on younger plants more abundant. In a garden the plant becomes frequently quite ſmooth [e].

Native of the South of France. Annual. Flowering in july and auguſt. Introduced in 1771, by Mr. Richard [f].

9. Stem the thickneſs of the thumb, below woody and naked. Leaves almoſt like thoſe of *Angelica*, wide and bipinnate; leaflets lanceolate, ſerrate, the end one gaſhed; floral leaves pinnate, with the end and lower leaflets gaſhed. Sheaths widened, toothed. Involucre many-leaved; leaflets wide, lanceolate-cuneiform, trifid, membranaceous at the edge. Involucrets many-leaved, lanceolate [g].]

PROPAGATION AND CULTURE.

Theſe plants are eaſily propagated by ſeeds, ſown in the autumn. The plants are to be treated in the ſame way as Angelica.

[SELINUM. See *Angelica, Athamanta, Imperatoria, Peſtinaca, Peucedanum, Seſeli.*

SEMECARPUS. (*From σημα a mark, or σημειον to mark, and καρπος a fruit.*)

Lin. gen. Schreb. n. 501. *ſuppl.* 25. *Roxb. corom.* 1. *t.* 12. Anacardium. *Gærtn. t.* 40. *Juſſ.* 368.

Claſſ. 5. 3. Pentandria Trigynia.—Polygamia Dioecia. *Roxb. corom.*

GENERIC CHARACTER.

* *Hermaphrodite.*

CAL. *Perianth* one-leafed, bell-ſhaped, inferior, half-five-cleft: *ſegments* cordate, acute.

COR. *Petals* five, lanceolate, margined, obtuſe, larger than the calyx.

STAM. *Filaments* five, awl-ſhaped, ſhorter than the corolla, inſerted into the receptacle. *Anthers* oblong, ſmall.

PIST. *Germ* ſuperior, globular-depreſſed. *Styles* three, recurved, incumbent on the germ, and ſhorter than it. *Stigmas* club-ſhaped, retuſe.

PER. none. *Recept.* erect, fleſhy, pear-ſhaped (or globular-depreſſed,) ſmooth.

SEED a ſingle *Nut*, reſting upon the receptacle, heart-ſhaped (ovate-acuminate, *G.*) flattened on both ſides, ſmooth and ſhining.

* *Male flowers on a ſeparate tree, ſmaller than the hermaphrodites.*

CAL. and COR. as in the hermaphrodites.

STAM. *Filaments* five, length of the petals. *Anthers* much larger.

PIST. none: but in its place a ſemiglobular, hairy glandulous body.

OBS. *In the younger Linneus's ſupplement, the fruit is conſidered as a drupe.*

ESSENTIAL CHARACTER.

Cal. inferior, five-cleft. *Cor.* five-petalled. *Nut* kidney-form, inſerted into a large fleſhy flattened receptacle.

[b] Linn. ſuppl. [c] Hort. kew. [d] Linn. ſpec.
[e] Gouan. [f] Hort. kew. [g] Willdenow.

SPECIES.

1. Semecarpus Anacardium. *Marking-nut tree.* *Lin. ſyſt.* 292. *Willd.* 1. 1476. *ſuppl.* 182. *Roxb. corom.* 1. 13. *t.* 12.

Anacardium. *Bauh. hiſt.* 1. 334. *Ger.* 1360. *emac.* 1544. *Park. theat.* 1568. *Jonſt. dendr. t.* 49. *Raii hiſt.* 1813. *Beſl. muſ. t.* 4.

A. officinarum. *Gærtn. fruct.* 1. 192.

A. primum. *Bauh. pin.* 511.

A. orientale officinarum.

DESCRIPTION, &c.

This is a large tree, with a great, ſtraight, lofty trunk, covered with gray ſcabrous bark: the bark of the younger parts is ſmooth, and of a light aſh-colour; its inner ſubſtance contains in crevices a quantity of a white, ſoft, almoſt inſipid gum. Branches numerous, ſpreading. Leaves about the extremities of the branchlets, alternate, petioled, wedge-form, rounded at the apex, entire, firm, above pretty ſmooth, below whitiſh and ſcabrous, from nine to eighteen inches long, and from four to eight broad. Petiole an inch and half or two inches long, half-round. Panicle terminating, very large, compoſed of many ſimple ſpikes; that of the male tree much more ſlender, but as large or larger. Bractes many, ſmall, falling. Flowers numerous, ſmall, of a dirty-greeniſh yellow colour. Receptacle of the fruit, when ripe, yellow, about the ſize of the nut; which is black; the cover or ſhell compoſed of two laminæ, the inner hard, the outer leſs ſo and leathery; between them are cells, which contain the black corroſive reſinous juice, for which this nut has been long known; the juice is of a pale milk colour, till perfectly ripe, when it becomes black.

It is a native of all the mountainous parts of India; flowering in july and auguſt. The ſeed is ripe in january and february.

The wood of this tree is reckoned of no uſe, not only on account of its ſoftneſs, but alſo becauſe it contains much acrid juice, which renders it dangerous to cut down and work upon. The fleſhy receptacles on which the ſeed reſts are roaſted in the aſhes, and eaten by the natives: their taſte is exceedingly like that of roaſted apples: unroaſted they taſte aſtringent and acrid, leaving a painful ſenſation on the tongue for ſome time. The kernels are rarely eaten.

The green fruit well pounded into a pulp makes good bird-lime. The pure black acrid juice of the ſhell is employed by the natives externally, to remove rheumatic pains, aches and ſprains; in tender conſtitutions it often produces inflammation and ſwelling: but where it has not theſe effects, it is an efficacious remedy. It is employed by the Telinga phyſicians in the cure of almoſt every ſort of venereal complaint.

It is in general uſe for marking cotton cloths: the colour is improved and prevented from running, by a little mixture of quick-lime and water. This juice is not ſoluble in water, and only diffuſible in ſpirits of wine, for it ſoon falls to the bottom, unleſs the menſtruum be previouſly alkalized. The ſolution is then pretty complete, and of a deep black colour. It ſinks in expreſſed oils, but ſoon unites perfectly with them: alkaline lixivium acts upon it with no better ſucceſs than plain water [h].

SEMEN SANCTUM. See *Artemiſia ſantonica.*]

SEMPERVIVUM (*of Pliny. Ever-living, Evergreen.*)

Lin. gen. n. 612. *Reich. n.* 667. *Schreb. n.* 837. *Gærtn. t.* 65. *Juſſ.* 307. Sedi ſpecies. *Tournef. t.* 140. C. E. I.

Claſſ. 11. 6. Dodecandria Polygynia. ſ. Dodecagynia.

Nat. order of *Succulentæ. Sempervivæ*, Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* ſix to twelve-parted, concave, acute, permanent.

COR. *Petals* ſix to twelve, oblong, lanceolate, acute, concave, a little bigger than the calyx.

STAM. *Filaments* ſix to twelve (or more,) ſubulate-ſlender. *Anthers* roundiſh.

PIST. *Germs* ſix to twelve, in a ring, erect; ending in as many ſpreading *Styles*. *Stigmas* acute.

[h] Roxburgh.

PER. *Capſules* ſix to twelve, oblong, compreſſed, ſhort, in a ring, acuminate outwards, opening inwards.
SEEDS many, roundiſh, ſmall.

Obs. *Being very frequently luxuriant, it becomes greater as to the number, eſpecially as to the female parts of the flower. It is allied to Sedum, but differs in having more petals than five.*

ESSENTIAL CHARACTER.

Cal. twelve-parted. *Pet.* twelve. *Caſſ.* twelve, many-ſeeded.

SPECIES.

1. Sempervivum arboreum. *Tree Houſeleek.*
Lin. ſpec. 664. *ſyſt.* 455. *Reich.* 2. 459. *Willd.* 2. 930. *hort. cliff.* 179. *upſ.* 118. *Ait. kew.* 2. 147. *Deſont. atlant.* 389.
S. arboreſcens. *Camer. epit.* 857. *Matth.* 1120.
S. f. Sedum arb. majus. *Dod. pempt.* 127. *f.* 1.
Sedum majus arboreſcens. *Bauh. hiſt.* 3. 686. *Ger. emac.* 510. *Raii hiſt.* 687. *Tournef. inſt.* 262.—floſculis candidis. *Bauh. pin.* 282. *Bradl. ſucc.* 4. 1. *t.* 31.
S. majus arb. græcum. *Lob. ic.* 379.
S. majus legitimum. *Cluſ. hiſt.* 2. 58. *Park. theat.* 730.
Stem arboreſcent even branched, leaves wedge-form ſmoothiſh ciliate, cilius patulous ſoft.
2. Sempervivum canarienſe. *Canary Houſeleek.*
Lin. ſpec. 664. *ſyſt.* 455. *Reich.* 2. 459. *Willd.* 2. 931. *hort. cliff.* 179. *Ait. kew.* 2. 147.
Sedum canarium, foliis omnium maximis. *Comm. hort.* 2. 189. *t.* 95.
S. majus canarium acaulon pilis ad oras foliorum hiſpidis. *Pluk. phyt. t.* 314. *f.* 1. *Raii ſuppl.* 362.
Stem frutеſcent, leaves orbicular-ſpatulate-villoſe, nectaries ſubquadrate truncate.
[3. Sempervivum glutinoſum. *Clammy Houſeleek.*
Lin. ſpec. ed. Willd. 2. 931. *Ait. kew.* 2. 147.
Stem frutеſcent, leaves wedge-form viſcid ciliate, cilius cartilaginous preſſed cloſe.
4. Sempervivum glandulоſum. *Glandulous-leaved Houſeleek.*
Lin. ſpec. ed. Willd. 2. 931. *Ait. kew.* 2. 147.
Stem frutеſcent, leaves orbicular-ſpatulate glandular at the edge, glands globular, nectaries wedge form truncate.
5. Sempervivum tectorum. *Common Houſeleek.*
Lin. ſpec. 664. *ſyſt.* 455. *Reich.* 2. 459. *Willd.* 2. 932. *mat. med.* 121. *hort. cliff.* 179. *fl. ſuec. n.* 428. *Huds. angl.* 211. *Wither. arr. ed.* 3. 452. *Smith brit.* 522. *Curt. lond.* 3. *t.* 29. *Lightf. ſcot.* 251. *Relh. cant. n.* 355. *Sibth. oxon. n.* 443. *Abbot bedf. n.* 357. *Fl. dan. t.* 601. *Hoffm. germ.* 168. *Roth. germ.* 1. 208. 2. 536. *Pollich pal. n.* 464. *Krock. ſileſ. n.* 742. *Villars dauph.* 3. 685. *Allion. pedem. n.* 1935. *Mill. illuſtr. Blackw. t.* 366. *Regnault bot.*
S. majus. *Matth.* 1117. *Camer. epit.* 854. *Ger.* 411. *emac.* 510. 1. *Raii ſyn.* 269. *Neck. gallob.* 213.—alterum ſ. Jovis barba. *Dod. pempt.* 127. 2.
Sedum tectorum. *Scop. carn. n.* 559. *Hall. helv. n.* 949.
S. majus. *Fuchſ. hiſt.* 32.—vulgare. *Bauh. pin.* 283. *Bauh. hiſt.* 3. 687. *Park. theat.* 731. 3. *Raii hiſt.* 687. *Mor. hiſt. ſ.* 12. *t.* 7. *f.* 41.
Cotyledon altera 1. Sedum vulgare. *Cluſ. hiſt.* 2. 63. *f.* 2.
Leaves ciliate, offsets ſpreading.
6. Sempervivum globiferum. *Globular Houſeleek.*
Lin. ſpec. 665. *ſyſt.* 455. *Reich.* 2. 460. *Willd.* 2. 932. *hort. cliff.* 180. *Hoffm. germ.* 168. *Roth. germ.* 2. 536. *Jacqu. auſtr.* 5. 50. *t. app.* 40. *Allion. pedem. n.* 1939. *Schmid. ic.* 95. *t.* 26. *Knorr. del.* 2. *t.* S. 4.
Sedum *n.* 950. *Hall. helv.*
S. vulgari magno ſimile. *Bauh. hiſt.* 3. 688.
S. majus vulgari ſimile, globulis decidentibus. *Mor. hiſt. ſ.* 12. *t.* 7. *f.* 18.
Leaves ciliate, offsets globular.
[7. Sempervivum villoſum. *Hairy Houſeleek.*
Lin. ſpec. ed. Willd. 2. 933. *Ait. kew.* 2. 148.
Leaves ſpatulate-wedge-form obtuſe villoſe, nectaries palmate, ſegments ſubulate.
8. Sempervivum tortuoſum. *Gouty Houſeleek.*
Lin. ſpec. ed. Willd. 2. 933. *Ait. kew.* 2. 148. *Curt. magaz. t.* 296.
Leaves obovate beneath gibbous villoſe, nectaries two-lobed.
9. Sempervivum ſtellatum. *Starry Houſeleek.*
Lin. ſpec. ed. Willd. 2. 933. *Smith in Linn. tranſ.* 1. 251.
Sedum petræum rotundifolium, flore luteo ſtellato montis Baldi. *Segu. veron.* 2. 360. *t.* 17.
Stem herbaceous pubeſcent, leaves ſpatulate ſcattered.]
10. Sempervivum arachnoideum. *Cobweb Houſeleek.*
Lin. ſpec. 665. *ſyſt.* 456. *Reich.* 2. 460. *Willd.* 2. 933. *hort. cliff.* 180. *Jacqu. auſtr.* 5. 51. *t. app.* 42. *Villars dauph.* 3. 686. *Allion. pedem. n.* 1937. *Schmidel. ic.* 149. *t.* 38. *Knorr. del.* 2. *t.* S. 8. *Curt. magaz. t.* 68.
S. rubrum montanum gnaphaloides. *Col. ecphr.* 1. 292. *t.* 291. *Raii hiſt.* 688.
Sedum *n.* 952. *Hall. helv.*
S. montanum tomentoſum. *Bauh. pin.* 294.
S. rubrum tomentoſum. *Park. theat.* 732. *n.* 5. *t.* 731. *f.* 5.
Leaves interwoven with hairs, offsets globular.
[11. Sempervivum hirtum. *Rough Houſeleek.*
Lin. ſpec. 665. *ſyſt.* 456. *Reich.* 2. 460. *Willd.* 2. 934. *amoen.* 4. 273. *Hoffm. germ.* 168. *Krock. ſileſ. n.* 743. *Allion. pedem. n.* 1938. *t.* 65. *f.* 1.
Sedum majus montanum, foliis dentatis. *Bauh. pin.* 283. *Raii hiſt.* 688.
S. majus alterum flore Atlante. *Park. theat.* 730. *n.* 4.
Cotyledon altera ſecunda Cluſii. *Ger. emac.* 510. *n.* 4.
C. altera montana. *Cluſ. hiſt.* 2. 63.
Stem leaves and ends of the petals rough-haired.]
12. Sempervivum montanum. *Mountain Houſeleek.*
Lin. ſpec. 665. *ſyſt.* 456. *Reich.* 2. 461. *Willd.* 2. 934. *Hoffm. germ.* 169. *Jacqu. auſtr.* 5. 50. *t. app.* 41. *Krock. ſileſ. n.* 744. *Ger. prov.* 429. 5. *Villars dauph.* 3. 685. *Allion. pedem. n.* 1936. *Gærtn. fruct.* 1. 314.
Sedum *n.* 951. *Hall. helv.*
S. alpinum rubro magno flore. *Bauh. pin.* 284.
S. majus montanum, foliis non dentatis, floribus rubentibus. *Bauh. pin.* 283. *Raii hiſt.* 688.
S. montanum latifolium flore purpureo. *Bauh. hiſt.* 3. 688.
S. majus anguſtifolium. *Park. theat.* 732. 6. *t.* 731. *f.* 6. *Ger. emac.* 511. *f.* 5.
S. minus flore rubente. *Beſl. oſt. vern.* 6. *t.* 8. *f.* 2.
Leaves quite entire, offsets ſpreading.
[13. Sempervivum ſediforme. *Stonecrop-leaved Houſeleek.*
Lin. ſyſt. 456. *Reich.* 2. 461. *Willd.* 2. 934. *Jacqu. hort.* 1. 35. *t.* 81.
β. Monſtroſum. *Jacqu. miſc.* 1. 133. *t.* 5.
Leaves ſcattered, lower ones cylindrical, upper ones flattened.
14. Sempervivum monanthos. *Cluſtered Houſeleek.*
Lin. ſpec. ed. Willd. 2. 934. *Ait. kew.* 2. 149. *Curt. magaz. t.* 93.
Leaves round-club-ſhaped cluſtered, peduncles naked moſtly one-flowered, nectaries obcordate.]

DESCRIPTIONS, *&c.*

1. Tree Houſeleek riſes with a fleſhy ſmooth ſtalk eight or ten feet high, dividing into many branches, which are terminated by round heads or cluſters of leaves lying over each other like the petals of a double Roſe, ſucculent, of a bright green, and having very ſmall indentures on their edges. The ſtalks are marked with the veſtiges of the fallen leaves, and have a light brown bark. The flower-ſtalks riſe from the centre of theſe heads: and the numerous bright-yellow flowers form a large pyramidal ſpike, or thyrſe.

[Each flower is pedicelled, and is accompanied by a lanceolate, acute bracte, which ſhrivels and falls off. Calyx ten-parted. Petals ten. Scales of the nectary as many at the baſe of the filaments. Stamens twenty. Germs ten, with a gland at the baſe of each[1].

Native of Portugal, the Levant, and Barbary near Algiers:] the old walls about Liſbon are covered with it. It flowers through the winter, commonly from

[1] Linn. and Deſont.

december to march. [Cultivated here in 1727, as appears from Bradley's ſucculent plants[a].]

A variety of this with variegated leaves was obtained from a branch accidentally broken from a plant of the plain ſort, at Badmington, the ſeat of the Duke of Beaufort. [This plant therefore muſt have been cultivated here long before Bradley's time.]

2. This ſeldom riſes above a foot and half high, unleſs the plants are drawn up by tender management. The ſtalk is thick and rugged, chiefly occaſioned by the veſtiges of decayed leaves. At the top is a very large crown of leaves, diſpoſed circularly like a full blown Roſe: they are large, ſucculent, ſoft to the touch, and pliable, ending in obtuſe points which are a little incurved. The flower-ſtalk comes out from the centre, and riſes near two feet high, branching out from the bottom, ſo as to form a regular pyramid of flowers, which are of an herbaceous colour.

[Petals nine. Stamens eighteen. Piſtils nine.—Native of the Canary Iſlands. Cultivated in 1699, by the Dutcheſs of Beaufort. It flowers in june and july.

3. Petals yellow, eight or nine. Stamens ſixteen or eighteen. Piſtils eight or nine.—Native of Madeira; whence it was introduced by Maſſon in 1777. It flowers in july and auguſt.

4. This alſo is native of Madeira; and was introduced at the ſame time with the former by Maſſon. It flowers from march to may[i].

5. Common Houſeleek has a perennial fibrous root. Root-leaves in form of a full-blown double Roſe, ſeſſile, wedge-ſhaped or obovate, ſomewhat more than an inch long, very fleſhy, thick, flat above, a little convex beneath keeled and whitiſh, ſmooth on both ſides, the edges fringed with hairs and generally tinged with red, pointed, upright, gradually ſmaller inwards. Offſets on long footſtalks, globular, the ſize of a pigeon's egg or larger, compoſed of erect leaves lying over each other. Flowering-ſtem upright, from nine inches to a foot in height, round, fleſhy, pubeſcent, having alternate, lanceolate, thinner leaves on it, of a reddiſh colour, at top branched and forming a ſort of corymb; the branches ſpreading and bending back. Flowers numerous, cluſtered, upright, pubeſcent, fleſh-coloured, all growing one way. Calyx twelve-parted (12 to 16. *H.*): ſegments lanceolate, hirſute, ciliate, clammy, purpliſh at top. Petals twelve or more, twice the length of the calyx, lanceolate, connate at the baſe. Stamens ſhorter than the petals, generally fourteen; (6 to 25. *W.* 24 to 32. *H.*) but varying in length and number, as indeed all the parts do. Germs twelve, upright[m]. Capſules twelve to ſixteen[n].

Haller, who has minutely deſcribed this plant, as he found it in its wild ſtate on the Alps, remarks that the filaments are of two kinds, the one perfect and ſimilar to the generality of filaments, the other even when young evidently enlarged towards the end, and throwing out from their ſubſtance little oblong white corpuſcles, like the eggs of ſome inſect. Mr. Curtis farther remarks, that the filaments thus enlarged are more glutinous than the others, and the anthers ſomewhat imperfect; as the fructification proceeded towards maturity, the filaments continued to enlarge about the middle, while the top was drawn out to a kind of beak, and in this ſtate they ſeem to partake more of the nature of the piſtil than the filaments: on cutting them through they appeared hollow, and contained ſome of the ſame corpuſcles which were obſervable on the outſides of many of them[o].

Native of ſome parts of Europe on rocks: it is common in moſt parts on the roofs of buildings, but there not properly indigenous, though inſerted in all the Floras. It flowers in july.

The juice, either applied by itſelf, or mixed with cream, gives preſent relief in burns, and other external inflammations. With honey, it is a uſeful application in the thruſh[p].

Boerhaave found ten ounces of the juice beneficial in dyſenteries, and others have found it uſeful in gonorrhœas[q]: but it is not admitted into our modern practice.

Linneus informs us, that Houſeleek is a preſervative to the coverings of houſes in Smoland. It may eaſily be made to cover the whole roof of a building, whether of tiles, thatch or wood, by ſticking the offſets on with a little earth or cow-dung[r].

It had ſeveral names in Engliſh formerly, as Sengreen and Aygreen, both tranſlations of *Sempervivum*; Jupiter's eye, Bullock's eye, and Jupiter's beard[s]. Withering gives it another name, *Cyphel*, which I never heard of.—In German it is *Hauſwurz*; in French, *la grande Joubarbe*; in Italian, *Sempervivo maggiore*.]

6. Leaves much narrower, and the heads furniſhed with a greater number of them than thoſe of the preceding ſpecies, which grow more compact, and are cloſely ſet on their edges with hairs. The offſets of this are globular, their leaves turning inward at the top, and lying cloſe over each other: theſe are thrown off from between the larger heads, and falling on the ground, take root, whereby it propagates very faſt. The flower-ſtalks of this are ſmaller, and do not riſe ſo high as thoſe of the former; and the flowers are of a paler colour.

According to Jacquin, the flowers have ſix petals, ſix ſtamens, and ſix piſtils. Haller ſays that the calyx is divided into twelve parts; that the corolla has twelve petals, which are united at the baſe, pale yellow, hairy, ciliate, long and ſlender; that the ſtamens are half the length of the petals; and that the capſules are ſmooth, and ſomewhat fewer in number than the petals.—Villars cannot diſtinguiſh the *globiferum* of Linneus from the *montanum* of the ſame author.

Native of Ruſſia, Auſtria, Germany, Switzerland. Cultivated in 1731, by Mr. Miller. It flowers in june and july.

7. Petals eight, yellow; ſtamens from twelve to ſixteen; piſtils eight. It is an annual plant, native of Madeira, where it was found by Maſſon, and introduced in 1777. It flowers in june[t].

8. This is a ſhrubby plant of low growth, producing numerous fleſhy leaves, growing thickly together. It throws up its flowering-ſtems, ſupporting numerous yellow flowers, like thoſe of *Stonecrop*, in july and auguſt[u]. Petals eight. Stamens ſixteen. Piſtils eight.

Native of the Canary Iſlands, where it was diſcovered by Maſſon, and introduced in 1779. It flowers in july and auguſt[x].

9. This whole plant is, as it were, a repreſentation in miniature of *Sempervivum arboreum*, but more lax and diffuſe. It is abundantly diſtinguiſhed from that ſpecies by its annual root, herbaceous pubeſcent ſtem, and ſpreading panicle. The flowers are yellow, and agree perfectly with the generic character of *Sempervivum*; not with that of *Sedum*.

If the ſynonym of Seguier be right, it is a native of Monte Baldo, where it was found on the rocks by Giovanni Battiſta Scarella. It has been long cultivated in the garden of the Company of Apothecaries at Cheliſea, and flowers there every year, but whence it was brought is not known.

It is extremely different from the *Sedum alſinæfolium* of Allioni; but may perhaps be the *Sempervivum alpinum Montis Baldi, foliis lenticulatis, floribus non punctatis*, of Mauritius Hoffman, mentioned by that author in his *Specimen pedemontanum*, *p.* 16[y].]

10. This has much ſhorter and narrower leaves than the common Houſeleek. The heads are ſmall and very compact. Leaves gray, ſharp-pointed, and have ſlender white threads croſſing from one to the other, interſecting each other in various manners, ſo as in ſome meaſure to reſemble a ſpider's web. Flower-ſtalks about ſix inches high, ſucculent and round, having awl-ſhaped ſucculent leaves placed on them alternately: the upper part divides into two or three branches, upon each of which is a ſingle row of flowers ranged on one ſide; each compoſed of eight lanceolate petals, of a bright red colour, with a deep-red line running along

[a] Hort. kew. [i] Idem. [m] Curtis and Smith. [n] Haller. [o] Hall. helv. and Curt. lond. [p] Withering. [q] Haller. [r] Curtis. [s] Gerarde. [t] Hort. kew. [u] Curtis. [x] Hort. kew. [y] Smith, in Linn. tranſ.

the middle: they ſpread open in form of a ſtar, and in the centre are the germs of an herbaceous colour, ſurrounded by ſixteen purple filaments, terminated by yellow anthers.

[Haller who regards this as very nearly allied to the *montanum*, attributes nine petals to the flowers.

Native of the mountains of Switzerland, Dauphiné and Italy. Cultivated in 1699 by the Dutcheſs of Beaufort. It flowers in june and july[a]; and is commonly known by the name of *Cobweb Sedum*, it is however clearly a *Sempervivum* in habit as well as fructification[b].

11. Root hard, round, perennial; from which there are many roſe-like tufts of leaves, as in the next ſpecies. Leaves finely hairy, eſpecially about the edges. Stem round, hairy, with long ſharp ſcales, thicker ſet towards the top; the upper part divided into ſeveral branches, bearing each two or three erect flowers, beſides a ſingle one ſeſſile in the diviſion of the branches. Petals fix, twice as long as the calyx, keeled, whitiſh, entire, of a very long elliptic form, fringed at the edge, with the end ſtill more deeply cut into fringes; the keel eſpecially is very finely hairy. Stamens twelve, with awl-ſhaped hairy filaments, and four-grooved anthers. Piſtils ſix, a little ſhorter than the petals[b].—Native of Germany, Sileſia, Piedmont.]

12. This greatly reſembles the fifth or common Houſeleek, but the leaves are ſmaller, and have no indentures on their edges. The offſets ſpread out from the ſide of the older heads, and their leaves are more open and expanded. Flower-ſtalk nine or ten inches high, having ſome narrow leaves below; the upper part is divided into three or four branches, cloſely ſet with deep-red flowers compoſed of twelve petals, and twenty-four ſtamens with purple anthers.

[Villars ſays the leaves are narrower and more pubeſcent beneath than in the common ſort, and a little clammy; the whole plant has leſs conſiſtence; the petals and filaments are roſe-coloured.

Gerard diſtinguiſhes between this and the *arachnoides*, that in the latter the tufts of leaves are contracted and furniſhed with long hairs; whereas in the former (our montanum) the tufts of leaves are expanded, and have no hairs.

Calyx twelve-cleft. Petals connected at bottom. Stamens twelve. Capſules twelve to ſixteen, membranaceous, diſpoſed in a wide ring, curved like an S, beaked. Seeds very numerous and minute, oblong, roundiſh, ſmooth, ruſeſcent, faſtened in ſeveral rows to the margin of the future[c].

Native of Germany, Sileſia, Auſtria, Switzerland, the South of France, and Italy. Cultivated in 1759, by Mr. Miller. It flowers in june and july[d].

13. All the ſtems are perpetually and conſtantly very ſtiff and ſtanding upright. Petals whitiſh[e].—Native of the South of Europe. Introduced in 1769, by Meſſrs. Kennedy and Lee. It flowers in july[f].

ß. Jacquin, in his miſcellanea, deſcribes a monſtrous variety of this, with the ſtem terminating in three racemes, two of which are bifid a little above the baſe; and beyond the flowers they are produced into leafy branches which attain three inches in length: ſome of the flowers have fourteen petals.

Linneus had ſuppoſed that this *Sempervivum* of Jacquin was the ſame with his *Sedum rupeſtre*: but Jacquin had cultivated them during twenty years cloſe together, and among others remarks three principal differences: 1. That in *Sedum rupeſtre* the leaves are gradually attenuated into a ſharp point, which is not the caſe in this *Sempervivum*. 2. That the petals in that Sedum are yellow; but in this whitiſh. 3. That all the ſtems, as before obſerved, from firſt to laſt, are perfectly ſtiff and upright; whereas in *Sedum rupeſtre* the upper part of the ſtem, until it is quite in flower, is very much incurved and nods[g].

Native of the South of Europe. Introduced in 1769, by Meſſrs. Kennedy and Lee. It flowers in july[h].

[a] Hort. kew. [b] Curtis. [c] Allioni. [d] Gærtner. [e] Hort. kew. [f] Jacquin. [g] Hort. kew. [h] Jacqu. miſc. [i] Hort. kew.

14. The number of the parts of fructification varies from five to eight[i].—In the ſpecimens which Mr. Curtis examined, rendered perhaps luxuriant by culture, the number of ſtamens were from twelve to ſixteen; of ſtyles, from ſix to eight; of flowers on the ſame ſtalk, from one to eight. The nectaries form a principal part of the fructification, and are uſually ſeven in number, but vary from ſix to eight[k].

Native of the Canary Iſlands: whence it was introduced by Maſſon in 1777. It flowers in july[l], and during moſt of the ſummer months[m].]

PROPAGATION AND CULTURE.

1. This is eaſily propagated by cutting off the branches, which, when planted, ſoon put out roots; theſe ſhould be laid in a dry place for a week before they are planted, that the bottom may be healed over, otherwiſe they are apt to rot, eſpecially if they have much wet. When the cuttings are planted in pots, they ſhould be placed in a ſhady ſituation, and muſt have but little wet, and if they are planted in a ſhady border, they will require no water, for the moiſture of the ground will be ſufficient for them. Some years paſt theſe plants were tenderly treated; their cuttings were put into a hot-bed to forward their putting out roots, and in winter the plants were kept in ſtoves, but later experience has taught us that they will thrive better with hardier treatment; for, if they are protected from froſt and wet in winter, and have a good ſhare of air in mild weather, they will thrive better, and flower oftener than when they are tenderly nurſed. I have frequently ſeen the branches of theſe plants, which have been accidentally broken off and fallen on the ground, put out roots as they have laid, and make good plants. The variety with ſtriped leaves is more tender and impatient of wet in winter.

2. This is propagated by ſeeds, which ſhould be ſown ſoon after it is ripe in pots filled with light ſandy earth, covering them over very lightly with the ſame earth. Theſe pots ſhould be placed under a common frame to keep out the froſt, but ſhould be expoſed to the open air at all times in mild weather; here the pots may remain till the ſpring, when the danger of hard froſts is over, and then they ſhould be removed to a ſituation where they may have only the morning ſun, and in dry weather the earth ſhould be watered gently. This will ſoon bring up the plants, which muſt be kept clean from weeds, and, when they are fit to remove, they ſhould be planted in pots filled with light loamy earth, and placed in the ſhade till they have taken new root; then they may be placed with other hardy ſucculent plants in a ſheltered ſituation for the ſummer, and if in winter they are placed in a frame where they may be protected from hard froſt, and enjoy the free air in mild weather, they will thrive better than with tender treatment.

5. 6. 9. 10. 11. 12. 13. Theſe ſorts are hardy, and increaſe faſt by offſets: they love a dry ſoil, and are proper to plant on rock-work, where they will thrive better than in the full ground: and when they are once fixed, will ſpread faſt enough, inſomuch that the larger ſorts require to be reduced annually, to keep them within proper compaſs. When any of the heads flower, they die ſoon after; but the offſets ſoon ſupply their place.—If the common ſort, (n. 5.) be planted in mud, ſtrong earth, or cow-dung, on a building or old wall, it will thrive without farther care.

[3. 4. 7. 8. 14. Require the protection of a dry ſtove or greenhouſe in winter. N. 8. is readily propagated by cuttings. N. 3. and 4. may be increaſed the ſame way. N. 7. is propagated by ſeeds: and n. 14. by parting the roots. This, and n. 3, 4. will ſucceed with the common treatment of a greenhouſe plant in the ſummer, but do beſt in a dry ſtove during the winter.

SENA. See *Caſſia*, *Colutea*, *Coronilla*, *Poinciana*.

SENDERA CLANDI. See *Evolvulus*.]

SENECIO (*of Pliny. From* Senex, *an old man; or* ſeneſcere, *to grow old; the flowers going off early, and producing their ſeeds crowned with a down, like grey hairs.*)

[k] Idem. [l] Curtis. [m] Hort. kew. [n] Curtis.

Lin.

Lin. gen. n. 953. *Reich. n.* 1033. *Schreb. n.* 1290. *Tournef. t.* 260. *Dill. elth. t.* 258. *Vaill. act. gall.* 1719. *Juſſ.* 181. *Gærtn. t.* 166. Jacobæa. *Tournef.*

Claſſ. 19. 2. Syngeneſia Polygamia Superflua.

Nat. order of *Compoſitæ Diſcoideæ. Corymbiferæ*, Juſſ.

GENERIC CHARACTER.

CAL. *Common* calycled, conical, truncate: *ſcales* awl-ſhaped, very many, parallel in a cylinder contracted above, contiguous, equal, ſewer covering the baſe imbricatewiſe, the tops mortified.

COR. *Compound*, higher than the calyx. *Corollets* hermaphrodite, tubular, numerous in the diſk. *Females* ligulate in the ray, if any preſent.

Proper in the hermaphrodites funnel-form: *border* reflex, five-cleft.

In the *females*, if any, oblong, obſcurely three-toothed.

STAM. in the hermaphrodites, *Filaments* five, capillary, very ſmall. *Anther* cylindric, tubular.

PIST. in both. *Germ* ovate. *Style* filiform, length of the ſtamens. *Stigmas* two, oblong, revolute.

PER. none. *Calyx* conical-converging.

SEEDS in the hermaphrodites ſolitary, ovate. *Pappus* capillary, long. In the *females* very like the hermaphrodites.

REC. naked, flat.

OBS. Senecio, Tournef. *wants the common ray of the corolla.*

Jacobæa, Tournef. *is furniſhed with the common ray of the corolla.*

ESSENTIAL CHARACTER.

Cal. cylindrical, calycled, with the ſcales mortified at the tip. *Down* ſimple. *Recept.* naked.

SPECIES.

* *With floſculous flowers.*

1. Senecio hieracifolius. *Hieracium-leaved Groundſel.*
Lin. ſpec. 1215. *Syſt.* 756. *Reich.* 3. 788. *hort. upſ.* 261. *cliff.* 406. *mant.* 469. *Herm. par. t.* 226. *Pluk. phyt. t.* 112. *f.* 1.
Corollas naked, leaves embracing lacerate, ſtem herbaceous erect.

[2. Senecio purpureus. *Purple Groundſel.*
Lin. ſpec. 1215. *Syſt.* 756. *Reich.* 3. 788. *Berg. cap.* 276. *Breyn. cent.* 139. *t.* 67.
Corollas naked, leaves lyrate rough-haired, the upper ones lanceolate toothed.

3. Senecio erubeſcens. *Bluſh-coloured Groundſel.*
Ait. kew. 3. 190.
Corollas naked, leaves lyrate, on both ſides hairy clammy, the upper ones oblong-lanceolate toothed, ſtems aſcending.

4. Senecio cernuus. *Drooping Groundſel.*
Lin. ſyſt. 756. *ſuppl.* 370.
S. rubens. *Jacqu. hort.* 3. 50. *t.* 98.
Corollas naked, leaves elliptic tooth-ſerrate ſomewhat hairy, peduncles elongated one-flowered.

5. Senecio perſicifolius. *Peach-leaved Groundſel.*
Lin. ſpec. 1215. *Reich.* 3. 789. *amoen.* 6. *afr.* 62.
Corollas naked, leaves lanceolate quite entire toothed at the baſe.

6. Senecio virgatus. *Twiggy Groundſel.*
Lin. ſpec. 1215. *Reich.* 3. 789. *amoen.* 6. *afr.* 63.
Corollas naked, leaves lyrate tomenteſe underneath, peduncles one-flowered, ſcales awl-ſhaped.

7. Senecio divaricatus. *Straddling Groundſel.*
Lin. ſpec. 1215. *Reich.* 3. 789. *Lour. cochinch.* 502. *ed. Willd.* 613.
Corollas naked, leaves lanceolate toothed rugged, flowering branchlets divaricating.]

8. Senecio Pſeudo-China. *Chineſe Groundſel.*
Lin. ſpec. 1216. *Reich.* 3. 789. *Dill. elth.* 345. *t.* 258. *f.* 335.
Corollas naked, ſcape almoſt naked very long.

[9. Senecio reclinatus. *Graſs-leaved Groundſel.*
Lin. ſyſt. 756. *ſuppl.* 369. *L'Herit. ſtirp. nov.* 9. *t.* 5. *Ait. kew.* 3. 189.
S. Cleryſocoma. *Meerb. ic.* 39.
S. graminifolius. *Jacqu. icon. rar.* 3. *t.* 66. & *miſc.* 2. 322.
Corollas naked, calyxes ventricoſe, ſubimbricate, leaves linear-lanceolate quite entire ſmooth.

10. Senecio vulgaris. *Common Groundſel.*
Lin. ſpec. 1216. *Syſt.* 756. *Reich.* 3. 789. *fl. ſuec. n.* 747. *lapp. n.* 296. *hort. cliff.* 406. *Gærtn. fruct.* 2. 401. *Hudſ. angl.* 365. *Wither. arr. ed.* 3. 721. *Hull*, 186. *Smith brit.* 881. *engl. bot.* 747. *Curt. lond.* 1. *t.* 61. *Lightf. ſcot.* 478. *Relh. cant. n.* 610. *Sibth. oxon. n.* 701. *Abbot bedf. n.* 596. *Fl. dan. t.* 513. *Hall. helv. n.* 58. *Pollich pal. n.* 793. *Scop. carn. n.* 1063. *Neck. gallob.* 353. *Krock. ſilef. n.* 1390. *Villars dauph.* 3. 226. *Allion. pedem. n.* 723. *Gmel. ſib.* 3. 135. *n.* 117. *Blackw. t.* 132. *Knorr. del.* 2. *t.* S. 5. *Kniph. cent.* 6. *n.* 84. *Berg. phyt.* 2. 43. *Park. theat.* 671. *Raii hiſt.* 290. *ſyn.* 178. *Petiv. brit. t.* 17. *f.* 5.
Senecio. *Matth.* 1132. *valgr.* 2. 476. *Fuchſ. hiſt.* 276.
S. minor vulgaris. *Bauh. pin.* 131. *Mor. hiſt. ſ.* 7. *t.* 17. *f.* 1.
S. vulg. ſ. Erigeron. *Bauh. hiſt.* 2. 1041.
S. Erigeron. *Tabern.* 168.
Erigerum. *Ger.* 217. 1. *emac.* 278. 1.—minus. *Dod. pempt.* 641. *f.* 2.
Verbena fœmina. *Bruns. herb.* 1. 120.
Corollas naked, leaves pinnatifid ſinuate embracing, flowers ſcattered.

11. Senecio biflorus. *Two-flowered Groundſel.*
Vahl ſymb. 1. 72.
S. linifolius. *Forſk. arab.* 119. *n.* 502.
Corollas naked, leaves linear flat ſomewhat toothed even, peduncles ſubbiflorous, ſtem ſhrubby.

12. Senecio arabicus. *Arabian Groundſel.*
Lin. ſyſt. 756. *Reich.* 3. 790. *mant.* 114. *Vahl ſymb.* 1. 72.
Corollas naked, leaves ſubbipinnate petioled even.

13. Senecio peucedanifolius.
Lin. ſyſt. 756. *ſuppl.* 372.
Corollas naked, leaves pinnate filiform.

14. Senecio japonicus. *Jagged-leaved Groundſel.*
Lin. ſyſt. 756. *Thunb. jap.* 315.
Corollas naked, leaves pinnatifid: ſegments lanceolate acute gaſhed, ſtipules leafy ſubpalmate.

** *Flowers radiate: ray revolute.*

15. Senecio triflorus. *Three-flowered Groundſel.*
Lin. ſpec. 1216. *Reich.* 3. 790. *hort. upſ.* 261. *Willich obſ. n.* 130. *Kniph. cent.* 1. *n.* 80.
Jacobæa ægyptiaca, ſenecionis folio ſemifloſculis vix conſpicuis. *Vaill. act.* 1720. *p.* 298.
Corollas revolute, leaves ſeſſile ſinuate, calyxes conical, ſcales very ſmall untouched.

16. Senecio ægyptius. *Egyptian Groundſel.*
Lin. ſpec. 1216. *Syſt.* 756. *Reich.* 3. 790. *hort. upſ.* 261. *mant.* 517.
Jacobæa ægyptiaca, ſenecionis folio, flore minore. *Vaill. act.* 1720. *p.* 298.
Corollas revolute, leaves embracing ſinuate, ſcales of the calyx ſhorter entire mortified.

17. Senecio cinerafcens. *Gray Groundſel.*
Ait. kew. 3. 191.
Corollas revolute, leaves pinnatifid tomenteſe rolled back at the edge, panicle patulous, outer ſcales of the calyx ſpreading.

18. Senecio lividus. *Livid Groundſel.*
Lin. ſpec. 1216. *Reich.* 3. 791. *hort. upſ.* 261. *Kniph. cent.* 10. *n.* 79.
Corollas revolute, leaves embracing lanceolate toothed, ſcales of the calyx very ſhort untouched.

19. Senecio trilobus. *Three-lobed Groundſel.*
Lin. ſpec. 1217. *Reich.* 3. 791. *hort. upſ.* 261.
Jacobæa hiſpanica minus laciniata, petalis breviſſimis. *Vaill. par.* 21.
Corollas revolute, leaves embracing, ſcales of the calyx mortified lacerated.

20. Senecio viſcoſus. *Stinking Groundſel.*
Lin. ſpec. 1217. *Reich.* 3. 791. *fl. ſuec. n.* 749. *Hudſ. angl.* 365. *a. Wither. arr. ed.* 2. 722. *Smith brit.* 882. *engl. bot. t.* 32. *Hull*, 186. *Lightf. ſcot.* 479. *Relh. cant. n.* 611. *Sibth. oxon. n.* 702. *Hall. helv. n.* 60. *Pollich pal. n.* 794. *Neck. gallob.* 353. *Krock. ſilef. n.* 1392. *Villars dauph.* 3. 230. *Allion. pedem. n.* 724.

S. hirſutus.

S. hirſutus viſcidus major odoratus. *Baub. hiſt.* 2. 1042. *Raii hiſt.* 290. *ſyn.* 178.
S. incanus pinguis. *Baub. pin.* 131.
S. tenuifolius. *Park. theat.* 671.
S. hirſutus viſcidus graveolens. *Dill. elth.* 347. *t.* 258. *f.* 336.
Erigeron tomentoſum. *Ger.* 217. *emac.* 278.
Corollas revolute, calycles looſe nearly equal to the perianth, leaves pinnatifid viſcid, ſtem very much branched patulous.
21. Senecio ſylvaticus. *Mountain Groundſel.*
Lin. ſpec. 1217. *ſyſt.* 757. *Reich.* 3. 792. *fl. ſuec. n.* 748. *Wither. arr. ed.* 3. 722. *Smith brit.* 883. *engl. bot. t.* 748. *Lightf. ſcot.* 480. *Hull*, 186. *Sibth. oxon. n.* 703. *Abbot bedf. n.* 597. *Fl. dan. t.* 869. *Hall. helv. n.* 59. *Pollich pal. n.* 795. *Neck. gallob.* 354. *Krock. ſilef. n.* 1391. *Villars dauph.* 3. 229. *Allion. pedem. n.* 725. *Gouan illuſtr.* 67.
S. viſcoſus β. *Hudſ. angl.* 365.
S. minor latiore folio i. montanus. *Baub. pin.* 131. *Raii ſyn.* 178. *Dill. elth.* 347. *t.* 258. *f.* 337. *Petiv. brit. t.* 17. *f.* 6.
S. viſcidus major & odoratus foliis Jacobææ. *Mor. hiſt. ſ.* 7. *t.* 17. *f.* 2.
Senecium montanum. *Tabern.* 169.
Jacobæa Senecionis folio incano perennis. *Rupp. jen. ed. Hall.* 177. *t.* 3.
Erigerum. *Ger.* 217. 1. *emac.* 278. 2.—majus. *Dod. pempt.* 641. 1.
Corollas revolute, calycle very ſhort, leaves pinnatifid lobed toothletted, ſtem erect ſtrict corymbed.
22. Senecio nebrodenſis.
Lin. ſpec. 1217. *Reich.* 3. 792.
Jacobæa montana, ſenecionis pallido parvo flore. *Barr. rar.* 1081. *t.* 401.
J. nebrodenſis altera, oblongo folio latiori minus incano lacerato. *Raii ſuppl.* 179.
Corollas revolute, leaves lyrate ſinuate obtuſe petioled, ſtem birſute.
23. Senecio glaucus. *Sea-green Groundſel.*
Lin. ſpec. 1217. *Reich.* 3. 792.
J. ægyptia annua, Coronopi folio glauco. *Vaill. act. par.* 1720. *p.* 297. *Boerh. lugdb.* 1. 99.
Corollas revolute, leaves embracing lanceolate obtuſe toothed quite entire.
24. Senecio varicoſus. *Varicoſe Groundſel*
Lin. ſpec. 1218. *Reich.* 3. 793. *Linn. ſpec.* 9. *t.* 5.
Corollas revolute, leaves ovate petioled toothed, with little varicoſe dots.
25. Senecio humilis. *Dwarf Groundſel.*
Deſfont. atlant. 271. *t.* 233.
Corollas revolute, leaves ſubſpatulate obtuſe doubly-toothed, ſtem procumbent.
26. Senecio leucanthemifolius.
Deſfont. atlant. 271. *Poiret. itin.* 2. 238.
Corollas revolute, leaves elliptic-ſpatulate ſmooth gaſh-toothed, corymb few-flowered.]

*** *Flowers radiate, ray ſpreading, leaves pinnatifid.*

27. Senecio haſtatus. *Spleenwort-leaved Groundſel.*
Lin. ſpec. 1218. *Reich.* 3. 793.
Jacobæa afra perennis viſcoſa lutea, aſplenii foliis. *Vaill. act.* 1720. *p.* 298. *Dill. elth.* 183. *t.* 152. *f.* 184.
Corollas radiant, petioles embracing, peduncles three times as long as the leaf, leaves pinnate-ſinuate.
[28. Senecio pubigerus.
Lin. ſpec. 1218. *Reich.* 3. 793. *amoen. 6. afr.* 65.
Jacobæa ſpicata monomotapenſis. *Breyn. cent. t.* 65. *Mor. hiſt.* 3. *ſ.* 7. *t.* 18. *f.* 32.
Corollas radiant, radical petioles woolly, leaves runcinate, ſtems quite ſimple, lateral flowers ſeſſile.
29. Senecio venuſtus. *Wing-leaved Groundſel.*
Ait. kew. 3. 192.
Corollas radiant, ſtem calyx and leaves ſmooth, leaves pinnatifid, ſegments linear acute toothed.]
30. Senecio elegans. *Elegant Groundſel* or *Purple Jacobæa.*
Lin. ſpec. 1218. *ſyſt.* 757. *hort. cliff.* 406. *upſ.* 260. *Kniph. cent.* 7. *n.* 85. *Curt. magaz. t.* 238.
After africanus annuus, ſenecionis foliis. *Comm. hort.* 2. 59. *t.* 30.
Jacobæa capenſis flore purpureo, ſenecioni folio dentato. *Seb. muſ.* 1. 33. *t.* 22. *f.* 1.
β. J. afr. ſtrutefcens, flore amplo purpureo elegantiſſimo, ſenecionis folio. *Volk. norib. t.* 225.
Corollas radiant, leaves hairy viſcid pinnatifid equal ſpreading very much, rachis narrowed below, calyxes rough-haired.
[31. Senecio ſqualidus. *Inelegant Ragwort.*
Lin. ſpec. 1218. *Reich.* 3. 794. *hort. upſ.* 260. *Smith brit.* 883. *engl. bot. t.* 600. *Krock. ſilef. n.* 1393. *t.* 39.
Corollas radiant ſpreading, florets elliptic quite entire, leaves pinnatifid, ſegments ſublinear diſtant.
32. Senecio erucifolius. *Rocket-leaved Groundſel.*
Lin. ſpec. 1218. *ſyſt.* 757. *Reich.* 3. 794. *fl. ſuec. n.* 750. *Willich obſ. n.* 131. *Pollich pal. n.* 796. *Krock. ſilef. n.* 1394.
S. ſcanorenſis. *Lin. it. ſcan.* 225.
S. Jacobæa ſelandica incana. *Lob. illuſtr.* 76.
Jacobæa incana altera. *Baub. pin.* 131.
J. artemiſiæ folio, radice repente. *Vaill. act.* 566.
J. altiſſima, foliis crucæ artemiſiæve ſimilibus & æmulis. *Rupp. jen.* 164.
J. incana repens. *Barr. rar.* 1075. *t.* 153.
Corollas radiant, leaves pinnatifid toothed ſomewhat rough-haired, ſtem erect.
33. Senecio tenuifolius. *Hoary Groundſel* or *Ragwort.*
Lin. ſyſt. 758. *Jacqu. auſtr. t.* 278. *Wither. arr. ed.* 3. 723. *Smith brit.* 884. *engl. bot. t.* 574. *Sym. ſyn.* 181. *Hull*, 187. *Sibth. oxon. n.* 704.
S. erucifolius. *Hudſ. angl.* 366. *Relh. cant. n.* 614. *Abbot bedf. n.* 598. *Curt. lond. 5. t.* 64. 294.
Jacobæa Senecionis folio incano perennis. *Raii hiſt.* 285. *ſyn.* 177. *Petiv. brit. t.* 17. *f.* 3.
Corollas radiant ſpreading, leaves pinnatifid ſubrevolute, beneath paler and pubeſcent, ſtem erect villoſe.]
34. Senecio incanus. *Downy Groundſel.*
Lin. ſpec. 1219. *ſyſt.* 757. *Reich.* 3. 794. *Hall. helv. n.* 61. *Scop. carn. n.* 1071. *Krock. ſilef. n.* 1395. *Villars dauph.* 3. 231. *Allion. pedem. n.* 726. *Gouan hort.* 440. *illuſtr.* 67.
Jacobæa pumila, &c. *Pluk. phyt. t.* 39. *f.* 6.
J. alpina incana minor. *Barr. ic.* 262. *Becc. muſ.* 2. 20. *t.* 8.
Chryſanthemum alpinum incanum, foliis laciniatis. *Baub. pin.* 134.
C. alpinum 1. *Cluſ. hiſt.* 1. 333.
Abſinthium alpinum umbelliferum tenuifolium & minus. *Baub. pin.* 140.
Corollas radiant, leaves tomentoſe on both ſides ſubpinnate obtuſe, corymb roundiſh.
35. Senecio abrotanifolius. *Southernwood-leaved Groundſel.*
Lin. ſpec. 1219. *ſyſt.* 757. *Reich.* 3. 795. *Scop. carn. n.* 1073. *Jacqu. vind.* 288. *auſtr.* 1. 50. *t.* 79. *Gouan hort.* 440. *Guett. ſtamp.* 360. *Allion. pedem. n.* 729.
Solidago *n.* 71. *Hall. helv.*
Achillea montana Artemiſiæ tenuifoliæ facie. *Lob. adv.* 333. *ic.* 746. *Hall.*
Ageratum ferulaceum. *Munt. ic.* 87. *Baub. hiſt.* 3. 152. *Hall. Raii hiſt.* 286. 7.
Chryſanthemum alpinum, foliis abrotani multifidis. *Baub. pin.* 134.
C. alp. 2. *Cluſ. hiſt.* 1. 333. *t.* 334.
Corollas radiant, leaves pinnate-multifid linear naked acute, peduncles ſubbiflorous.
[36. Senecio canadenſis. *Canadian Groundſel.*
Lin. ſpec. 1219. *ſyſt.* 758. *Reich.* 3. 795.
Jacobæa chærophylli foliis mariana. *Pluk. mant.* 107.
Corollas radiant, all the leaves bipinnate linear, peduncles corymbed.
37. Senecio diffuſus. *Spreading Groundſel.*
Lin. ſyſt. 758. *ſuppl.* 371.
Corollas radiant, leaves bipinnate linear, ſtems diffuſed.
38. Senecio delphinifolius. *Larkſpur-leaved Groundſel.*
Vahl ſymb. 2. 91. *t.* 45. *Deſfont. atlant.* 272.
Jacobæa Adonidis foliis, floribus in umbellam diſpoſitis. *Shaw afr. n.* 347.
J. multifida umbellata annua. *Becc. ſic.* 94. *t.* 51.
Corollas radiant ſpreading, leaves pinnate-multifid, leaflets linear revolute villoſe beneath, ſtem ſomewhat woolly.

39. Senecio auriculatus. *Earletted Groundſel.*
Desfont. atlant. 272.
Corollas radiant with the corollets in the ray ſcarcely viſible, leaves pinnatifid embracing, pinnules obtuſe toothed ſomewhat remote.

40. Senecio giganteus. *Giant Groundſel.*
Desfont. atlant. 273. *t.* 234.
Corollas radiant revolute, flowers in corymbs, leaves pinnatifid-lobed unequally toothed, terminating lobe very large.

41. Senecio coronopifolius. *Buck's-horn-Plantain-leaved Groundſel.*
Desfont. atlant. 273.
Corollas radiant revolute, peduncles elongated one-flowered, leaves half-round ſomewhat fleſhy embracing, pinnules linear-ſubulate unequal.

42. Senecio Jacobæa. *Ragwort Groundſel* or *Common Ragwort.*
Lin. ſpec. 1219. *Reich.* 3. 796. *hort. cliff.* 406. *fl. ſuec. n.* 751. *Hudſ. angl.* 365. *Wither. arr. ed.* 3. 724. *Smith brit.* 885. *Hull*, 187. *Relh. cant. n.* 612. *Sibth. oxon. n.* 705. *Abbot beſſ. n.* 599. *Hall. helv. n.* 62. *Scop. carn. n.* 1072. *Neck. gallob.* 354. *Pollich pal. n.* 797. *Krock. ſilеſ. n.* 1396. *Villars dauph.* 3. 226. *Allion. pedem. n.* 730. *Knipb. cent.* 6. *n.* 83. *Knorr. del.* 1. *t.* 1. *Regnault bot. Fl. ruſſ. t.* 85.
S. major, ſ. Flos Sanctі Jacobi. *Matth.* 1133. *Valgr.* 2. 477.
Sanctі Jacobi herba. *Fuchſ. biſt.* 742. *Bruinf. herb.* 2. 56.
Jacobæa. *Dod. pempt.* 642. *Ger.* 318. 1. *emac.* 280. 1.
J. vulgaris. *Cluſ. biſt.* 2. 22. 1. *Baub. biſt.* 2. 1057. 1. *Raii biſt.* 284. *ſyn.* 177. *Petiv. brit. t.* 17. *f.* 1.
J. vulg. laciniata. *Bauh. pin.* 131. *Mor. biſt. ſ.* 7. *t.* 18. *f.* 1. *Tournef. inſt.* 485.
J. vulg. major. *Park. theat.* 668. 1.
β. J. vulgaris flore nudo. *Raii ſyn.* 177. *Mor. biſt.* 3. 108. *Pollich.*
J. vulg. laciniata, flore diſcoide. *Vaill. act.* 1720. *p.* 383.
Senecio Jacobææ folio. *Mor. præl.* 309.
Corollas radiant ſpreading, leaves lyrate-bipinnatifid divaricate toothed ſmooth, ſtem erect.

43. Senecio aquaticus. *Marſh Groundſel* or *Ragwort.*
Hudſ. angl. 366. *Wither. arr. ed.* 3. 725. *Smith brit.* 885. *Hull*, 187. *Relh. cant. n.* 613. *Sibth. oxon. n.* 706. *Abbot beſſ. n.* 600. *Fl. dan. t.* 784.
Jacobæa latifolia. *Bauh. biſt.* 2. 1057. 3.
Marſh Ragwort. *Petiv. brit. t.* 17. *f.* 2.
Corollas radiant ſpreading, florets elliptic, leaves lyrate ſerrate, the lower ones obovate entire, ſeeds ſmooth.]

44. Senecio aureus. *Golden Groundſel.*
Lin. ſpec. 1220. *Reich.* 3. 796. *Gron. virg.* 126.
Jacobæa virginiana, &c. *Mor. biſt.* 3. 110. *Raii ſuppl.* 180.
Corollas radiant, leaves crenate, the lower cordate petioled, the upper pinnatifid lyrate.

[45. Senecio lyratus. *Lyrate-leaved Groundſel.*
Lin. ſyſt. 758. *ſuppl.* 369.
Corollas radiant, lower leaves lyrate toothed, upper ſerrate embracing, lobes muricate at the edge.

46. Senecio auritus. *Eared Groundſel.*
S. auriculatus. *Vahl ſymb.* 1. 72. *t.* 18.
S. lyratus. *Forſk. deſcr.* 148.
Corollas radiant, leaves lanceolate lyrate-pinnate toothed naked, petioles eared.

47. Senecio alpinus. *Alpine Groundſel.*
Lin. ſyſt. 758. *ſuppl.* 371. *Hall helv. n.* 67, 68.
Cineraria alpina. *Lin. ſyſt. ed.* 13. 636.
Corollas radiant, leaves cordate lyrate groſsly ſerrate, petioles eared.

48. Senecio umbellatus. *Umbelled Groundſel.*
Lin. ſpec. 1220. *ſyſt.* 758. *Reich.* 3. 796. *mant.* 470. *amoen.* 6. *afr.* 64.
S. filifolius. *Berg. cap.* 278.
Corollas radiant linear, leaves pinnate-toothletted, ſegments diſtant.

**** *Flowers radiate, ray ſpreading, leaves undivided.*

49. Senecio lanceus. *Spear-leaved Groundſel.*
Ait. kew. 3. 194.
Corollas radiant, leaves lanceolate cordate acute, ſtem embracing even finely ſerrate, ſtem ſtrutiſcent.

50. Senecio linifolius. *Flax-leaved Groundſel.*
Lin. ſpec. 1220. *Reich.* 3. 797. *Allion. pedem. n.* 731. *Forſk. ægypt.* 5. 150. *Pallas it.* 1. 372. *Lin. hort. cliff.* 410. (Solidago.)
Linariæ aureæ affinis. *Bauh. pin.* 213. *prodr.* 107.
Jacobæa linifolia hiſpanica & italica. *Becc. muſ.* 2. 60. *t.* 49. *Barr. rar.* 97. *t.* 802.
Corollas radiant, leaves linear quite entire, corymb ſomewhat ſcaly, ſtem herbaceous.

51. Senecio roſmarinifolius. *Roſemary-leaved Groundſel.*
Lin. ſyſt. 758. *ſuppl.* 369.
Corollas radiant, leaves linear revolute at the edge, ſtem ſhrubby.]

52. Senecio paluſtris. *Marſh Groundſel* or *Bird's tongue.*
Lin. ſpec. 1220. *ſyſt.* 758. *Reich.* 3. 797. *fl. ſuec. n.* 752. *Hudſ. angl.* 366. *Wither. arr. ed.* 3. 725. *Smith brit.* 886. *engl. bot. t.* 650. *Hull*, 187. *Relh. cant. n.* 615. *Fl. dan. t.* 385. *Hall. helv. n.* 66. *Pollich pal. n.* 798. *Neck. gallob.* 353. *Krock. ſilеſ. n.* 1398. *Villars dauph.* 3. 232. *Allion. pedem. n.* 732.
Jacobæa foliis longis integris & mucronatis. *Mor. biſt.* 3. 110. *ſ.* 7. *t.* 19. *f.* 22.
Conyza paluſtris ſerratifolia. *Bauh. pin.* 266. *Ger.* 347. *emac.* 483. 6.
C. paluſtris. *Park. theat.* 1232.
Conſolida paluſtris. *Tabern. ic.* 555.
Lingua major. *Dalech. biſt.* 1037.
Virgæ aureæ, ſ. Solidaginі anguſtifoliæ affinis, Lingua avis Dalechampii. *Baub. biſt.* 2. 1063. 3. *Raii biſt.* 280. *ſyn.* 176. *Petiv. brit. t.* 16. *f.* 8.
Corollas radiant ſpreading, flowers corymbed, leaves enſiform acutely ſerrate ſubvilloſe beneath, ſtem ſtrict.

[53. Senecio nemorenſis. *Branching Groundſel.*
Lin. ſpec. 1221. *ſyſt.* 758. *Reich.* 3. 798. *Hall. helv. n.* 64. *Pollich pal. n.* 799. *Jacqu. obſ.* 3. 15. *t.* 65, 66. *& auſtr.* 2. 50. *t.* 184. *Krock. ſilеſ. n.* 1399. *Allion. pedem. n.* 733. *Gouan hort.* 441.
Virgaurea ſ. Solidago ſaracenica latifolia ſerrata. *Baub. biſt.* 2. 1063. *Pluk. phyt. t.* 235. *f.* 1.
Jacobæa nemorenſis, latiore rigidiore & hirſuto folio. *Rupp. jen.* 142.
Corollas radiant eight-fold, leaves lanceolate biſerrate villoſe underneath, ſtem branched.]

54. Senecio ſaracenicus. *Broad-leaved Groundſel.*
Lin. ſpec. 1221. *ſyſt.* 758. *Reich.* 3. 798. *hort. upſ.* 266. *vir. cliff.* 84. *hort. cliff.* 410. (Solidago.) *Hudſ. angl.* 367. *Wither. arr. ed.* 3. 726. *Smith brit.* 887. *Hull*, 187. *Hall. helv. n.* 65. *Scop. carn. n.* 1070. *Pollich pal. n.* 800. *Jacqu. auſtr.* 2. 52. *t.* 186. *Krock. ſilеſ. n.* 1400. *Villars dauph.* 2. 233. *Allion. pedem. n.* 734. *Gouan hort.* 441. *Murr. prodr.* 71. *Knipb. cent.* 4. *n.* 78.
Solidago ſaracenica. *Fuchſ. biſt.* 728. *Trag. biſt.* 487. *Lob. ic.* 1. 299. 2. *Dod. pempt.* 141. 1. *Raii biſt.* 279.
Virga aurea anguſtifolia ſerrata. *Baub. pin.* 268.— ſ. Solidago ſaracenica. *Baub. biſt.* 2. 1063. 2.
V. maxima radice repente. *Raii ſyn.* 177.
Corollas radiant ſpreading, flowers corymbed, leaves lanceolate ſerrate ſmoothiſh.

55. Senecio coriaceus. *Thick-leaved Groundſel.*
Ait. kew. 3. 195.
S. orientalis. *Mill. dict. n.* 10.
Doria, quæ Jacobæa orientalis Limonii folio. *Tournef. cor.* 36. *Dill. elth.* 125. *t.* 105. *f.* 125.
Corollas radiant, ſcales of the calyx preſſed cloſe, leaves ſubdecurrent ſomewhat villoſe underneath lanceolate ſerrate.

[56. Senecio ſibiricus. *Siberian Groundſel.*
Lin. ſyſt. 758. *ſuppl.* 370.
Corollas radiant five-rayed, leaves elliptic ovate.

57. Senecio Doria. *Broad-leaved Groundſel.*
Lin. ſpec. 1221. *ſyſt.* 758. *Reich.* 3. 799. *Jacqu. auſtr.* 2. 51. *t.* 185. *Pallas it.* 1. 200. *Krock. ſilеſ.*

filef. n. 1401. *Villars dauph.* 3. 232. *Allion. pedem. n.* 735. *Knipb. cent.* 10. *n.* 78.
Solidago. *Lin. hort. cliff.* 410.
Virga aurea major f. Doria. *Bauh. pin.* 268.
Alsina monspeliensium f. Doria. *Bauh. hist.* 2. 1064.
Corollas radiant, flowers corymbed, leaves subdecurrent naked lanceolate toothletted, the upper ones gradually smaller.

58 Senecio Doronicum.
Lin spec. 1222. *fyst.* 759. *Reich.* 3. 799. *Hall. helv. n.* 67. *Scop. carn. n.* 1067. *Jacqu. austr.* 5. 53. *t. app.* 45. *Gouan hort.* 441. *Ger. prov.* 196. *t.* 7. *Villars dauph.* 3. 233. *Allion. pedem. n.* 736.
Solidago Doronicum. *Lin. spec. ed.* 1. 880.
Doronicum longifolium hirsutie asperum. *Bauh. pin.* 185.
D. 2. austriacum 1. *Clus. hist.* 2. 17.
β. D. foliis oblongo-lanceolatis serratis. *Monnier obs.* 152.
D. integro & crasso hieracii folio. *Magn. monsp.* 295. *Segu. ver. suppl.* 278.
γ. D. fol. lanceolatis denticulatis fubtus tomentosis caule unifloro. *Roy. lugdb.* 160.
D. helveticum humile crassis foliis & incanum. *Bauh. pin.* 185. *prodr.* 97.
δ. Tussilago alpina, folio oblongo. *Bauh. pin.* 197. *prodr.* 101.
ε. Virga aurea montana serrata, magno flore. *Bauh. pin.* 268.
Corollas radiant, stem undivided one or two-flowered, leaves undivided serrate, root-leaves ovate villose underneath.

59. Senecio longifolius. *Long-leaved Groundsel.*
Lin. spec. 1222. *fyst.* 759. *Reich.* 3. 800. *mant.* 470. *Berg. cap.* 279.
Jacobæa africana, folio capillaceo viridi. *Herm. afr.* 14.
J. afr. fruticans, oblongis foliis anguftis integris incanis. *Volk. norib.* 224.
J. afr. frut. lavendulæ folio latiore & anguftiore. *Comm. hort.* 2. 141. *t.* 71.
J. æthiopica lavend. folio. *Breyn. cent. t.* 63.
J. æthiop. anguftiffimis & prælongis foliis rarius crenatis. *Pluk. mant.* 107. *t.* 421 *f.* 5.
Corollas radiant, leaves linear scattered, stem shrubby.

60. Senecio cruciatus. *Cross-leaved Groundsel.*
Lin. fyst. 759. *suppl.* 371.
Corollas radiant, leaves linear tomentose underneath, the lower cruciate, the upper entire.

61. Senecio juniperinus. *Juniper Groundsel.*
Lin. fyst. 759. *suppl.* 371.
Corollas radiant, stem shrubby, leaves awl-shaped.

62. Senecio byzantinus.
Lin. spec. 1223. *fyst.* 759. *Reich.* 3. 800.
Jacobæa Ifatidis folio. *Hort. cathol. Raii suppl.* 177. *n.* 46. & *n.* (58.) 179. & J. ficula. *n.* 49. *p.* 178?
Hieracium montanum Conyzæ f. Dentariæ folio. *Bocc. fic.*
Corollas radiant, leaves oblong remotely toothed, spiny-toothletted naked above, stem herbaceous.

63. Senecio hadiensis.
Vahl symb. 1. 73. *Forsk. descr.* 149. *ic. t.* 19.
Corollas radiant five-rayed, leaves elliptic petioled quite entire and toothletted, stem shrubby.]

64. Senecio halimifolius. *Succulent-leaved Groundsel.*
Lin. spec. 1223. *Reich.* 3. 801. *hort. cliff.* 411. (Solidago.) *Dill. elth.* 124. *t.* 104. *f.* 124. (Doria.)
Corollas radiant, leaves obovate fleshy toothed, stem shrubby.

65. Senecio ilicifolius. *Ilex-leaved Groundsel.*
Lin. spec. 1223. *fyst.* 759. *Reich.* 3. 801. *vir. cliff.* 84. *hort. cliff.* 406. *Berg. cap.* 281. *Comm. rar. t.* 42. *Seba mus.* 1. *t.* 22. *f.* 4.
Corollas radiant, leaves sagittate embracing toothed, stem herbaceous.

[66. Senecio asper. *Rough-leaved Groundsel.*
Ait. kew. 3. 196.
Corollas radiant, leaves lanceolate-linear toothed rigid, calyxes somewhat lanuginous.]

67 Senecio rigidus. *Hard-leaved Groundsel.*
Lin. spec. 1224. *fyst.* 759. *Reich.* 3. 802. *hort. cliff.* 406. *Comm. hort.* 2. 149. *t.* 75. *Seba mus.* 1. *t.* 22. *f.* 5.
Corollas radiant, leaves embracing spatulate repand erose rugged, stem shrubby.

[68. Senecio populifolius. *Poplar-leaved Groundsel.*
Lin. spec. 1224. *Reich.* 3. 802.
S. solidaginoides. *Berg. cap.* 279?
Jacobæa africana, populi albæ foliis. *Raii suppl.* 177.
Corollas radiant, leaves ovate spatulate entire blunt, the more adult smooth above, stem shrubby.

69. Senecio angulatus. *Angular-leaved Groundsel.*
Lin. fyst. 759. *suppl.* 369.
Corollas radiant, leaves petioled ovate tooth-angular smooth.

70. Senecio maritimus. *Sea Groundsel.*
Lin. fyst. 760. *suppl.* 369.
Corollas radiant, leaves embracing ovate toothletted fleshy, stem herbaceous procumbent.

71. Senecio erosus.
Lin. fyst. 760. *suppl.* 370.
Corollas radiant, leaves radical petioled oblong sinuate serrate villose, stem one-flowered almost naked.

72. Senecio marginatus.
Lin. fyst. 760. *suppl.* 370.
Corollas radiant, leaves embracing lanceolate smooth subarticulate margined, corymb compound.

73. Senecio lanatus.
Lin. fyst. 760. *suppl.* 370.
Corollas radiant, leaves sessile woolly on both sides, toothed, the lowest ovate, the upper lanceolate.

74. Senecio cordifolius.
Lin. fyst. 760. *suppl.* 372.
Corollas radiant, leaves cordate toothed, calyxes quite simple.

75. Senecio glastifolius.
Lin. fyst. 760. *suppl.* 372.
Corollas radiant, leaves embracing lanceolate somewhat toothed even.]

DESCRIPTIONS, *&c.*

1. This is an annual plant, with a round, channelled, hairy ſtalk, riſing three feet high. Flowers in a ſort of terminating umbel, compoſed of dirty-white florets.

[Stem a foot and half high, thick, rigid, leſs panicled than the reſt. Stem-leaves lanceolate, ſubterrate, nodding; branch-leaves quite entire. Calyx imbricate with erect leaflets, the length of the ray. Diſk of the corolla ovate, with ſmall pale florets, and a yellow ſtyle. Ray poor, white and very ſhort[a].

Native of North America. Cultivated by Mr. Miller in 1752. It flowers in auguſt.

2. Native of the Cape of Good Hope. Perennial.

3. This alſo is a native of the Cape, where it was found by Maſſon, and introduced with the preceding, in 1774. It is annual, and flowers from june to octobe[b].

4. Stem a foot high, upright, herbaceous. Leaves alternate, petioled, veined, rugged, eroſe, and as it were ſtipuled, with two angular earlets. Peduncles from the upper part of the ſtem, long, before the flower opens drooping and as it were pendulous. Flowers violet-coloured, upright after flowering. Calyx cylindrical, ſwelling at the baſe, girt with awl-ſhaped leaflets.

Native of Madagaſcar[c]:—of the Eaſt Indies. Introduced in 1780, by Monſ. Thouin. It flowers in july and auguſt; and is annual[d].

5. Stem ſimple, a little villoſe. Leaves ſeſſile, acuminate, tomentoſe underneath. Flowers in terminating corymbs. Calyx calycled.

6. This is ſuffrutеſcent, with tomentoſe branches. Leaves petioled. Peduncles terminating, even, ſtraight, long, having awl-ſhaped leaflets (or ſcales) ſcattered over them. Both are natives of the Cape of Good Hope[e].

7. Stem erect, angular, narrow, a foot and half high. Leaves alternate, remote, petioled, ſerrate-toothed, to-

[a] Linn. mant. [b] Hort. kew. [c] Linn. ſuppl. [d] Hort. kew. [e] Linn. amoen.

mentoſe-rugged. Rudiments only of branches from the axils of the leaves. From the uppermoſt however of theſe are a few branchlets with flowers, very much divaricated at the baſe. Flowers terminating, few, pedunculed, the ſame ſize as in the firſt ſpecies; the calyxes having a few looſe awl-ſhaped ſcales ſcattered over them at the baſe.

Found in China by Oſbeck [f]; and alſo by Loureiro near Canton.]

8. Root perennial, compoſed of ſome thick fleſhy tubers, ſending out many fibres on every ſide; from which come out ſome large cut leaves ſhaped like thoſe of the Turnep, but ſmooth. Flower-ſtalk ſlender, a foot and half high, ſuſtaining at the top a few yellow flowers.

[Native of the Eaſt Indies. Cultivated in 1732 by James Sherard, M.D.[g]—In the *Hortus Elthamenſis*, publiſhed in 1732, Dillenius ſays that this plant had then flowered many years in that garden; and that it was firſt ſent over by Sam. Brown, with the country name of *Paring-Chekka*.

9. Stem woody, erect, three feet high, the thickneſs of the finger, warted from the fallen leaves. Branches few, ſcattered, erect, wand-like, round, ſmooth. Leaves ſcattered but cloſe, patulous, ſeſſile, acute, rolled back at the edge, one-nerved beneath, one-grooved above, ſomewhat rugged, reclining and hanging down. Panicle terminating, erect, looſe, leafy at the baſe. Flowers pedicelled, yellow. Bractes at the top of the peduncle and pedicel, imbricate, ſimilar to the ſcales of the calyx.—Native of the Cape of Good Hope. Shrubby [h].

Introduced in 1774, by Mr. Francis Maſſon. It flowers from june to auguſt [i].

10. Root annual, conſiſting of numerous white fibres. Stem ſingle, upright, about a foot high, branched, leafy, ſlightly angular, ſmoothiſh; but in young plants thinly covered with down towards the top. Leaves alternate, pinnatifid-ſinuate, obtuſe, either altogether ſmooth or elſe looſely woolly beneath: the root-leaves petioled; the ſtem-leaves ſeſſile, and embracing with ears. Flowers terminating, ſcattered or in a ſort of panicle, on ſtriated peduncles, at firſt upright, but pendulous after the flowering is over, and finally upright again; they have often a leaflet or bracte at the baſe. Calyx at firſt cylindrical, but becoming conical, ſmooth: ſcales linear, acute, equal, converging; thoſe at the baſe many but fewer, ſhort, lanceolate, preſſed cloſe; all very conſpicuouſly black at the tip. Florets numerous, yellow, all uniform, hermaphrodite, fertile, length of the calyx. Stigma two-parted, finally ſtanding out. Seeds grooved, pubeſcent, brown. Pappus ſeſſile, rugged, white, almoſt three times as long as the ſeed. Receptacle toruloſe, dotted, ſmooth. This ſpecies, with a few others, having no ray, belongs to the firſt order of the claſs *Syngeneſia*, in the artificial ſyſtem; but naturally it is of this genus.

Native of Europe, Siberia, &c. and no weed is more common in all kinds of cultivated grounds; flowering nearly the whole year.—In the eaſtern counties it is called *Simſon*, or as I have heard it pronounced *Senſion* or *Senſhon*, evidently from *Senecio* through the medium of the French *Seneſſon* [k].

The flower-buds and young tops are the food of many ſmall birds, and are given to Canary-birds and others in cages [l]. A ſtrong infuſion of the plant vomits. The bruiſed leaves are a good application to boils [m]. Farriers give the juice to horſes that are troubled with the bottes, whence Mr. Ray conjectures it might be given with advantage to kill worms in the human body. According to Linneus, goats and ſwine eat it. Cows are not fond of it. Horſes and ſheep refuſe it [n].

11. Branches ſtriated. Leaves ſpreading, remote, often quite entire, ſmooth, thickiſh, a little widened at the baſe, embracing, ciliate. Peduncles at the top, few (two to four) one or two-flowered; with a ſetaceous leaflet at the baſe of each. Flowers of the ſame ſize as in the preceding. Calyx untouched, with a few ſmall leaflets at the baſe [o].

12. Stature of *S. vulgaris* or *Jacobæa*. Stem [illegible] and half high, even. Leaves as in *Sisymbrium* or *Senecio triflorus*, pinnatifid or ſinuate, [illegible] thin. Peduncles many-flowered: pedicels lateral, [illegible] divided. Flowers floſcular, as in *S. vulgaris*, yellow, with the calyxes untouched or not mottled. Biennial. Native of Egypt [p]. As is alſo the preceding.

13. Stems herbaceous, a foot and half high, ſtriated. Leaves alternate, remote, linear or hiniform, a finger's length: pinnas remote, nine or more. Panicle terminating, faſtigiate with the flowering branches. Flowers yellow.—Found at the Cape of Good Hope by Thunberg [q].

14. Stem fleſhy, weak, grooved, villoſe, two feet high. Leaves petioled, alternate, ſublyrate or gaſh-pinnatifid, looſe, ſmooth, a ſpan long, pale underneath: ſegments oblong, acute, unequally toothed. Stipules two, toothed, over againſt the petiole. Flowers terminating, panicled, floſculer, large. Pedicles bifid or trifid, capillary, drooping, naked. Pedicels ſomewhat ſcaly. Calyx calycled, ſcarcely black at the tips.

Native of Japan, in the iſlands about the port of Nagaſaki; flowering in july, auguſt and ſeptember [r].

15. This is an annual plant. The leaves, according to Willich, vary much; ſometimes they are ovate-lanceolate, the lower with ſmall teeth, the upper with large: in other ſpecimens all the leaves are half-pinnate, with toothed pinnas. The plants which he ſaw, had no rays to the corolla. Among the peduncles there were always ſome three-flowered, but all were not ſo.

Native of Egypt. Introduced in 1776, by Monſ. Thouin. It flowers from july to ſeptember [s].

16. This alſo is an annual plant; native of Egypt. *Erigeron ægyptiacum, mant.* 517. (already deſcribed) is referred to this, in the 14th edit. of *Syſtema Vegetabilium*.

Introduced in 1771, by John Earl of Bute. It flowers in july and auguſt.

17. This is ſhrubby, and native of the Cape of Good Hope; whence it was introduced by Mr. Fr. Maſſon in 1774. It flowers from may to july [t].

18. 19. Theſe are annual plants, natives of Spain.

20. Root annual. Stem a foot high much branched and ſtraggling, not ſimple and erect, as in *S. ſylvaticus*. The whole plant is covered with a fetid clammy liquor ſecreted from the hairs, detaining ſmall inſects, duſt and light ſubſtances. Leaves alternate, ſeſſile, ſcarcely embracing, pinnatifid, eroſe, ſomewhat toothed. Peduncles one-flowered, terminating, ſubſolitary. Flowers in all their parts twice as large as in *ſylvaticus*, but much more ſcattered and leſs numerous, as well as of a brighter gold colour. Calyx hairy, clammy, with a few, linear, looſe, hairy ſcales at the baſe, almoſt as long as the perianth or only half the length. Florets of the diſk numerous, of the ray fewer, five-toothed, immediately rolled back: all are fertile. Pappus appearing ſomewhat rugged when examined with a magnifier [u].

Compared with *S. vulgaris*, the ſtem is taller and ſtronger, the leaves more divided, the flowers larger, and on longer peduncles, the upper ones forming a ſort of looſe corymb, the ſeeds longer and more deeply furrowed, the pappus longer [w]. The hairs on the calyx, and on every other part of the plant at once diſtinguiſh this from *vulgaris*, even though the ligulate florets of the ray ſhould be wanting, as they ſometimes are [x].

Native of Europe, in a calcareous or ſandy ſoil: flowering from july to october. On the fen-banks of the Iſle of Ely, as about Mepole and Chatteriſs: alſo on the ſands of Gamlingay. Baldon, Oxfordſhire. About the chalk-pits at Dartford, Kent. And in ſeveral places in Scotland.

21. Root annual. Stem about three feet high, ſtraight, upright, wandlike, leafy, grooved, ſomewhat

[f] Linn. ſpec. [g] Hort. kew. [h] L'Heritier.
[i] Hort. kew. [k] Smith and Curtis. [l] Engl. bot.
[m] Withering. [n] Idem.
[o] Vahl. [p] Linn. mant. [q] Linn. ſuppl. [r] Thunberg.
[s] Hort. kew. [t] Idem. [u] Smith. [w] Woodw. Mis.
[x] Withering.

hairy,

hairy, corymbed at the top, many flowered. Leaves numerous, scattered, lyrate-pinnatifid, somewhat hairy, rough; smell almost equally unpleasant in scent, less viscid. Flowers numerous, smaller by half than in the preceding, and of a paler yellow. Calyx slender, subpubescent, with the scales at the base small, short and pressed close. Corollets of the ray small and rolled back; those of the disk very slender and filiform. Pappus appearing rugged when examined with a magnifier. Receptacle small.

Mr. Hudson was almost singular in the opinion that this plant is a variety of the *viscosus*, from which it is certainly very distinct [a]. It has a taller and more firm, though slenderer stem; the leaves are narrower and more finely divided; the peduncles much more branched, bearing far more numerous flowers, the terminating ones forming a large broad-topped spike. The flowering heads are much smaller, the seeds shorter and broader, and the pappus shorter. The leaves, when in an hot and sunny situation, are frequently clammy, but not so much as in *viscosus* [b].

Dr. Stokes remarks, that the stem has a fine woolliness on it, of short tapering zigzag hairs; that the upper branches rise nearly to the same height with the stem; that the leaves are somewhat woolly, with scattered short hairs, tapering but not tipped with glands; that the peduncles are somewhat cottony; that the calyx is conical and somewhat woolly, with the scales at the base awl-shaped, few, dead at the ends, thrice as small as those of the cup; and that the corollets are of a full yellow. Dr. Withering observes, that the edges of the leaves are rolled back, the scales of the calycle few, short, slender, scarce sensibly dead at the ends, and the florets of the ray rolled back close up to the cup.

Native of Europe, in a gravelly or sandy soil, in bushy spots upon heaths and commons, where trees or furze have been cut down, especially where fern or other plants have been burnt in the preceding autumn. It flowers in july [c].

22. This is an annual plant, of the same stature with the common sort; but the leaves are larger, blunter, repand-sinuate, and quite entire. The stem is less divided and very hirsute. The peduncles solitary and viscid. The flowers solitary, the same size with those of *S. Jacobæa*, with the ray less revolute. The calyx is not mortified at the tips.—Native of Sicily, Spain and the Pyrenees [d].

23. This also is an annual plant, pubescent and glaucous or ash-coloured.—Native of Egypt [e].

24. Root annual. Stem a hand high, erect, roundish, thinly haired, purplish, shining, very simply branched. Branches alternate, short, spreading, three or four. Leaves alternate, ovate or oblong, blunt-ish, having few, remote, stout serratures, thickish, above dusky green, varicose and hairy, beneath blood-red; petioles shorter by half than the leaves, half-embracing, very smooth, shining, channelled, ciliate. Peduncles terminating, solitary, one or two-flowered, almost the length of the stem, filiform, erect, thinly haired, purplish. Calyx cylindrical, equal, with five acute remote short scales to the calycle. Ray of the corolla composed of from sixteen to twenty revolute florets, three-lobed at the tip, violet-coloured underneath. Florets in the disk pale purple. Seeds ovate, smooth. Pappus quite simple, white.

Native of Egypt; whence the seeds were sent to Sweden by Roque in 1761 [f].

25. Roots numerous, capillary, twisted, in bundles, annual. Stems several, decumbent at the base, subvillose, simple or little branched. Leaves decurrent, smooth or scarcely villose, unequally toothed, sometimes laciniate. Flowers few in terminating corymbs, on short peduncles. Calyx cylindrical, calycled, with the interior leaflets linear, almost equal, sharpish. Corollets yellow. Seed small, oblong. Pappus sessile, villose, whitish. Receptacle naked.—Native of all Barbary; flowering in winter.

26. This also is annual. Stem striated, smooth, simple, or little branched. Lower leaves decurrent, elliptic; upper sessile, embracing. Calyx cylindrical, calycled; with the inner leaflets awl-shaped, not dead at the end. Corolla the same size as in *S. Jacobæa*, yellow. Seed small. Pappus villose, simple, whitish. Receptacle naked.—Native of Barbary, near La Calle [g].

27. This has an herbaceous perennial stalk, branching out at the bottom, and rising about two feet and a half high; having narrow leaves at bottom, seven or eight inches long. The upper leaves are smaller, and embracing; they are very clammy. The upper part of the stalk divides into several very long peduncles, each sustaining one yellow flower.

[Native of the Cape of Good Hope. Cultivated in 1732, by James Sherard, M. D. It flowers most part of the summer [h].

28. Root perennial. Root-leaves smooth, blunt, crenate, with the petioles woolly at the base. Stems a foot high, having three or four small leaves on them, which are half embracing and pinnatifid. There is one terminating flower, and frequently lateral ones that are sessile: they are yellow with a violet-coloured ray. Native of the Cape of Good Hope [i].

29. The rib of the leaves, especially the lower ones, is often set with soft prickles.—Native of the Cape of Good Hope, where it was found by Masson, and introduced in 1774. It is biennial, and flowers from july to september [k].—This, like the preceding and next species, has a yellow disk with a purple ray.]

30. This is an annual plant, having many herbaceous branching stalks, near three feet high. The flowers are produced in bunches on the top of the stalks; they are large, the ray of a beautiful purple colour, and the disk yellow.

Native of the Cape of Good Hope. Flowering from june or july till autumn frosts come on. [Cultivated in 1700, by Charles Dubois, Esq. [l]

Since his time a variety with very double purple, and another with white flowers, equally double, have been introduced, and the former of these is now chiefly cultivated, in preference to the single.

One year a hybrid or mule plant appeared plentifully in the botanic garden at Cambridge, evidently generated from a mixture of this *S. elegans* with the *vulgaris* or common Groundsel; it had entirely the herb of the latter, with a small ray of a pale purple colour. Being annual and barren it disappeared at the end of the season.

31. Root annual. Stem various in luxuriance, erect, branched, often a little hairy. Leaves sessile or embracing the stems with little ears, deeply pinnatifid; the segments narrow, almost linear, acute, remote, toothletted, flat, nearly smooth, even, often purplish beneath. Corymb terminating, loose, few-flowered, bracteate. Flowers of a bright golden yellow. Calyx almost hemispherical, smooth, with a few loose small scales at the base. Florets of the disk very numerous:—of the ray many, spreading, elliptic, broad, quite entire at the top, finally revolute. Seeds tomentose. Pappus rugged.

The whole habit, and a peculiar smell somewhat like Tansy or Mugwort, distinguish this plant sufficiently. It flowers from june to the very end of autumn.

Native of the South of France according to Linneus, who received it from Dillenius, under the name of *Jacobæa laciniatis foliis, tanaceti odore*. Probably Dillenius collected these seeds from the walls about Oxford, where it grows abundantly. Though long since noticed there by Sir Joseph Banks, it did not find its way into the *Flora Oxoniensis*, or any other, till Dr. Smith inserted it in his *Flora Britannica*. It is certainly the *squalidus* of Linneus. (Krocker has it in his *Flora Silesiaca*.) But whether it be the *S. gallicus* of Villars (3. 230.) we have not materials to determine [m].

32. Stem upright, three or four feet high, hardish, tomentose. Leaves hard, hoary, subhirsute, divided into narrower linear pinnas, with sharper points, having parallel lines all over them. The scales of the

[a] Smith. [b] Woodv. Mss. [c] Engl. bot. [d] Linn. spec. [e] Idem. [f] Linn. dec. [g] Desfontaines. [h] Hort. kew. [i] Linn. amoen. [k] Hort. kew. [l] Idem from Plukenet. [m] Smith.

calyx end in a reddiſh point, but by no means a black one. The ſcales of the calycle are preſſed cloſe and are hirſute at the baſe. The flower is of a paler yellow than in *S. Jacobæa*[a]; from which Haller does not diſtinguiſh it. Pollich keeps it ſeparate, with Linneus and others; but ſeems inclined to think Haller in the right.

Willich remarks, that it puts off all pubeſcence, when tranſplanted into a garden; but that the other differences between this and *S. Jacobæa* continue.

Native of Sweden, Germany and Sileſia; not of Britain.

It nearly reſembles *S. ſylvaticus*, of which perhaps it may be a variety[b].

33. Root perennial, moderately creeping. Stem ſtraight, grooved, leafy, woolly, one to three feet high, corymbed at the top. Leaves numerous, alternate, embracing, toothed here and there, more or leſs woolly, eſpecially on the lower ſurface, which is often white. Flowers of a golden yellow colour, in a terminating bracted corymb. Calyx-ſcales broad, more or leſs woolly, with a white membranous border, a little browniſh at the tip, though leſs ſo than in ſome other ſpecies: calycle ſmall, looſe. Florets of the ray linear-oblong, obtuſe, three-toothed, ſpreading, but ſoon revolute. Seeds hairy; with a rugged down or pappus.

No plant is more variable in the appearance of its foliage. On a calcareous ſoil the leaves are very much rolled back, and quite white beneath with a thick cottony web, of which the ſtem always more or leſs partakes: in damp ſhady places they are almoſt flat, and green, though always paler, and ſomewhat ſhaggy on the under ſide. Such are the extremes of the two varieties marked by Dr. Withering; but intermediate ſpecimens are always to be found[c].

Native of Auſtria and England. About London, near woods, under hedges, and among buſhes: as about the Oak of Honour wood near Peckham. Holm, Norfolk. Bath hills, near Bungay, Suffolk. Baydales, Darlington, &c. It flowers in auguſt.

The ſynonyms given by Linneus to the preceding ſpecies, probably belong to this, except that from the *Iter ſcanicum*.]

34. This is a perennial plant of low growth, the ſtalks ſeldom riſing a foot high. The whole is covered with a very white hoary down. The leaves are winged and indented. The flowers are collected into a cloſe round corymb on the top of the ſtalk, and are of a gold colour.

[Stems a finger's length, leafy. Leaves like thoſe of *Achillea clavennæ* or *Otbonna maritima*, but ſmall, pinnatifid, obtuſe, white and marked with lines[d].

Native of the Alps, Auſtria and Carniola, Sileſia, the South of France, and the Pyrenees. Cultivated in 1759 by Mr. Miller. It flowers in july and auguſt[e].]

35. Root perennial, compoſed of many long ſlender fibres, which ſtrike deep into the ground, and ſpread on every ſide. Stems two feet high, becoming a little woody in autumn, leafy their whole length. Leaves reſembling thoſe of Hog's-fennel. Flowers in bunches on the top of the ſtalks, yellow.

[The root-leaves are bipinnatifid: the ſtem-leaves ſimply pinnatifid. Peduncles pubeſcent, three or four, commonly two-flowered[f].

Native of the mountains of Stiria and Carinthia, Switzerland, the South of France and Piedmont.—Cultivated in 1759, by Mr. Miller. It flowers from july to october[g].

36. Stem erect, even. Leaves ſmooth, bipinnate except the upper ones, which are ſimply pinnate. Corymb terminating, compound, faſtigiate, yellow. Calyxes ruſeſcent.—Native of Canada[h].

37. Native of the Cape of Good Hope, where it was found by Thunberg[i].

38. Stems purpliſh, branched, erect. Leaves pinnatifid, tomentoſe underneath. Flowers racemed, pa-

nicled, erect. Calyx cylindrical, tomentoſe. Receptacle conical, naked.—Native of Algiers. Perennial.

39. Stem herbaceous, erect, villoſe, ſubhirſute, ſimple or little branched. Leaves ſubhirſute, two-eared at the baſe. Peduncles many-flowered. Flowers cluſtered, corymbed, or almoſt pedicels, the ſame ſize as in the firſt ſpecies. Calyx cylindrical, ſimple; the leaflets awl-ſhaped, not dead at the end. Corollets of the ray yellow, fine as hairs, the length of the calyx. Seed ſlender, ſmooth. Pappus ſimple, ſnow-white, villoſe, ſeſſile, longer than the calyx. Receptacle naked.—Native of the deſert, Barbary. Annual[k].

40. Stem erect, ſmooth, ſtriated, branched, often the thickneſs of a finger. Leaves petioled, ſubtomentoſe but ſometimes ſmooth. Lower ſtem-leaves pinnate-lobed, with the lobes ovate or ovate-oblong, blunt: the upper ones ovate-oblong or lanceolate. Flowers of the ſame ſize with thoſe of *S. Jacobæa*, upon pedicels which have needle-ſhaped leaflets on them. Calyx cylindrical: leaflets linear-lanceolate, equal, ſubacute. Florets of the ray yellow, ſmall, linear. Seed very ſmall, ſmooth, crowned with a ſimple villoſe pappus. Receptacle naked, convex. Perennial.—Native of Africa, near Belide in Algiers.

41. Roots capillary, ſubvilloſe. Stem erect, ſtriated, ſmooth. Peduncles erect, ſlender, leafy, one-flowered. Leaves ſubhirſute, awl-ſhaped, from the middle to the top pinnate: pinnules rather remote, linear-ſubulate, unequal; ſometimes contorted, entire, and ſometimes tooth-pinnate. Flowers few, corymbed, the ſame ſize as in *S. Jacobæa*. Calyx ſimple, cylindrical, ſmooth: leaflets linear, equal, untouched or not dead at the tip. Corollets of the ray yellow, linear. Seed very ſmall, oblong. Pappus ſimple, villoſe, white, ſeſſile. Receptacle convex, naked. Annual; flowering in winter.—Native of Barbary, in wet ſands of the deſert[l].

42. Root perennial, fibrous creeping, truncated. Stem two, three or four feet high, ſtreaked, upright, branched, generally ſmooth, often tinged with purple, leafy, corymbed, many-flowered. Leaves commonly dark-green without any down, but ſometimes both theſe and the ſtem are tomentoſe or cottony: thoſe next the root pinnatifid at the baſe only, with a large oval ſinuated ſegment at the extremity; on the ſtem they are pinnatifid throughout, and their ſegments laciniated, the lacinæ being more numerous and finer in proportion to the dryneſs of the ſoil. Corymbs terminating, many-flowered, bracted, ſmooth. Flowers deep yellow or gold-coloured. Calyx ſmooth, grooved, cylindrical, ſhort; having few, looſe, awl-ſhaped ſcales at the baſe. Florets of the ray linear-oblong, three-toothed, finally revolute, twelve or thirteen: in the diſk about ſixty. Seeds hairy. Pappus rugged[m].

Dr. Stokes remarks, that the filaments towards the end thicken into flat ovate glands, diſappearing as ſoon as, or ſoon after the pollen is ſhed, rendering it probable that they are intended for the nouriſhment of the pollen.

Ragwort is very common on the ſand-hills of Holland, without any ray to the corolla. Sherard obſerved it thus on the ſea-ſhore, three or four miles from Drogheda. Perhaps this is the effect of the ſea air, which is well known to be deſtructive to the more tender parts of vegetables. In Marazion marſh, Cornwall, it has been found with rayleſs flowers, and the whole plant hoary with a denſe cottony ſubſtance[n]. I have remarked the winter plants of the common Groundſel to be covered with a thick coat of cotton.

Ragwort is found in moſt parts of Europe, in England it is a common weed in graſs grounds. It is called not only Ragwort or Ragweed, but St. James's wort, Canker-wort; and in the north Seggrum, Seggram or Seagrim.

If this plant be gathered before the flowers open, and uſed freſh, it dyes wool of a full green, but the colour is apt to fade. If woollen cloth be boiled in

[a] Pollich. [b] Engl. bot. [c] Smith. [d] Linn. ſpec. [e] Hort. kew. [f] Linn. ſyſt. [g] Hort. kew. [h] Linn. ſpec. [i] Linn. ſuppl. [k] Deſfontaines. [l] Idem. [m] Smith, Fl. ruſt. [n] Withering.

alum

alum-water, and then in a decoction of the flowers, it takes a beautiful deep yellow. It is ſaid that kine and horſes will eat it when young [a]; but much of it eſcapes their bite, flowers and ſeeds, and fills the paſtures with a large rank weed.

43. Root perennial. The herb commonly quite ſmooth, but in dry places ſometimes a little woolly. Stem erect, branched, leafy, frequently purpliſh at the baſe like the preceding: it is alſo corymbed, but with larger and much fewer flowers. Leaves bright not dark green: the lower petioled, obovate or elliptic, undivided, and commonly quite entire; the upper ones ſeſſile or embracing, lyrate-pinnatifid, ſerrate, quite entire at the end. Flowers gold-flowered, handſome. Calyx ſhort and almoſt hemiſpherical, ſmooth, ſcarcely calycled. Florets of the ray ſpreading, elliptic, three or four-toothed, of various breadths, finally revolute. Seeds quite ſmooth, in which it undoubtedly differs from the preceding. Pappus rugged [b].

Dr. Stokes remarks, that the ſtem and leaves are quite ſmooth, the root-leaves with the terminating leaflet oblong; the calyx-ſcales fifteen to twenty-one, dead as it were and brown at the points, florets of the ray about twenty-one, and the florets thickening towards the end into oblong glands, as in common Ragwort.

Mr. Woodward has obſerved that it is ſometimes found without any ray to the flowers.

Native of Denmark and England, in marſhes, ditches, wet meadows and watery places in general: flowering in july and auguſt.]

44. Root perennial. Root-leaves many roundiſh, about an inch and half over each way, of a purpliſh colour on their under ſide, and crenate on their edges. Stems near two feet high, with a few lyrate leaves on them: the upper part divides into ſeveral long ſlender peduncles, each ſuſtaining one erect flower, which is yellow, and has few florets in the ray.

[Native of Virginia and Canada. Cultivated in 1759 by Mr. Miller: it flowers in may and june [c].] Mr. Miller ſays june and july; and that the ſeeds ripen in autumn.

[Linnæus ſeems to think that it is ſcarcely diſtinct from *S. Jacobæa*.

45. This is one of the talleſt growing ſpecies. The leaves are deeply ſinuate, almoſt pinnate, with the lobes rounded, and muricate at the edge.—Found at the Cape of Good Hope by Thunberg [d].

46. Stem erect, branched at bottom: branches grooved, ſmooth. Leaves remote, ſmooth, even, acute, unequally toothed, an inch and half long; the laſt ſegment very large, cordate-lanceolate; ſide-ones one or two on each ſide, oblong, a little narrower at the baſe, remotely toothed. Petioles much ſhorter than the leaves, with a rounded toothed earlet at the baſe on each ſide. Corymb terminating; with an awl-ſhaped ſcale at the baſe of each pedunclе, and two or three ſmaller on the pedicels. Peduncles ſmooth, moſtly three-flowered, except the laſt which are one-flowered. Calyxes ſimple, untouched or not black at the point. Ray of the corolla eight or ten-flowered. It is diſtinguiſhed from *alpinus* by its ruſhed lanceolate leaves, and its ſimple untouched calyxes [e].

47. Stem herbaceous, ſtriated-angular or round, erect, ſimple, two feet high or more, branching at top into a corymbed panicle. Leaves alternate, remote, bluniſh, beneath hoary and veined. Petioles the length of the leaves, having two or four leafy teeth in the middle, as in *Erysimum Barbarea*. One corymb terminating, and ſeveral axillary ſolitary, on longer peduncles. Pedicels with ſmall awl-ſhaped ſcales ſcattered over them. Calyx calycled, equal, mortified at the points. Calycle ſmall, preſſed cloſe. Corolla yellow, like that of *S. Jacobæa*. Tranſplanted into good ground in a garden, it has a very branching ſtem with laciniate leaves, and appears like a different plant.

Native of the mountains of Switzerland, Sweden and Germany [f].

48. Stem two feet high, ſimple except at top, where it is branched. Leaves linear, ſubpinnate; the pinnas remote, linear, long. Flowers in umbels, with awl-ſhaped leaflets ſcattered over the pedicels. Calyxes even. Ray of the corolla purple. In the *Amœnitates* it is ſaid to be yellow with red ſtreaks beneath.—Native of the Cape of Good Hope [g].

49. Found at the Cape by Maſſon, and introduced in 1774. It flowers from july to october [h].

50. The peduncles have ſmall acute ſcales ſcattered over them. It has the calyx of a *Senecio*, although the ſcales are not mortified at the point [i].—Native of Spain, Italy and Ruſſia.

51. This is a ſmooth plant, found at the Cape of Good Hope by Thunberg [k].

52. Root of many long ſimple fibres, perennial, ſomewhat creeping. Stem from three to ſix feet or more in height, perfectly ſtraight, upright and ſimple, leafy, round, hollow, ſtriated, looſely clothed with deciduous cottony down, which likewiſe inveſts the young leaves and flower-ſtalks. Leaves ſcattered, numerous, ſeſſile, lanceolate, acute, acutely ſerrate, narrow and entire at the baſe, ſmooth above, paler and generally downy beneath. Corymb terminating, few-flowered, the lower peduncles axillary. Braćtes awl-ſhaped. Flowers above an inch in diameter, bright yellow. Calyx ſmoothiſh, with the ſcales at the baſe linear. Florets of the ray linear, five-toothed, ſpreading but little recurved. Seeds hairy. Pappus minutely rugged. Receptacle ſet with ſhort hairs between the ſeeds, as is often the caſe in many plants in which that part is ſaid to be naked, for theſe hairs are very different from the long chaffy ſcales to be found in ſome genera [l].

Native of ſome parts of Europe, in fens and marſh ditches; flowering from june to auguſt. It was not known to be indigenous of Britain in the time of Gerarde, Parkinſon and Johnſon. Ray found it in marſh ditches and banks in the Iſle of Ely, but rarely. Near Stretham-ferry, where he particularly remarked it, no one has found it lately. Mr. Relhan marks it at Littleport, Chatteriſs, and in Bardwell fens. Mr. Hemſted found it in Lakenheath fen near Wangford, Suffolk. And the Rev. H. J. Wollaſton, on the banks of ditches near a piece of water called Braford, about half a mile from Lincoln. Ray alſo remarked it in his travels abroad near Nantua, in going from Geneva to Lyons.

53. Root perennial, fibrous, not creeping. Stem ſingle or few, from a foot and half to three feet and half, erect, round, often very ſlightly angular, or ſometimes grooved towards the top, the whole pale green or purpliſh here and there, ſmooth and ſhining or hairy, thickneſs of a little finger or gooſe quill, leafy up to the very peduncles. Leaves irregularly alternate, the upper ones gradually leſs and leſs, ſo as not to exceed the flowers in height, hence the uppermoſt are very ſmall. They are acuminate, ſeſſile, from three to ſix inches long, according to the ſize of the ſtem; the upper ſurface is ſmooth, the lower in ſome plants hirſute or villoſe, in others ſhining: ſerratures unequal, in ſome double but in the greater part not ſo. Branches fewer or more ſpring at an acute angle from the axils of the upper leaves, and collect the flowers into a compound corymb. Peduncles variouſly branched ſo as form a ſort of umbel. Calyx-ſcales about ten, and commonly five in the calycle. Corollets in the ray five, very ſeldom four, in the wild plant, but more when cultivated, ſpreading very much, yellow, oval-oblong, emarginate: in the diſk twelve or more [m].

Native of Germany, Auſtria, Switzerland, Piedmont and Siberia. Introduced in 1775, by Drs. Pitcairn and Fothergill. It flowers in july [n].

54. Root perennial, creeping, ſtraight, from two or three to five feet in height, angular, leafy, ſmooth, corymbed at top. Leaves alternate, ſeſſile, acute, ſmooth or minutely pubeſcent; the upper ones gra-

[a] Withering. [b] Smith. [c] Hort. kew. [d] Linn. ſuppl. [e] Vahl. [f] Linn. ſuec. [g] Linn. mant. & amœn. [h] Hort. kew. [i] Linn. ſuppl. [k] Smith. [l] Hort. kew. [m] Linn. ſpec. [n] Jacqu. obſ.

dually leſs. Corymb many-flowered. Bractes linear-lanceolate, acuminate. Pedicels angular, pubeſcent. Flowers yellow. Calyx ſomewhat woolly, with the ſcales at the baſe lanceolate. Florets of the ray elliptic, long-clawed, ſcarcely toothed at the end. Seeds ſmooth. Pappus minutely rugged[a].

It is eaſily diſtinguiſhed, ſays Linnæus by its appearance, ſize, wide leaves, and very creeping root.

Native of many parts of Europe. Found in Britain between Wells and Glaſtonbury, by Bobart; near Halifax, by Newton; at Salkeld in Cumberland, by Nicholſon; about Clapham and Ingleton, by Hudſon; near Longtown and on the ſide of the river below Carliſle, by Mr. Jackſon; near Preſton hall, between Kirkby Lonſdale and Kendal in Weſtmoreland, in 1782, alſo in the King's Park, Edinburgh, by Dr. Smith; but in the laſt-mentioned place, probably planted.]

55. Root perennial. Stem annual. Lower leaves a foot long, four inches broad in the middle, and ſomewhat ſhaped like a ſcymitar, the midrib being curved outwards towards the point; they are ſmooth, and ſlightly indented on their edges. Stem four feet high, with leaves growing ſmaller the whole length, and embracing it half round. Flowers terminating in a compact corymb, of a deep yellow colour.

[Stem the height of a man or even more, the thickneſs of a finger at bottom, ſtreaked and a little hairy, towards the top ſmooth and ſomewhat angular. Root-leaves ſpreading in a ring, long, wide and thick, ſhaped like thoſe of *Lepidium*, moderately and irregularly toothed, ſmooth above, paler and ſomewhat hoary beneath, with oblique ſlender veins from a whitiſh midrib. Leaves on the ſtem alternate, narrower, deeply toothed, thick like the others, ſmooth beneath, with veins ſo ſlender as to be ſcarcely viſible. Bractes at the origin of the peduncles and pedicels. Flowers yellow. Calyx ſtriated, calycled. Florets in the ray from two to five, notched at the end[b].]

Diſcovered by Tournefort in the Levant, and the ſeeds ſent by him to the royal garden at Paris. It was cultivated in 1732 by James Sherard, M. D. and flowers in july and auguſt[c].

56. Root perennial. Stem erect, two feet high, even. Leaves ſeſſile, few, quite entire, with a whitiſh rib. Flowers in a ſort of corymb, yellow, with about fifteen florets in the diſk. Calyx mortified at the edge. Calycle compoſed of three or four ſcales.—Native of Siberia[d].

57. Leaves ſmooth on both ſides. Bractes ſetaceous under the calyx. The upper ſtem-leaves become ſmall, ſo that the corymb appears as if it were on a very long peduncle; whereas in the *faraceneus* bigginſh leaves continue to the very corymb. It reſembles *Cacalia ſaracenica*[e].

Native of the Levant, Germany, Auſtria, the South of France, and Piedmont. Cultivated in 1570 by Mr. Hugh Morgan, according to Lobel. It flowers from july to ſeptember[f].

58. Stem quite ſimple, villoſe. Root-leaves ovate-oblong, petioled, ſerrate, blunt iſh, thickiſh, villoſe beneath, glaucous above. Stem-leaves ſmall, lanceolate, and almoſt awl-ſhaped. Flower terminating, often ſingle, thickiſh. Calyx calycled.—Jacquin diſcerned the progreſſive varieties; but Haller will not allow that they all agree[g].

Villars obſerves, that the fat thick leaves with unequal teeth are more or leſs ſmooth, they vary alſo in figure and ſize; but their down preſſed cloſe and unequal, like a ſpider's web, is never wanting when the plant is young; and their teeth a little bent down is a conſtant mark. The calyx is ſcaly and villoſe, the lower ſcales a little ſtraddling, and they are all mortified at the end. The flower is large, deep yellow, and compoſed of more florets than in any other ſpecies. This plant partakes of *Senecio*, *Cineraria*, *Doronicum*, and *Solidago*. It agrees with the firſt of theſe in the calyx; but in habit and other characters it differs from it.—Native of the South of Europe. Cultivated in 1765 by Dr. Uvedale, according to Philips. Flowers from july to ſeptember[h].

59. Leaves linear, ſcattered, long, naked. Stalks naked. Flowers corymbed. Linnæus doubts whether the *diſſorus* of Bergius, belongs to this ſpecies, the leaves being more toothed, and the flowers ſmaller.—Native of the Cape of Good Hope[i].

Introduced in 1775 by Monſ. Thouin. It flowers from auguſt to november[k].

60. This is ſingular for its rigid mucronate leaves, half-toothed on each ſide towards the point.—Found at the Cape by Thunberg.

61. This is a little ſhrub, a foot and half high, determinately branched, roundiſh, even. Leaves ſcattered, reſembling thoſe of Juniper, but a little wider, half-embracing, an inch long, rolled back at the ſides, even, mucronate. Peduncles terminating, elongated, with four or five flowers at the top on ſtraddling pedicels. Flowers yellow, with the ray ſpreading.—Native of the Cape[l].

62. Plant biennial. Stature of *S. viridis*, but much narrower in all its parts. Stem four feet high, round, ſtriated, green, having white hairs ſcattered over it. Branches on the lower part of the ſtem ſpreading very much. Leaves lanceolate, ſeſſile, embracing, ſevolute, ſerrate with ſharp teeth, having obtuſe ſinuſes; above green, ſhining, ſomewhat rugged, beneath veined, ſubvilloſe, green. Rudiments of the branches from each axil of the leaves. Scapes terminating, round, much narrower than the ſtem, ſtiff-form, very long, ſmoother, ſtriated, having linear undivided leaves ſcattered over them below, not toothed but ſerrate-ſpiny and almoſt naked. Corymbs terminating, alternate, ſubdivided. Calyxes mortified at the points. Corollas yellow, with eight ovate florets in the ray ſcarcely three-toothed. It has the appearance of *Serratula arvenſis*.

Native of Conſtantinople[m].

63. The whole plant very ſmooth. Leaves thickiſh, veinleſs, often having minute, few, remote teeth about the edge. Petiole ſhorter than the leaf. Corymbs terminating. Bractes two or three linear, at the baſe of the peduncles; ſmaller on the pedicels. Calyx cylindrical, brown, paler when riper: calycle eight-toothed; the teeth very ſmall, and a few ſcalelets beſides at the baſe of the calyx. Ray of the corolla five-flowered[n].]

64. Stem ſeven or eight feet high, ſending out branches on every ſide the whole length. Leaves about two inches and a half long, and almoſt two broad, hoary. Flowers in looſe bunches at the extremity of the branches, almoſt in form of an umbel, of a pale yellow colour.

[Florets in the ray ſometimes only four or five, ſometimes ſix or ſeven and even more, ſhort and entire. Seeds ſmall, ſlender[o].

Native of the Cape of Good Hope. Cultivated in 1732, by James Sherard, M. D. It flowers in july[p].]

65. This has a very branching ſhrubby ſtalk, four or five feet high, ſending out branches irregularly on every ſide. Leaves ſtiff, irregular, about three inches long, and three quarters of an inch broad, deeply cut on their edges, and of a gray colour on their under ſide. The flowers grow in looſe bunches at the end of the branches, and are of a pale yellow colour.

[Native of the Cape of Good Hope. Cultivated in 1731, by Mr. Miller. It flowers in june and july.

66. This alſo is a native of the Cape, where it was found by Maſſon, and introduced in 1774. It flowers in july and auguſt, and is ſhrubby[q].]

67. This riſes with a ſhrubby branching ſtalk ſix or ſeven feet high. It is cloſely ſet with rugged embracing leaves, thoſe on the lower part four inches long, and an inch and half broad at the baſe, gradually diminiſhing in ſize to the top; they are ſtiff, hairy, dark green, oblong, heart-ſhaped, indented.

[a] Smith. [b] Linn. ſuppl. [c] Dillenius. [d] Linn. ſpec. & ſyſt. [e] Hort. kew. [f] Hort. kew. [g] Linn. ſpec. & ſyſt. [h] Hort. kew. [i] Linn. ſuppl. [k] Linn. ſpec. & ſyſt. [l] Vahl. [m] Dillenius. [n] Hort. kew. [o] Idem.

The flowers are produced at the end of the branches, and are of a bright yellow colour.

[Stem rigid, rugged, inelegant. Leaves rigid, appearing as if oiled on the upper surface, but not smooth; beneath they are hoary and somewhat villose. Flowers small, with five yellow florets in the ray, which are remote and entire [a].

Native of the Cape of Good Hope. Cultivated in 1759 by Mr. Miller. It flowers from june to september [b].

68. The plant is clothed all over with white wool. Leaves roundish-ovate, quite entire or having at most one or two apparent toothlets, woolly but finally becoming naked, on long petioles embracing the stem with their widened base.—Native of the Cape of Good Hope [c].

69. This is one of the loftier species. Leaves somewhat fleshy, glaucous.

70. The whole is generally fleshy. It varies with lanceolate leaves.

71. Root-leaves elongated, sinuate, and with the lobes serrate, towards the root involved in cotton. Stem almost leafless, or leaves very few, partially embracing.

72. 73. These, with the three preceding, are natives of the Cape of Good Hope, and were found there by Chevalier Thunberg.

74. Stems almost prostrate, a foot long, the size of a coarse thread, somewhat branched at the base. Leaves alternate, petioled, bluntish, even on both sides. Peduncle terminating, elongated, few-flowered. Calyx simple, not calycled. Corolla yellow. Ray with a bifid fertile stigma.—Found at the Cape by Sparrmann.

75. Stems erect, two feet high, striated, herbaceous. Leaves alternate, distant, more dilated at the base, obscurely decurrent. Panicle terminating. Ray of the flower spreading, purple.—Found at the Cape by Thunberg [d].]

PROPAGATION AND CULTURE.

1. Sow the seeds upon a hotbed in the spring, and when the plants are fit to remove, transplant them to another hotbed to bring them forward, and afterwards plant them in a warm border, where they will flower in july, and their seeds will ripen in autumn.

8. Part the roots in the spring. Plant the offsets in pots filled with light kitchen-garden earth, and plunge them in the tanbed in the stove, where they must remain.

27. Cut off the side shoots in any of the summer months, and plant them in a shady border, where in five or six weeks they will take root, and may then be taken up and planted in pots, placing them in the shade till they are well rooted: then remove them to an open situation, observing to water them duly in dry weather. In winter place them under a frame, or in the dry stove. This management applies to the numerous species from the Cape of Good Hope.]

30. If the seeds, which ripen in autumn, be permitted to scatter, plenty of plants will rise the spring following. Or if sown upon a bed of common earth in the spring, the plants may be transplanted into the borders of the flower-garden. If some of the plants be put into pots, and housed in winter, they may be preserved till spring. [The varieties with double flowers are continued by cuttings.]

34. Slip off the heads in the spring, and plant them in a bed of loamy earth in a shady situation: when they have put out roots, transplant them into an east border, for they prefer a situation not too much exposed to the sun. Having fine hoary leaves, this species makes a pretty diversity, when intermixed with other plants. Requiring little culture and not taking up much room, it deserves a place in small gardens.

35. Sow the seeds upon a bed of loamy earth, exposed only to the morning sun. When the plants are fit to remove, transplant them to a shady border, where they may remain till autumn, observing to keep them clear from weeds all the summer: then transplant them to the places where they are to remain. The following summer the plants will flower and produce seeds; and the roots will continue, if they are in a shady situation and a loamy soil.

[42. This rank weed, so troublesome in dry grass grounds, may be destroyed gradually by constant mowing; most effectually by pulling it up by hand after rain. Feeding the land with sheep is said to be an infallible cure for it; and it is affirmed that they eat it with so much greediness as very soon to destroy it [e]. This must be whilst it is yet very young.]

44. Plant the offsets in autumn in an east border of loamy earth, allowing each plant two feet room to spread.

52, 53, 54, 55. These are easily propagated by seeds or parting their roots: the latter mode is generally practised when the plants are once obtained, that being the most expeditious method, especially for the 54th sort, the roots of which spread and increase too fast where they are not confined. The time for dividing and transplanting these roots is in autumn, when the stalks decay. These plants are too large for small gardens, but are proper for large borders in extensive gardens, or for the sides of woods and plantations, where they may be allowed room; and in such places, intermixed with other tall-growing plants, they will add to the variety.

63, 65, 66, 67. These are too tender to live in the open air through the winter in England, but are so hardy as to only require protection from hard frosts; so if they are kept in pots and placed either under a frame in winter, or in a common green-house with other hardy kinds of plants, which require a large share of air in mild weather, and only require to be screened from hard frost, they may be preserved in England. They are all easily propagated by seeds or cuttings, but the latter being the most expeditious method is generally practised here. If the cuttings are planted in a shady border during any of the summer months, they will readily take root, and then they should be taken up with balls of earth to their roots, and each planted in a separate pot filled with good kitchen-garden earth, and placed in the shade till they have taken new root; then they may be removed to a more open situation, where they may remain till there is danger of sharp frost, when they should be removed into shelter, and treated in the same way as other hardy kinds of green-house plants.

If these plants are propagated by seeds, they should be sown on a bed of fresh earth, exposed only to the morning sun the beginning of april, observing in dry weather to moisten the ground now and then, which will forward the vegetation of the seeds. When the plants come up, they must be kept clean from weeds till they are fit to remove, when they should be planted in pots, and treated in the same way as those raised from cuttings.

[SENECIO. See *Baccharis*, *Cacalia*, *Cineraria*, *Conyza*, *Crepis*, *Erigeron*, *Inula*, *Othonna*, *Spherantbus*, *Spilanthus*.

SENECIO-CARDUUS. See *Centaurea Crupina*.

SENECIOIDES. See *Conyza*.

SENECIUM. See *Senecio sylvaticus*.

SENEGA. See *Polygala*.

SENEGAL. See *Mimosa*.

SENGREEN. See *Saxifraga*.

SENNA. See *Arachis* and *Cassia*.]

——, Bladder. See *Colutea*.

——, Scorpion. See *Emerus*.

—— [spuria. See *Cæsalpinia* and *Poinciana*.

Sennie afinin. See *Banhinia*.

Sensitive Fern. See *Onoclea*.

—— Plant. See *Mimosa*.

SEPTAS. (*From* Septem: *the number seven prevailing in the fructification.*)

Lin. gen. n. 465. *Reich. n.* 501. *Schreb. n.* 633. *Juss.* 308.

Class. 7. 4. Heptandria Heptagynia.

Nat. order of *Succulentæ*. *Sempervivæ*, Juss.

[a] Linn. syst. [b] Hort. kew. [c] Linn. spec. [d] Linn. suppl. [e] Young's Annals. 11. 290.

GENERIC CHARACTER.

CAL. *Perianth* seven-parted, spreading, acute, permanent.

COR. *Petals* seven, oblong, equal, twice as long as the calyx.

STAM. *Filaments* seven, awl-shaped, length of the calyx. *Anthers* subovate, erect.

PIST. *Germs* seven, oblong, ending in awl-shaped *Styles*, the length of the stamens. *Stigmas* bluntish.

PER. *Capsules* seven, oblong, acute, parallel, one-valved.

SEEDS very many.

ESSENTIAL CHARACTER.

Cal. seven-parted. *Pet.* seven. *Germs* seven. *Caps.* seven, many-seeded.

SPECIES.

1. Septas capensis. *Round-leaved Septas.*
Lin. spec. 489. *syst.* 353. *Reich.* 2. 139. *amoen.* 6. *aff.* 13. *Pluk. mant. t.* 340. *f.* 9.
Trientalis foliis subrotundis crenatis. *Rey. lugdb.* 538.

DESCRIPTION, *&c.*

Leaves radical four, blunt, naked, crenate; the two lower opposite, larger, subpetioled, roundish; the two upper opposite, oval, sessile, narrower. Scape filiform, naked, terminated by a simple umbel, composed of seven or eight filiform, one-flowered, naked pedunculs; with a very small involucret. In the natural orders it approaches to *Saxifraga* and *Sedum*.

Native of the Cape of Good Hope [a]. Introduced in 1774, by Mr. Francis Masson. It flowers in august and september, and is perennial [a].

Loureiro has given the name of *Septas repens*, to a plant of the class *Didynamia* and the order *Angiospermia*, allied to *Thunbergia*.

SEPTOIN. See *Tormentilla*.]

SERAPIAS. (*From* Serapis, *one of the Egyptian idols.*)
Lin. gen. n. 1012. *Reich. n.* 1097. *Schreb. n.* 1371. *Gærtn. t.* 14. *Juss.* 65. Helleborine. *Tournef. t.* 249.
Class. 20. 1. Gynandria Diandria.
Nat. order of *Orchideæ*.

GENERIC CHARACTER.

CAL. *Spathes* wandering. *Spadix* simple.
Perianth none.

COR. *Petals* five, ovate-oblong, from erect patulous, converging upwards.
Nectary length of the petals, excavated at the base, melliferous, ovate, gibbous below, trifid, acute: the middle segment cordate, obtuse, three-toothed at the base with a bifid scar.

STAM. *Filaments* two, very short, placed on the pistil. *Anthers* erect, under the upper lip of the nectary.

PIST. *Germ* oblong, contorted, inferior. *Style* growing to the upper lip of the nectary. *Stigma* obsolete.

PER. *Capsule* obovate, bluntly three-cornered, with three keels adjoined, three-valved, opening under the keels, one-celled.

SEEDS numerous, sawdust-form. *Receptacle* linear, adjoined to each valve of the pericarp.

ESSENTIAL CHARACTER.

Nectary ovate, gibbous, with an ovate lip.

SPECIES.

1. Serapias latifolia. *Broad-leaved Helleborine.*
Lin. syst. 814. *Reich.* 4. 28. *mant.* 490. *Huds. angl.* 393. *Wither. arr. ed.* 3. 40. *Smith engl. bot. t.* 269. *Lightf. scot.* 526. *Relh. cant. n.* 662. *Sibth. oxon. n.* 38. *Abbot beds. n.* 642. *Fl. dan. t.* 811. *Gunn. norv. n.* 970. *t.* 5. *f.* 3—6. *Pollich pal. n.* 859. *Scop. carn. n.* 1128. *Villars dauph.* 2. 50.
S. Helleborine. *Lin. spec.* 1344. 1. *a. alt. upf.* 1740. 21. *fl. suec. n.* 819. *hort. cliff.* 429. *Gærtn. fruct.* 1. 46. *Mill. dict. n.* 1.
Helleborine latifolia montana. *Baub. pin.* 86. *Raii hist.* 1230. *syn.* 383.
Epipactis 5. Helleborine. *Camer. epit.* 187.
E. latifolia. [b] *Allion. pedem. n.* 1855.
E. *n.* 1297. *t.* 40. *Hall. helv.*
Roots creeping, leaves ovate embracing, flowers drooping, lip entire pointed shorter than the petals.

[a] Linn. amoen. [b] Hort. kew.

2. Serapias palustris. *Marsh Helleborine.*
Lightf. scot. 527. *Smith engl. bot. t.* 2[illegible] *n.* 1129. *Villars dauph.* 2. 5[illegible] *Allion. ped. n.*
S. longifolia. *Lin. syst.* 815. *Re*[illegible] 30. *mant.* *Wither. arr. ed.* 3. 41. *Relh. cant. n.* 66[illegible] *oxon. n.* 39. *Abbot beds. n.* [illegible] *Sudan. t.* *Pollich pal. n.* 860. *Knapp* [illegible] 82.
S. latifolia γ, palustris. *Huds. ang.* 393.
Helleborine palustris. *Raii hist.* 1231. *syn.* 384.
Epipactis longifolia. *Allion. pedem. n.* 1854.
E. *n.* 1296. *t.* 39. *Hall. helv.*
Roots creeping, leaves lanceolate embracing, flowers drooping, lip crenate obtuse equal to the petals.

3. Serapias ensifolia. *Sword-leaved Helleborine.*
Lin. syst. 815. *Wither. arr. ed.* 3. 42. *Engl. bot. t.* 494. *Fl. dan. t.* 506.
S. longifolia γ. *Huds. angl.* 394.
S. Xiphophyllum. *Linn. suppl.* 404.
Helleborine foliis præcongis angustis acutis. *Raii syn.* 384.
Root fibrous, leaves sword-shaped, bractes much shorter than the germ, flowers erect, lip obtuse half as long as the petals.

4. Serapias grandiflora. *White Helleborine.*
Lightf. scot. 528. *Wither. arr. ed.* 3. 42. *Engl. bot. t.* 271. *Relh. cant. n.* 664. *Sibth. oxon. n.* 40.
S. lancifolia. *Lin. syst.* 815.
S. longifolia. *Huds. angl.* 393.
S. Damasonium. *Mill. dict. n.* 2.
Helleborine flore albo. *Ger.* 358. 2. *Raii hist.* 1231. *syn.* 383. *Petiv. brit. t.* 70. *f.* 7.
Root creeping, leaves elliptic-lanceolate, bractes longer than the germ, flowers erect, lip obtuse rather shorter than the petals.

[5. Serapias nivea. *Snowy Helleborine.*
Desfont. atlant. 321.
Leaves lanceolate, flowers loosely racemed erect, bractes very small, lip obtuse twice as short as the petals.

6. Serapias polystachya. *Many-spiked Helleborine.*
Swartz prodr. 119.
Roots fibrous, stem subdivided jointed, leaves oblong-lanceolate, raceme compound terminating, lip of the nectary ovate recurved.

7. Serapias flava. *Yellow Helleborine.*
Swartz prodr. 119.
Roots fibrous, stem subdivided jointed, leaves oblong-lanceolate, racemes compound axillary, lip of the nectary erect acuminate.

8. Serapias rubra. *Purple Helleborine.*
Lin. syst. 816. *Reich.* 4. 30. *Wither. arr. ed.* 3. 42. *Engl. bot. t.* 437. *Fl. dan. t.* 345. *Pollich pal. n.* 862. *Leers herborn. n.* 700. *Villars dauph.* 2. 53.
S. longifolia δ. *Huds. angl.* 394.
S. grandiflora ε. *Wither. arr. ed.* 2. 1001.
Helleborine montana angustifolia purpurascens. *Bauh. pin.* 187. *Raii hist.* 1231. *syn.* 384. *Mor. hist. t.* 12. *t.* 11. *f.* 5.
Elleborine recentior 6. *Clus. hist.* 1. 273. 2. *Ger.* 358. 3. *emac.* 442.
E. angustifolia spicata versicolor. *Park. theat.* 218. 8.
Epipactis. *n.* 1299. *t.* 42. *Hall. helv.*
E. rubra. *Allion. pedem. n.* 1857.
Damasonium purpureum dilutum, f. Elleborine 6. Clusii. *Baub. hist.* 3. 517. 1.
D. flore roseo. *Riv. hex. t.* 6.
Root creeping, leaves lanceolate, bractes longer than the germ, flowers erect, lip acute marked with waving lines.

9. Serapias Lingua. *Narrow-leaved Helleborine.*
Lin. spec. 1344. *Reich.* 4. 31. *alt. upf.* 1740. 23. *Desfont. atlant.* 322.
Orchis Lingua. *Scop. carn. n.* 1104. *Hall. helv. n.* 1267. *Allion. pedem. n.* 1833.
O. montana italica flore ferrugineo, lingua oblonga. *Baub. pin.* 84. *prodr.* 29. *Raii hist.* 1221. *Mor. hist. f.* 12. *t.* 14. *f.* 21. *Tournef. inst.* 434. *Seguier suppl.* 249. *t.* 8. *f.* 4.
β. O. mont. ital. lingua oblonga altera. *Baub. pin.* 84.
O. macrophylla. *Col. ecphr.* 2. 321. *t.* 322.

Bulbs roundiſh, lip of the nectary trifid acuminate ſmooth longer than the petals.

10. Serapias cordigera. *Heart-lipped Helleborine.*
Lin. ſpec. 1345. *ſyſt.* 816. *Reich.* 4. 31. *Deſcont. et lant.* 221.
Orchis monorchis italica lingua trifida. *Rudb. elyſ.* 2. 204. *f.* 20. *Shaw itin. n.* 441.

Bulbs roundiſh, lip of the nectary trifid acuminate very large bearded at the baſe.

11. Serapias capenſis. *Cape Helleborine.*
Lin. ſyſt. 816. *Reich.* 4. 31. *mant.* 293.

Leaves conduplicate-enſiform, ſtem almoſt naked above, ſheaths ſpathaceous.

12. Serapias erecta. *Upright Helleborine.*
Lin. ſyſt. 816. *Thunb. jap.* 27.

Leaves ovate embracing, flowers erect.

13. Serapias falcata. *Sickle-leaved Helleborine.*
Lin. ſyſt. 816. *Thunb. jap.* 28.

Leaves enſiform convoluted ſickle-form, flowers erect.

14. Serapias regularis.
Forſt. prodr. n. 312.
Thelymitra longifolia. *Forſt. gen.* 49.

Bulbs ovate fibrous, leaves ſheathing enſiform keeled, ſcape erect ſpiked, corollas ſix-petalled.

DESCRIPTIONS, *&c.*

1. Root perennial, creeping horizontally, throwing out many long fibres, fleſhy but by no means bulbous, thriving in the moiſt black vegetable mould of damp woods. Stem ſimple, erect, near two feet high, clothed with ſeveral alternate, ovate or lanceolate leaves, the lower ones ſheathing, the upper ſeſſile, all ſtrongly nerved, thin, rather rigid, not fleſhy. Spike erect, many-flowered. Bractes lanceolate, the lower ones longeſt. Flowers more or leſs drooping, on ſhort peduncles, of a brownish green colour, but ſometimes dark purple (which is Mr. Hudſon's variety β;) petals ovate, pointed, concave. Nectary ſhorter than the petals, concave, with a projecting margin: lip heart-ſhaped, with a ſmall recurved point, purpliſh but not ſtreaked. The colour of the flowers is very variable: they have generally a faint, aromatic, orchis-like ſmell. The germ and ſtem are more or leſs downy [a].

Mr. Woodward remarks, that the lower leaves are ovate, two inches and a quarter broad, and not more than three or four inches long; the germ pear-ſhaped and ſhort: and Dr. Withering—that the ſtem is more or leſs of a brownish purple; the ſpike from three to eight inches long, with from ſix to twenty flowers or more, much cloſer ſet than in the next ſpecies; calyx-leaves three, brownish green, broad ſpear-ſhaped, keeled; the two lateral petals reſembling the leaves of the calyx, purpliſh green; the upper lip of the nectary glandular, white, fleſhy, the lower diſtended at the bottom into a nearly globular hollow, purple within and of a brownish green without, towards the end flat purpliſh and ſomewhat ſcolloped: anthers yellowiſh white, connected to their caſe by a milk-white globular ſubſtance: piſtils two white fleſhy, fixed on the glandular receptacle: capſule obovate, bulging on the upper ſide, ſmooth or nearly ſo.

Native of Europe, in woods, groves and hedges; flowering in july and auguſt. Not uncommon in Britain, eſpecially in the mountainous parts: as in the north-riding of Yorkſhire, about Matlock, &c. In Derbyſhire, Buckham wood in Cumberland, in the red rock plantation, Edgbaſton Park. In Scotland, at Chateſherault near Hamilton, and in the wood of Comrie in Strathearn: but not very common. Alſo in the midland and other countries of England, as Kingſton wood in Cambridgeſhire, Thurleigh and Sheerhatch in Bedfordſhire, Northleigh and Stokenchurch woods in Oxfordſhire, about Ospringe in Kent, Buddon wood and about Loughborough in Leiceſterſhire, Broadly and Clenſton woods in Dorſetſhire, and Selborne in Hampſhire, &c. In Ireland, in Lord Dungannon's plantations at Belvoir.

Mr. Hudſon's variety β. Helleborine altera atrorubente flore. *Bauh. pin.* 186. *Ray ſyn.* 383. differs only in not being ſo tall, the fibres of the root very long and tough owing to its ſituation, the leaves ſmaller; the lower ovate pointed not obtuſe, and the outer appearance of the flower a darker colour. Mr. Ray ſays, the leaves are narrower and more frequent on the ſtem, and that the flowers, which are of a blackiſh red, come out later. He found it near Malham, four miles from Settle in Yorkſhire, and in other mountainous ſituations. Mr. Woodward, who furniſhed the above obſervations, gathered it on Conzick Scar, four miles from Kendal, growing at the foot of the Scar itſelf among the looſe ſtones and rubbiſh, in a ſituation not acceſſible without difficulty and danger.

2. Root creeping, fleſhy, perennial. Stem erect, ſimple, from twelve to eighteen inches high. Lower leaves ovate, often purple at the back; upper lanceolate, erect; all embracing and ribbed. Spike erect. Bractes lanceolate, about equal to the germ. Flowers fewer and much larger than in the preceding ſpecies, drooping, with downy purple peduncles and germ. Petals rather obtuſe, the three outer green, the two inner white, all ſtreaked and ſtained with purple. Nectary about as long as the petals, white ſtreaked with purple, and a yellow central line; lip heart-ſhaped, with a dilated waving crenate margin, and a notched protuberance above the baſe [b].

Germ, according to Mr. Woodward, long, narrow, and when full grown elliptical, eight lines long and four broad, with ſix prominent ridges. Lip of the nectary divided tranſverſely almoſt through, the upper part fixed and boat-ſhaped, marked with red ribs, and at the bottom a yellow line with orange ſpots, the lower part hangs down and is white.

Mr. Wood remarks, that the outer half of the lip is ſo ſlightly attached as to be ſhaken off by a ſmall motion, and is often blown off by the wind while the plant is growing:—Mr. Hollefear, that the leaves are ſometimes ovate-lanceolate with ſeven ribs:—Dr. Stokes, that they are ſometimes ovate-oblong and blunt; the peduncles downy and filiform; the germs downy, ſlightly ſcored, long, tapering down to the peduncle, and a little towards the point:—Dr. Withering, that the ſpike is about four inches long, with from ſix to twelve flowers, much wider ſet than in the preceding ſpecies; peduncle and germ woolly, the latter uniform, not bulging on the upper ſide.

The characters thus detailed leave no doubt of this being a diſtinct ſpecies from the preceding; the different lengths of the lip, and the ſhape of the germs will always diſcriminate them; and ſhould the woollineſs of the peduncle flower and germs be conſtant in this, and always wanting in that, their difference will be obvious at firſt ſight [c].

Native of Europe, in ſwampy meadows, watery places, marſhes, moraſſes and bogs. In England not very unfrequent; as on the bogs of Chiſelhurſt in Kent, in Eſſex, Norfolk, Cambridgeſhire, Bedfordſhire, Oxfordſhire, Leiceſterſhire, near Leeds in Yorkſhire, on the borders of Malvern Chace, Worceſterſhire, near Sturminſter Newton and between Wimbourne and Ringwood, Dorſetſhire, and on Knutsford Moor, Cheſhire. Near Duntuim caſtle, in the iſle of Skye, in Scotland.—In Ray's ſynopſis it is ſaid, on the authority of Mr. J. Sherard, to be very common in the old chalk-pits by the White-houſe, in the road from Eltham to North Cray, with the Orchis myodes, on chalky ground: but ſurely that muſt be a miſtake, ſince it is not found any where elſe in ſuch a ſituation.—Mr. Hudſon's aſſertion, that this, if planted in a garden or dry ſoil, will the ſecond year become S. latifolia, looks like another miſtake.

3. This has moſt affinity with the *grandiflora*, and has often been confounded with that; the root however ſeems to be not ſo properly creeping, but conſiſts of a bundle of long fleſhy fibres. Leaves long and ſword-ſhaped, ſtanding almoſt in two ranks, the uppermoſt nearly linear, the loweſt very blunt and even emarginate. Bractes extremely ſmall, except the lowermoſt, ſcarcely a quarter ſo long as the germ, by which this ſpecies is eſſentially diſtinguiſhed. Flowers white, upright. Germ ſlender, ſtriated: the lip has white

[a] Engl. bot.

[b] Idem.

[c] Wither. arr.

elevated ribs running longitudinally, and in the front a yellow crescent-like spot [1].

According to Ray, the root is composed of many thickish fibres; the stem a foot high or more, and upright. Root-leaves long, narrow, pointed, resembling those of reeds; stem-leaves very many, narrow. Flowers snow-white, eight or ten, in a loose spike.

Mr. Woodward describes the stem as a foot high, sometimes slightly twisted. Stem-leaves bright-green, smooth, shining, having five or seven principal ribs; the longest six inches long, and half an inch wide; the lower embracing, the upper sessile, alternate, and pointing from two opposite lines. Seed-vessels upright, elliptical, but from the projecting ribs appearing three-cornered, longer and narrower than those of palustris [2].

Native of several parts of Europe. Found by Newton under Brackenbrow or Brackenwray, opposite Helk's wood a mile from Ingleton in Yorkshire. Dr. Richardson observed it there afterwards [3]:—by Mr. Woodward in Lord Lonsdale's woods at Lowther in Westmoreland:—by Walter Michael Mosely, Esq. of Glasshampton, on the top of Aberly hill in Worcestershire, and also in Wire forest in the same county [4]. Sherard found it in a rotten bog by a lough-side near the dairy-house in Crevetenau Ballinahinch, Ireland, and communicated it to Ray in 1694. Bales afterwards sent it to him from Hertfordshire [5]. But was not this rather the grandiflora?

4. Root long and creeping, perennial. Stem about a foot high. Leaves ribbed, various in breadth, but generally rather elliptical than lanceolate, their base half embracing the stem. Spike erect, with from three to eight large white nearly upright flowers. Lower bractes like the leaves in form and size, the others gradually less, but none shorter than the germ, which is slender and deeply furrowed. Petals but little expanded, and enclosing the lip of the nectary, which is heart-shaped, obtuse, entire, with three elevated longitudinal yellow ribs on the upper side [6].

Native of Europe in woods and thickets. It occurs with us chiefly in the midland counties. In Stokenchurch woods, and Shotover plantations in Oxfordshire. About Marlow in Buckinghamshire. In Gloucestershire. In Mr. Knight's walks, Wolverley, Worcestershire. In Purbeck, in the woods at Grange, and in the lane going up the hill above; in the grove at the Down-house near Blandford, and in Little wood at Chettle in Dorsetshire. Teversham and Quey in Cambridgeshire and the Isle of Ely. In Lord Lonsdale's wood, against Askham-hall, Westmoreland. In Scotland, but rarely: in a wood at Loch Ransa, in the Isle of Arran. It flowers in june.

5. Roots brown, flexuose, numerous. Leaves acute, nerved, embracing. Bractes small, awl-shaped. Corollas white: segments lanceolate, converging; lip shorter by half than the petals, channelled, blunt, striated.—It differs from *grandiflora*, in having a closer spike, smaller bractes, and flowers only half the size. Native of Algiers, on hills [7].

6. Native of Jamaica and Hispaniola.

7. Native of Jamaica [8].

8. Root creeping horizontally, and producing many long simple fibres. Stem perfectly erect, a foot high, leafy, downy, compressed, having fewer leaves on the upper part. Leaves a little spreading in various directions, pointed and ribbed. Spike of from three to six purple flowers. Bractes lanceolate, the lowest sometimes as long as its corresponding flower; the rest little longer than the germ, sometimes rather shorter. Germ slender, downy. Petals all directed upwards, ovate, very much pointed. Nectary with a short blunt projection behind; its lip about equal to the petals in length, white tipped with purple, lobed on each side at the base, marked with yellow elevated waving lines, and terminating in a sharp point.

Native of Europe. Plukenet received it from Ireland; and on his authority, Dillenius inserted it in his edition of Ray's synopsis. Hudson says [illegible] about Clapham and Ingleton in Yorkshire. Withering, in the third edition of his Arrangement, considers it as a doubtful native [illegible] however gathered in june [illegible] on Hampton common, Glo[illegible] by Mr. Smith of Barnham Houle; and in the following month by the Rev. Mr. Baker, in another part of the same county [9].

Much confusion reigned among the four British species of Serapias, till Lightfoot, Withering, and Smith, ascertained and distinguished them as accurately.

9. Bulbs three, four or more, roundish, villose, hanging down from the ends of the fibres. Leaves narrow-lanceolate, acute, channelled. Stem clothed with sheaths of leaves. Flowers two to four, in a loose spike. Bractes lanceolate, acute, concave, erect, purplish, longer than the germ. Petals three, lanceolate, acute, converging, concolor, marked with lines. Lip standing out, three-lobed; the two side-lobes short and rounded; the middle-lobe smooth, lanceolate, acute, quite entire.—This is allied to the next species, but differs in having the flowers in spikes, and little more than half the size, with the lip lanceolate not cordate [10].

Native of France, Switzerland, Carniola, Italy, and Africa near Algiers. Introduced in 1786, by Sir Francis Drake, Bart. It flowers in may [11].

10. Bulbs commonly many, spherical, two of them approximating as in some of the Orchises, the rest hanging from the ends of the fibres. Leaves narrow-lanceolate, acute, channelled, involving the stem. Flowers three to six, loose, terminating, subpanicled. Bractes concave, lanceolate, acute, longer than the germ, purplish, with longitudinal veins of a deeper colour. Petals three, concolor, converging, lanceolate, acute. Lip excavated at the base, deep purple, three-lobed, the side-lobes short, rounded, the middle lobe very large, subcordate, acuminate, veined, quite entire, villose, but sometimes smooth [12].

It resembles the preceding, but is larger. The lip of the nectary is subcordate, and bearded at the base in the middle, with an erect obtuse earlet on each side [13].

Native of Spain, Italy, the Levant, and Africa about Algiers; flowering early in the spring.

11. Stem a foot high, erect, quite simple, even. Root-leaves sword-shaped, folded together, even, a finger's length, acute: stem-leaves alternate, remote, sheathing, oblong, acute, an inch in length. Raceme terminating, quite simple, directed one way: flowers eleven or twelve, each on a separate peduncle. Bractes lanceolate, membranaceous, shorter than the flower. Petals five, lanceolate, even, erect. Lip of the nectary bifid.—Native of the Cape of Good Hope [14].

12. Stem erect, subflexuose, angular, smooth, a span high. Leaves about five, alternate, embracing: the two lower sheath-form; the two middle ovate, acute, entire, nerved, smooth, from upright spreading, an inch long; the uppermost lanceolate, nerved. Flowers terminating, in a spike, erect, white, small.—Native of Japan.

13. Stem covered with sheathing leaves, a span high. Leaves acute, nerved, entire, smooth, a finger's length, about five. Flowers terminating, in a spike erect.

Native of Japan, on the mountain Fakona, flowering in april [15].

14. Spathes lanceolate, acute. Petals six, ovate-lanceolate, spreading, concave, the three outer larger. Nectary one-leafed, two-lipped: upper lip truncate, very short; lower erect, trifid, the middle segment cowled, the lateral ones slender with a radiant beard at the point.—Native of New Zealand [16].

Forster first made this plant a distinct genus under the name of *Theisnitra*, the parts of fructification having a covering like a woman's hood or bonnet; but afterwards, by the persuasion of Solander, he reduced it to this genus.]

[1] Engl. bot. [2] Wither. arr. [3] Ray syn. [4] Engl. bot. [5] Ray syn. [6] Engl. bot. [7] Desfontaines. [8] Swartz. [9] Engl. bot. [10] Desfontaines. [11] Hort. Kew. [12] Desfontaines. [13] Linn. spec. [14] Linn. mant. [15] Thunberg. [16] Forster.

PROPAGATION AND CULTURE.

These plants being difficult to preserve and propagate, few have attempted to keep them in gardens. They can only be taken up from the places where they grow naturally, when their leaves begin to decay, and planted in a shady moist place, where they will thrive and flower.

[See Ophrys and Orchis.

Serapias. See *Arcbusa*, *Cypripedium*, *Ophrys*, and *Orchis*.

Seriana or Seriania. See *Paullinia*.

SERIOLA. (*A little veſſel, jar or pot.*)

Lin. gen. n. 917. *Reich. n.* 996. *Schreb. n.* 1245. *Gærtn. t.* 159. *Juſſ.* 171. Achyrophorus. *Vaill. acad. gall.* 1721. *f.* 28. 13. 21. 18.

Claſſ. 19. 1. Syngeneſia Polygamia Æqualis.

Nat. order of *Compoſitæ Semiflosculoſæ*. *Cichoraceæ*, Juſſ.

GENERIC CHARACTER.

Cal. *Common* ſimple: *leaflets* linear, almoſt equal, erect.

Cor. *Compound* imbricate, uniform. *Corollets* hermaphrodite, equal, numerous.

Proper one-petalled, ligulate, linear, truncate, five-toothed.

Stam. *Filaments* five, capillary, very ſhort. *Anther* cylindrical, tubulous.

Pist. *Germ* ovate. *Style* filiform, length of the ſtamens. *Stigmas* two, reflex.

Per. none. *Calyx* unchanged.

Seeds oblong, length of the calyx. *Pappus* capillary, ſtipitate; with ten rays, hairy at the ſides.

Rec. chaffy, length of the calyx, deciduous.

ESSENTIAL CHARACTER.

Cal. ſimple. *Pappus* ſubplumoſe. *Recept.* chaffy.

SPECIES.

1. Seriola lævigata. *Smooth Seriola.*
Lin. ſpec. 1139. *Reich.* 3. 660. *Vahl ſymb.* 2. 90. *Deſfont. atlant.* 237. *t.* 216.
Achyrophorus fere glaber, bellidis glauco dentatoque folio. *Vaill. act.* 1721. *p.* 278.
Hieracium ramoſum, &c. *Raii ſuppl.* 144.
Smooth-biſh, leaves obovate toothed.

2. Seriola æthnenſis. *Rough Seriola.*
Lin. ſpec. 1139. *Reich.* 3. 660. *Jacqu. obſ.* 4. *p.* 3. *t.* 79. *Gærtn. fruct.* 2. 370.
Hypochæris calycibus æqualibus hiſpidis. *Lin. hort. cliff.* 385. *hort. upſ.* 240.
Achyrophorus hirſutus, bellidis obtuſo folio. *Vaill. act.* 1721. *p.* 739.
Hiſpid, leaves obovate ſomewhat toothed.

3. Seriola cretenſis. *Cretan Seriola.*
Lin. ſpec. 1139. *Reich.* 3. 660.
Achyrophorus hirſutus, dentis leonis folio læviter dentato. *Vaill. act.* 1721. *p.* 740.
Rough-haired, with runcinate leaves.

4. Seriola urens. *Stinging Seriola.*
Lin. ſpec. 1139. *Reich.* 3. 660.
Hypochæris urens. *Lin. ſpec. ed.* 1. 810.
H. hieracii barbati folio, calyce hiſpido. *Vaill. act.* 1721. *p.* 215.
Hieracium alpinum, &c. *Cup. catbol.* 95. *Raii ſuppl.* 146. *n.* 89.
Stinging, leaves toothed, ſtem branched.

DESCRIPTIONS, &c.

1. Roots perennial, long, twiſted, the thickneſs of the little finger, covered at top with brown ſcales from the withered petioles. Leaves radical, ſmooth, remotely toothed, obovate or ſpatulate, decurrent. Scape erect, ſlender, ſmooth, very ſlightly ſtreaked, ſparingly branched and ſometimes quite ſimple, almoſt leafleſs. At the baſe of each branch is an awl-ſhaped leaflet or ſcale. Peduncles almoſt filiform, few (three or four) unequal, one-flowered. Calyx ſmooth, cylindrical; with the outer leaflets few and ſhorter; the inner linear and equal. Petals yellow, linear, toothed at the end, twice as long as the calyx. Seed brown, ſmooth, ſlender, elongated. Pappus ſimple, ruſeſcent, feſſile in the ray, ſtiped in the diſk [a].

Vahl deſcribes the root as woody, fuſiform, divided at top: the leaves collected into a roſe, wedge-form, ending in a channelled petiole, an inch and half long, moſtly quite ſmooth, even, (ſometimes, but very ſeldom, having a few hairs on the upper ſurface towards the point,) glaucous-green, veinleſs, ſharpiſh, having three or four diſtant teeth on each ſide. Calyx ſubimbricate, with the outer leaflets ſhort and unequal, the inner towards the point having a hiſpid line of hairs. Seeds awl-ſhaped, appearing to be tranſverſely ſtreaked when examined with a magnifier. Pappus eight or ten-rayed, ſubplumoſe. Chaffs membranaceous, linear, acuminate.

Native of the iſland of Candia, and of Barbary, in the cleſts of rocks. Introduced in 1772, by Monſ. Richard. It flowers in july and auguſt [b].

2. Root annual. Stems branched, erect, hirſute. Leaves villoſe, obtuſe, remotely toothed: upper ſtem-leaves ſeſſile, embracing. Peduncles long, erect, one-flowered, hiſpid, leafleſs above, unequal, panicle-corymbed. Calyx ſimple or ſcarcely imbricate, cylindrical, very hirſute, with linear leaflets. Corolla yellow. Seeds even, thoſe of the ray naked. Pappus of the others feathered, ſtiped. Chaffs linear, acute, deciduous [a].

Receptacle, according to Gærtner, convex, covered all over with membranaceous, linear-lanceolate, deciduous chaffs, nearly equal to the calyx. Seeds ſmall, fuſiform, ſtriated, rugged with ſharp points, of a red-ruſt colour. Pappus feathered, permanent, ſtiped, having about ten white rays between chaffy and briſtly: ſtipe capillary, length of the ſeed.

Native of Italy, and of Barbary near Maſcay.

3. Native of the iſland of Candia or Crete.

4. The ſcales of the calyx are ſharp with pungent ſpinules [a]: which, ſays Ray, diſtinguiſhes this plant at firſt ſight. He adds, that there is a long narrow leaf at the origin of each branch.

Native of Sicily and other parts of the South of Europe. This and the ſecond ſpecies were introduced by John Earl of Bute, the former in 1771, the latter in 1773 [c].

SERIPHIUM. (*Σεριφιον of Dioſcorides.*)

Lin. gen. n. 1003 *Reich. n.* 1087. *Schreb. n.* 1358. *Gærtn. t.* 167. *Juſſ.* 180. Helychryſoides. *Vaill. act. gall.* 1719.

Claſſ. 19. 5. Syngeneſia Polygamia Segregata.

Nat. order of *Compoſitæ Nucamentaceæ*. *Corymbiferæ*, Juſſ.

GENERIC CHARACTER.

Cal. *Outer Perianth* of five roundiſh imbricate tomentoſe leaflets.—*Inner* of five erect acuminate awl-ſhaped very ſmooth ſcarioſe leaflets, twice as long as the others; one-flowered.

Cor. one-petalled, funnel-form, ſhorter than the inner calyx: *border* five-toothed.

Stam. *Filaments* five, capillary. *Anther* cylindrical.

Pist. *Germ* inferior to the corollet, ſuperior to the calyx. *Style* filiform. *Stigma* ſubbifid.

Per. none. *Calyx* unchanged, cloſed.

Seed ſolitary, oblong.

ESSENTIAL CHARACTER.

Cal. imbricate. *Cor.* one-petalled, regular. *Seed* one, oblong, below the corolla.

SPECIES.

1. Seriphium cinereum. *Heath-leaved Seriphium.*
Lin. ſpec. 1316. *ſyſt.* 798. *Reich.* 3. 950. *mant.* 481. *Berg. cap.* 340. *Gærtn. fruct.* 2. 416. *Pluk. mant. t.* 297. *f.* 1. (Tamariſcus.) *Pet. gaz. t.* 3. *f.* 9. (Breynia.)
Artemiſia floribus ſimpliciſſimis. *Lin. hort. cliff.* 403.
Abrotanoides africanum, ſolis minimis argenteis reflexis, floribus in ſummis caulibus & ramulis in ſpicas oblongas digeſtis. *Raii ſuppl.* 233.
Flowers whorl-ſpiked one-flowered, leaves ſpreading.

2. Seriphium plumoſum. *Feathered Seriphium.*
Lin. ſpec. 1316. *ſyſt.* 798. *Reich.* 3. 950. *mant.* 481. *Pet. gaz. t.* 5. *f.* 4. (Breynia.)
Abrotanoides africanum, ſolis cinereis muſcoſis, capitulis florum globoſis magnis. *Raii ſuppl.* 233.
Flowers in ſpikes ſix-flowered, leaves granulate-ovate.

[a] Deſfontaines.

[1] Hort. kew. [a] Deſfontaines. [b] Linn. ſpec. [c] Hort. kew.

3. Seriphium fuſcum. *Brown Seriphium.*
Lin. ſpec. 1317. *ſyſt.* 799. *Reich.* 3. 950. *mant.* 481.
Stoebe ericoides. *Berg. cap.* 339.
Eupatorium ericoides capitis bonæ ſpei. *Breyn. cent. t.* 69. *Mor. hiſt.* 3. 97. *ſ.* 7. *t.* 18. *f.* 10.
Abrotanoides capenſis, ericæ folio. *Pet. gaz.* 9. *t.* 5. *f.* 2.
Flowers capitate one-flowered, leaves imbricate.
4. Seriphium ambiguum. *Doubtful Seriphium.*
Lin. ſyſt. 799. *Reich.* 3. 951. *Comm. hort.* 2. 117. *t.* 59?
Gnaphalium ſeriphoides. *Berg. cap.* 267.
Artemiſia ambigua. *Lin. ſpec.* 1190. *mant.* 465.
Flowers in ſpikes three-flowered, leaves linear.

DESCRIPTIONS, *&c.*

1. Branches in whorls. Leaves lanceolate, ſmall, cluſtered, recurved, gibbous at the baſe, hoary. Spikes fox-tail like, pale red, interrupted. Scales of the calyx almoſt ſetaceous[1].—General calyx none, or not diſtinct from the outer chaffs of the receptacle: partial one-flowered, double, each five-leaved: outer leaflets ſhorter, tomentoſe, obtuſe, like the chaffs equal; inner longer, ſcarioſe, ſmooth, briſtly-acuminate, unequal, prominent far beyond the chaffs, ſo as to form an echinated head. Florets cylindric-funnel-form, five-cleft. Common receptacle ſubglobular, covered all over with ovate-oblong, concave chaffs, tomentoſe on the outſide. Seed ovate-globular, five-grooved, ſmooth, ſmall, of a pale whitiſh colour. Pappus the length of the corollet, caducous, with about twelve rays, pencil-feathered at top, naked at bottom, ſetaceous, united in a ring[2]. Introduced in 1774, by Mr. Francis Maſſon. It flowers from july to ſeptember[3].

2. Flowers five or ſix-flowered. Leaves filiform. Flowers lateral, ſeſſile, imbricate with granulate leaves[4].

3. Flowers one-flowered, terminating, ſeſſile, in bundles. Stems diſtorted, branched, flexuoſe. Leaves cinereous, awnleſs[5].

4. This is a procumbent, cinereous ſhrub. Leaves ſimple, linear, cluſtered. Spikes long, terminating the branches. Flowers roundiſh. Calyxes cinereous, but with the inner row of ſcales ſcarioſe or membranaceous, coloured, white as in the Gnaphaliums. Four or five capillary rays, the length of the florets, feathered at the point, ſtand round the florets. Seeds naked.

This ſpecies is intermediate between the Seriphiums, Artemiſias, Gnaphaliums and Stoebes. It naturally appertains to this genus, though it is not without difficulty combined with it, except in the pappus feathered at the point[6].

All the ſpecies are natives of the Cape of Good Hope.

Seriphium Abſinthium. See *Sifymbrium Sophia.*
——— corymbiferum. See *Stoebe gnaphaloides.*

SERMOUNTAIN. See *Siler.*]

SERPENTARIA. See *Ariſtolochia,* [*Ophioglooſſum, Polygonum Biſtorta* and *Saururus.*

SERPENTINA. See *Plantago ſubulata.*

SERPICULA. (A ſerpendo, *from creeping, a little creeping plant.*)
Lin. gen. Reich. n. 1144. *Schreb. n.* 1413. *Juſſ.* 318.
Laurembergia. *Berg. c.* 350. *t.* 5?
Claſſ. 21. 4. Monoecia Tetrandria.
Nat. order of *Inundatæ. Onagræ,* Juſſ.

GENERIC CHARACTER.

* *Male Flowers* ſolitary, pedunculed.
CAL. *Perianth* very ſmall, four-toothed, erect, acute, permanent.
COR. *Petals* four, oblong, obtuſe, ſeſſile.
STAM. *Filaments* four, very ſhort. *Anthers* oblong, length of the petals.
* *Female Flowers* on the ſame plant.
CAL. *Perianth* ſuperior, four-parted, very ſmall, permanent.
COR.
PIST. *Germ* inferior, ovate, grooved. *Style* — — —
Stigma — — —
PER. *Nut* cylindrical, with eight [illegible], one-celled, deciduous.
SEED ſingle, oblong.

ESSENTIAL CHARACTER.

MALE. *Cal.* four-toothed. *Cor.* [illegible]
FEM. *Cal.* four-parted. *Per.* [illegible]

SPECIES.

1. Serpicula verticillata.
Lin. ſyſt. 848. *ſuppl.* 416. *Koen. corom. t.* 164.
Leaves in whorls aculeate-ſerrate.
2. Serpicula repens.
Lin. ſyſt. ed. 13. 708. *ed.* 14. 848. *Reich.* 4. 124. *mant.* 124. *ſuppl.* 416.
S. ſerpillifolia. *Burm. prodr.* 26.
Laurembergia capenſis. *Berg. cap.* 350. *t.* 5.
Leaves alternate linear.

DESCRIPTIONS, *&c.*

1. Native of the Eaſt Indies.

2. The herb has the appearance of *Veronica ſerpyllifolia,* but is ſmaller. Stem creeping. Leaves moſtly alternate, linear, ſeldom ſerrate.—Native of the Cape of Good Hope[7].

Bergius named it *Laurembergia,* from William and Peter Laurembergius, of Roſtock, brothers; the firſt a phyſician at Copenhagen, the ſecond, profeſſor of poetry at Roſtock; both authors of botanical works. Bergius's deſcription does not quite agree with Linnæus's.

SERPILLIFOLIA and SERPYLLIFOLIA. See *Linnæa.*]

SERPYLLUM. See *Thymus.*

[SERRARIA. See *Plantago* and *Protea.*]

SERRATULA. (*So named from the finely ſerrated leaves of the common ſort. The name is found in Pliny.*)
Lin. gen. n. 924. *Reich. n.* 1003. *Schreb. n.* 1264.
Dill. giſſ. 8. *Juſſ.* 174. *Gaertn. t.* 162.
Claſſ. 19. 1. Syngeneſia Polygamia Æqualis.
Nat. order of *Compoſitæ Capitatæ. Cinarocephalæ,* Juſſ.

GENERIC CHARACTER.

CAL. *Common* oblong, ſubcylindrical, imbricate with lanceolate, acute or obtuſe, awnleſs *ſcales.*
COR. *Compound* tubulous, uniform. *Corollets* hermaphrodite, equal.
Proper one-petalled, funnel-form: *tube* bent in; *border* ventricoſe, five-cleft.
STAM. *Filaments* five, capillary, very ſhort. *Anthers* cylindrical, tubulous.
PIST. *Germ* ovate. *Style* filiform, length of the ſtamens. *Stigmas* two, oblong, reflex.
PER. none. *Calyx* unchanged.
SEEDS ſolitary, obovate. *Pappus* ſeſſile, feathered.
REC. chaffy, flat.
OBS. *The Pappus in ſome is plumoſe, in others only ſubplumoſe.*
Carduus *is diſtinguiſhed from* Serratula *by its hairy receptacle, ventricoſe calyx, prickly ſcales, ſtigma leſs bifid, and feathered pappus.*

ESSENTIAL CHARACTER.

Cal. ſubcylindrical, imbricate, awnleſs.

SPECIES.

1. Serratula tinctoria. *Common Saw-wort.*
Lin. ſpec. 1144. *ſyſt.* 723. *Reich.* 3. 668. *hort. cliff.* 391. *upſ.* 249. *fl. ſuec. n.* 713. *Gaertn. fruct.* 2. 380. *Hudſ. angl.* 349. *Wither. arr. ed.* 3. 695. *Smith brit.* 845. *engl. bot. t.* 38. *Hull,* 180. *Lightf. ſcot.* 447. *Relh. cant. n.* 584. *Sibth. oxon. n.* 677. *Abbot bedf. n.* 571. *Fl. dan. t.* 281. *Pollich pal. n.* 760. *Krock. ſileſ. n.* 1325. *Villars dauph.* 3. 39. *Pallas it.* 1. 63. *Knipb. cent.* 2. *n.* 83.
Serratula. *Baub. pin.* 235. *Dod. pempt.* 42. 3. *Matth.* 945. 1. *vaigr.* 2. 295. *Camer. epit.* 662. *Bauh. hiſt.* 3. 23. 2. *Cluſ. hiſt.* 2. 8. 1. *Raii hiſt.* 331. *ſyn.* 196. *Petiv. brit. t.* 22. *f.* 6.
S. purpurea. *Ger.* 576. 1. *emac.* 713.
S. vulgaris flore purpureo. *Park. theat.* 475.

* Linn. † Gærtner. ‡ Hort. kew. § Linn. mant.
‖ Idem. ¶ Linn. ſpec. ſyſt. and mant.

* Linn. mant. and ſyſt.

Carduus tinctorius. *Scop. carn. n.* 1012. *Hall. helv. n.* 163. *Allion. pedem. n.* 538.
Leaves ferrate subciliate lyrate-pinnatifid, terminating lobe very large, florets uniform, pappus somewhat rugged.

[2. Serratula coronata. *Siberian Saw-wort.*
Lin. spec. 1144. *Reich.* 3. 669. *Kreck. sibef. n.* 1326. *Boc. mus.* 2. 45. *t.* 37. *Gmel. sib.* 2. 49. *t.* 20. (Carduus.)

S. foliis laciniatis. *Amm. ruth. n.* 181.
Leaves lyrate-pinnatifid, terminating pinna very large, florets of the ray female longer.

3. Serratula japonica. *Japonese Saw-wort.*
Lin. syst. 723. *Thunb. jap.* 305.
Leaves lyrate-pinnatifid rugged, calyx-scales dilated at the point and membranaceous.

4. Serratula alpina. *Alpine Saw-wort.*
Lin. spec. 1145. *syst.* 723. *Reich.* 3. 669. *fl. lapp. n.* 291. *suec. n.* 714. *hort. upf.* 391. *Huds. angl.* 349. *Wither. arr. ed.* 3. 690. *Smith brit.* 846. *engl. bot. t.* 549. *Hall.* 180. *Lightf. scot.* 448. *t.* 19. *Gaun. narr. n.* 48. *Kreck. sibef. n.* 1327. *Pillars denth.* 3. 40.
Cirsium. *Hall. helv. n.* 179. *t.* 6.
C. inerme. *Gmel. sib.* 2. 67. *t.* 26.
Carduo-Cirsium manus britannicum, floribus congestis. *Pluk. phyt. t.* 154. *f.* 3.

β. S. alpina cynoglossifolia. *Lin. spec.* 8.
Cirsium humile montanum Cynoglossi folio, polyanthemum. *Rai syn.* 193. *Mor. hist.* 3. 148. *Dill. elth.* 82. *t.* 70. *f.* 81. v. *Gmel. sib.* 2. 76. *t.* 32.
Carduus mollis flore cæruleo. *Tabof. Merc. bot.* 2. 18. *Merc. pin.*

γ. S. alpina lapathifolia. *Lin. spec.* 7.
Cirsium polyanthemum molli hastato folio. *Mor. hist.* 3. 148. *s.* 7. *t.* 29. *f.* 1.
Carduus mollis lapathi folio. *Bauh. pin.* 377.
C. mollior 2. *Clus. hist.* 2. 151.

δ. S. alpina angustifolia. *Lin. spec.* 2. *Hall. helv. n.* 179. β.
S. alpina. *Fl. dan. t.* 37.
Cirsium montanum, polyanthemum Salicis folio angusto denticulato. *Rai syn.* 193.
C. inerme, foliis linearibus utrinque virilibus calycibus hirsutis. *Gmel. sib.* 2. 78. *t.* 33. *Hall. bot.* 7.
Calyxes somewhat hairy ovate, leaves undivided woolly beneath, pappus feathered.

[5. Serratula salicifolia. *Willow-leaved Saw-wort.*
Lin. spec. 1145. *Reich.* 3. 670.
Cirsium inerme, &c. *Gmel. sib.* 2. 69. *t.* 27.
Leaves linear-lanceolate alternate hairy beneath sessile quite entire.

6. Serratula multiflora. *Many-flowered Saw-wort.*
Lin. spec. 1145. *Reich.* 3. 670. *Gaert. fruct.* 2. 380. *Kreck. sibef. n.* 1328. *Laur. cochinch.* 483. *ed. Willd.* 589. *Gerb. tan.* 294.
Cirsium inerme, &c. *Gmel. sib.* 2. 71. *t.* 28.?
Leaves lanceolate villose underneath subdecurrent quite entire, stem corymbed, calyxes cylindrical.]

7. Serratula noveboracensis. *Long-leaved Saw-wort.*
Lin. spec. 1146. *Reich.* 3. 671. *hort. cliff.* 392. *Pallas it.* 3. 321. *Dill. elth.* 355. *t.* 263. *f.* 342. *Mor. hist.* 3. 133. *Rai suppl.* 208. *Pluk. phyt. t.* 109. *f.* 3. (Centaurium.)
S. altissima. *Mill. dict. n.* 2.
Leaves lanceolate-oblong ferrate pendulous.

8. Serratula pinnata. *Tall Saw-wort.*
Lin. spec. 1145. *Reich.* 3. 671. *Dill. elth.* 356. *t.* 264. *f.* 343. *Boc. mus.* 2. 45. *t.* 32. *Mill. fig. t.* 234. *Plat. pent. t.* 280. *f.* 6. (Eupatorium.)
Leaves lanceolate-oblong ferrate spreading hirsute beneath.

9. Serratula glauca. *Glaucous-leaved Saw-wort.*
Lin. spec. 1146. *Reich.* 3. 671. *Gron. virg.* 116. *Dill. elth.* 354. *t.* 262. *f.* 341. *Pluk. mant.* 40. (Centaurium.)
Leaves ovate-oblong acuminate ferrate, flowers corymbed, calyxes roundish.

10. Serratula squarrosa. *Rough-headed Saw-wort.*
Lin. spec. 1146. *Reich.* 3. 671. *hort. cliff.* 392. *Gron. virg.* 116. *Mor. hist.* 3. 137. *s.* 7. *t.* 27. *f.* 10. (Stoebe.)

Cirsium tuberosum, capitulis squarrosis. *Dill. elth.* 83. *t.* 71. *f.* 82.
Leaves linear, calyxes squarrose subsessile acuminate lateral.

11. Serratula scariosa. *Ragged-capped Saw-wort.*
Lin. spec. 1147. *Reich.* 3. 672. *Gron. virg.* 2. 116. *t.* 92. (Cirsium.) *Banist. virg.* 1028. *Pluk. mant.* 105. (Jacea.) *Pluk. phyt. t.* 177. *f.* 4. (Eupatorio affinis.)
Leaves lanceolate quite entire, calyxes squarrose peduncled obtuse.

[12. Serratula pilosa. *Hairy-leaved Saw-wort.*
Ait. kew. 3. 138.
Leaves linear hairy, flowers axillary on long peduncles.

13. Serratula speciosa. *Hairy-capped Saw-wort.*
Ait. kew. 3. 138.
Stæhelina elegans. *Walt. carol.* 202.
Leaves linear-pickled, flowers sessile spiked, calycine leaflets rough-haired acute, the inner ones elongated coloured at the point.]

14. Serratula spicata. *Spiked Saw-wort.*
Lin. spec. 1147. *Reich.* 3. 672. *Gron. virg.* 116. *Banist. virg.* 1927. *Pluk. phyt. t.* 424. *f.* 6. (Jacea.) *Mor. hist.* 3. 137. *s.* 7. *t.* 27. *f.* 10. (Stoebe.)
Cirsium tuberosum, lactucæ capitulis spicatis. *Dill. elth.* 85. *t.* 72. *f.* 83.
Leaves linear ciliate at the base, flowers in spikes sessile lateral, stem simple.

[15. Serratula amara. *Bitter Saw-wort.*
Lin. spec. 1148. *Reich.* 3. 672. *Gmel. sib.* 2. 72. *t.* 29. (Cirsium.)
Leaves lanceolate, calycine scales scariose at the point blunt patulous coloured, flowers terminating.

16. Serratula centauroides. *Centaury-like Saw-wort.*
Lin. spec. 1148. *syst.* 724. *Reich.* 3. 673. *Gmel. sib.* 2. 44. *n.* 38. *t.* 17. *Gærtn. fruct.* 2. 380.
Jacea serpens, flore triplicato. *Zanon. hist.*
Leaves pinnatifid oblique acute smooth unarmed, calycine scales mucronate, the inner ones scariose.

17. Serratula mucronata. *Pointed-capped Saw-wort.*
Desfont. atlant. 243. *t.* 219.
Smooth, leaves entire lanceolate, stem few-flowered, calycine scales scariose at the point, acuminate, reflex.

18. Serratula humilis. *Dwarf Saw-wort.*
Desfont. atlant. 244. *t.* 220.
S. mollis. *Cavan. ic. disp. n.* 98. *t.* 90. *f.* 1.
Jacea incana Chamæleontis capitulo. *Boc. mus. t.* 109.
Leaves pinnatifid tomentose beneath, head simple one-flowered, calyx-leaves subulate loose.

19. Serratula Scordium.
Laur. cochinch. 493. *ed. Willd.* 590.
Leaves lanceolate serrate half-embracing, flowers sagittate, root creeping.

20. Serratula arvensis. *Corn Saw-wort* or *Way Thistle.*
Lin. spec. 1149. *Fl. suec. n.* 715. *Huds. angl.* 349. *Wither. arr. ed.* 3. 696. *Hull.* 180. *Relh. cant. n.* 585. *Abbot beds. n.* 572. *Fl. ruff. t.* 132. *Fl. dan. t.* 644. *Pollich pal. n.* 761. *Lees herborn. n.* 632. *Kreck. silef. n.* 1329. *Kniph. cent.* 6. *n.* 85. *Reynault bot.*
Carduus arvensis. *Curt. lond.* 6. *t.* 57. *Smith brit.* 850. *Sibth. oxon. n.* 682. *Linn. lapp. n.* 293. *Tabern.* 700. *Villers dauph.* 3. 23.
C. serratuloides. *Neck. gallic.* 338. *n.* 9.
C. vulgatissimus viarum. *Cer. canar.* 1173. 4. *Rai hist.* 310. *syn.* 194. *Petiv. brit. t.* 21. *f.* 5. *Mor. hist.* 3. 156. *s.* 7. *t.* 32. *f.* 14.
C. vinearum repens, sonchi folio. *Bauh. pin.* 387. *pinax.* 156.—item, C. in avena proveniens. *Bauh. pin.* 377.
C. serpens levicaulis. *Bauh. hist.* 3. 59. 2.
C. ceanothos, s. viarum & vinearum repens. *Park. theat.* 959. 7.
Cranothos Theophrasti. *Col. ecphr.* 1. 46.
Cirsium arvense. *Scop. carn. n.* 1001. *Allion. pedem. n.* 557. *Hall. helv. n.* 171.—sonchi folio, radice repente, flore purpurascente. *Tournef. inst.* 448.
Leaves sessile pinnatifid spiny, stem panicled, calyxes ovate spinulose.

DESCRIP-

DESCRIPTIONS, &c.

1. Root perennial, ſomewhat woody. Stem erect, ſtiff and ſtraight, two or three feet high, leafy, angular, ſmooth. Leaves alternate, lyrate or variouſly pinnatifid, (ſometimes undivided:) the root-leaves commonly entire; all acutely ſerrate and minutely ciliate, rigid, ſmooth on both ſides. The whole plant is firm, rigid and hard to the touch, but not prickly. Flowers corymbed, of a blood-red purple colour, ſometimes varying to white. Scales of the calyx duſky purple, ſometimes villoſe, the outer ones gradually ſmaller. Receptacle briſtly. Seeds ſtriated. Pappus unequal, yellow, rugged on one ſide, recurved at the point[a]: ſhining, ſays Gærtner, with gold colour and brown; the rays ſeraceous, ſtiffiſh, ſcarcely at all, or very minutely toothletted.

Native of Europe, in woods, thickets, hedges and buſhy paſtures; flowering in july and auguſt. Linnæus ſays, it is much uſed in Sweden as a yellow dye for coarſe woollen cloths; whence he gave it the name of *tinctoria*. Materials for that colour are ſo abundant, and moſt of them ſo ſuperior to this, that it is probably not uſed in England[a].

2. This is ſo like the preceding as ſcarcely to be diſtinguiſhed from it, except by its being three times the ſize, having a grooved ſtem, twice as many flowers, and a declining leaf under the calyx; but eſpecially in having a ray, with tubular, narrower, female, fertile florets.

The genus is doubtful: the female ray ſhould indicate it to be a *Centaurium*, but the fertility of theſe florets, and the whole habit of the plant are repugnant. If ſeveral of the ſpecies were like this, it would be worth while to form a new genus for them, but this one ſcarcely merits it[a].

Native of Italy, Sileſia and Siberia. Cultivated in 1748, by Mr. Miller. It flowers in july and auguſt[b]. This ſpecies is omitted in the later editions of Mr. Miller's dictionary.

3. Stem angular, grooved, rugged, erect, three feet high. Leaves ſcattered, petioled, acute, toothed, green above but aſh-coloured beneath, muricate-ſcabrous on both ſides, a finger's length, the upper ones gradually leſs. Flowers terminating, panicled. Panicle ſaltigiate, decompounded. The inner ſcales of the calyx are widened at the end, blunt and fleſh-coloured.

Native of Japan[a].

4. Roots ſlender, though tough and woody, perennial, black on the outſide. Stems ſimple, upright, leafy, round, ſtriated, cottony, various in height, generally ten or twelve inches, (about five inches, *With.*) Leaves ſcattered: the root-leaves and lower ſtem-leaves petioled, the upper ones ſeſſile: various in form, but generally ovate, ſometimes linear-lanceolate, ſometimes almoſt halbate, always more or leſs toothed, ſmooth above, cottony and white beneath: ſix or ſeven in number, according to Dr. Withering. Flowers corymbed, (eight to twelve,) erect, purple with blue anthers, and handſome, terminate the ſtem. Scales of the calyx ſoft, blunt, purpliſh-brown, ſilky with white hairs. Seed-down equal, elegantly feathered[a].

Native of the high mountains of Lapland, Norway, Auſtria, Switzerland, Sileſia, Siberia, Wales and Scotland. Johnſon, the editor of Gerarde, ſeems firſt to have obſerved it in Britain; after him, Edward Lhwyd, on Snowdon and other high mountains in North Wales. (See Merret's Pinax, and Dill. elth.) J. W. Griffith, Eſq. has lately found it on the higheſt rocks of Caernarvonſhire; flowering in july and auguſt. It appears from Lightfoot, that it is not very rare in Scotland. According to Merret, it grew on Breareliff near Bramley, Lancaſhire.

Linnæus remarks, that place does not ſuffice to produce all the conſtant varieties of the leaves. Dr. Smith, on the contrary, is perſuaded, from obſervations made upon the ſpot, that they are mere varieties occaſioned by local accidents.—The figures in *Hortus Elthamenſis* and *Flora Danica*, repreſent the narrow-leaved [illegible] variety[a].

5. Stem angular, branched at top [illegible] generis. Leaves like thoſe of the Willow, ſcarcely or at all decurrent at the baſe. [illegible] of the ſame appearance as [illegible] on each branch.—Native of Siberia[a].

6. Stem angular, [illegible] corymbed, ſo that [illegible] terminated by a prodigious cloſe wood of flowers [illegible] like thoſe of the Willow, clothed with [illegible] beneath. Calyxes cylindrical, with ſmooth, [illegible]. It is like the preceding, but the leaves are a little decurrent at the baſe and villoſe [illegible], and the calyxes are more abundant, ſharper, [illegible] and brighter coloured[a].

Stem, according to Loureiro, ſuffruticoſe, three feet high, erect. Leaves wide-lanceolate, ſerrate-lyrate, ſmooth, ſcattered. Flowers many, ſmall, red, on terminating, ſaſtigiate pedunclets. Calyx cylindrical; ſcales imbricate, ſhort, cloſe, awnleſs, converging at the point. Corollets very ſmall. Receptacle lanuginoſe. Seed-down ſilky white, with rays in ſeveral rows linear-chaffy, ciliate, unequal[c].

Found in Siberia by Gmelin, in Sileſia by Krocker, in China near Canton by Loureiro.]

7. Root perennial. Stalks ſeveral, channelled, ſeven or eight feet high. Leaves from four to five inches long, and one inch broad in the middle, ſlightly ſerrate, downy on their under ſide, ſeſſile. The upper part of the ſtalk divides into peduncles, ſuſtaining purple flowers, which appear at the end of july.

Native of North America. [Cultivated by James Sherard, M. D. in 1732[a].

Dillenius ſays that it grows ten or twelve feet high; that the umbel or corymb of flowers has fewer heads in it and is leſs ſcattered than in the *glauca*, ſmall in compariſon with the ſize of the plant; that the ſcales of the calyx are narrower, and end in ſlender oblong horns; and that by theſe marks, with its great height, and very long rough pendulous leaves, it is eaſily diſtinguiſhed. It flowers very late alſo, namely about the end of october. In the Kew catalogue it is ſaid to flower from ſeptember to november.]

8. Root large, perennial, fibrous. Stem branching, from four to ſeven or eight feet high. Leaves ſeven inches long, and an inch and half broad in the middle, ending in acute points, entire, hairy on their under ſide, ſeſſile. Flowers in looſe bunches at the end of the branches. Calyxes oval, compoſed of few ſcales terminating in briſtles. Flowers pale purple.

[Stem ſtraight, ſimple, deeply ſtriated, tinged with red, ſmooth or ſcarce ſenſibly hairy. Leaves alternate, frequent, ſhorter and leſs wrinkled than in the preceding ſpecies, more widening in the middle, not pendulous, either ſpreading horizontally or obliquely upwards, leſs ſerrate than in that, but minutely toothletted, yellowiſh green above, more lanuginous and hoary beneath than in *noveboracenſis*. The flowers are like thoſe of the preceding, and the heads are diſpoſed in the ſame manner, but are ſomewhat rounder, and the cuſps or points at the ends of the calyx-ſcales are not ſo long. The receptacle is naked. It flowers about the ſame time with the preceding ſpecies; and is a native of Virginia, Carolina[a], Penſylvania, and moſt other parts of North America. Cultivated in 1732, by James Sherard, M. D.[b].

The trivial names of theſe two ſpecies are by no means ſignificant; the ſeventh being tall, and the eighth having long leaves; the latter is probably found in New York as well as the former, and trivials from place are at beſt bad ones, for the moſt part.]

9. Root perennial. Stalks ſix or ſeven feet high, purple and channelled. Leaves about three inches long, and an inch and half broad in the middle, ending in acute points, ſtiff, ſerrate, and of a light green on both ſides. Flowers in a looſe terminating corymb, purple with roundiſh calyxes.

[Stems ſtraight, ſtriated, ſmooth, not ſo high as the *noveboracenſis*, branched only at the top, but there

[a] Smith. [b] Engl. bot. [c] Linn. ſpec. [d] Hort. kew. [e] Thonberg. [f] Smith. [a] Engl. bot. [b] Linn. ſpec. [c] Idem. [d] Gærtner. [e] Hort. kew. [f] Dill. elth. [g] Hort. kew.

putting forth flowering-branches a foot or eighteen inches in length, divided and subdivided into many branchlets and peduncles. Calyxes dusky purple. Corollets of a purple verging to violet. Seed-down brownish white, very prominent. Receptacle naked. Leaves dark glaucous green above, paler and glaucous beneath, with fine hairs along the midrib and veins, in other parts smooth.

Native of Maryland, Virginia and Carolina. It flowers in october. Cultivated at Eltham in Sherard's garden in 1732 [b].]

10. Root tuberous, from which comes out a single ſtalk, riſing near three feet high. Leaves ſtiff, about three inches long, entire, rough to the touch, pale green on both ſides. The upper part of the ſtalk is adorned with purple flowers, having oblong, rough, prickly calyxes, coming out from the ſide alternately; and the ſtalk is terminated by one head larger than the others.

[Root-leaves in a ring, a foot long, half an inch broad, rigid and nerved. Stems ſeveral, ſimple, from two to three feet high, thinly pubeſcent. Stem-leaves frequent, alternate, reflex, rigid, nerved, ſtraight-veined, ſubhirſute, reſembling thoſe of *Tragopogon*, but neither ſo pointed nor embracing. Peduncles an inch long, alternate from the upper axils. Heads of flowers ſquarroſe or compoſed of leafy ſcales ſtanding out and bent back, keeled and ſomewhat hairy. Florets recurved, purple. Styles very long. Seeds oblong, ſtriated, crowned with a feathered down. Receptacle naked [c].

Native of Virginia, and moſt of the provinces of North America.—Cultivated in 1732, by James Sherard, M. D. It flowers in july and auguſt [d].]

11. This has a large tuberous root, from which comes out one ſtrong channelled ſtalk, three or four feet high. Leaves frequent, about three inches long, and half an inch broad. Flowers purple, in a long looſe ſpike, coming out from the ſide upon pretty long blunt peduncles; they have large rough calyxes compoſed of wedge-ſhaped ſcales. The upper flowers blow firſt, and appear in auguſt.

[It is very diſtinct from the preceding, by its ſquarroſe blunt calyxes; lateral, elongated, one-flowered peduncles, having a few leaflets on them; wide-lanceolate leaves, by no means nerved, ſeſſile but not *decurrent* [a].

Native of Virginia. Cultivated by Mr. Miller in 1759 [e].

12. Native of North America. Introduced in 1783 by Mr. William Young. It flowers in ſeptember and october.

13. Native of Carolina and Georgia. Introduced in 1787, by Meſſ. Watſons. It flowers in october [f].]

14. This has a tuberous root, from which comes out a ſingle ſtalk from two to three feet high. Leaves very narrow, ſmooth, at bottom more than three inches long, but gradually diminiſhing to the top, ſeſſile, and placed round the ſtalk without any order. Flowers purple, ſmaller than in the tenth and eleventh ſorts, ſeſſile, and forming a long looſe ſpike.

[Native of North America. Cultivated in 1732, by James Sherard, M.D. It flowers from auguſt to october [g]. Baniſter firſt obſerved it in Virginia [h].

15. This has the habit of *S. alpina*. Leaves ſomewhat decurrent, the upper ones quite entire, rugged, eſpecially at the edge. Stems angular. Branches erect, each commonly terminated by three peduncles and flowers. Calyxes membranaceous, ſoft as in ſome *Centaureas*. Seed-down white.

Native of Siberia [i].

16. Herb a foot high. Branches alternate, ſtiff, almoſt ſmooth, one-flowered. Leaves ſmooth on both ſides, veined, lanceolate; with lanceolate teeth, vertical or turning their upper ſurface not towards the ſky but ſideways, as in *Lactuca Scariola*. Calyx ovate-oblong, imbricate with ſcales having a harmleſs point; thoſe which are nearer to the florets larger and dried up. Corolla purple, without any marginal florets. Style twice as long as the florets. It has the habit of *Centaurea moſchata*, but has no neuter florets [k]. Seed-down of a whitiſh ſtraw colour and ſhining, with very numerous unequal linear chaffy rays, very cloſely toothletted ciliate [l].—Native of Siberia.

17. Plant very ſmooth. Stem erect, ſlender, deeply ſtriated, naked at top, ſimple or ſometimes but ſeldom divided into two or three unequal, one-flowered branches. Leaves quite entire or ſometimes toothletted, above even and ſhining; the lower ones ovate-lanceolate, running along the petiole; the upper ſtem-leaves ſeſſile, acuminate. Calyx ovate, cloſely imbricate, with lanceolate ſcales, having a rigid ſcarioſe point, a little bent back. Corollets roſe-coloured, or inclined to violet. Seed oblong, ſmooth, ſtriated, with a ſimple, ſeſſile down. Receptacle hairy.

Native of Barbary, near Maſcar, flowering early in the ſpring.

18. Root twiſted, brown without, the thickneſs of a gooſe quill. Pinnules of the leaves diſtinct, uniform, lanceolate, acute or obtuſe, quite entire, but ſometimes toothed at the baſe. Petiole winged. Stem erect, ſtriated, tomentoſe, leafy but ſometimes naked. Calyx cylindrical; leaflets almoſt equal, ſtiffiſh, in three or four rows. Florets roſe-coloured. Seed ſmooth, ſtriated, oblong; with a long, whitiſh, ſeſſile, ſubplumoſe down. Chaffs of the receptacle acuminate, lacerated at the point. It is a very handſome ſpecies; and flowers in the ſummer.

Native of mount Atlas near Tlemſen [m].—If this be the *mollis* of Cavanilles, it is alſo a native of Spain, in the kingdom of Valentia. His figure and deſcription agree with thoſe of Deſfontaines, but he marks it as annual, whereas according to the latter it is perennial.

19. Stem herbaceous, perennial, a foot and half high, half procumbent, round, thickiſh, with few branches. Root creeping far and wide. Leaves ſharply and deeply ſerrate, unarmed, tomentoſe beneath, ſhining above, juicy, ſtrong-ſmelling, half embracing. Flowers terminating, purple: calyx ſubcylindrical, imbricate, even, few-flowered. Receptacle naked. Seeds oblong, ſurrounded by their proper involucre, and crowned with a hairy ſeſſile down.—Native of China and Cochinchina [n].

20. The common creeping Thiſtle or Way Thiſtle, which Linnæus has placed in this genus, but Curtis and Dr. Smith, with more propriety, in that of *Carduus*, where from its habit moſt of the old authors had put it, is too well known by its perennial creeping root. Stems three feet high or more, upright, leafy, at the baſe round and ſomewhat woolly, above angular and ſmooth, panicled and many-flowered at top. Leaves alternate, ſcarcely decurrent; ſmoothiſh; lobes unequal, ciliate and ſpiny. Flowers ſingle, ſometimes two together on a leafy peduncle, which is ſomewhat woolly at top; they are pale purple, varying to white. Calyx ovate, with wide-lanceolate-ſcales, preſſed cloſe, woolly at the edge, pointed with ſhort ſpreading ſpines. Seed-down feathered, deciduous, very long. Receptacle hairy [o].

This Thiſtle is known every where by road ſides, too frequently in corn-fields, eſpecially in ſtrong land, and in paſtures, but not ſo common there; flowering from june to auguſt. It has certainly the habit of the Thiſtles, though Linnæus has made it a *Serratula*; and, as Mr. Curtis remarks, if the Marſh Thiſtle be a *Carduus*, this alſo muſt be one, the ſtructure of the fructification being the ſame in both.

It is one of the worſt peſts of arable lands, having ſtrong creeping roots, ſtriking down to a great depth, and then branching out horizontally, ſo that it is very difficult to root it out where it has once got poſſeſſion, and every ſmall piece of it will grow. Some idea of its increaſe may be formed from the following experiment, which was made by Mr. Curtis. "I "planted in a garden a piece of the root of this "Thiſtle, about the ſize of a gooſe quill, and two

[a] Dill. elth. [b] Idem. [c] Hort. kew. [d] Linn. ſpec. [e] Hort. kew. [f] Idem. [g] Idem. [h] Hort. elth. [i] Linn. ſpec. [k] Gærtner. [l] Deſfontaines. [m] Loureiro. [n] Smith brit. and Fl. ruſ.

" inches long, with a ſmall head of leaves, cut off " from the main root, as it was ſpringing out of the " ground. This was done on the firſt of april: by " the ſecond of november following this ſmall piece " had thrown out ſhoots, ſeveral of which had ex " tended themſelves to the diſtance of eight feet; " ſome had even thrown up leaves five feet from the " original root; moſt of the ſhoots were about ſix " inches under ground; others had penetrated to the " depth of two feet and a half: the whole together, " when dug up and waſhed from the earth, weighed " four pounds. In the ſpring following, it again made " its appearance on or about the ſpot where the ſmall " piece was originally planted. There were between " fifty and ſixty young heads, which muſt have ſprung " from the roots that had eluded the gardener's ſearch, " though he was particularly careful in extracting " them."

Frequent and deep ploughing in dry weather will deſtroy this thiſtle in arable land; but common ploughing is not deep enough to anſwer the purpoſe. In paſtures it ſhould be pulled or rather forked out, when the ground is well ſoaked with wet. Mr. Curtis affirms that repeated mowing or ſpurding, if they do not effectually overcome, will greatly enfeeble it: they ſeem however to make it run more at the root: but to prevent it from flowering is ſomething. Some perſons are perſuaded that mowing it down when it is in full flower, is the moſt effectual way to deſtroy it: Monſ. Villars recommends laying down land infeſted with this thiſtle, with artificial graſſes. I have tried all theſe methods withput complete ſucceſs. A piece of land which I laid down with broad and dutch Clover, after Turneps well hoed, is now overrun in ſome parts with this curled thiſtle, as Mr. Curtis names it. And after all our pains, the magazines which are left to ſeed by road ſides, will always ſupply a freſh crop.

The goat and aſs will eat it; horſes will ſometimes crop the heads, when young and tender; kine do not ſeem to touch it. It is ſaid to yield a very pure vegetable alkali when burnt [a].

A variety ſometimes occurs, with few or no ſpines on the leaves, which are alſo not ſo deeply indented [b]. And the leaves are either green on both ſides, or whitiſh underneath [c].]

PROPAGATION AND CULTURE.

The Saw-worts are hardy perennial plants, and will thrive in the open air in England. The firſt is rarely admitted into gardens, but the other ſorts are frequently preſerved in the gardens of the curious. The 10th, 11th, and 14th ſorts, have large knobbed roots; theſe are propagated only by ſeeds, which ſeldom ripen in England, ſo that the ſeeds muſt be procured from abroad. Theſe ſhould be ſown on an eaſt-aſpected border, where the morning ſun only comes; for if the ſeeds are expoſed to the mid-day ſun, they ſeldom ſucceed well. Theſe ſeeds will often grow the firſt ſummer, if they are ſown early in the ſpring, but ſometimes they will remain in the ground a year before the plants appear; ſo that if they ſhould not come up the firſt ſeaſon, the ground ſhould not be diſturbed, and muſt be kept clean from weeds till the following ſpring, when, if the ſeeds were good, the plants will come up; when theſe appear they muſt be kept clean from weeds; and if they are too cloſe, ſome of the plants ſhould be carefully drawn out while they are young, and planted into another border of light loamy earth, four inches aſunder; in this place they may remain till autumn, when theſe, and alſo thoſe in the ſeed-beds, ſhould be carefully removed to the places where they are deſigned to remain; the following ſummer theſe plants will flower, and the roots will abide ſeveral years, if they are planted in a light loamy ſoil not over wet.

The other perennial ſorts may be propagated by parting of the roots; the beſt time for doing this is in autumn, when their ſtalks begin to decay; for when they are removed in the ſpring, if the ſeaſon ſhould prove dry, their roots will not be ſufficiently eſtabliſhed to flower well the ſame year. Theſe plants ſhould not be removed or parted oftener than every third year, if they are expected to grow ſtrong, nor ſhould they be parted into ſmall heads, for theſe will make no figure the firſt year. As theſe plants grow tall, [illegible] they ſhould be planted in the [illegible] border, or with other tall plants; they may [illegible] places between ſhrubs, or on the [illegible] where they will have a good effect [illegible] in flower; and as they require [illegible] than to dig the ground between them [illegible] ſpring, and keep them clean from weeds, ſo they are proper furniture for ſuch places.

Theſe ſorts are alſo propagated by ſeeds, when they can be obtained good; theſe may be ſown in the ſame way as the bulbous-rooted kinds, and when the plants come up, they muſt be treated in the ſame manner, only that theſe ſhould be allowed more room, for the fibres of their roots ſpread out on every ſide to a great diſtance; for which reaſon theſe plants ſhould not be planted in ſmall gardens, where they will overbear the neighbouring plants.

[SERRATULA. See *Carduus*, *Centaurea*, *Cnicus*, *Conyza*, *Scutellaria*, *Stæhelina*, *Vernonia*.

Serratulæ affinis. See *Centaurea*.

SERVICE TREE. See *Cratægus* and *Sorbus*.

SESAMOIDES. See *Cucubalus*, *Paſſerina*, *Reſeda*, *Theſium*.]

SESAMUM (*of Pliny.* Σησαμον *of Theophraſtus and Dioſcorides. Derived by ſome from* σαω, *which is the ſame with* σειω concutio, *and* μαω meto, *quod ſubito ad meſſem propelleretur. But it was more probably taken by the Greeks from the Egyptian* Semſem.)

Lin. gen. n. 782. *Reich. n.* 845. *Schreb. n.* 1048. *Gærtn. t.* 110. *Juſſ.* 138.

Claſſ. 14. 2. Didynamia Angioſpermia.

Nat. order of *Luridæ*. *Bignoniæ*, Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* one-leafed, five-parted, erect, equal, very ſhort, permanent: *ſegments* lanceolate, the upper one ſhorter.

COR. one-petalled, bell-ſhaped: *tube* roundiſh, almoſt the length of the calyx: *throat* inflated, ſpreading, bell-ſhaped, very large, declined: *border* five-cleft; *ſegments* four, patulous, almoſt equal, and a fifth, which is the loweſt, a little longer, ovate, ſtraight.

STAM. *Filaments* four, ſpringing from the tube, ſhorter than the corolla, aſcending, ſetaceous, the two inner ſhorter: with the rudiment of a fifth filament. *Anthers* oblong, acute, erect.

PIST. *Germ* ovate, hirſute. *Style* filiform, aſcending, a little longer than the ſtamens. *Stigma* lanceolate, two-parted: lamellæ parallel.

PER. *Capſule* oblong, obſcurely four-cornered, compreſſed, acuminate, four-celled.

SEEDS very many, ſubovate.

OBS. *It has the flower of Digitalis, but the fruit is very different.*

ESSENTIAL CHARACTER.

Cal. five-parted. *Cor.* bell-ſhaped, five-cleft, the lower lobe larger. *Rudiment* of a fifth filament. *Stigma* lanceolate. *Capſ.* four-celled.

SPECIES.

1. Seſamum orientale. *Oriental Seſamum* or *Oily-grain.*
Lin. ſpec. 883. *Reich.* 3. 188. *hort. cliff.* 318. *ſ. zeyl. n.* 318. *mat. med.* 157. *Gron. orient.* 76. *Gærtn. fruct.* 2. 132. *Thunb. jap.* 254. *Lour. cochinch.* 382. *ed. Willd.* 464.
S. veterum. *Bauh. pin.* 27. *Raii hiſt.* 1327. *Riv. mon. t.* 114.
Digitalis orientalis Seſamum dicta. *Burm. zeyl.* 87. *t.* 38. *f.* 1.
Schit-elu. *Rheed. mal.* 9. 105. *t.* 54.
Leaves ovate-oblong entire.

2. Seſamum indicum. *Indian Seſamum* or *Oily-grain.*
Lin. ſpec. 884. *Reich.* 3. 188. *Forſk. ægypt. cent.* 4. 113. *Brown. jam.* 270. 1. *Rumph. amb.* 5. 204. *t.* 76. *f.* 1. *Pluk. phyt. t.* 109 *f.* 4.
β. S. trifoliatum. *Mill. dict. n.* 3.
Lower leaves trifid.

[3. Seſamum luteum. *Yellow Seſamum.*
Retz. obſ. 6. 31. *n.* 56.
Leaves lanceolate on long petioles, corollas hiſpid on the outſide.]

[a] Curtis and fl. ruſt. [b] Ray lyn. [c] Retzius, faſc. 1.

DESCRIPTIONS, &c.

1. This is an annual plant, rising with an herbaceous four-cornered ſtalk about two feet high, ſending out a few ſmall ſide-branches. Leaves oppoſite and a little hairy. Flowers in looſe terminating ſpikes, ſmall, of a dirty white colour, ſhaped ſomewhat like thoſe of the Foxglove.

[Stem erect, round, hairy; with few branches, placed below. Leaves petioled, veined, having ſmall hairs ſcattered over them. Flowers axillary, ſolitary; on a very ſhort pedincle, at the baſe of which are two ſhort linear bractes, and within each a yellow perforated gland. Calyx gaping, almoſt equal. Corolla obſcurely five-lobed, blunt, the lower lobe more produced and rounded. Stamens four, two above the others, and between the latter the caſtrated rudiment of a fifth filament[a]. Capſule oblong, acuminate, rounded-quadrangular, with a groove on each ſide, four-celled, two-valved: partition double; one thicker, ſolid, from the dorſal groove of the valves; the other thinner, bilamellate, formed from the margins of the valves bent in. Seeds ovate-acuminate, compreſſed a little, ſmooth, whitiſh, marked on one ſide with a ſlender longitudinal ſtreak, faſtened along the central angle of the cells[b].

Native of the Eaſt Indies. Cultivated in 1731 by Mr. Miller. It flowers in july[c].]

It is frequently cultivated in the Levant, and alſo in Africa, as a pulſe; the ſeeds have been introduced in Carolina by the African negroes. An oil is extracted from the ſeeds, which will keep many years, and not acquire any rancid ſmell or taſte, but in two years become quite mild, ſo that when the warm taſte of the ſeed, which is in the oil when firſt drawn, is worn off, it is uſed as ſalad oil, and for all the purpoſes of ſweet oil.

The ſeeds are alſo uſed by the negroes for food: they parch them over the fire, then mix them with water, and ſtew other ingredients with them. A pudding is made with them, in the ſame manner as with Millet or Rice; called Benny or Bonny in Carolina.

[In Japan, where they have no butter, they uſe the oil for frying fiſh, and in dreſſing other diſhes; as a varniſh; and medicinally as a reſolvent and emollient[d]. In China and Cochinchina it is alſo uſed for the ſame purpoſes[e].

Browne ſays that the Seſamum plant is cultivated in Carolina with great ſucceſs, and it is computed there, that nine pounds of the ſeed yield upwards of two pounds of neat oil, which they find to grow more mellow and agreeable with age, and to continue without any rancid ſmell or taſte for many years.]

2. The ſecond ſort grows naturally in India, and is alſo an annual plant. The ſtalk riſes higher than that of the former; the lower leaves are cut into three parts: and theſe are the only differences between them.

[Theſe plants were introduced into Jamaica by the Jews, and are now cultivated in moſt parts of the iſland. They are called Vangilo or Oil-plant. The ſeeds are frequently uſed in broths by many of the Europeans, but the Jews make them chiefly into cakes. Many of the oriental nations look upon the ſeeds as a hearty wholeſome food, and expreſs an oil from them, not unlike, or inferior to, the oil of Almonds. A decoction of the leaves and buds is looked upon as a good reſolutive, and frequently ordered in inflammations of the eyes, where warm fomentations become requiſite[f]. It was cultivated by Mr. Miller in 1731[g].]

β. This grows naturally in Africa, and is alſo an annual plant, with a taller and more branched ſtalk than either of the former. All the leaves are cut into three parts.

Mr. Miller raiſed two other ſpecies (or perhaps varieties) from ſeeds which were brought from Africa. They grew near four feet high; the leaves of one were much longer than any of the other, and thoſe towards the top were divided into three and ſometimes four parts. The ſeeds of this were black. The other had broader leaves, which were ſerrate. The flowers were large and of a pale blue colour, and the ſeeds were of a pale yellow colour. Being ſown late, no good ſeeds could be obtained from them.

[a] Linn. ſpec. [b] Gærtner. [c] Hort. kew. [d] Thunberg. [e] Loureiro. [f] Browne. [g] Hort. kew.

PROPAGATION AND CULTURE.

In England, theſe plants are preſerved in botanic gardens as curioſities. Their ſeeds muſt be ſown in the ſpring upon a hot-bed, and when the plants are come up, they muſt be tranſplanted into a freſh hot-bed to bring them forward. After they have acquired a tolerable degree of ſtrength, they ſhould be planted into pots filled with a rich, light, ſandy ſoil, and plunged into another hot-bed, managing them as has been directed for Amaranthuſes: for if theſe plants are not thus brought forward in the former part of the ſummer, they will not produce good ſeeds in this country; though after they have flowered, if the ſeaſon is favourable, they may be expoſed in a warm ſituation with other annual plants. When theſe plants have perfected their ſeeds they decay, and never continue longer than one ſeaſon.

[SESAMUM. *See Tripſacum.*

SESBAN. *See Æſchynomene.*]

SESELI (*of Pliny.* Σισελι *of Theophraſtus and Dioſcorides. Derivation unknown. See Raii hiſt.* 453.)

Lin. gen. n. 360. *Reich. n.* 390. *Schreb. n.* 490. *Boerh.* 1. 50. *Juſſ.* 220.

Claſſ. 5. 2. Pentandria Digynia.

Nat. order of *Umbellatæ* or *Umbelliferæ.*

GENERIC CHARACTER.

CAL. *Umbel univerſal* rigid: *partial* very ſhort, manifold, globular.

Involucre univerſal none:—*partial* of one or two leaflets, linear, acuminate, length of the umbellet.

Proper perianth ſcarcely obſervable.

COR. *Univerſal* uniform. *Florets* all fertile.

Proper of five inflex-cordate petals, ſtarriſh.

STAM. *Filaments* five, awl-ſhaped. *Anthers* ſimple.

PIST. *Germ* inferior. *Styles* two diſtant. *Stigmas* blunt.

PER. none. *Fruit* ovate, ſmall, ſtriated, bipartile.

SEEDS two, ovate, convex and ſtriated on one ſide, flat on the other.

ESSENTIAL CHARACTER.

Umbels globular. *Involucels* of one or two leaflets. *Fruit* ovate, ſtriated.

SPECIES.

[1. Seſeli filifolium. *Thread-leaved Meadow Saxifrage.*
Lin. ſpec. ed. Willd. 1. 1458. *Thunb. prodr.* 51.
Leaves filiform, ſtem flexuoſe erect.

2. Seſeli pimpinelloides.
Lin. ſpec. 372. *Reich.* 1. 713. *Willd.* 1. 1459. *Willich in nov. act. nat. cur.* 4. 109.
Stem declined, umbels before they flower nodding.]

3. Seſeli montanum. *Long-leaved Meadow Saxifrage.*
Lin. ſpec. 372. *ſyſt.* 289. *Reich.* 1. 713. *Willd.* 1459. *hort. cliff.* 102. *Gouan illuſtr.* 17. *Krock. ſiles. n.* 457. *Villars dauph.* 2. 583. *Blackw.* 1. 426.
S. montanum, *v.* 1. & pumilum, *n.* 4. *Mill. dict.*
Fœniculum ſilveſtre elatius ferulæ folio longiori. *Tournef. par.* 2. 354. *Vaill. par.* 54.—breviori. *Tournef. inſt.* 311.
Meum latifolium adulterinum. *Baub. pin.* 148.
M. alterum italicum. *Baub. hiſt.* 3. 2. 15. *Raii hiſt.* 433. *Ger. emac.* 1052. 2.
M. ſpurium italicum. *Park. theat.* 889. 4.
Saxifraga montana minor italica, foliis in breviores partes diviſis. *Mor. hiſt.* 3. 272.

β. Seſeli multicaule. *Retz. obſ.* 3. 27. *Jacqu. hort.* 2. 59. *t.* 129.
Petioles branch-bearing, membranaceous oblong entire, ſtem-leaves very narrow.

[4. Seſeli ſtriatum.
Lin. ſpec. ed. Willd. 1. 1460. * *Thunb. prodr.* 51.
Petioles branchy membranaceous emarginate, ſtem ſtriated, pinnas awl-ſhaped grooved.]

5. Seſeli glaucum. *Glaucous Meadow Saxifrage.*
Lin. ſpec. 372. *ſyſt.* 289. *Reich.* 1. 714. *Willd.* 1. 1460.

1460. *Jacqu. austr.* 2. 27. *t.* 144. *Gouan illustr.* 17. *n.* 7. *Scop. carn. n.* 357. *Hoffm. germ.* 105. *Krock. silef. n.* 458. *Ger. prov.* 253. *Villars dauph.* 2. 582. *Allion. pedem. n.* 1338.

S. osseum. *Crantz. austr.* 207.

Fœniculum silvestre glauco folio. *Tournef. inst.* 311.

Daucus glauco folio, similis fœniculo tortuoso. *Bauh. hist.* 3. 16. *Raii hist.* 460.

Saxifraga montana minor glauca & rigidior. *Mor. hist.* 3. 273.

Petioles branch-bearing membranaceous oblong entire, leaflets single and in pairs channelled even longer than the petiole.

6. Seseli aristatum. *Bearded-leaved Meadow Saxifrage. Ait. kew.* 1. 359. *Lin. spec. ed. Willd.* 1. 1460.

Ligusticum lucidum. *Mill. dict.*

Petioles branchy submembranaceous loose quite entire, leaves superdecompound, leaflets lanceolate awned, fruits ovate.

[7. Seseli annuum. *Annual Meadow Saxifrage.*

Lin. spec. 373. *syst.* 289. *Reich.* 1. 714. *Willd.* 1. 1460. *hort. cliff.* 103. *Jacqu. vind.* 225. *austr. t.* 55. *Scop. carn. n.* 356. *Gouan illustr.* 15. *Villars dauph.* 2. 585. *Allion. pedem. n.* 1337. *Krock. silef. n.* 459. *Hall. helv. n.* 762. *Hoffm. germ.* 105.

S. bienne. *Crantz. austr.* 204.

Sium annum. *Roth. germ.* 1. 128. 2. 337.

Fœniculum silvestre annuum, tragoselini odore, umbella alba. *Vaill. par.* 54. *t.* 9. *f.* 4.

Libanotis tenuifolia germanica. *Bauh. pin.* 158.

Petioles branchy membranaceous ventricose emarginate.

8. Seseli chærophylloides. *Chervil-leaved Meadow Saxifrage.*

Lin. spec. ed. Willd. 1. 1461. *Thunb. prodr.* 51.

Petioles branchy membranaceous ventricose entire, stem dichotomous panicled, leaves superdecompound smooth.]

9. Seseli Ammoides. *Milfoil-leaved Meadow Saxifrage.*

Lin. spec. 373. *syst.* 289. *Reich.* 1. 715. *Willd.* 1. 1461. *Jacqu. hort.* 1. 20. *t.* 52. *Gouan illustr.* 16.

Fœniculum lusitanicum minimum acre. *Tournef. inst.* 312.

Saxifraga annua acris millefolii terrestris folio tenuissimo. *Mor. hist.* 3. 272.

Amnis perenne pusillum. *Mor. hist.* 3. 295.

A. Matthioli. *Dalech. hist.* 695.

Ammoides. *Bauh. pin.* 159. *Raii hist.* 455.

Root-leaves with the leaflets imbricate.

10. Seseli tortuosum. *Hard Meadow Saxifrage.*

Lin. spec. 373. *Reich.* 1. 715. *Willd.* 1. 1461. *Gmel. sib.* 1. 206. *Pallich pal. n.* 302. *Hoffm. germ.* 105. *Krock. silef. n.* 460. *Ger. prov.* 252. *Villars dauph.* 2. 581. *Allion. pedem. n.* 1340. *Pluenet.* 212.

S. massiliense fœniculi folio. *Bauh. pin.* 101.—crassiore. *Lob. ic.* 785.

Oenanthe striata rigida. *Lin. hort. cliff.* 99. *Sauv. monsp.* 257.

Sium tortuosum. *Roth. germ.* 1. 128. 2. 337.

Fœniculum tortuosum. *Bauh. hist.* 3. 16. *Tournef. inst.* 311.

Stem lofty rigid, leaflets linear in bundles.

[11. Seseli Turbith.

Lin. spec. 374. *Reich.* 1. 715. *Willd.* 1. 1462. *amoen.* 4. 310.

S. tertium. *Boerh. lugdb.* 1. 50.

Thapsia fœniculi folio. *Bauh. pin.* 184.

Universal involucre one-leafed, seeds striated villose styled.

12. Seseli Hippomarathrum. *Various-leaved Meadow Saxifrage.*

Lin. spec. 374. *syst.* 289. *Reich.* 1. 715. *Willd.* 1. 1462. *Jacqu. austr.* 2. 26. *t.* 143. *Scop. carn. n.* 358. *Hoffm. germ.* 105. *Krock. silef. n.* 461.

S. articulatum. *Crantz. austr.* 205. *t.* 5. *f.* 1, 2.

Sium Hippomarathrum. *Roth. germ.* 1. 128. 2. 338.

Daucus montanus multifido brevique folio. *Bauh. pin.* 150.

Hippomarathrum. *Riv. pent.* 66. *Rupp. jen.* 3. 280. *Kram. austr.* 82.

Involucrets connate-one-leafed.

13. Seseli pyrenæum. *Pyrenean Meadow Saxifrage.*

Lin. spec. 374. *Reich.* 1. 716. *Willd.* 1. 1462. *Gouan illustr.* 11. *t.* 5. *De le Cour. in all. helv.* 7. 332. *t.* 12. (Selinum.)

Carui alpinum. *Bauh. pin.* [illegible] *hist.* 3. 297. *f.* 9. *t.* 9. *f.* 2.

Leaves doubly pinnate, le[illegible] [illegible]ate, involucrets bristle-shaped longer than [illegible]

14. Seseli saxifragum.

Lin. spec. 374. *Reich.* 1. 716. *Willd.* 1. 1463.

Pimpinella saxifraga tenuifolia. *Bauh. pin.* 160. *prodr.* 84.

Sium saxifragum. *Roth. germ.* 1. 128. 2. 338.

Pimpinella tenuifolia. *Riv. pent.*

Stem filiform divaricating, leaves doubly ternate linear, umbels subsessile.

15. Seseli elatum.

Lin. spec. 375. *syst.* 290. *Reich.* 1. 717. *Willd.* 1. 1463. *mant.* 357. *Gouan illustr.* 16. *t.* 8. *Villars dauph.* 2. 580. *Allion. pedem. n.* 1341. *Krock. silef. n.* 463.

Fœniculum silvestre elatius ferulæ folio longiori. *Tournef. inst.* 311.

Daucus montanus, folio fœniculi, longiore. *Magn. monsp.* 294.—Seseli folio tenuiori majus. *Ejusd. hort.* 184.

Saxifraga montana minor tenuissimis & longissimis foliis. *Mor. hist.* 3. 273. 7.

DESCRIPTIONS, *&c.*

1. Native of the Cape of Good Hope. Found there by Thunberg.

2. Root perennial. Leaves pinnate, with the pinnas multifid, and the segments alternate: these also are cut alternately into linear flat segments turned outwards. Stem a foot high, round, before flowering-time decumbent, but about the season of flowering almost upright, with one or two leaflets: petiole membranaceous, like a sheath, oblong; whence a single peduncle. The umbels nod before flowering as in Pimpinella Saxifraga, without any universal involucre: partial involucre linear, narrow, almost the length of the umbellet. Seeds oval, with three raised streaks.—Native of the South of Europe [1].]

3. Stem erect, near two feet high, sending out branches from the side. Leaves short, divided into small segments like Hog's-Fennel: at the foot-stalk of each a bellied membrane embracing it. Flowers white.

[Stem a foot high, round, even. Root-leaves shorter, like those of Carrot, bipinnate, often cruciate at the rib, with the leaflets subtripartite. Stem-leaves with a petiolar sheath entire: pinnate: leaflets ternate: pinnas three-parted, linear, sharpish, somewhat remote, longer, channelled. Umbels with short pedicels. Seeds pubescent [2].

It differs from *glaucum*, according to Villars, in having the leaves greener, more numerous, and narrower, the stems higher and more branched, and the seeds less ash-coloured. The stem is from a foot to a foot and half in height, purplish, and terminating in two or three branches, which are a little divaricating. Root-leaves green, bipinnate, with the leaflets linear, winged, in threes, an inch long, and a third of a line wide, smooth above, decurrent without articulation at the base. Stem-leaves triangular, with the segments more lengthened out. Rays of the umbel eighteen or twenty; of the umbellet twenty to twenty-five, with an involucret of five or seven leaves, shorter than the rays, linear, and united at the base. Seeds striated, often reddish at the end, a little ash-coloured, somewhat larger than those of glaucum.

Native of Italy and France.—Common on the dry hills of the latter, according to Morison. Ray found it on the hills and cliffs of the kingdom of Naples.—It was cultivated in the botanic garden at Oxford, in 1658 [3].

β. Root perennial. Stems patulous, round, striated, smooth. Leaves all bipinnate, with the leaflets linear entire and subtrifid, on the upper stem-leaves longer.

[1] Linn. spec. [2] Idem. [3] Hort. kew.

In the lower ſtem-leaves a ſhort ſheath terminates in a long petiole. The upper petioles ſheathed almoſt embracing the ſtem are terminated by a compound ſeſſile leaf. Rays of the umbel from eight to twelve. Umbellets compact with from ſix to eight flowers, and an involucret of ſeveral awl-ſhaped leaves the length of the germs. The ſtyles and apex of the germs become red after the flower is paſt. According to the deſcription of *Soſeli Hippomarathrum* in Species plantarum, this reſembles that plant ſo much, that except in the form of the involucrets they appear to be the ſame [a].

4. Native of the Cape of Good Hope. Found there by Thunberg.]

5. Root perennial, running deep in the ground, and ſending out ſlender ſmooth ſtalks near two feet high. Leaves long and narrow, compoſed of ſeven or eight pairs of pinnæ, with leaflets either ſingle or bind; they have a membrane embracing the petiole, and are of a gray colour. The ſtalks are terminated by umbels of flowers, which are purple on their outſide and white within; [and therefore appear purple before they open, but when open white with purple anthers [b].

Stem about a foot high, ſtraight and little branched, terminated by an umbel, and one or two lateral branches beſides. Leaves glaucous: root-leaves bipinnate, with the leaflets in pairs or threes, with a nerve prominent on both ſides, jointed at their baſe, five or ſix lines in length, and half a line in breadth. Thoſe on the ſtem are ſmaller, with ſegments more lengthened out, and leſs compound. The umbel has only ten or twelve unequal rays; the umbellet twelve or fifteen, with an involucret of five leaflets ſhorter than the rays. Seeds ſmall, whitiſh, ſtriated, with little tubercles or hairs, viſible with a magnifier [c].

Native of France, Auſtria, Carniola, Sileſia, Piedmont.—Cultivated in 1759, by Mr. Miller [d].]

6. Root biennial. Leaves bipinnate, with the leaflets very narrow, and finely divided. Stems ſtrong, a foot and half high, with ſhining pinnate leaves, and terminated by pretty large umbels of whitiſh flowers.

[Native of the Pyrenean mountains. Cultivated in 1759, by Mr. Miller [e].

7. Stem ſtiff, a ſpan high and more, ſtriated. Leaves bipinnate, laciniate. Flowers whitiſh with a tinge of violet [f]. According to Haller and Gouan the involucrets are longer than the rays.

Leaves oblong, bipinnate, with linear leaflets, aſh-coloured, a little decuſſated like thoſe of *Carui*. Stems a foot high and more, ſtout, channelled, purpliſh, ſwelling a little under the joints, and branching at the end. Stem-leaves leſs compound, with their ſegments more lengthened out, but not ſo different as in ſome other ſpecies. The umbel has ſometimes an involucre of five linear leaves, and is compoſed of from ſixteen to twenty rays. Thoſe of the umbellet are numerous and cloſe. This has an involucre of ſeveral leaflets, the length of the rays or peduncles. Seeds ſmooth, ſtriated, oblong, purpliſh at the end. It is not properly annual, but dies, as many other umbellate plants do, after flowering and fruiting [g].

Native of France, Germany, Hungary, Auſtria, Switzerland and Piedmont.

8. Native of the Cape of Good Hope, where it was found by Thunberg.]

9. This is an annual plant. The leaves are like thoſe of Spignel, (Athamanta Meum) but much ſmaller, and have a very acrid biting taſte. The ſtalks riſe four inches high, and ſuſtain a ſmall umbel of flowers.

[It is a ſmall, very branching plant. The root-leaves much reſemble thoſe of Milfoil. Umbels many, with four or five divaricating rays in the circumference, and two or three ſmall ones in the ſide. Involucrets with two or three ſmall rays. Petals white, retuſe. Anthers violet. Seeds ſtellated.

Native of Portugal and Italy [h]. Cultivated by Mr. Miller in 1759. It flowers in June and July [i].]

[a] Retzius. [b] Linn. ſpec. [c] Villars. [d] Hort. kew.
[e] Idem. [f] Linn. ſpec. [g] Villars. [h] Linn. ſpec.
[i] Hort. kew.

10. This has a thick woody root, from which come out ſtiff ſtalks near four feet high, which are crooked at their joints, and have narrow leaves coming out in bunches. The ſtalks divide into ſlender branches, which have ſmall umbels of flowers coming out of their ſides, and are terminated by larger. The flowers are ſmall and yellow.

Stem rigid, as it were woody. Partial leaflets not two only oppoſite, but commonly four, the inner ones ſmaller, whence they are bundled [a].

Cultivated in 1656 by Mr. John Tradeſcant, jun. Biennial [b].

11. Native of the South of Europe.

12. Leaves bipinnate: the firſt trifid and linear. Stem ruſhy, glaucous, as is the reſt of the plant. The uppermoſt leaves conſiſt of a ſheath only. Involucrets of one leaf, like a baſin, notched about the edge, or of leaflets united into one, in which this differs from all other umbellate plants. Germs ſeſſile. Corollas white, often tinged with purple [c]. According to Scopoli and Gouan, the ſynonym from Caſpar Bauhin belongs to Pimpinella glauca [d].

Native of Auſtria, Carniola, Sileſia, Germany.—Cultivated in 1656 by Mr. John Tradeſcant, jun. [e]

13. Stem a foot high, round, ſtriated. Root-leaves doubly pinnate, looſe, little divaricating: leaflets pinnate, longitudinally gaſhed, acuminate, wedge-ſhaped. Upon the ſtem there is often a ſingle leaf, from the axil of which iſſues a branch: radical petioles ſimple; ſtem-petiole wide-membranaceous. Univerſal umbel naked, oblong, with about eight rays or peduncles: partial cluſtered, very ſhort, uniform; with a many-leaved, briſtle-ſhaped involucret, longer than the umbellets. The appearance of this ſpecies is different from the others of this genus.

Native of the Pyrenees [f].

14. Plant a foot high. Stem branched, round, ſlender. Leaves ſmall, doubly-ternate, linear, ſeldom lobed. Umbels naked, commonly with ſix peduncles or rays: umbellets involucred, with from ſix to eight florets; involucrets briſtle-ſhaped.

Native of Germany, and the borders of the Lake of Geneva [g].

15. Stem a foot and half high, the thickneſs of a pigeon's quill, ſubdichotomous, with the branches divaricating; the uppermoſt very narrow. Leaves ſuperdecompound; the upper ones only ternate. Leaflets linear, the thickneſs of a horſe-hair, an inch long, round. Umbels trifid. Umbellets cluſtered, with about eight florets, which are white. Involucrets extremely minute. Seeds tubercled [h].

This plant is eaſily diſtinguiſhed by its cylindrical leaflets, coming out in threes, and from one to two inches in length. The ſtem riſes from one to two feet in height, and has ſpreading branches. Umbels ſmall. Involucret of ſeveral leaflets. Seeds rugged, ſmall, notchletted, tranſverſely wrinkled, crowned with the perianth, like the Oenanthes. It is biennial. The membranous ſheath of the leaves ſurrounds the ſtem, and is ſeparated from the leaflets by a depreſſion, and by the direction of the leaf, which from perpendicular, as it was when applied to the ſtem by the ſheath, takes a horizontal poſition at that place [i].

Native of France, Auſtria and Sileſia. Crantz could not find it in Auſtria.]

PROPAGATION AND CULTURE.

Sow the ſeeds in autumn, and they will riſe the following ſpring; whereas when they are ſown in the ſpring, they frequently lie in the ground till the next year before they grow. Drill them eighteen inches aſunder, in a bed of freſh earth, where they are deſigned to remain; thin the plants to the diſtance of ſix inches; keep them clear from weeds; and in the ſecond ſeaſon they will produce ſeeds. The perennial ſorts ſhould have the ground gently dug every ſpring between the rows, taking care not to injure their roots with the ſpade. Theſe plants love a moiſt ſoil, and

[a] Linn. ſpec. [b] Hort. kew. [c] Linn. ſpec.
[d] Reichard. [e] Hort. kew. [f] Linn. ſpec.
[g] Idem. [h] Linn. mant. [i] Villars.

therefore in a dry ſoil muſt be duly watered, unleſs the ſeaſon prove wet.

[SESELI. See *Ægopodium*, *Æthuſa*, *Apium*, *Athamanta*, *Bupleurum*, *Carum*, *Chærophyllum*, *Laſerpitium*, *Liguſticum*, *Peucedanum*, *Phellandrium*, *Pimpinella*, *Selinum*, *Sium*, *Tordylium*.

SESLERIA. See *Cynoſurus*.

SESUVIUM.

Lin. gen. n. 622. *Reich. n.* 680. *Schreb. n.* 856. *Juſſ.* 316. Halimum. *Loeſ. it.* 191.

Claſſ. 12. 3. Icoſandria Trigynia.

Nat. order of *Succulentæ*. *Ficoideæ*, Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* one-leafed, bell-ſhaped, five-parted: *ſegments* ovate, acute, coloured within, ſhrivelling.

COR. none.

STAM. *Filaments* very many, awl-ſhaped, inſerted into the calyx below the ſegments, and ſhorter than the calyx. *Anthers* roundiſh.

PIST. *Germ* oblong, in the bottom of the calyx, three-cornered above. *Styles* often three, capillary, erect, length of the ſtamens. *Stigmas* ſimple.

PER. *Capſule* ovate, three-celled, cut round.

SEEDS roundiſh, flatniſh, having a beak at the margin.

ESSENTIAL CHARACTER.

Cal. five-parted, coloured. *Pet.* none. *Capſ.* ovate, three-celled, cut round, many-ſeeded.

SPECIES.

1. Seſuvium Portulacaſtrum.

Lin. ſpec. 684. *ſuſt.* 465. *Reich.* 2. 496. *Willd.* 2. 1009. *Jacqn. amer.* 155. *t.* 95. *pict.* 77. *t.* 142. *Swartz obſ.* 294.

Portulaca Portulacaſtrum. *Lin. ſpec. ed.* 1. 446. *Loeſ. it.* 191. *Pluk. phyt. t.* 216. *f.* 1. *Herm. par. t.* 212. *Plum. ſpec.* 6. *ic.* 223. *f.* 2. *Sloan. jam.* 1. 204. *Brown. jam.* 241. (Auzoon.)

Halimus indicus. *Rumph. amb.* 5. 165. *t.* 72. *f.* 1.

DESCRIPTION, *&c.*

Root perennial. Stems herbaceous, four or five inches long, decumbent, ſubdivided, round, ſucculent. Leaves wedge-ſhaped, on very ſhort petioles, oppoſite, obtuſe, fleſhy, thick, ſmooth, bright green. Petioles ſheathing, embracing, with membranaceous edges. Peduncles ſolitary, axillary, ſhorter than the leaves. Flowers green on the outſide, white and blood-red within. Calyx corolline. Anthers ſmall, blood-red. Germ acuminate. Styles three, ſometimes but ſeldom four. Seeds black [1].

Native of the Weſt Indies. Very common in Jamaica, in all the low lands about the Ferry, growing in thick beds, on every ſpot of ground that riſes above the level of the water. It is very ſucculent, and full of a neutral-alcaleſcent ſalt, which may be eaſily extracted, and would probably anſwer all the purpoſes for which the ſalts of the Kali are now uſed [2].

SETTERWORT. See *Helleborus*.

SHADDOCK. See *Citrus*.

SHAKERS. See *Briza*.

SHALLOT. See *Allium*.

SHAWIA. (*So named by Forſter, in memory of Thomas Shaw, D. D. who publiſhed* Travels into Barbary and the Levant, Oxf. 1738. fol.)

Lin. gen. Schreb. n. 1359. *Forſt. gen. t.* 48. *Juſſ.* 180.

Claſſ. 19. 5. Syngeneſia Polygamia Segregata.—— Monogamia. *Forſt.*

GENERIC CHARACTER.

CAL. *Perianth* imbricate, cylindrical: *ſcales* five or ſix oblong; three inner longer, almoſt equal.

COR. one-petalled, funnel-form, ſhort: *border* five-cleft, linear, ſpreading.

STAM. *Filaments* five, capillary. *Anther* cylindrical, tubular.

PIST. *Germ* oblong. *Style* filiform, longer than the corolla. *Stigma* bifid, ſpreading.

PER. none. *Calyx* unchanged, pervious.

SEED ſolitary, oblong. *Down* capillary, pubeſcent at the baſe.

REC. naked.

[1] Swartz. [2] Browne.

ESSENTIAL CHARACTER.

Cal. imbricate, with five or ſix ſcales, three interior longer. *Cor.* five-cleft. *Seed* one, oblong.

SPECIES.

1. Shawia paniculata.

Forſt. gen. 96. *prodr. n.* 307.

Native of New Zealand [1].

SHEEP'S SCABIOUS. See *Jaſione*.

SHEFFIELDIA. (*So named by Forſter, in honour of Mr. Sheffield, an eminent botaniſt of the univerſity of Oxford.*)

Lin. gen. Schreb. n. 278. *ſuppl.* 18. *Forſt. gen. t.* 9. *Juſſ.* 96.

Claſſ. 5. 1. Pentandria Monogynia.

Nat. order of *Caryophylli*. *Tricoccæ*, Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* five-cleft, turbinate, permanent: *ſegments* acute, erect.

COR. one-petalled, bell-ſhaped, longer than the calyx: *border* five-cleft: *ſegments* obovate, reflex.

STAM. *Filaments* ten, awl-ſhaped, inſerted into the tube: of theſe, five, oppoſite to the ſegments of the corolla, fertile; and five, alternate with them, caſtrated. *Anthers* cordate, acuminate.

PIST. *Germ* oblong. *Style* filiform, length of the ſtamens. *Stigma* ſimple.

PER. *Capſule* conical, one-celled, five-valved.

SEEDS very many, globular, faſtened to a cell-like *receptacle* in the middle of the capſule.

ESSENTIAL CHARACTER.

Cal. five-cleft. *Cor.* bell-ſhaped. *Stam.* ten, the alternate ones barren. *Capſ.* one-celled, five-valved, many-ſeeded.

SPECIES.

1. Sheffieldia repens.

Lin. ſpec. ed. Willd. 1. 833. *ſuppl.* 135. *Forſt. gen.* 18. *prodr. n.* 67.

DESCRIPTION, *&c.*

This is a little, procumbent, creeping plant, ſo reſembling Peplis Portula, that without the cruciferation it would ſeem to be the ſame. — Native of New Zealand and Eaſter Iſland [2].

SHEPHERD'S NEEDLE. See *Scandix*.

—— PURSE or POUCH. See *Thlaſpi*.

—— STAFF. See *Dipſacus*.]

SHERARDIA. (*So named by Dillenius, in honour of his patron William Sherard, L. L. D. Conſul at Smyrna.*)

Lin. gen. n. 120. *Reich. n.* 127. *Schreb. n.* 156. *Dill. gen.* 3. *Gærtn.* 1. 24. *Juſſ.* 136.

Claſſ. 4. 1. Tetrandria Monogynia.

Nat. order of *Stellatæ*. *Rubiaceæ*, Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* ſmall, ſix-toothed, inferior, permanent.

COR. one-petalled, funnel-form: *tube* cylindrical, long: *border* four-parted, flat, acute.

STAM. *Filaments* four, placed at the top of the tube. *Anthers* ſimple.

PIST. *Germ* twin, oblong, inferior. *Style* filiform, bifid at top. *Stigmas* headed.

PER. none. *Fruit* oblong, crowned, ſeparable longitudinally into two ſeeds.

SEEDS two, oblong, marked at the apex with three points, convex on one ſide, flat on the other.

ESSENTIAL CHARACTER.

Cor. one-petalled, funnel-form, ſuperior. *Seeds* two, three-toothed.

SPECIES.

1. Sherardia arvenſis. *Field or blue Sherardia, or little field Madder.*

Lin. ſpec. 149. *ſyſt.* 148. *Reich.* 1. 292. *Willd.* 1. 574. *hort. cliff.* 93. *fl. ſuec. n.* 120. *Dill. gen. app.* 96. *Gærtn. ſyſtl.* 1. 24. *Hudſ. angl.* 90. *Wither. arr. ed.* 3. 185. *Smith brit.* 171. *Curt. lond.* 5. 1. 13. *Relh. cant. ed.* 2. *n.* 124. *Biblioth. oxon. n.* 179. *Abbot beſſ. n.* 110. *Fl. dan. t.* 639. *Hall. helv. n.* 734. *Haſſq. germ.* 47. *Roth. germ.* 1. 68. 2. 191. *Ehrlich pol. n.* 144. *Vaers. herborn. n.* 119. *Neck. gallob.* 87. *Scop. carn. n.* 143. *Krock. ſileſ. n.* 209. *Villars dauph.* 2.

[1] Forſter. [2] Linn. ſuppl. and Forſter.

316. *Allion. pedem. n.* 45. *Desfont. atlant.* 126. *Sabb. hort. rom.* 1. *t.* 80. *Dickf. hort. fic.* 15. 1.

Aſperula flore cæruleo, acuto folio. *Barr. ic.* 1. 541.

Rubeola arvenſis repens cærulea. *Bauh. pin.* 334. *prodr.* 145. *Raii hiſt.* 483. *ſyn.* 225.

Rubia parva, flore cæruleo ſe ſpargens. *Bauh. hiſt.* 2. 719.

R. pratenſis minor cærulea. *Park. theat.* 276. 5.

All the leaves in whorls, flowers terminating.

[2. Sherardia muralis. *Woll. Sherardia.*

Lin. ſpec. 149. *ſyſt.* 148. *Reich.* 1. 293. *Willd.* 1. 574.

Galium murale. *Allion. pedem. n.* 34. *t.* 77. *f.* 1. *Ger. prov.* 227.

G. minimum, ſeminibus oblongis. *Buxb. cent.* 2. 31. *t.* 30. *f.* 2.

Aſperula verticillata luteola. *Bauh. pin.* 334.

A. vert. muralis minima. *Col. ephr.* 302. *t.* 300.

A. mur. min. *Park. theat.* 562. *n.* 4. *Raii hiſt.* 484.

Floral leaves two oppoſite to the flowers.

3. Sherardia fruticoſa. *Shrubby Sherardia.*

Lin. ſpec. 149. *Reich.* 1. 293. *Willd.* 1. 575. *Swartz obſ.* 46.

Leaves in fours equal, ſtem ſhrubby.

DESCRIPTIONS, *&c.*

1. Root annual, with many reddiſh-brown fibres. The whole plant branched, diffuſed, rough and hairy, from four to ſeven inches high. Leaves five or ſix in a whorl, ovate, acuminate, rough along the edges and keel; the lower ones broader and fewer in a whorl. Umbel terminating, ſeſſile, the uppermoſt whorl of eight leaves ſerving it for an involucre. Calyx ſuperior, two-leaved; leaflets three-toothed, permanent, crowning the fruit. Corolla with a long ſlender tube; the border bright purple [a]. Seeds ovate, bay, having very minute briſtles ſcattered over them, and preſſed cloſe to them, convex on one ſide, on the other having a longitudinal cleft widening inwards. It differs from Aſperula only in the crown upon the ſeed [b].

Native of many parts of Europe, among corn and on fallows; flowering during the greateſt part of the ſummer.

2. Root annual. Stems decumbent. Leaves ovate-lanceolate, ſix in the lower, four in the middle whorls, two only together at top. Flowers in pairs on their proper peduncles, pale, flat. Fruits oblong, hiſpid. Seeds bowed a little, with little or no crown.

Native of Italy. Found alſo at Conſtantinople, on walls.

3. This is a toroſe, irregular, rugged ſhrub, with the branches bluntly four-cornered. Leaves in fours, narrow-lanceolate, quite entire, ſmooth, rolled back at the edge, a little longer than the internodes of the branches, ſeparated by very ſhort, awl-ſhaped ſtipules. Flowers oppoſite, ſeſſile, axillary. Calyx four-leaved, growing upon the germ, with lanceolate leaflets permanent. Corolla funnel-form, four-cleft, white; length of the germ. Anthers four oblong. Pericarp two-grained. It is one of the very few plants which the iſland of Aſcenſion affords; and was found there by Otheck [c].

According to Swartz this ſpecies is between a *Spermacoce* and a *Diodia*; and leſs allied to the genus *Sherardia*.

SHERARDIA. See *Galenia* and *Verbena*.

SHOT, INDIAN. See *Canna*.

SIAMIN. See *Pentapetes*.]

SIBBALDIA. (*So named by Linnæus, in memory of Sir Robert Sibbald, profeſſor of phyſic at Edinburgh: author of* Scotia illuſtrata, 1684, &c.)

Lin. gen. n. 393. *Reich. n.* 425. *Schreb. n.* 536. *Fl. lapp. Gærtn.* 1. 72. *Juſſ.* 337.

Claſs 5. 5. Pentandria Pentagynia.

Nat. order of *Senticoſæ*. *Roſaceæ*, Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* one-leafed, half-ten-cleft, with an erect baſe: *ſegments* half-lanceolate, equal, ſpreading, alternately narrower, permanent.

COR. *Petals* five, ovate, inſerted into the calyx.

STAM. *Filaments* five, capillary, ſhorter than the corolla, inſerted into the calyx. *Anthers* ſmall, obtuſe.

PIST. *Germs* five, ovate, very ſhort. *Styles* from the middle of the ſide of the germs, length of the ſtamens. *Stigmas* headed.

PER. none. *Calyx* converging, concealing the ſeeds within its boſom.

SEEDS five, ſomewhat oblong.

OBS. *It ſometimes, but very ſeldom, becomes luxuriant, by doubling the number of piſtils, on the ſame plant.*

ESSENTIAL CHARACTER.

Calyx ten-cleft. *Pet.* five, inſerted into the calyx. *Styles* from the ſide of the germ. *Seeds* five.

SPECIES.

1. Sibbaldia procumbens. *Procumbent Sibbaldia.*

Lin. ſpec. 406. *ſyſt.* 308. *Reich.* 1. 777. *Willd.* 1. 1567. *fl. lapp. n.* 111. *ſuec. n.* 275. *Gærtn. fruct.* 1. 348. *Hudſ. angl.* 136. *Wither. arr. ed.* 3. 326. *Smith brit.* 345. *Lightf. ſcot.* 175. *Dickſ. hort. fic.* fa. 12. *Fl. dan. t.* 32. *Villars dauph.* 2. 554. *Hull. belg. n.* 1116. (Fragaria.)

Fragariæ ſylveſtri affinis planta, flore luteo. *Sibb. ſcot.* 2. 25. *t.* 6. *f.* 1.

Fragariæ affinis ſericea incana. *Bauh. pin.* 327. *prodr.* 139.

Pentaphylloides pumila, foliis ternis ad extremitates trifidis. *Raii ſyn.* 256. *Petiv. brit. t.* 41. *f.* 7.

Stem procumbent, leaflets three-toothed wedge-form.

[2. Sibbaldia erecta. *Upright Sibbaldia.*

Lin. ſpec. 407. *Reich.* 1. 777. *Willd.* 1. 1567. *Gmel. ſib.* 3. 186. *Amm. ruth.* 112. *t.* 15. (Pentaphylloides.)

Stem upright, leaves linear multifid.

3. Sibbaldia alraica.

Lin. ſyſt. 308. *Willd.* 1. 1567. *ſuppl.* 191. *Pallas in act. petrop.* 1773. *p.* 526. *t.* 18. *f.* 2.

Stem upright, leaves lineal-uniform three-parted.

DESCRIPTIONS, *&c.*

1. Root woody, branched, black on the outſide. Stems very ſhort, leafy. Leaves on long petioles, ternate: leaflets inverſely wedge-ſhaped, hairy, three-toothed at the end. Stipules two, faſtened to the petiole. Peduncles corymbed. Flowers ſmall, yellow. Calyx hairy, permanent, with the alternate ſegments larger. Petals obovate, entire. Stamens very ſhort. Styles five, ſometimes ten. Seeds ovate gibbous [a]: according to Gærtner, five, ſmall, ſubglobular, acuminate, ſmooth, of a yellow-bay colour.—When cultivated, the ſtamens are often ſeven or more; the germs ten, and ten ſeeds, fixed to a dry hairy receptacle [b]. Hence Miller has made a ſecond ſpecies, which he names *decapetala*, and is no more than a variety. Dr. Smith is of opinion, that Plukenet's figure (*t.* 212. *f.* 3.) which Linnæus refers to this, belongs rather to *Potentilla fubacaulis*.

Native of the mountains of Lapland, Switzerland, Scotland and Siberia. On the north ſide of Ben Lomond, three fourths up the mountains, plentifully. On Ben Mor, ſparingly. Flowering in july.

2. The leaves are very finely jagged, and the flowers fleſh-coloured.—Native of Sibena [c].

3. Leaves linear, three-cuſped. Calyxes cylindrical. Corollas purple [d]. Stem an inch high or more, almoſt naked, having only one flower, or elſe terminated by a corymb of from three to five flowers [e].]

PROPAGATION AND CULTURE.

1. Growing on moiſt ground in high mountains, it is with difficulty preſerved in gardens, and rarely produces ſeeds there; the plants therefore muſt be procured from the places where they grow naturally, and if they are planted in a moiſt ſoil and ſhady ſituation, they will thrive tolerably well and produce flowers.

[SIBI. See *Lagerſtroemia*.

[a] Smith. [b] Gærtner. [c] Linn. ſpec. [d] Wiſtering [e] Amman. [a] Linn. ſyſt. [b] Willdenow.

SIBTHORPIA. (*So named by Linneus, in honour of Humphrey Sibthorp, M. D. Profeſſor of Botany at Oxford.*)

Lin. gen. n. 775. *Reich. n.* 836. *Schreb. n.* 1038. *Gærtn. t.* 55. *Juſſ.* 99.

Claſſ. 14. 2. Didynamia Angioſpermia.

Nat. order of *Pediculares*, Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* one-leafed, turbinate, five-parted, ſpreading: *leaflets* ovate, permanent.

COR. one-petalled, five-parted, ſpreading, equal, length of the calyx: *ſegments* rounded.

STAM. *Filaments* four, capillary: two approximating. *Anthers* cordate-oblong.

PIST. *Germ* roundiſh, compreſſed. *Style* cylindrical, thicker than the filaments, length of the flower. *Stigma* ſimple, capitate, depreſſed.

PER. *Capſule* compreſſed, orbicular, two-bellied, with the ſides acute, two-valved, two-celled: *partition* tranſverſe.

SEEDS ſome, roundiſh-oblong, convex on one ſide, flat on the other. *Receptacle* globular, faſtened to the middle of the partition.

ESSENTIAL CHARACTER.

Cal. five-parted. *Cor.* five-parted, equal. *Stam.* in remote pairs. *Capſ.* compreſſed, orbicular, two-celled, with the partition tranſverſe.

SPECIES.

1. Sibthorpia europæa. *Corniſh Money-wort.*
Lin. ſpec. 880. *ſyſt.* 572. *Reich.* 3. 180. *mant.* 421. *amoen.* 3. 22. *Loeſ. it.* 150. *Hudſ. angl.* 276. *Wither. arr. ed.* 3. 556. *Smith brit.* 667. *engl. bot. t.* 649. *Dickſ. hort. ſicc.* 76.
S. proſtrata. *Saliſb. tr.* 11. *t.* 6.

Alſine ſpuria puſilla repens, foliis Saxifragæ aureæ. *Rait ſyn.* 352. *Pluk. phyt. t.* 7. *f.* 6. *Petiv. brit. t.* 6. *f.* 11.

Leaves kidney-form-ſubpeltate crenate.

DESCRIPTION, *&c.*

1. [Root fibrous, perennial. Stems proſtrate, creeping, branched, very long, ſlender and delicate, interwoven, leafy, hairy. Leaves alternate, on footſtalks, horizontal, with ſhallow diſtant notches, hairy. Peduncles axillary, ſolitary, ſhort, one-flowered, hairy. Calyx hiſpid. Corolla pale yellow, with a purpliſh tinge in the three upper ſegments. Stamens very ſhort. Stigma peltate[a]. Capſule ſmall, cordate-rounded, with a groove on each ſide, compreſſed like a lens, two-celled, two-valved: partition ſimple, very narrow, contrary to the valves. Receptacle ſubglobular, ſpongy, tubercled, faſtened on each ſide to the middle of the partition. Seeds few, about ſix in each cell, ſmall ovate, plano-convex or ſubangular, brown[b].

This curious and moſt diſtinct genus was named, as was ſaid above, in honour of Dr. Humphrey Sibthorp, ſucceſſor to Dillenius in the Botanic chair at Oxford. His ſon, the late Profeſſor John Sibthorp, has richly earned his inheritance of the honour, by his indefatigable zeal in the purſuit of the ſame ſcience, to which indeed he fell a ſacrifice. His knowledge of the plants of his own country is diſplayed in his Flora Oxonienſis, publiſhed not long before his death. The arrangement of his Grecian treaſures is intruſted to Dr. Smith[c].

Native of Portugal, and England, in ſhady places and about ſprings; in Devonſhire and Cornwall, plentiful, and about Longſledale in Weſtmoreland. It flowers in july and auguſt, or from june to ſeptember.]

PROPAGATION AND CULTURE.

Planted or ſown in pots, placed in the ſhade and kept moiſt, it will thrive very well in gardens.

SICYOIDES. See *Sicyos*.

SICYOS. (*Σικυος of Theophraſtus.*)

Lin. gen. n. 1094. *Reich. n.* 1195. *Schreb. n.* 1481. *Gærtn. t.* 88. *Juſſ.* 394. Sicyoides. *Tournef. t.* 28. Bryonioides. *Dill. elth.* 51.

Claſſ. 21. 9. Monoecia Syngeneſia.

Nat. order of *Cucurbitaceæ*.

GENERIC CHARACTER.

* *Male Flowers.*

CAL. *Perianth* one-leafed, bell-ſhaped, five-toothed: *toothlets* awl-ſhaped.

COR. five-parted, bell-ſhaped, faſtened to the calyx: *ſegments* ovate.

STAM. *Filaments* three, united. *Anthers* as many, ſeparate.

* *Female Flowers* on the ſame plant.

CAL. *Perianth* as in the male, ſuperior, deciduous.

COR. as in the male.

PIST. *Germ* ovate, inferior. *Style* cylindrical. *Stigma* thickiſh, trifid.

PER. *Berry* ovate, ſet with ſpines, one-celled.

SEED ſingle, ſubovate.

ESSENTIAL CHARACTER.

Cal. five-toothed. *Cor.* five-parted.

MALE. *Filaments* three.

FEM. *Style* trifid. *Drupe* one-ſeeded.

SPECIES.

1. Sicyos angulata. *Angular-leaved Sicyos, or ſingle-ſeeded Cucumber.*
Lin. ſpec. 1439. *Reich.* 4. 209. *hort. cliff.* 452. *upſ.* 291. *Berg. cap.* 352. *Sabb. hort.* 2. *t.* 60. *Dill. elth.* 58. *t.* 51. *f.* 59. (Bryonioides.) *Pluk. phyt. t.* 26. *f.* 4. (Cucumis.)

β. Cucumis canadenſis monoſpermos, fructu echinato. *Herm. par.* 108. *t.* 133.

Leaves angular.

2. Sicyos laciniata. *Jagged-leaved Sicyos.*
Lin. ſpec. 1439. *Reich.* 4. 210. *Plum. ſpec.* 3. *tc.* 242. (Sicyoides.)

Leaves jagged.

[3. Sicyos Garcini. *Garcin's Sicyos.*
Lin. ſyſt. 870. *Reich.* 4. 210. *mant.* 297. *Burm. ind.* 311. *t.* 57. *f.* 3.

Leaves five-parted eroſe-toothed, fruits ciliate.]

DESCRIPTIONS, *&c.*

1. This is an annual plant, which riſes with two large ſeed-leaves like thoſe of the Cucumber; the ſtalk is trailing, and has tendrils, by which it faſtens itſelf to neighbouring plants, and will riſe fifteen or ſixteen feet high, dividing into many branches, with angular leaves on them like thoſe of the Cucumber. The flowers come out upon long peduncles from the ſide of the branches in cluſters; the females are ſmall, of a pale ſulphur colour, and appear in june and july; they are ſucceeded by prickly oval fruit, ripening in autumn. [The fruit is an inferior fleſhy berry, becoming juiceleſs, coriaceous and membranaceous, ovate-acuminate, compreſſed a little, covered all over with a rigid curling cotton, and ſlender yellowiſh pungent ſpines; one-celled. Seed ovate, compreſſed a little, ſmooth, of a ruſty brown colour, with four white calluſes at the navel[a].

Native of North America. Cultivated in 1732 by James Sherard, M. D.[b]]

2. This is alſo an annual plant, with trailing ſtalks like the former, but the leaves are cut into ſeveral ſegments. The flowers are larger and of a deeper colour. The fruit is not quite ſo large, nor ſo cloſely armed with prickly hairs.—Native of the Weſt Indies.

[3. Leaves cordate, five-parted with the ſinuſes obtuſe: ſegments ſinuate with mucronate teeth. Fruit ſeſſile, ſolitary, ciliate, preſſed to the ſtem.—Native of Ceylon[a].]

PROPAGATION AND CULTURE.

1. If the ſeeds be permitted to ſcatter, the plants will come up in the ſpring better than when ſown by hand, and require no other care but to keep them clean from weeds. Theſe plants ramble, and take up too much room in ſmall gardens; they ſhould therefore be allowed a place near a hedge, upon which they may climb: they do not bear tranſplanting well, unleſs when they firſt come up.

2. Sow the ſeeds upon a hot-bed in the ſpring, and treat the plants in the ſame way as Cucumbers and Melons, keeping them under frames. They

[a] Smith. [b] Gærtner. [c] Engl. bot.

[a] Gærtner. [b] Hort. kew. [a] Burm. in Linn. mant.

require

require more room, ſo that a plant or two will be enough for curioſity.

[SICYOS. See *Ciſſus* and *Elaterium*.]

SIDA. (Σιδη of *Theophraſtus*.)

Lin. gen. n. 837. *Reich. n.* 902. *Schreb. n.* 1129. *Cavan. diſſ.* 1. 6. *L'Herit. ſtirp. faſc.* 5. *Gaertn. fruct. t.* 134. *Juſſ.* 273. Malvinda. *Dill. elth.* 171. 172. Abutilon. *Dill. elth.* 2. 5. 6. *Tournef. t.* 25. Anoda. *Cavan. diſſ.* 1. Napæa. *Clayt.* & *ed. prior.*

Claſs. 16. 6. Monadelphia Polyandria.

Nat. order of *Columniferæ*. *Malvaceæ*, Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* one-leaſed, angular, half-five-cleft, permanent.

COR. *Petals* five, wider above, emarginate, faſtened below to the tube of ſtamens.

STAM. *Filaments* very many, united below into a tube, in the apex of the tube divided. *Anthers* roundiſh.

PIST. *Germ* orbicular. *Styles* five or more; or elſe one many-cleft. *Stigmas* headed.

PER. *Capſule* roundiſh-angular, compoſed of five or more cells, (correſponding with the number of the ſtyles or ſtigmas,) two-valved, awnleſs, acuminate or horned, opening above, or cloſe, and finally ſeparating.

SEEDS ſolitary, two three, or five, roundiſh, moſtly acuminate, convex on one ſide, angular on the other, faſtened to the interior future.

OBS. Malvinda, *Dill. has five cells with one ſeed in each.*

Abutilon, *Dill. & Tourn. has ſeveral cells, and commonly ſeveral ſeeds in each.*

Anoda, *Cavan. has ſeveral united cells with one ſeed in each.*

Napæa, *Linn. is dioecous, with ſeveral cells not opening.*

Sida periplocifolia, *Linn. has five ſuperior two-valved cells, and as many inferior alternate not opening.*

SPECIES.

* *With long narrow lanceolate oblong and ovate leaves.*

[1. Sida linifolia. *Flax-leaved Sida.*
Lin. ſpec. ed. Willd. 3. 734. *Cavan. diſſ.* 1. 14. *t.* 2. *f.* 1.
Malva hirſuta gramineo folio. *Barr. æquin.* 72. *Aubl. guian.* 2. 704.
Leaves linear quite entire, racemes terminating, capſules almoſt awnleſs.]

2. Sida anguſtifolia. *Narrow-leaved Sida.*
Lin. ſyſt. 621. *Willd.* 3. 734. *L'Herit. ſtirp.* 1. 109. *t.* 52. *Cavan. diſſ.* 1. 14. *t.* 2. *f.* 2. & *diſſ.* 2. 48. *Murr. ſ. gott.* 220.
S. ulmifolia. *Retz. obſ.* 3. 37.
Leaves linear-lanceolate toothed, peduncles ſubſolitary axillary, capſules two-cuſped.

[3. Sida acuta. *Sharp-leaved Sida.*
Lin. ſpec. ed. Willd. 3. 735. *Cavan. diſſ.* 1. 15. *t.* 2. *f.* 3. *Burm. ind.* 147. *Pluk. mant. t.* 334. *f.* 1. (Althæa.)
Silagurium longifolium. *Rumph. amb.* 6. 43. *t.* 18. *f.* 2.
Tsjeru-parua. *Rheed. mal.* 10. 105. *t.* 53.
Leaves linear-lanceolate toothed, peduncles ſolitary, axillary, capſules two-cuſped, ſtipules lanceolate.

4. Sida canarienſis. *Canary Sida.*
Lin. ſpec. ed. Willd. 3. 735.
S. alba. *Cavan. diſſ.* 1. 22. *t.* 3. *f.* 8. & *diſſ.* 2. 48.
Leaves lanceolate ſublinear toothed ſmooth, peduncles ſolitary axillary length of the leaves, capſules two-beaked.

5. Sida lanceolata. *Lance-leaved Sida.*
Lin. ſpec. ed. Willd. 3. 736. *Retz. obſ.* 4. 28.
S. ſtipulata. *Cavan. diſſ.* 1. 22. *t.* 3. *f.* 10.
Leaves oblong-lanceolate toothed ſmoothiſh, peduncles axillary, ſolitary, capſules two-beaked, ſtipules linear nerved longer than the peduncle.]

6. Sida ſpinoſa. *Prickly Sida.*
Lin. ſpec. 960. *ſyſt.* 621. *Reich.* 3. 334. *Willd.* 3. 736. *hort. cliff.* 346. *upſ.* 199. *fl. zeyl. n.* 254. *Cavan. diſſ.* 1. 11. *t.* 1. *f.* 9. *Swartz obſ.* 257. *Vahl ſymb.* 2. 78. *Comm. hort.* 1. 3. *t.* 2. (Alcea.)

Pluk. phyt. t. 9. *f.* 6. (Althæa.) *Sloan. jam.* ii 218. (Malva.)

S. carpinifolia. *Mill. dict. n.* 2.

Stewartia corchoroides. *Forſt. deſcr.* 126.

Leaves ovate-lanceolate obſoletely cordate toothed, peduncles ſubſolitary axillary, axils ſomewhat ſpiny, ſtipules briſtle-ſhaped longer than the peduncle, capſules two-beaked.

[7. Sida fruteſcens. *Shrubby Sida.*
Lin. ſpec. ed. Willd. 3. 736. *Cavan. diſſ.* 1. 12. *t.* 10. *f.* 1.
Leaves ovate-oblong, ſerrate, peduncles one-flowered axillary, capſules two-beaked.

8. Sida carpinifolia. *Hornbeam-leaved Sida.*
Lin. ſyſt. 621. *ed. Willd.* 3. 737. *ſuppl.* 307. *Jacqu. ic. rar.* 1. *t.* 135. *collect.* 1. 38. *Cavan. diſſ.* 5. 274. *t.* 134. *f.* 1.
S. planicaulis. *Cavan. diſſ.* 1. 24. *t.* 3. *f.* 11.
Leaves ovate-oblong ſubduplicate ſerrate, peduncles axillary four-flowered or thereabouts, capſules two-beaked.

9. Sida jamaicenſis. *Jamaica Sida.*
Lin. ſpec. 962. *ſyſt.* 621. *Reich.* 3. 336. *Willd.* 3. 737. *amoen.* 5. 401. *Swartz obſ.* 258. *Cavan. diſſ.* 1. 17. *t.* 2. *f.* 5. *Brown. jam.* 280. 5.
Leaves ovate ſerrate tomentoſe, flowers axillary ſubpedunculed, capſules in fives two-horned.

10. Sida orientalis. *Oriental Sida.*
Lin. ſpec. ed. Willd. 3. 737. *Cavan. diſſ.* 1. 21. *t.* 12. *f.* 1.
Leaves ovate acuminate toothed ſmooth, peduncles one-flowered axillary, capſules awnleſs.

11. Sida glomerata. *Globe-flowered Sida.*
Lin. ſpec. ed. Willd. 3. 738. *Cavan. diſſ.* 1. 18. *t.* 2. *f.* 6.
Leaves ovate-lanceolate ſerrate, flowers about five together axillary ſubſeſſile, capſules two-horned.

12. Sida maculata. *Spotted-flowered Sida.*
Lin. ſpec. ed. Willd. 3. 738. *Cavan. diſſ.* 1. 20. *t.* 3. *f.* 7.
Leaves ovate obtuſe ſerrate tomentoſe, peduncles axillary racemed at the top of the ſtem, capſules two-horned.

13. Sida ſuberoſa. *Corky Sida.*
Lin. ſpec. ed. Willd. 3. 738. *L'Herit. ſtirp.* 1. 113. *t.* 54.
Leaves ovate toothed hirſute, peduncles axillary one-flowered twice as long as the petiole, capſules two-horned, ſtem corky at the baſe.

14. Sida capenſis. *Cape Sida.*
Lin. ſpec. ed. Willd. 3. 738. *Cavan. diſſ.* 1. 23. *t.* 12. *f.* 3. & *diſſ.* 2. 49. *Pluk. phyt. t.* 240. *f.* 5.
Leaves ovate-lanceolate toothed, peduncles ſolitary, ſtipules linear ciliate longer than the petiole.

15. Sida microphylla. *Small-leaved Sida.*
Lin. ſpec. ed. Willd. 3. 739. *Cavan. diſſ.* 1. 22. *t.* 12. *f.* 2.
Leaves elliptic toothed, peduncles ſolitary longer than the petiole, capſules two-horned.

16. Sida micans. *Glittering Sida.*
Lin. ſpec. ed. Willd. 3. 739. *Cavan. diſſ.* 1. 19. *t.* 3. *f.* 1.
Leaves ovate obtuſe ſerrate tomentoſe ſhining, peduncles ſolitary much longer than the petiole, capſules two-horned.

17. Sida puſilla. *Dwarf Sida.*
Lin. ſpec. ed. Willd. 3. 739. *Cavan. diſſ.* 1. 6. *t.* 1. *f.* 4. & *diſſ.* 5. *t.* 127. *f.* 1.
Leaves roundiſh-elliptic toothed ſmooth, peduncles longer than the petiole ſolitary, capſules awnleſs, ſtem proſtrate.

** *With wedge-ſhaped leaves.*

18. Sida rhombifolia. *Rhomb-leaved Sida.*
Lin. ſpec. 961. *ſyſt.* 621. *Reich.* 3. 334. *Willd.* 3. 740. *vir. cliff.* 68. *hort. diff.* 346. *upſ.* 199. *fl. zeyl. n.* 252. *Gron. virg.* 101. *Murr. prodr.* 168. *Knipb. cent.* 8. *n.* 85. *Cavan. diſſ.* 1. 23. *t.* 3. *f.* 12. & *diſſ.* 2. 48. *Swartz obſ.* 257. *Forſt. prodr. n.* 256. *Sloan. jam.* 1. 217. (Malva.) *Dill. elth.* 216. *t.* 172. *f.* 212. (Malvinda.) *Becc. ſic.* 11. *t.* 2.
Leaves oblong lanceolate toothed wedge-form at the baſe quite entire, peduncles much longer than the petioles, capſules two-horned.

19. Sida canescens. *Hoary-leaved Sida.*
Lin. spec. ed. Willd. 3. 740. *Cavan. diss.* 1. 23. *t.* 8. *f.* 3.
Leaves rhomb-ovate toothed at the top tomentose beneath, peduncles longer than the leaf.
20. Sida retusa. *Retuse-leaved Sida.*
Lin. spec. 961. *syst.* 621. *Reich.* 3. 335. *Willd.* 3. 740. *Cavan. diss.* 1. 18. *t.* 3. *f.* 4. & *diss.* 5. 274. *t.* 131. *f.* 2. *Pluk. phyt. t.* 9. *f.* 2.
Silagurium rotundum s. vulgare. *Rumph. amb.* 6. 44. *t.* 19.
Leaves obovate toothed at the end and retuse tomentose beneath, peduncles solitary longer than the leaf, capsules awnless.]
21. Sida alnifolia. *Alder-leaved Sida.*
Lin. spec. 961. *syst.* 621. *Reich.* 3. 335. *Willd.* 3. 741. *hort. cliff.* 346. *upsal.* 200. *fl. zeyl. n.* 253. *Lour. cochinch.* 413. *ed. Willd.* 502. *Cavan. diss.* 1. 12. *t.* 1. *f.* 13? *Dill. elth.* 215. *t.* 172. *f.* 211. (Malvinda.)
Leaves roundish-obovate toothed quite entire at the base, peduncles many axillary shorter than the leaf, capsules two-horned.
22. Sida ciliaris. *Ciliated Sida.*
Lin. spec. 961. *syst.* 621. *Reich.* 3. 335. *Willd.* 3. 741. *amoen.* 5. 401. *Cavan. diss.* 1. 21. *t.* 3. *f.* 9. & *diss.* 5. 275. *t.* 127. *f.* 2. *Swartz obs.* 257. *Sloan. jam.* 1. 217. *t.* 137. *f.* 2. *Brown. jam.* 282. 2. (Malva.)
Leaves lanceolate truncate toothed somewhat wedge-shaped at the base, stipules linear ciliate longer than the flower, flowers solitary subsessile, capsules awnless muricate.

**** With cordate quite entire leaves.*

23. Sida periplocifolia. *Great Bindweed-leaved Sida.*
Lin. spec. 962. *syst.* 622. *Reich.* 3. 337. *Willd.* 3. 741. *fl. zeyl. n.* 251. *Loefl. it.* 237. *Cavan. diss.* 1. 26. *t.* 5. *f.* 2. *Swartz obs.* 260. *Brown. jam.* 280. 3. *Dill. elth.* 4. *t.* 3. *f.* 2. (Abutilon.) *Sloan. jam.* 1. 222. *t.* 139. *f.* 3. *Pluk. phyt. t.* 74. *f.* 7. (Alcea.)
Abutilon *n.* 7. *Mill. dict. ed.* 7.
Leaves cordate-lanceolate acuminate quite entire tomentose beneath, peduncles subdivided longer than the petiole, capsules awned.
[24. Sida excelsior. *Tall Sida.*
Lin. spec. ed. Willd. 3. 742. *Cavan. diss.* 1. 27. *t.* 5. *f.* 3.
Leaves cordate ovate acuminate quite entire tomentose beneath, racemes panicled, capsules two-toothed.
25. Sida hernandioides. *Hernandia-leaved Sida.*
Lin. spec. ed. Willd. 3. 742. *L'Herit. stirp.* 1. 121. *t.* 58.
Leaves subpeltate cordate ovate acuminate almost quite entire pubescent, peduncles one-flowered, capsules awnless.]
26. Sida nudiflora. *Naked-flowered Sida.*
Lin. spec. ed. Willd. 3. 742. *L'Herit. stirp.* 1. 123. *t.* 59. *f.* *. *Plum. spec.* 2. *ic.* 3. (Abutilon.)
S. stellata. *Cavan. diss.* 1. 27. *t.* 5. *f.* 4. & *diss.* 6. 349.
S. periplocifolia β. *Lin. spec.* 963.
Abutilon *n.* 4. *Mill. dict. ed.* 7.
Leaves roundish-cordate acuminate almost quite entire tomentose beneath, panicle terminating racemed, capsules awnless.

***** With cordate toothed leaves, and one-flowered peduncles.*

27. Sida triquetra. *Triangular-stalked Sida.*
Lin. spec. 962. *syst.* 621. *Reich.* 3. 335. *Willd.* 3. 743. *Jacqu. hort.* 2. 54. *t.* 118. *Cavan. diss.* 1. 26. *t.* 6. *f.* 1. *Gærtn. fruct.* 2. 249.
S. trifulcata. *Jacqu. amer.* 195. *pict.* 96. *t.* 184.
Leaves cordate acuminate serrulate, peduncles solitary, capsules awnless truncate, branches three-sided.
28. Sida fragrans. *Sweet Sida.*
Lin. spec. ed. Willd. 3. 743. *L'Herit. stirp.* 1. 111. *t.* 53.
Leaves roundish-cordate acuminate crenate hirsute-viscid, peduncles solitary shorter than the petiole, capsules two-bristled.

29. Sida lignosa. *Woody Sida.*
Lin. spec. ed. Willd. 3. 744. *Cavan. diss.* 1. 28. *t.* 6. *f.* 2.
Leaves roundish-cordate acuminate crenate tomentose, peduncles solitary longer than the petiole, capsules awnless.
30. Sida reflexa. *Reflex-flowered Sida.*
Lin. spec. ed. Willd. 3. 744. *Cavan. diss.* 1. 36. *t.* 7. *f.* 7. & *diss.* 2. 54. & *diss.* 6. 549. *t.* 195. *f.* 1.
S. retrorsa. *L'Herit. stirp.* 1. 133. *t.* 64.
Leaves roundish-cordate acuminate crenate tomentose, peduncles solitary longer than the petiole, petals wedge-form toothed at the end and reflexed.
31. Sida humilis. *Low Sida.*
Lin. spec. ed. Willd. 3. 744. *Cavan. diss.* 5. 177. *t.* 134. *f.* 2.
S. unilocularis. *L'Herit. stirp.* 1. 117. *t.* 56. *bis.*
S. pilosa. *Retz. obs.* 1. 23.
β. S. morifolia. *Cavan. diss.* 1. 9. *t.* 1. *f.* 1. *Pluk. phyt. t.* 132. *f.* 5. (Althæa.)
γ. S. veronicæfolia. *Cavan. diss.* 1. 7. *t.* 1. *f.* 3. & *diss.* 5. 274. *t.* 127. *f.* 3. *Pluk. phyt. t.* 132. *f.* 3. (Althæa.)
Leaves roundish-cordate hairy above serrate, peduncles subsolitary longer than the petiole, capsules awnless.
32. Sida repens. *Creeping Sida.*
Lin. spec. ed. Willd. 3. 745. *Cavan. diss.* 1. 7. *t.* 1. *f.* 2.
Leaves roundish-cordate toothed hispid on both sides, peduncles solitary longer than the petiole, stem filiform prostrate.
33. Sida bivalvis. *Two-valved Sida.*
Lin. spec. ed. Willd. 3. 745. *Cavan. diss.* 1. 13. *t.* 11. *f.* 3.
Leaves ovate-cordate acuminate crenate tomentose, peduncles solitary shorter than the petiole, calyxes awn-acuminate, capsules cohering two-toothed.
34. Sida ulmifolia. *Elm-leaved Sida.*
Lin. spec. ed. Willd. 3. 745. *Cavan. diss.* 1. 15. *t.* 2. *f.* 4.
Leaves ovate-cordate acuminate crenate, peduncles solitary almost equal to the petiole, capsules beaked.
35. Sida multiflora. *Many-flowered Sida.*
Lin. spec. ed. Willd. 3. 746. *Cavan. diss.* 1. 18. *t.* 3. *f.* 3.
Leaves ovate-cordate bluntish toothed tomentose, peduncles solitary longer than the petiole, capsules two-beaked.
36. Sida microsperma. *Small-seeded Sida.*
Lin. spec. ed. Willd. 3. 746. *Cavan. diss.* 1. 29. *t.* 13. *f.* 4.
Leaves roundish-cordate acute subcrenate, peduncles subsolitary shorter than the petiole, capsules two-beaked.
37. Sida viscosa. *Clammy Sida.*
Lin. spec. 963. *syst.* 622. *Reich.* 3. 336. *Willd.* 3. 746. *amoen.* 5. 401. *Swartz obs.* 239. *Lour. cochinch.* 413. *ed. Willd.* 502. *Brown. jam.* 280. *Sloan. jam.* 1. 222. *t.* 139. *f.* 4. (Althæa.)
Leaves ovate-cordate acuminate very finely ferrate tomentose-viscid hairy, peduncles subsolitary longer than the petiole, capsules awnless.
38. Sida fœtida. *Stinking Sida.*
Lin. spec. ed. Willd. 3. 747. *Cavan. diss.* 6. 349.
S. viscosa. *L'Herit. stirp.* 1. 111. *bis. t.* 53.
Leaves roundish-cordate sharpish toothed tomentose, peduncles solitary shorter than the petiole, capsules awnless.
39. Sida calycina. *Calycine Sida.*
Lin. spec. ed. Willd. 3. 747. *Cavan. diss.* 1. 9. *t.* 8. *f.* 2.
Leaves roundish-cordate acuminate repand-toothed, peduncles solitary longer than the petiole, capsules awnless pear-shaped.]
40. Sida crispa. *Curled Sida.*
Lin. spec. 964. *syst.* 623. *Reich.* 3. 339. *Willd.* 3. 747. *mant.* 445. *Loefl. it.* 240. *Kniph. cent.* 4. *n.* 80. *Cavan. diss.* 1. 30. *t.* 7. *f.* 1. & *diss.* 5. 275. *t.* 135. *f.* 2. *Dill. elth.* 6. *t.* 5. *f.* 5. *Mart. cent. t.* 29. (Abutilon.)
Abutilon *n.* 5. *Mill. dict. ed.* 7.
Leaves oblong-cordate acuminate crenate the upper ones sessile, peduncles solitary longer than the petiole the fruiting ones bent down, capsules inflated awnless waved and curled.

[41. Sida perſica. *Perſian Sida.*
Lin. ſpec. ed. Willd. 3. 748. *Burm. ind.* 148. *t.* 47. *f.* 1. *Cavan. diſſ.* 1. 35. *t.* 4. *f.* 1.
Lower leaves petioled cordate acuminate, upper ſeſſile lanceolate toothed, peduncles ſolitary one-flowered.

42. Sida ſylvatica. *Wood Sida.*
Lin. ſpec. ed. Willd. 3. 748. *Cavan. diſſ.* 2. 56. & *diſſ.* 5. 276. *t.* 133. *f.* 2.
Leaves ovate-cordate acuminate crenate, peduncles geminate much longer than the petiole, capſules awnleſs beaded.

43. Sida arborea. *Tree Sida.*
Lin. ſyſt. 622. *Willd.* 3. 748. *ſuppl.* 307. *L'Herit. ſtirp.* 1. 131. *t.* 63.

S. peruviana. *Cavan. diſſ.* 1. 36. *t.* 7. *f.* 8. & *diſſ.* 5. 276. *t.* 130.
Leaves orbicular-cordate crenate tomentoſe, peduncles in pairs longer than the petiole, capſules awnleſs truncate, ſtem arboreous.

44. Sida mauritiana. *Mauritius Sida.*
Lin. ſpec. ed. Willd. 3. 749. *Jacqu. ic. rar.* 1. 137. *miſc.* 2. 352. *L'Herit. ſtirp.* 1. 129. *t.* 62.

S. planiflora. *Cavan. diſſ.* 1. 32. *t.* 7. *f.* 4. & *diſſ.* 5. 275. *t.* 135. *f.* 1.
Leaves roundiſh-cordate acuminate toothed tomentoſe beneath, peduncles ſolitary longer than the petiole, capſules two-beaked truncate longer than the calyx.

45. Sida occidentalis. *Downy Sida.*
Lin. ſpec. 964. *ſyſt.* 622. *Reich.* 3. 337. *Willd.* 3. 749. *amoen.* 4. 325. *Cavan. diſſ.* 1. 24. *t.* 4. *f.* 3. *Dill. elth.* 7. *t.* 6. *f.* 6. (Abutilon.)
Leaves oblong-cordate toothed ſublobed, peduncles ſolitary ſhorter than the petiole, capſules obtuſe globular nodding.]

46. Sida americana. *Woolly Sida.*
Lin. ſpec. 963. *ſyſt.* 622. *Reich.* 3. 338. *Willd.* 3. 749.

Abutilon *n.* 16. *Mill. dict. ed.* 7.
Leaves cordate oblong undivided, capſules many-celled length of the calyx, cells lanceolate.

47. Sida Abutilon. *Broad-leaved Sida.*
Lin. ſpec. 963. *ſyſt.* 622. *Reich.* 3. 338. *Willd.* 3. 750. *hort. cliff.* 346. *upſ.* 198. *Gron. virg.* 78. *Lapich. il.* 1. 309. *Kniph. cent.* 4. *n.* 79. *Cavan. diſſ.* 1. 34. & 2. 49. *Alſton. pedem. n.* 1412.

Abutilon. *Dod. pempt.* 656. *Mill. dict. n.* 1. *Hall. helv. n.* 1075.

Althæa Theophraſti flore luteo. *Baub. pin.* 316.—quibuſdam Abutilon. *Baub. hiſt.* 2. 958.

A. altera ſ. Abutilon. *Camer. epit.* 668.

A. lutea. *Ger.* 790. *emac.* 935. *Raii hiſt.* 699. 1.

A. lutea ſ. Abutilon Avicennæ putatum. *Park. theat.* 304. *f.* 5.
Leaves roundiſh-cordate acuminate toothed tomentoſe, peduncles ſolitary ſhorter than the petiole, capſules two-awned truncate.

[48. Sida Abutiloides.
Lin. ſpec. ed. Willd. 3. 750. *Jacqu. obſ.* 1. 17. *t.* 7.

Lavatera americana. *Lin. ſpec.* 973. *ſyſt.* 627. *Reich.* 3. 352. *amoen.* 4. 400. *Swartz obſ.* 263.
Leaves cordate undivided acuminate crenate, peduncles length of the petioles, capſules ten three-ſeeded.

49. Sida aſiatica. *Small-flowered Sida* or *Indian Mallow.*
Lin. ſpec. 964. *ſyſt.* 622. *Reich.* 3. 338. *Willd.* 3. 750. *amoen.* 4. 324. *L'Herit. ſtirp.* 1. 130. *Cavan. diſſ.* 1. 31. *t.* 7. *f.* 2. & 2. 49. & 5. 275. *t.* 128. *f.* 1. *Pluk. phyt. t.* 126. *f.* 5. (Alceæ affinis.)

Abutilon indicum, flore luteo minore. *Lin. zeyl. n.* 520.
Leaves oblong-cordate toothed, peduncles ſolitary longer than the petiole, capſules acute truncate almoſt equal to the calyx.

50. Sida populifolia. *Poplar-leaved Sida.*
Lin. ſpec. ed. Willd. 3. 751. *Cavan. diſſ.* 1. 34. *t.* 7. *f.* 9. & 5. 275. *t.* 128. *f.* 2.

S. Beloere. *L'Herit. ſtirp.* 1. 130.

Beloere. *Rheed. mal.* 6. 77. *t.* 45. *Raii hiſt.* 1880.

Abutilon læve ſ. agreſte. *Rumph. amb.* 4. 31. *t.* 11.
Leaves roundiſh-cordate acuminate unequally repand-toothed, peduncles ſolitary longer than the petiole, capſules acute truncate longer than the calyx.

51. Sida hirta. *Rough-haired Sida.*
Lin. ſpec. ed. Willd. 3. 751. *Cavan. diſſ.* 1. 33. *t.* 7. *f.* 5. & 5. 276. *t.* 129. *f.* 1.

S. piloſa. *L'Herit. ſtirp.* 1. 130.

Abutilon hirſutum. *Rumph. amb.* 4. 29. *t.* 10.
Leaves roundiſh-cordate acuminate toothed, peduncles ſolitary longer than the petiole, capſules truncate ſhorter than the calyx.

52. Sida indica. *Rough-capſuled Sida.*
Lin. ſpec. 964. *ſyſt.* 623. *Reich.* 3. 339. *Willd.* 3. 752. *amoen.* 4. 324. *Cavan. diſſ.* 1. 33. *t.* 7. *f.* 10. *Vahl ſymb.* 2. 79. *Lour. cochinch.* 404. *ed. Willd.* 503. *Forſt. prodr. n.* 257.

S. cordifolia. *Forſt. deſcr.* 124.

Abutilon indicum. *Camer. hort.* 3. *t.* 1. *Baub. hiſt.* 2. 959. *Mor. hiſt.* 2. 531. *ſ.* 5. *t.* 19. *f.* 4. *Mill. dict. ed.* 7. *n.* 2. *Park. theat.* 304. *f.* 6.

Althææ Theophraſti ſimilis. *Baub. pin.* 316. *Raii hiſt.* 699. 2.
Leaves oblong-cordate bluntiſh unequally toothed, peduncles longer than the petiole, capſules awnleſs globular-aggregate rugged longer than the calyx.

[53. Sida molliſſima. *Soft-leaved Sida.*
Lin. ſpec. ed. Willd. 3. 752. *Cavan. diſſ.* 2. 49. *t.* 14. *f.* 1.

S. ciſtiflora. *L'Herit. ſtirp.* 1. 127. *t.* 61.
Leaves roundiſh-cordate acuminate toothed, peduncles ſubbifforous ſhorter than the petiole ſolitary, capſules two-toothed truncate equal to the calyx.

54. Sida Sonneratiana. *Sonnerat's Sida.*
Lin. ſpec. ed. Willd. 3. 753. *Cavan. diſſ.* 1. 29. *t.* 6. *f.* 4.
Leaves roundiſh-cordate acuminate toothed, peduncles ſolitary longer than the leaf, capſules truncate obtuſe larger than the calyx.

55. Sida pubeſcens. *Pubeſcent Sida.*
Lin. ſpec. ed. Willd. 3. 753. *Cavan. diſſ.* 1. 33. *t.* 7. *f.* 6.
Leaves roundiſh-cordate acuminate angular-toothed, peduncles ſolitary longer than the petiole, capſules two-toothed truncate larger than the calyx.

56. Sida althæoides. *Marſh-Mallow-leaved Sida.*
Lin. ſpec. ed. Willd. 3. 753. *Swartz prodr.* 101. *deſcr.* 2. 1207. *L'Herit. ſtirp.* 1. 112.

Althæa flore luteo. *Sloan. jam.* 1. 218. *t.* 136. *f.* 2.
Leaves cordate ſomewhat angular obtuſe ſerrate-crenate tomentoſe on both ſides, beaks of the ſeeds ſhorter than the calyx.

57. Sida glutinoſa. *Glutinous Sida.*
Lin. ſpec. ed. Willd. 3. 753. *Cavan. diſſ.* 1. 16. *t.* 2. *f.* 3.
Leaves roundiſh-cordate acuminate toothed, peduncles geminate ſubbifforous longer than the petiole, capſules two-awned, awns longer than the calyx.

58. Sida exſtipularis. *Unſtipuled Sida.*
Lin. ſpec. ed. Willd. 3. 754. *Cavan. diſſ.* 2. 56. *t.* 14. *f.* 2.
Leaves ovate-cordate acuminate, peduncles ſolitary ſhorter than the petiole, capſules awnleſs, ſhorter than the calyx.

59. Sida nutans. *Nodding Sida.*
Lin. ſpec. ed. Willd. 3. 754. *L'Herit. ſtirp.* 1. 119. *t.* 57. *bis. Cavan. diſſ.* 2. 57. & 5. 276. *t.* 133. *f.* 1.
Leaves oblong-cordate acute toothed, peduncles ſubgeminate longer than the petiole, the flowering ones nodding, capſules obtuſe.

60. Sida borbonica. *Bourbon-iſland Sida.*
Lin. ſpec. ed. Willd. 3. 754. *Cavan. diſſ.* 1. 9. *t.* 10. *f.* 2.
Leaves roundiſh-cordate acute toothed, peduncles ſolitary longer than the petiole, capſules two-awned, awns longer than the calyx.

61. Sida flaveſcens. *Yellow Sida.*
Lin. ſpec. ed. Willd. 3. 755.

S. proſtrata. *Cavan. diſſ.* 1. 13. *t.* 13. *f.* 3.

β. S. flaveſcens. *Cavan. diſſ.* 1. 14. *t.* 13. *f.* 2.
Leaves ovate-cordate obtuſe unequally toothed, peduncles geminate ſubbifforous ſhorter than the petiole, capſules acute.

62. Sida radicans. *Rooting Sida.*
Lin. ſpec. ed. Willd. 3. 755. *Cavan. diſſ.* 1. 8.

Nela-

Nela-Vaga. *Rheed. mal.* 10. 137. *t.* 69.

Leaves roundiſh-cordate acute ciliate-toothed, peduncles ſolitary longer than the petiole, capſules awnleſs.]

63. Sida angura. *Sharp-leaved Sida.*
Lin. ſpec. ed. Willd. 3. 755. *Swartz prodr.* 101. *deſcr.* 2. 1205.
S. glabra. *Mill. dict. n.* 14.
Leaves cordate ſerrate attenuated at the top, ſtem wand-like, peduncles axillary filiform one-flowered.

[64. Sida monocaulis. *Many-ſtalked Sida.*
Lin. ſpec. ed. Willd. 3. 755. *Cavan. diſſ.* 1. 10. *t.* 1. *f.* 6.
Leaves roundiſh-cordate acute toothed, peduncles ſolitary double the length of the petiole, capſules awnleſs.

65. Sida piloſa. *Hairy Sida.*
Lin. ſpec. ed. Willd. 3. 756. *Cavan. diſſ.* 1. 9. *t.* 1. *f.* 8.
Leaves ovate-cordate obtuſe toothed, peduncles ſolitary longer than the petiole, capſules two-beaked ſhorter than the calyx.

66. Sida rotundifolia. *Round-leaved Sida.*
Lin. ſpec. ed. Willd. 3. 756. *Cavan. diſſ.* 1. 20. *t.* 3. *f.* 6. & 6. 529. *t.* 194. *f.* 2.
Leaves roundiſh-ovate cordate obtuſe toothed, peduncles ſolitary much longer than the petiole, capſules two-awned, awns longer than the calyx.

67. Sida lupina. *Trailing Sida.*
Lin. ſpec. ed. Willd. 3. 756. *L'Herit. ſtirp.* 1. 109. *t.* 52.
S. procumbens. *Swartz prodr.* 102. *deſcr.* 2. 1211.
S. ovata. *Cavan. diſſ.* 6. 350. *t.* 196. *f.* 2.
Leaves roundiſh-cordate bluntiſh crenate, peduncles ſolitary longer than the petiole, capſules two-awned, ſtem procumbent.

68. Sida truncata. *Truncate-leaved Sida.*
Lin. ſpec. ed. Willd. 3. 756. *Cavan. diſſ.* 1. 35. *t.* 6. *f.* 7.
Leaves roundiſh cordate blunt and truncate at the top and toothed, peduncles ſolitary longer than the petiole, capſules awnleſs.

69. Sida herbacea. *Herbaceous Sida.*
Lin. ſpec. ed. Willd. 3. 757. *Cavan. diſſ.* 1. 39. *t.* 13. *f.* 1.
Leaves oblong acute toothed cordate at the baſe, peduncles ſolitary a little ſhorter than the petiole, capſules two-awned.

70. Sida emarginata. *Notch-leaved Sida.*
Lin. ſpec. ed. Willd. 3. 757.
S. truncata. *L'Herit. ſtirp.* 1. 107. *t.* 51.
Leaves ovate-lanceolate cordate toothed truncate and retuſe at the top, peduncles ſhorter by half than the petiole, capſules two-beaked.

71. Sida alba. *White-flowered Sida.*
Lin. ſpec. 960. *ſyſt.* 621. *Reich.* 3. 334. *Willd.* 3. 757. *Dill. eltb.* 214. *t.* 171. *f.* 210. (Malvinda.) *Pluk. phyt. t.* 9. *f.* 3. (Althæa.)
Leaves oblong-cordate rounded-obtuſe toothed, peduncles equal to the petiole, capſules two-horned.]

72. Sida cordifolia. *Heart-leaved Sida.*
Lin. ſpec. 961. *ſyſt.* 622. *Reich.* 3. 336. *Willd.* 3. 758. *Cavan. diſſ.* 1. 19. *t.* 3. *f.* 2. *Lour. cochinch.* 414. *ed. Willd.* 503. *Dill. eltb.* 211. *t.* 171. *f.* 209. (Malvinda.) *Pluk. phyt. t.* 131. *f.* 2. (Althæa.)
Leaves ovate cordate toothed ſomewhat angular bluntiſh, peduncles ſolitary a little ſhorter than the petiole, capſules two-beaked.

[73. Sida hederæfolia. *Ivy-leaved Sida.*
Lin. ſpec. ed. Willd. 3. 758. *Cavan. diſſ.* 1. 8. *t.* 9. *f.* 3. *Plum. ſpec.* 2. *ic.* 69. *f.* 3. (Malva.)
Leaves roundiſh-cordate obtuſe repand, peduncles longer than the petiole, capſules two-awned, ſtem proſtrate creeping.

***** *With cordate toothed leaves, and many-flowered or racemed peduncles.*

74. Sida verticillata. *Whorled Sida.*
Lin. ſpec. ed. Willd. 3. 758. *Cavan. diſſ.* 1. 13. *t.* 1. *f.* 12.
Leaves ovate-cordate acuminate toothed, flowers ſubſeſſile aggregate whorled, capſules almoſt awnleſs.

75. Sida urens. *Stinging Sida.*
Lin. ſpec. 963. *ſyſt.* 622. *Reich.* 3. 337. *Willd.* 3. 759. *amoen.* 5. 402. *Murr. in comm. gott.* 3. *t.* 5. *Swartz obſ.* 261. *Cavan. diſſ.* 1. 15. *t.* 7. *f.* 7. *Brown. jam.* 280. 6. *Sloan. jam. t.* 44. (Althæa.)
Leaves ovate-cordate acuminate toothed, peduncles ſolitary many-flowered glomerate, capſules awnleſs.

76. Sida umbellata. *Umbelled Sida.*
Lin. ſpec. 962. *ſyſt.* 622. *Reich.* 3. 336. *Willd.* 3. 759. *amoen.* 5. 401. *Jacqu. hort. t.* 56. *Cavan. diſſ.* 1. 28. *t.* 6. *f.* 3. & 5. 276. *t.* 129. *f.* 2.
Leaves roundiſh-cordate toothed ſomewhat angular acute, peduncles four-flowered or threefoldly umbelled axillary, capſules two-awned.

77. Sida pyramidata. *Pyramidal Sida.*
Lin. ſpec. ed. Willd. 3. 759. *Cavan. diſſ.* 1. 11. *t.* 1. *f.* 10. & 6. 549. *t.* 194. *f.* 1.
Leaves roundiſh-cordate acuminate ſerrate, peduncles corymbed ſubpaniculed, capſules two-awned.

78. Sida paniculata. *Paniculed Sida.*
Lin. ſpec. 962. *ſyſt.* 622. *Reich.* 3. 337. *Willd.* 3. 760. *amoen.* 5. 401. *L'Herit. ſtirp.* 1. 112. *Cavan. diſſ.* 1. 16. *t.* 12. *f.* 5. *Swartz obſ.* 259. *Brown. jam.* 280. 7.
β. S. atro-ſanguinea. *Jacqu. ic. rar.* 1. *t.* 136. *collect.* 1. 49.
S. capillaris. *Cavan. diſſ.* 1. 10. *t.* 1. *f.* 7. & 5. 274.
Leaves ovate-cordate toothed, racemes paniculed, capſules two-beaked.

79. Sida dumoſa. *Buſh Sida.*
Lin. ſpec. ed. Willd. 3. 760. *Swartz prodr.* 101. *deſcr.* 2. 1209.
Leaves cordate-ovate acuminate ſerrate ſmooth on both ſides, flowers paniculed.

80. Sida ramoſa. *Branched Sida.*
Lin. ſpec. ed. Willd. 3. 760. *Cavan. diſſ.* 1. 28. *t.* 6. *f.* 1.
Leaves ovate-cordate unequally toothed, racemes axillary, capſules two-awned.

81. Sida ſpicata. *Spiked Sida.*
Lin. ſpec. ed. Willd. 3. 761. *Cavan. diſſ.* 1. 24. *t.* 8. *f.* 1.
Abutilon veſicarium flore luteo majus. *Plum. ic.* 1. *t.* 2.
Leaves ovate-cordate acute toothed, raceme terminating naked, capſules awnleſs in heads larger than the calyx.

82. Sida terminalis.
Lin. ſpec. ed. Willd. 3. 761. *Cavan. diſſ.* 1. 29. *t.* 6. *f.* 6. & 6. 49. *t.* 195. *f.* 2.
Leaves ovate-lanceolate cordate toothed, raceme terminating elongated frofted, capſules awnleſs in heads larger than the calyx.

****** *With cordate leaves three-cuſped or angular at the baſe.*

83. Sida veſicaria. *Bladder Sida.*
Lin. ſpec. ed. Willd. 3. 761. *Cavan. diſſ.* 2. 55. *t.* 14. *f.* 3.
Leaves ovate-cordate toothed three-cuſped, peduncles ſolitary axillary longer than the petiole, capſules truncate awnleſs ſharpiſh.

84. Sida craſſifolia. *Thick-leaved Sida.*
Lin. ſpec. ed. Willd. 3. 761. *L'Herit. ſtirp.* 1. 125. *t.* 60.
S. tricuſpidata. *Cavan. diſſ.* 1. 30. *t.* 6. *f.* 5.
Leaves ovate-cordate toothed ſomewhat three-cuſped, peduncles ſolitary axillary length of the petioles, capſules two awned.

85. Sida biflora. *Two-flowered Sida.*
Lin. ſpec. ed. Willd. 3. 762. *Cavan. diſſ.* 1. 37. *t.* 9. *f.* 1.
Leaves ovate-cordate acuminate toothed three-cuſped, peduncles geminate axillary equal to the petiole.

86. Sida obtuſa. *Blunt leaved Sida.*
Lin. ſpec. ed. Willd. 3. 762. *Vogel. cent. t.* 89. *Cavan. diſſ.* 1. 34. *t.* 9. *f.* 2.
Leaves cordate-ovate obtuſe toothed three-cuſped, peduncles longer than the petiole bearing about four flowers in an umbel, capſules acute.

87. Sida gigantea. *Giant Sida.*
Lin. ſpec. ed. Willd. 3. 762. *Jacqu. hort. Schonbr.* 2. 8. *t.* 141.
Leaves roundiſh-cordate crenate acuminate three-cuſped, flowers panicled, corollas reflexed.

88. Sida javenſis. *Javan Sida.*
Lin. ſpec. ed. Willd. 3. 763. *Cavan. diſſ.* 1. 10. *t.* 1. *f.* 5.
Leaves roundiſh-cordate toothed three-cuſped, peduncles ſolitary axillary longer than the petiole, capſules two-cuſped, ſtem reclined.

89. Sida haſtata. *Halbert-leaved Sida.*
Lin. ſpec. ed. Willd. 3. 763.
S. criſtata β. *Lin. ſpec.* 964. *hort. upſ.* 199. *Knipb. cent.* 7. *n.* 86.
Anoda haſtata. *Cavan. diſſ.* 1. 38. *t.* 11. *f.* 2.
Lower leaves cordate acuminate-five-cornered ſomewhat toothed obtuſe, upper haſtate acuminate ſomewhat toothed at the baſe, peduncle ſolitary axillary length of the leaves.

90. Sida criſtata. *Creſted Sida.*
Lin. ſpec. 964. *ſyſt.* 623. *Reich.* 2. 339. *Willd.* 3. 763. *hort. cliff.* 346. *Knipb. cent.* 2. *n.* 85.
Anoda triloba. *Cavan. diſſ.* 1. 39. *t.* 10. *f.* 3.
All the leaves crenate, lower roundiſh-cordate obtuſe ſomewhat five-cornered, upper rounded-haſtate acuminate, peduncles ſolitary axillary longer than the leaf.]

91. Sida Dilleniana. *Dillenius's Sida.*
Lin. ſpec. ed. Willd. 3. 764.
S. criſtata. *Curt. magaz. t.* 330.
Anoda Dilleniana. *Cavan. diſſ.* 1. 40. *t.* 11. *f.* 1.
Abutilon lavateræ flore, fructu criſtato. *Dill. elth.* 3. *t.* 2. *f.* 2. *Mill. dict. ed.* 7. *n.* 14.
Lower leaves triangular-ſubhaſtate crenate, upper ovate-lanceolate almoſt quite entire, peduncles ſolitary axillary length of the leaves.

******* *With lobed leaves, palmate or compound.*

[92. Sida triloba. *Three-lobed Sida.*
Lin. ſpec. ed. Willd. 3. 764. *Jacqu. hort. Schonb.* 2. 9. *t.* 142. *Thunb. prodr.* 117. *Cavan. diſſ.* 1. 11. *t.* 1. *f.* 11. & 5. 274. *t.* 131. *f.* 1.
Leaves cordate toothed three-lobed, with the middle lobe acute and longer, peduncles axillary ſolitary, capſules awnleſs.

93. Sida ternata. *Three-leaved Sida.*
Lin. ſyſt. 623. *Willd.* 3. 765. *ſuppl.* 307. *Thunb. prodr.* 118.
Leaves ternate, leaflets lanceolate remotely ſerrate.

94. Sida pterocarpa. *Wing-fruited Sida.*
Lin. ſpec. ed. Willd. 3. 765. *L'Herit. ſtirp.* 1. 119. *t.* 57.
S. mulcifida. *Cavan. diſſ.* 1. 25. *t.* 4. *f.* 2.
Leaves three-parted, ſegments linear repand-ſinuate, flowers ſubracemed, capſules winged.

95. Sida ricinoides. *Ricinus-leaved Sida.*
Lin. ſpec. ed. Willd. 3. 765. *L'Herit. ſtirp.* 1. 115. *t.* 55.
S. palmata. *Cavan. diſſ.* 1. 20. *t.* 3. *f.* 5.
Leaves ſubpeltate five-lobed, lobes ovate acute toothed undivided, peduncles one or two-flowered, capſules two-awned.

96. Sida jatrophoides. *Jatropha-like Sida.*
Lin. ſpec. ed. Willd. 3. 765. *L'Herit. ſtirp.* 1. 117. *t.* 56.
S. palmata. *Jacqu. ic. rar.* 3. 547. *collect.* 2. 336. *Cavan. diſſ.* 5. 274. *t.* 131. *f.* 3.
Leaves ſubpeltate ſeven-lobed-palmate, lobes lanceolate acuminate pinnatifid toothed, peduncles many-flowered, capſules two-awned.]

97. Sida Napæa.
Lin. ſpec. ed. Willd. 3. 766. *Cavan. diſſ.* 5. 277. *t.* 132. *f.* 1.
Napæa lævis. *Lin. ſyſt.* 896. & *Dict. noſtr. n.* 1.
N. hermaphrodita. *Lin. ſpec.* 965. & *Mill. dict. n.* 2.
Leaves ſomewhat five-lobed ſmooth, lobes oblong acuminate toothed, peduncles many-flowered, capſules awnleſs acuminate.

98. Sida dioica.
Lin. ſpec. ed. Willd. 3. 766. *Cavan. diſſ.* 5. 278. *t.* 132. *f.* 2.

Napæa ſcabra. *Lin. ſyſt.* 896. *Dict. noſtr. n.* 2.
N. dioica. *Lin. ſpec.* 965. *Mill. dict. n.* 1.
Leaves ſeven-lobed-palmate rugged, lobes lanceolate gaſo-toothed, flowers dioecous corymbed bracted.

[99. Sida Phyllanthus.
Lin. ſpec. ed. Willd. 3. 767. *Cavan. diſſ.* 5. 276. *t.* 127. *f.* 4.
Stemleſs, leaves ternate, leaflets ſeſſile three-parted wedge-form quite entire undivided obtuſe, flower ſolitary inſerted into a winged petiole.

DESCRIPTIONS, *&c.*

This genus, which contained only twenty-ſeven ſpecies in the 14th edition of the Syſtema Vegetabilium by Murray, is thus enlarged chiefly by the labours of Cavanilles, whoſe ſpecies have been adopted by Willdenow, with new ſpecific characters. It contains either ſhrubs or herbs, with a few trees; the herbaceous ſpecies are moſtly annual or biennial. The flowers are axillary or terminating, with the pedicels as it were jointed under the calyx, according to the obſervation of Cavanilles; who alſo remarks, that the petals in the ſpecies with five or ten capſules having one ſeed in each, are commonly produced on one ſide obliquely and ſomewhat in form of a ſickle. The capſules in *S. veſicaria* are five-ſeeded.—Cavanilles ſeparates three ſpecies, (89, 90, 91.) which he names *Anoda*, from the pedicels not being jointed: they are herbaceous, with the flowers ſolitary and axillary, but differ principally in having a ſimple fruit.—The ſame author unites *Napæa* with Sida. The two ſpecies of that genus are tall herbs, and one of them is dioecous: the petals in theſe are not oblique, nor are the pedicels jointed; the calyx alſo is wider at the baſe[4].

Theſe plants are moſtly natives of the Eaſt and Weſt Indies, not one properly of Europe, though *S. Abutilon* has eſtabliſhed itſelf in ſome of the ſouthern parts.

1. The leaves of this are rough with hairs, and it has five capſules.—Native of Peru and the iſland of Cayenne[5].

2. This riſes with a ſlender woody ſtalk about two feet high, ſending out many erect branches. Leaves an inch and half long, and a third of an inch broad in the middle, ending in acute points, and placed on pretty long ſlender foot-ſtalks. The flowers come out ſingly from the axils, are ſmall, and of a pale yellow colour. [According to Willdenow, there are ſometimes two flowers from an axil, and the capſules are five.—Retzius deſcribes his *almifolia* as annual, with the leaves very ſoft beneath, though the nap is ſcarcely obſervable; the ſtipules briſtle-ſhaped; no ſpines; peduncles many, axillary, one-flowered.

According to L'Heritier it is ſcarcely ſuffrutteſcent, and continues only a few years; the branches, which are few, are wand-like, round and ſubpubeſcent; below each leaf is a very ſhort reflexed triple ſpine, the ſide ones very ſmall; leaves alternate, ſcarcely tomentoſe beneath but paler, on round ſubpubeſcent petioles thickiſh at the top and only one third of the length of the leaves; ſtipules awl-ſhaped, erect, deciduous; flowers one, two or three from an axil, pedunculed, erect, yellow, half an inch in diameter; peduncles jointed in the middle, ſcarcely pubeſcent, ſhorter than the petiole. Capſules five, round on one ſide, angular on the other, with two villoſe horns. Seeds ſolitary, gibbous on one ſide, angular on the other, brown.—*S. ſpinoſa, truncata*, and *rhombifolia* are very nearly allied to this in the herb, flowers and ſpines. *S. anguſtifolia* differs indeed only by its linear leaves.

Native of Braſil and the iſland of Bourbon.

3. Like the preceding, but with the flowers ſolitary in the axils, and the ſtipules lanceolate not ſetaceous. Native of Java.

4. Capſules nine or ten two-beaked. Native of the Canary Iſlands. It is the *alba* of Cavanilles, but not of Linneus.

5. Stipules linear, nerved, ciliate, one of them commonly filiform. Capſules five to nine[6].—Stem upright, branched, nappy here and there; leaves acuminate, acutely ſerrate, naked, on ſhort petioles; ſtipules longer than the petiole, and peduncles a little longer

[4] Juſſieu. [5] Willdenow. [6] Idem.

than the ſtipules; flowers ſmall; capſules acuminate-awned.

Native of the iſlands of Ceylon and Mauritius; Retzius's ſpecimen was ſent by Koenig. Annual.]

6. Stems hairy, branching, near three feet high: the branches come out from the bottom almoſt to the top, and form a pyramidal buſh. Leaves lanceolate, deeply ſerrate, on ſhort petioles. Flowers axillary, ſolitary towards the bottom of the ſtem, but above in cluſters, of a pale ſulphur colour.

[Native of the Eaſt Indies, Arabia Felix, Senegal, Jamaica and Guiana. Annual. Introduced, according to the Kew catalogue, in 1771, by Monſ. Richard. Probably Mr. Aiton conſidered the Eaſt Indian plant as different from the Weſt Indian and Mr. Miller's *carpinifolia*.

7. This has five capſules and is ſhrubby. It is not known where it is a native.

8. Branches ſpreading in two rows and hairy. Leaves on ſhort petioles, in two rows, ovate-lanceolate ſerrate, the ſerratures terminated by a hair or rigid briſtle, veined, ſmooth. Stipules awl-ſhaped, longer than the petiole, erect, converging. Peduncles axillary, ſeldom ſolitary, umbelled, length of the petiole which is hairy. Calyx ſmooth. Corolla yellow. Capſules eight[z], not awnleſs as Cavanilles has affirmed. Cultivated in the iſland of Madeira.

9. Stem ſuffruteſcent, a foot high, branched, round, hiſpid. Leaves petioled, alternate, ſmall, ſcarcely acuminate, nerved, ſoftiſh: petioles many times ſhorter than the leaves: leaves next the petiole ſlightly emarginate. Stipules oppoſite, at the baſe of the petioles, briſtle-ſhaped. Flowers on very ſhort peduncles, from one to three, ſmall, yellow. Beaks of the capſules very ſhort[b].

Very common in all parts of Jamaica. The leaves and tender buds contain a great quantity of mucilage, and lather like ſoap with water: they are frequently uſed in ſhaving-waſhes by ſuch as cannot conveniently bear the ſmell or acrimony of ſoap. The leaves are purgative. It is known by the name of Broom-weed in Jamaica[i].] Mr. Miller ſays, that he has received three or four ſpecies by this name, and has been informed that the inhabitants cut theſe plants as we do Heath, to make beſoms for ſweeping.

[10. Capſules nine or ten. Native of the Eaſt Indies[i].

11. Stem ſimple, a foot high, tomentoſe. Leaves tomentoſe. Stipules lanceolate erect. Calyxes ciliate. Corolla yellow[k]. Capſules five. Cavanilles has a variety with naked capſules, which may perhaps be a diſtinct ſpecies[l].

12. Corolla middle-ſized yellow with five red ſpots at the baſe. Capſules nine. Native of the Weſt Indies.

13. Capſules nine.—S. braſienſis of Cavanilles, *diſſ.* 1. 37. & *diſſ.* 2. 34. *f.* 1. is very nearly allied to this, yet ſeems to be different; it is however a dubious plant, the flowers and capſules of which are unknown. Native of Hiſpaniola.

14. Capſules ten, ſuppoſed to be a native of the Cape of Good Hope, though Plukenet entitles it *Althæa maderaſpatana*.

15. Capſules ſeven. Native of the Eaſt Indies.

16. Native of the Weſt Indies.

17. Capſules five. Native of the iſland of Mahe.

18. Native of the Eaſt Indies and Jamaica[m]. Cultivated in the Eltham garden in 1732.

19. Native of Senegal.

20. Capſules nine. Native of Tranquebar, Amboina, the Philippines, and the iſland of Mauritius. Annual. Dillenius regards it as a variety of the next ſpecies, but it ſeems to be diſtinct.]

21. Stem ſlender, woody, more than two feet high, ſending out ſeveral ſlender branches. Leaves on long foot-ſtalks, a little hairy on their under ſide. Flowers ſingle, or two or three together, upon ſlender peduncles, of a pale copper colour. [Capſules ſix or ſeven. Annual.—Native of the Eaſt Indies[n] and Cochin-china. Cultivated in 1732, by James Sherard, M.D.[o]

22. Stems many, trailing, dividing into ſlender branches, covered with a light-brown bark. Leaves ſmall, hairy on their under ſide, on ſhort foot-ſtalks. Flowers in ſmall cluſters, fitting cloſe at the end of the branches, ſmall and bright ſcarlet. The capſules have two ſtiff briſtly teeth.

[Stems five or ſix inches long, fruteſcent, filiform, ſtrict, rugged; with diverging branches. Leaves terminating, in cluſters, oblong, retuſe, ſerrate towards the top. Stipules the length of the petioles. Flowers blood-red. Capſules five, depreſſed, muricate[p], awnleſs, according to Willdenow. Native of Jamaica and St. Domingo.

Browne ſays, that this little creeping plant is very common in the low lands of Jamaica, and ſeldom runs above ſeven or eight inches in length; that the flowers grow ſingle, each of the pedicels being generally adorned with one leaf and three ciliated ſtipules, which compoſe the outward cup: but that thoſe towards the top of the plant are very ſhort, ſo that the flowers appear as if they were diſpoſed in ſmall heaps at the axils of the leaves.

23. Root annual. Stem from two to four feet high, erect, ſimple, round, pubeſcent, ſometimes divided towards the top into ſpreading branches. Leaves petioled, alternate, ſmooth, ſomewhat wrinkled, hoary beneath. Panicle terminating, half the length of the ſtem, erect, almoſt ſimple, ſpreading. Peduncles ſimply ſubdivided, alternate, filiform, the laſt one-flowered. Flowers pale, ſometimes light purple. Capſules five, ovate, acuminate[q], or terminated by a ſingle awn, three-ſeeded. Native of the Weſt Indies and Ceylon[r]. Cultivated by Sherard at Eltham in 1732.

24. This is a lofty tree. Capſules five three-ſeeded. Native of Peru.

25. Capſules five three-ſeeded acute. Native of Hiſpaniola.

26. Leaves obſcurely crenate. Capſules five, ſix, or ſeven, three-ſeeded. Native of Peru and St. Domingo[s].

L'Heritier remarks, that in *S. hernandioides* the peduncles are more elongated than in moſt of the ſpecies, that the leaves have one lobe at the baſe ſo placed upon the other, as to be in a manner peltate, and to bear a tolerable reſemblance to thoſe of *Hernandia*; that the fruit is abſolutely the ſame as in *periplocifolia* and *nudiflora*; and that it is diſtinguiſhed from the former chiefly by the leaves being cordate-rounded, whereas in that they are cordate-lanceolate. The ſeeds were ſent from Hiſpaniola by Julien Franc. Duchemin de Leſtang: the plants flowered in the Paris garden in 1783, perfected their ſeeds, and then died in the winter.

The *nudiflora* is a ſhrub, three fathoms in height, and ſomewhat tomentoſe. It has the name from the panicles being naked, and not leafy as in *paniculata*, *hernandioides* and *periplocifolia*. Dombey found it in Huanuco a province of Peru, and ſent the ſeeds to the Paris garden, where it has flowered every year, but has not perfected ſeeds. The flowers are yellow, and an inch in diameter[t].

27. This is a ſhrub three feet in height, with ſubtomentoſe branches, having each of the three ſides hollowed out with a blunt groove. Leaves cordate without angles, very ſoft, obſcurely tomentoſe, bluntly ſerrate, acuminate. Peduncles axillary, one-flowered. Corolla yellow purple at the baſe. Stamens yellow. Style five-cleft[u]. Capſules five, three-ſeeded[v]. Gærtner deſcribes the capſule as ovate-oblong, flatted a little at the top, five-horned, rounded-five-cornered, five-celled, five-valved: partitions correſponding with the external groove, and inſerted into the middle of the valves, which after opening are two-horned at the top. Seeds about three in each cell, kidney-form-globular, blackiſh, marbled with aſh-coloured ſpots as if frotted, faſtened to the central margin of the partitions.

[z] Linn. ſuppl. [a] Swartz. [b] Browne.
[i] Willdenow. [k] Cavanilles. [l] Willdenow.
[m] Cavanilles and Willdenow.
[n] Willdenow. [o] Hort. kew. [p] Swartz. [q] Idem.
[r] Willdenow. [s] Idem. [t] L'Heritier. [u] Linn. ſpec.
[v] Willdenow.

Native

Native of the Weſt Indies. Introduced in 1775, by Joſeph Nicholas de Jacquin, M. D.[a]

28. In habit this reſembles the *hernandioides*. Leaves three inches long, deeply cordate, with the lobes imbricate, and very long-pointed at the end. Petioles almoſt the length of the leaves. Peduncles ſolitary, three or four times ſhorter than the petioles. Capſules five, with one ſeed in each[b].

It differs from the *hernandioides* in having one-ſeeded capſules, peduncles ſhorter, without bractes, and one-flowered, (not having the rudiment of a ſecond flower, as that has,) and the herb hirſute and ſomewhat clammy, not villoſe-tomentoſe.

Native of Hiſpaniola, whence ſeeds of it were ſent to the Paris garden in 1781 and 1782 by Joſ. Nic. Thiery de Menonville. It flowered but did not bear fruit[c].

29. Capſules ſeven or eight, very hard, three-ſeeded. Native of St. Domingo[d].

30. This is ſufficiently diſtinguiſhed by the lateral filaments being gradual, as in *Hibiſcus*, not terminating and pencil-form, as in the other ſpecies; and the corolla abſolutely reflexed. Flowers drooping, blood-red with a duſky ſpot at the baſe of each petal[e]. Capſules twelve, three-ſeeded, according to Willdenow. Native of Peru.

31. Root annual. Stem branched, procumbent, round, hairy. Leaves hairy above, rugged beneath, on long hairy petioles. Stipules filiform, a little recurved. Peduncles ſolitary, very rarely two together, one-flowered, axillary. Flowers ſmall, yellow. Arils five, membranaceous, angular, perforated at the top, one-ſeeded[f]. According to Willdenow, it has five one-ſeeded capſules.

Its habit is that of the five-ſeeded Sidas, but the joints are unarmed, and the capſules have no horns or beaks. It is ſingular in having incomplete arils external only, not incarcerated or winged as in *S. pteroſperma*[g].

Native of the Eaſt Indies. Koenig ſent the ſeeds from Tranquebar. Commerſon alſo found it on the iſland of Mauritius.

Cavanilles has two other ſpecies, which Willdenow conſiders as varieties of this.

32. Stem proſtrate but not rooting. Capſules five, awnleſs or two-awned. Native of Peru, eſpecially in ſhady places about Lima[h].

33. Diſtinct from the other ſpecies to which it is allied by its awned-acuminate calyxes, and five cohering capſules ſlightly two-toothed at the ſide, obtuſe and two-valved. Native of St. Domingo.

34. Capſules five, with long hooked beaks ſtanding far out. Native of the iſland of St. Domingo[i].

Miller has a ſpecies under this name. *Ulmifolia* of Retzius is Miller's *anguſtifolia*. See *n.* 2.

35. Fruit within the calyx. Capſules nine, with long beaks in bundles. Native of Braſil.

36. Capſules about thirteen, three ſeeded, two-beaked when open: beaks ciliate. Seeds very ſmall[k].

37. Plant from two to four feet high, ſpreading. Leaves ſmall, hirſute. Flowers yellow. The whole plant is clammy, and ſmells very ſtrong[l].

Browne remarks, that this little ſhrubby plant ſeldom riſes above four or five feet in height; that the trunk is pretty woody, and covered with a whitiſh bark; the leaves and ſmaller branches a little villoſe; and that the ſeed-veſſels are few, flatted at the top, and compoſed of many cells.

Native of Jamaica, and according to Loureiro, of Cochinchina.

38. This differs from the preceding in the leaves not being acuminate or hairy, but ſoft with a very fine nap, much larger and groſsly toothed; the peduncles ſhorter than the petiole, and ſeven capſules ſqueezed into a ball[m].

According to Willdenow, this, and not the preceding, is the *viſcoſa* of L'Heritier; who remarks, that it has the leaves and habit of the *occidentalis* and *mutans*, but is eaſily diſtinguiſhed by its clammy ſtems and branches: the fruit alſo is different and not appendicled inwardly.

Native of Peru. Annual.

39. Capſules five. Native of the iſland of Bourbon.

40. Root annual. Stem tomentoſe not hairy. Stipules awl-ſhaped, ſpreading. The leaves have a produced point, and vary with and without angles. Peduncle capillary, declined, even, always pendulous. Flower white, before it expands nodding, but afterwards ſtraight from the joint of the peduncle. Capſules obtuſe, compreſſed, rough-haired along the keel[n]: twelve in number, three-ſeeded[o].

Native of Carolina and the Bahama iſlands. Cultivated in 1726, by James Sherard, M. D.[p]

41. Capſules many, without beaks. Native of Perſia.

42. Capſules thirty to thirty-ſix, compreſſed, one-ſeeded globular-umbilicate. Native of Peru, in woods near the river Maragnon. Shrubby[q].

43. This is a ſmall tree, remarkable for its large bell-ſhaped flowers, whitiſh or pale ſulphur-coloured: the column of ſtamens is in five parcels at top: the ſeeds have a bearded umbilicus: the leaves are abſolutely thoſe of *S. reflexa*, except that they are more veined, with cloſer notches. Native of Peru[r].

44. This differs from *S. Abutilon* eſpecially by its very long peduncles, which in that are three times ſhorter than the petioles. Flowers orange-coloured. It is an annual plant, native of the iſland of Mauritius[s].

45. Root annual. Peduncles longer than the petiole, the thickneſs of a thread, permanent, erect after the capſule is fallen. Capſules twenty-ſeven to thirty, awnleſs, one-ſeeded, collected into a globular head[t].

Native of America. Cultivated in 1732, by James Sherard, M. D.[u]

46. Leaves twice as long as they are broad, very tomentoſe, ſerrate, double the length of the petioles. Capſules the ſame ſize as in *S. Abutilon*, twelve-celled, tomentoſe, the cells ending in a lanceolate point the length of the capſule itſelf, not at all cut out at the interior future. Calyx tomentoſe. Peduncles ſhorter than the leaf[v].]

Mr. Miller deſcribes it as the moſt beautiful ſpecies yet known, growing to the height of ſix or ſeven feet, and having a ſmooth woody ſtem, which puts out many lateral branches towards the top. Leaves ſmooth and heart-ſhaped. Flowers axillary, ſolitary, on long peduncles. Corolla large and yellow. Diſcovered by Dr. Houſtoun at La Vera Cruz[w]. [According to Linnæus and Aiton it is a native of Jamaica; the latter ſays, it was cultivated by Mr. Ph. Miller in 1759; but if it be Houſtoun's plant, he muſt have cultivated it before 1733, in which year Houſtoun died. Mr. Miller has a *Sida americana*, which is clearly different from this.]

47. Height about four feet, putting out ſome ſide branches towards the top. Leaves ſoft and woolly, whence it is called in ſome parts of America Marſh-Mallow, and is uſed inſtead of that plant. Flowers axillary, on long peduncles. Annual.

[Leaflets of the calyx folded together or channelled. Fruits black, hairy[x]. Capſules fifteen, two-beaked, three-ſeeded[y].

Native both of the Eaſt and Weſt Indies, Virginia and Siberia. Naturalized in the South of Europe.—Cultivated in 1596 by Gerarde[z].

48. This is an elegant annual plant, thickly covered with a whitiſh-green woolly nap. Stem firm, ſtraight, round, branched, four feet high. Leaves ſharply and equally crenate, on round ſpreading petioles ſhorter than the leaf, having an awl-ſhaped erect ſtipule on each ſide. Peduncles axillary, ſolitary, one-flowered, ſpreading. Corolla yellow, ſpreading very much[a].—Native of Jamaica. Introduced into Europe by Jacquin.

49. Leaves longer than they are wide, as in *S. ame-*

[a] Hort. kew. [b] Willdenow. [c] L'Heritier.
[d] Willd. and Cavan. [e] L'Heritier. [f] Retzius.
[g] L'Heritier. [h] Cavanilles. [i] Willdenow.
[k] Cavanilles. [l] Swartz. [m] Willdenow.
[n] Linn. ſpec. & mant. [o] Willdenow. [p] Hort. kew.
[q] Cavanilles. [r] L'Heritier. [s] Idem. [t] Willdenow.
[u] Hort. kew. [v] Linn. ſpec. [w] Diſt. ed. 7.
[x] Linn. ſpec. & ſyſt. [y] Willdenow. [z] Hort. kew.
[a] Jacquin.

ricana. Capſule truncate and very hirſute[a]: they are about twenty in number, with three ſeeds in each[b].

Native of the Eaſt Indies. Annual. Introduced about 1768[b].

Linnæus does not ſeem to have diſtinguiſhed the populifolia and hirta from this. Theſe three ſpecies, together with mauritiana (*n.* 44.) ſhould be carefully diſtinguiſhed. *S. mauritiana* and *populifolia* are ſoft; their capſules are twice as large as the calyx, with their horns or beaks ſtanding round like rays: the leaves in the former acuminate-ligulate and toothed; in the latter crenate acuminate. *Aſiatica* and *hirta* have the upper ſurface of the leaf ſcarcely a little rugged; the capſules equal to the calyx, and the ſtipules more permanent. In *hirta* the ſtems, peduncles and petioles are very hairy, and the leaves rounded, acuminate and wrinkled; whereas in *aſiatica* they are cordate and acute or ſcarcely acuminate[c].

50. Capſules from eleven to nineteen, with three ſeeds in each. Annual. Native of the Eaſt Indies, in Bengal.

51. Capſules from fifteen to ſeventeen, with three ſeeds in each. Annual. Native of the Eaſt Indies[d]. The flowers have ſometimes a dark-purple eye[c].

52. Peduncles erect. Capſules terminated by a right angle[f]: from thirteen to fifteen in number, having three ſeeds in each[g]. Native of the Eaſt Indies, Cochinchina, Tanna and New Caledonia. Cultivated in 1739, in the botanic garden at Chelſea[h].

53. Shrubby. Leaves more elongated than in *S. Abutilon*, to which it is allied; and not rounded, as in that. Peduncles commonly one-flowered, but ſometimes having a ſecond flower at the top. Calyxes ciſtoid. Corollas fulvous, three quarters of an inch in diameter. Capſules from ten to twelve (or capſule ten or twelve-celled,) with three ſeeds in each.

Native of Peru, in woods near the river Maragnon. Found by Dombey, who ſent the ſeeds to the Paris garden[i].

54. This very much reſembles the *aſiatica*. Capſules nine, three-ſeeded. Native of the Cape of Good Hope.

55. Capſules fifteen, three-ſeeded. Native of St. Domingo[k].

56. The whole herb is tomentoſe, hoary, and very ſoft. Leaves cordate-ovate, acute, toothed; the primary ones ſomewhat angular at the top, nerved, thickiſh. Stipules awl-ſhaped. Flowers cloſe, in a ſort of panicle, on axillary peduncles at the ends of the branches, yellow. One peduncle one-flowered; a ſecond many-flowered, almoſt leafleſs, bracted, a little longer than the other. Calyxes ſomewhat angular. Capſules ten or twelve, deciduous, ſhortly two-horned[l].

According to Swartz, the peduncles are axillary towards the top of the branchlets, ſhorter than the petioles, ſubſolitary, ſometimes but rarely two or three together, round, tomentoſe, one-flowered. Flowers biggiſh, fulvous. Capſules roundiſh-compreſſed, one-ſeeded.—Native of Jamaica and Hiſpaniola.

57. Capſules five, each terminated by two very long awns. Native of the iſland of Mauritius.

58. Capſules fewer than thirty, truncate, obtuſe, one-ſeeded. Native of the iſland of Bourbon[m].

59. This ſpecies is ſingular for the internal appendixes of the cells. *S. occidentalis* has in like manner a ligule from the bottom of the cell, but it is very different; being ſimple, ſickle-ſhaped, ſurrounding the ſeed vertically; not two-leaved, lanceolate, and ſhorter than the ſeed, as in this. The leaves reſemble thoſe of *S. occidentalis* or *viſcoſa*, but they are hoary with a very ſhort and ſoft nap; not as it were papilloſe, as in *S. occidentalis*; more deeply cordate and not ſtinking, as in *S. viſcoſa*. The joints are generally without prickles[n].

Capſules ten or more, blunt, depreſſed, one-ſeeded. The ſeeds have a linear aril[o].

Native of Peru. Introduced into Europe by Joſeph Pavon, companion to Dombey in travels through Peru and Chili[p].

60. Capſules five, with one ſeed in each. Native of the iſland of Bourbon.

61. Shrubby. Capſules five; ſaid, in the ſpecific character, to be acute; but in the obſervation, to be obtuſe.—Native of Braſil. Cavanilles has two ſpecies; one with a proſtrate ſtem and yellow flowers; the other with an upright ſtem and reddiſh flowers; which Willdenow conſiders as one ſpecies.

62. Capſules five, one-ſeeded. Native of the Eaſt Indies[q].

63. Stems ſmooth, round, three feet high, ſending out long ſlender branches. Leaves ſmooth, light green, on long foot-ſtalks: the lower ones near three inches long, and almoſt two broad at their baſe. Flowers on very long peduncles, ſmall, and of a whitiſh yellow colour. [Capſules five, two-awned at the top, ſmooth, one-ſeeded. Native of Jamaica, in dry hedges, in the ſouthern parts[r].

64. Capſules five, much leſs than the calyx. Native of Malabar.

65. Capſules five. It varies with hairy or ſmooth ſtems. Native of St. Domingo.

66. Capſules nine, with the awns hairy. Native of the iſland of Bourbon[s].

67. Stem procumbent, filiform, unarmed, very much branched next the ground. Flowers pale yellow, fugacious, three or four lines in diameter. Capſules five, with one ſeed in each. Native of Hiſpaniola[t]. Perennial.

68. Capſules nine. Native of the iſland of St. Domingo. Annual[u].

69. Stem upright, hairy, branched. Capſules nine. Native of the Eaſt Indies[x].

70. Two feet in height, probably annual. Stipules awl-ſhaped, erect. Peduncles ſolitary, one-flowered. Flowers yellow. Capſules five, one-ſeeded. Native of Hiſpaniola.

Among the three-ſpined Sidas, there are perhaps ſome that are mules; the near alliance of the ſpecies or varieties ſeems to indicate this[y].

71. This is very like *S. ſpinoſa*, but the leaves are round. Corollas white with purple ſtigmas, and the tips of the petals purpliſh. The whole plant is bigger[z]. Capſules five[a]. Annual. Cultivated in the Eltham garden before 1732; being raiſed from ſeeds ſent from Bengal, and communicated by P. Collinſon[b].

72. Root annual. Stem ſimple. Calyx hairy. Beaks of the ſeeds, when the corolla falls, prominent in a bundle the length of the calyx[c]. Capſules from ſeven to ten[d].] Flowers ſmall, of a pale obſcure yellow or ſulphur colour. Stem more than three feet high, ſending out ſeveral erect branches from the ſides. Leaves two inches and a half long, and two broad, of a light green colour, ſoft to the touch, on very long hairy foot-ſtalks.

[Cultivated in the Eltham garden before 1732. Native of the Eaſt Indies and the Cape of Good Hope.

73. Capſules five. Native of St. Domingo.

74. Capſules five. Native of Braſil, by Rio Janeiro[e].

75. Stem a foot high and more, ſuffrutеſcent, ſimple or branched, erect, round, hirſute. Leaves alternate, nerved, hirſute, hiſpid; on long petioles. Stipules briſtle-ſhaped, at the baſe of the petioles. Flowers terminating, heaped on axillary branchlets, ſubglomerate, on very ſhort pedicels, yellow with a purple eye. Capſules five, oblong, compreſſed. Seeds roundiſh, compreſſed, wrinkled black. Native of Jamaica in dry coppices[f].

76. Capſules from ſix to eleven, three-ſeeded. Native of Jamaica. Annual.

77. Flowers ſmall on corymbed peduncles forming a leafy terminating panicle. Capſules five. Native of St. Domingo[g].

78. Stem herbaceous, erect, two feet high, ſub-

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[a] Linn. ſyſt.
[b] L'Heritier.
[c] Linn. ſyſt.
[d] L'Heritier.
[e] Willdenow.
[f] L'Heritier.
[g] Willdenow.
[h] Willdenow.
[i] L'Heritier.
[k] Willdenow.
[l] Willdenow.
[m] L'Heritier.
[n] Willdenow.
[o] L'Heritier.
[p] Hort. kew.
[q] L'Heritier.
[r] Hort. kew.
[s] L'Heritier.
[t] L'Heritier.
[u] Willdenow.
[x] L'Heritier.
[y] Willdenow.
[z] L'Heritier.
[a] Willdenow.
[b] Willdenow.
[c] Linn. ſpec.
[d] Willdenow, Idem.
[e] Swartz.
[f] Willdenow.
[g] Swartz.
[h] Willdenow.
[i] L'Heritier.
[k] Willdenow.
[l] Cavanilles.
[m] L'Heritier.
[n] Linn. ſpec.
[o] Willdenow.
[p] Dillenius.
[q] Linn. ſpec.
[r] Willdenow.
[s] Idem.
[t] Swartz.
[u] Willdenow.

divided,

divided, round, rugged, somewhat hirsute. Branches spreading, almost simple, filiform. Leaves petioled; alternate, subcordate, the smaller ones ovate, acute, tooth-serrate, nerved, somewhat hirsute. Peduncles axillary, subdivided, very long, capillary, spreading very much; the last one-flowered. Segments of the calyx bent back. Corolla dark purple, with the petals spreading. Capsules five, compressed, roundish, acuminate [a].

Native of the calcareous rocks of Jamaica, of Peru and Brasil.

β. Cavanilles distinguishes the atro-sanguinea of Jacquin, under the name of *capillaris*. The petals are reflexed. The corollas dark purple. The capsules one-seeded, scarcely acuminate. It was found by Dombey very abundantly about Lima [b].

79. Panicles terminating, branched, almost erect. Petals pale yellow. Capsules five or more frequently six roundish, gibbous on one side, angular on the other, with an awl-shaped beak, hoary with very small stellate hairs, closely converging at top, one-seeded. Native of the southern parts of Jamaica in coppices [c].

80. Capsules six. Native of Senegal [d].

81. Capsules numerous, one-seeded squeezed into a ball. Native of St. Domingo.

82. Leaves the length of the petiole or an inch. Raceme simple, on a long pedunele. Peduncles one-flowered, with a linear-lanceolate bractle at the base. Capsules nine villose three-seeded. Native of Brasil [e].

83. Fruit inflated. Capsules ten, five-seeded. Native of Mexico [f].

84. This is a shrub, tomentose all over and strong-smelling. Leaves shortly acuminate. Pedunels one-flowered, equal to the calyx; not subdisforous and shorter than the calyx, as in *S. ciftiflora*. The calyxes are five-cornered, as in that: this circumstance, together with the leaves being thicker, more tomentose and fetid, distinguish the *crassifolia* from *mauritiana*, *asiatica*, *populifolia* and *hirta*. The nerves of the leaves are more manifestly pedate than in the others [g]. Capsules nine or ten, three-seeded. Native of Hispaniola.

85. Capsules several. Shrubby.

86. Capsules eight three-seeded.

87. This is a tree growing to twenty feet in height. Capsules ten to twelve, truncate, acuminate, villose. Native of the Caracas.

88. Capsules five. Native of Java.

89. Root annual. Capsules several, acuminate, connate at the base in this and the two following. The flowers in this are of the same size as in *Malva rotundifolia*.—Native of Mexico and Lima in moist places. Linneus had made this a variety of the next following.

90. Root annual. Flower of the same size as in *Lavatera Olbia*. Native of Mexico [h].

91. This also is annual, and has been confounded with the preceding, but the upper leaves are for the most part quite entire. The flowers are of the same size: but it differs from that in having the upper leaves not three-lobed haftate, but ovate-lanceolate without any angle; the lower ones three-cornered or sometimes but more seldom five-cornered and elongated, not rounded-cordate. The petals are more emarginate than in the preceding: in *S. hastata* they are quite entire. Native of Mexico [i].

Mr. Curtis, who considers it as the *crispata*, observes, that it grows to the height of three feet or more, producing during the months of july and august a number of blossoms in succession, which are large and showy; and that the stigmas are curious objects, resembling the heads of Fungi in miniature.

It flowered first in november 1725, in Sherard's garden at Eltham, but earlier in the following years: the seeds were sent from Mexico, with those of other rare plants by Stevenson [k].

These three species have been separated from the other Sidas by Cavanilles and others, for a reason given above; but it does not appear to be a good one.

[a] Swartz. [b] L'Heritier. [c] Swartz. [d] Cavanilles.
[e] Willdenow. [f] Cavanilles. [g] L'Heritier.
[h] Willdenow. [i] Idem. [k] Dillenius.

92. Lower leaves cordate undivided; upper three-lobed or sometimes but more seldom five-lobed. Peduncles capillary shorter than the leaves, of the same length or longer. Corolla white. Native of the Cape of Good Hope [a].

93. Native also of the Cape, where it was found by Thunberg.

94. Capsules twenty-five, one-seeded, winged. Corolla white [b].

L'Heritier, though he inserts it among the Sidas, regards it as so singular, as to be almost of a separate genus, on account of the fenestrated arils incarcerating the seeds, and the membranaceous placenta springing from the receptacle.—Native of Peru, where it was found by Dombey, in the province of Chancaye, and the seeds were communicated to the Paris garden. It is an annual prostrate plant.

95. Root annual. Leaves exactly like those of *Ricinus*. Capsules eight, gibbous on one side, angular on the other, spiny or subulate-two-horned, collected about a pyramidal striated receptacle, shorter than the calyx, one-celled, two-valved, one-seeded, opening at top, brown: awns set with rigid reversed hairs, the length of the calyx. Seeds with a one-grooved bump on the outside, angular within, acute, brown. Native of Peru; found by Dombey, and introduced by him into the Paris garden [c].

96. Leaves nine or seven-lobed. Corolla purple or violet [d]. It has the appearance of *Jatropha* or *Urens*. L'Heritier doubts whether this and *ricinoides* be distinct species: he had distinguished them, by this having naked capsules, but he afterwards saw a specimen with two-horned capsules, and strigose awns exactly as in *ricinoides*, which however has the leaves lobed rather than palmate, with the segments undivided not runcinate; the flowers also are twice as big as in *jatrophoides*, and the herb is more hirsute: neither species has stipules.

Found in the province of Chancaye in Peru by Dombey, who sent the seeds to the Paris garden [e].

97, 98. See *Napæa*.

99. Leaves tomentose, white above, rufescent beneath: leaflets cut into three to the very base; segments lanceolate, obtuse, quite entire, imbricate: petiole winged with the decurrent stipules. Flowers large, blue, sessile on the petiole, whence the trivial name.—Native of Peru. Perennial [f].

Willdenow has subdivided the numerous species of this genus into seven sections, chiefly from the leaves. L'Heritier proposes rather to adopt the capsules for this purpose, as follows.

Sect. 1. Polycoccous species, with one-seeded complete deciduous arils.—Some with five arils only, as *spinosa*, *truncata*, *alba*, *angustifolia*, *supina*, *urens*. Others with from six to ten arils, as *rhombifolia*, *retusa*, *aluifolia*, *carpinifolia*, *ciliaris*, *cordifolia*, *althæafolia*, *suberosa*, *ricinoides*, *jatrophoides*, *unilocularis*, *pterosperma*.—Among these the greater part is two-horned, as *spinosa*, &c. Some however are naked, as *urens*; other muricate, as *ciliaris*.

Sect. 2. Polycoccous species, with one-seeded incomplete arils.—*S. unilocularis* has five arils: *crispata* and *pterosperma* have many. In the first the arils are simple, in the second one horned, in the last winged-two-eared.

Sect. 3. Multicapsular species, with one seed in a cell: as *paniculata* and *fragrans*, both five-celled: *viscosa*, *crispata*, *nutans*, *occidentalis*, which have more than five cells.

Sect. 4. Multicapsular with several seeds in a cell: as *periplocifolia*, *bernaudioides*, *umbiflora*, *triquetra*, which have five cells; *umbellata*, *crassifolia*, *Abutilon*, *ciftiflora*, *mauritiana*, *populifolia*, *asiatica*, *hirta*, *arborea*, *reflexa*, *indica*, *crispa*, which have many cells.

Among the multicapsular species are some with inflated capsules, as *occidentalis*, *crispa*, *indica*; others with capsules appendicled within, as *nutans* and *occidentalis*.]

[a] Willdenow. [b] Idem. [c] L'Heritier. [d] Willdenow.
[e] L'Heritier. [f] Willdenow.

Mr. Miller has nineteen ſpecies of Sida, all from the Weſt Indies.

1. Sida ulmifolia.
   Malvinda ulmifolia ſemine roſtrato bidente. *Alt. lond.* 399.
   Leaves ovate-lanceolate ſerrate, flowers ſolitary axillary, capſules two-beaked.
   Stem upright branching three or four feet high. Leaves two inches long and one inch broad, ſeſſile. Flowers on very ſhort peduncles, ſmall, of a pale copper colour. Capſule five-celled, with one ſeed in each cell. Native of Athenica as far north as Virginia. Cavanilles has a ſpecies under this name (n. 34.) and Retzius (n. 2.)
2. Sida carpiniſolia.
   Stem branched hairy, leaves lanceolate ſerrate, flowers cluſtered axillary, capſules one-beaked.
   This cannot well be the *carpiniſolia* of Linneus; (n. 8.) nor does it ſeem to be the *ſpinoſa*, (n. 6.) though Miller refers to Sloane's ſynonym. Both have two-beaked capſules.
3. Sida anguſtifolia, *n.* 2.
   Malvinda pimpinellæ folio anguſtiore ſemine bidente. *Alt. angl. vol.* 35.
4. Sida pimpinellifolia.
   Malvinda pimpinellæ majoris folio, ſemine bidente. *Alt. angl.* 399.
   Stems ſlender, ſeldom more than a foot high, with a few ſlender branches. Leaves ſmall, heart-ſhaped, ſerrate, a little hoary on their under ſide, on pretty long foot-ſtalks. Flowers ſmall, of a pale yellowiſh colour, coming out ſingly from the axils. Capſules two-beaked.—Perhaps a variety of the preceding.
5. Sida jamaicenſis.
   Malvinda profundius ſerrato folio, ſemine tridente. *Alt. lond.* 399.
   Stem hairy, covered with a dark-brown bark, three feet high, ſending out many ſide branches. Leaves ovate-lanceolate, on long foot-ſtalks, more than two inches long, and an inch and quarter broad, ending in an obtuſe point, and deeply ſerrate. Flowers axillary in pairs, ſeſſile, larger than thoſe of the former ſort, and of a deeper yellow colour: the capſules are larger, and have three horns.—I dare not affirm this to be the *jamaicenſis* of Linneus, n. 9. though we are not to place implicit confidence in the number of horns or beaks to the capſule, as a ſpecific difference.
6. Sida villoſa.
   Malvinda carpini folio villoſo, floribus conglobatis ad foliorum alas. *Houſt. mſs.*
   Stem woody, upright, hairy, from three to four feet high, ſending out a few ſlender branches towards the top. Leaves a little woolly, ſeſſile, near two inches long, and one inch broad near the baſe, ſubcordate, veined, ſerrate. Flowers axillary in cluſters, ſeſſile. Calyx hairy, acute. Corolla ſmall, pale yellow. Capſules two-beaked.
7. Sida alniſolia. *n.* 21.
8. Sida cordifolia. *n.* 72.
9. Sida hirſuta.
   Stems very ſlender, ſtiff, covered with fine hairs, a foot and half high, ſending out a few ſide branches. Leaves roundiſh-heart-ſhaped, two inches long, and an inch and three quarters broad at the baſe, thin, of a light green colour, crenate, on long ſlender hairy foot-ſtalks. Flowers axillary on long peduncles ſolitary. Capſules ending in ten ſtiff acute points or hairs. Corollas ſmall, white.
10. Sida capitata.
    See *Malachra capitata*.
11. Sida hirſutiſſima.
    Malvinda hirſutiſſima carpini folio longiore, floribus ſingulis ad foliorum alas, ſemine bidente. *Houſt. mſs.*
    Stem woody, erect, three feet high, covered with yellowiſh hairs. Leaves ſpear-ſhaped, hairy, ſeſſile, two inches long, and one inch broad in the middle, ſerrate, pale green beneath. Flowers axillary, ſolitary, on ſhort peduncles. Corolla ſmall, white.
12. Sida abutilifolia.
    Malvinda abutili folio minore, caulibus hirſutiſſimis, floribus ad foliorum alas. *Houſt. mſs.*
    Stems ſlender infirm, three feet high, covered with long white hairs. Leaves ſoft, woolly, heart-ſhaped, crenate, acuminate, little more than an inch long, and three quarters of an inch broad at the baſe, on long ſlender hairy foot-ſtalks. Flowers on very ſhort axillary peduncles, two generally coming out together. Corolla pale yellow.
13. Sida ciliaris, *n.* 22.
14. Sida glabra. *S. arguta, n.* 63.
15. Sida ſericea.
    Malvinda ſupina, foliis ſubrotundis ſericeis, ſeminibus non dentatis. *Houſt. mſs.*
    Stems ſeveral, ſpreading flat on the ground, nine or ten inches long, ſending out ſeveral ſhort ſide branches. Leaves ovate, ſerrate, ſatteny, on ſhort foot-ſtalks. Flowers axillary, ſolitary, ſeſſile, ſmall, yellow. Capſules without any beaks or horns.
16. Sida americana.
    Malva americana abutili folio, floribus conglobatis ad foliorum alas. *Houſt. mſs.*
    Stem woody with a purpliſh bark, two feet high, ſending out ſeveral branches from the lower part. Leaves pretty thick, ſubcordate, crenate, ending obtuſely, woolly beneath, an inch and half long, three quarters of an inch broad near the baſe, veined, on pretty long foot-ſtalks. Flowers pale-yellow, gathered in cluſters fitting cloſe at the axils. Calyxes hairy, cut into many acute ſegments at the top. Capſules two-beaked.—This is not the *americana* (n. 46.) of Linneus. Miller's Abutilon, n. 16. is that ſpecies.
17. Sida piloſa.
    Malvinda carpini folio, flore luteo, caule & averſa foliorum parte villoſo. *Tourn. mſs.*
    Stem woody, four feet high, covered with brown hairs, ſending out a few long ſlender branches, which have leaves on the lower part: theſe are ovate, an inch and half long, and three quarters of an inch broad, ſlightly ſerrate, having many longitudinal veins, downy beneath. The branches in the upper part are deſtitute of leaves more than a foot in length, and from their ſides come out peduncles two inches long, ſuſtaining ſeveral ſmall yellow flowers in cluſters, with hairy calyxes cut into ſeveral acute ſegments.—This is not the *piloſa* of L'Heritier, (n. 51.) nor of Cavanilles. (*n.* 65.)
18. Sida fruticola.
    Malvinda fruteſcens ulmifolia, ſeminibus ſingulis tribus aculeis lappaceis armatis. *Houſt. mſs.*
    Stem ſtrong, ſhrubby, ſix or ſeven feet high, covered with a rough brown bark, and ſending out ſeveral woody hairy branches from the ſide. Leaves ſpear-ſhaped, on long foot-ſtalks, ſix inches in length, and two broad in the middle, ending in acute points, and unequally ſerrate, dark green above, pale beneath. Flowers collected in heads, on long naked peduncles terminating the branches: each head containing ſeven or eight flowers, the petals extending much beyond the calyx: the flowers are of a pale ſulphur-colour when they firſt open, but afterwards fade almoſt to white. Calyxes ſmooth, but terminated by five hairy points which ſtand erect. Capſule ſhort, roundiſh, ſeſſile in the calyx, five-celled, one-ſeeded. Seeds angular, having three ſharp burry teeth, by which they adhere to any thing.—Diſcovered by Dr. William Houſtoun at La Vera Cruz in New Spain.
19. Sida alba.
    Malvinda foliis ſubrotundis acuminatis, floribus albis conglomeratis ad foliorum alas. *Houſt. mſs.*
    Stem ſhrubby, ſeven or eight feet high, ſending out ſeveral very ſlender branches, extending to two feet or more in length, and bending down at their ends. The joints are two inches aſunder, and at each is one large heart-ſhaped leaf, upon a pretty long foot-ſtalk; the leaves are above four inches in length, and they are two inches and a half in breadth near the baſe; they are ſerrate on their edges, and run out to a long ſharp point; many ſtrong veins riſe from the midrib and diverge towards the borders; they are of a light green above, and pale beneath. Flowers axillary in cluſters, thoſe on the lower part of the branches in cloſe obtuſe ſpikes about an inch in length; but

but on the upper part in globular heads, placed nearer together and having no leaves under them; the branches are terminated by one of theſe heads. The calyxes end in five acute hairy points. Corollas ſmall, when they firſt open white, but fading to a brownish colour. Capſule roundiſh, five-celled, ſeſſile in the calyx, two-beaked; having one angular ſeed in each cell. Diſcovered by Dr. Houſtoun in Jamaica.—This is not the *alba* of Cavanilles (n. 4.) nor of Linneus (n. 71.)

There are certainly more ſpecies than are here mentioned, for new ſorts frequently come up in the earth which is brought from the Weſt Indies with other plants. The above are undoubtedly diſtinct ſpecies, having been cultivated ſeveral years, and never changing when raiſed from ſeeds.

Mr. Miller, in the ſeventh edition of his Dictionary, has the ſame Species, with the addition of a twentieth, which is the *Althæa flore luteo* of Sloane, and therefore ſhould be the *Sida althæifolia* of Linneus, (n. 56.) He has alſo ſixteen ſpecies of *Abutilon*, which having omitted in his eighth edition, he probably intended to have transferred them into this genus, and forgot it when he came to the proper place, as he has ſeveral times done in caſes of the ſame ſort.

1. Abutilon *Dod.* S. Abutilon, *n.* 47.
2. *A. indicum. Bauh. hiſt.* S. indica, *n.* 52.
3. A carolinianum reptans, Alceæ foliis, gilvo flore. *Alt. lond.* Malva caroliniana, *Lin.*
4. A. americanum, ampliſſimo folio, caule villoſo. *Plum.* S. nudiflora, *n.* 26.
5. A. amer. fructu ſubrotundo pendulo, e capſulis veſicariis criſpis conflato. *Rand.* S. criſpa, *n.* 40.
6. A. althæoides, flore carneo, fructu globoſo. *Dill. elth.* t. 1. f. 1.

This grows to be a ſhrub of eight or nine feet high. Leaves thick, ſoft, like thoſe of Marſh-Mallow, but deeper cut, crenate, on long petioles. Calyx double; inner one-leafed divided to the middle into five ſegments; outer three-leaved, as in *Malva*. Flowers axillary, peduncled, one, two or more together. Capſules globular.—Native of the iſland of Providence, one of the Bahamas, whence the ſeeds were brought by Mr. Mark Cateſby. The plants flowered the third year from ſeed, in july 1728, in the Eltham garden*.]

7. A periplocæ acutioris folio, fructu ſtellato. *Dill. elth.* 4. S. periplocifolia, *n.* 23.
8. A. americanum, folio haſtato, flore ampliq purpureo-cæruleo, longo petiolo inſidente. *Houſt.* Annual.
9. A. amer. flore albido, fructu e capſulis veſicariis planis conflato, pediculo geniculato. *Mart. cent.* 33. Annual; and probably only a variety of *S. criſpa*, *n.* 40. though Miller affirms that he has conſtantly found them to be different.
10. A. amer. ribeſii foliis, flore carneo, fructu pentagono aſpero. *Houſt.*—Annual.
11. A. amer. fruteſcens, folio amplo cordato ſubtus lanuginoſo, floribus amplis luteis. *Houſt.*—A ſhrubby plant, nine or ten feet high, with large heart-ſhaped woolly leaves, and pretty large yellow flowers, which make a good appearance, but are of ſhort duration; there is however a ſucceſſion of them for more than two months.
12. A. fruticoſum aquaticum, folio cordato ſcabro, flore pallide luteo. *Houſt.*—Shrubby, nine or ten feet high. Flowers ſmall.
13. A. amer. frut. foliis cordatis, floribus parvis purpuraſcentibus. *Houſt.*—Shrubby, nine or ten feet high. Flowers ſmall, purple. In the preceding they are pale yellow.—Theſe are natives of Jamaica, La Vera Cruz and the Havannah.
14. A. Lavateræ flore, fructu criſtato. *Hort. elth.* S. diſſeniana, *n.* 91.
15. A. arboreum, folio Althææ, fructu villoſo, flore maximo ex rubro flaveſcente. *Houſt.*

This grows to the height of ten or twelve feet, with many lateral branches towards the top, and makes a handſome plant: the ſtems are woody and of a brown colour. Leaves ſmooth, ſhining, heart-ſhaped, on long foot-ſtalks. Flowers very large, at their firſt appearance pale red, but as they expand, changing to yellow; they are of ſhort duration, but there is a ſucceſſion of them for two months, with proper treatment. Seeds covered with a ſhort down ſomewhat like cotton. Mr. Miller had ſeeds of this from the north ſide of Jamaica, from the Spaniſh Weſt Indies, and from the coaſt of Malabar.

16. A. fruteſcens lanuginoſum foliis ſubrotundis, flore amplo luteo patulo. *Houſt. mſs.*—S. americana, *n.* 46.

PROPAGATION AND CULTURE.

Theſe plants are many of them annual in England, but ſome are of longer duration in their native countries, and might be ſo here, if they were placed in a warm ſtove in winter; but as moſt of them perfect their ſeeds the ſame year, if the plants are brought forward in the ſpring, few perſons have room in their ſtoves to receive theſe plants, as there are ſo many perennial exotic plants at preſent in the Engliſh gardens, which require a warm ſtove to preſerve them.

They are propagated by ſeeds, which ſhould be ſown upon a moderate hot-bed the beginning of april, and when the plants are come up fit to remove, they ſhould be tranſplanted to another hot-bed, planting them four inches diſtance every way; they muſt be ſhaded from the ſun till they have taken new root, and then they muſt have a large ſhare of free air admitted to them when the weather is mild, to prevent their drawing up weak; they will alſo require water pretty frequently. If the plants thrive well, they will have ſtrength enough to be fit to tranſplant in the open air; for which purpoſe they ſhould be gradually hardened, and the beginning of june they may be taken up with balls of earth to their roots, and planted in a warm ſheltered part of the garden, at about three feet diſtance, obſerving to ſhade and water them until they have taken new root; after which they will require no other care but to keep them clean from weeds. In july the plants will begin to flower, and there will be a continued ſucceſſion of flowers until the froſt comes on. If the ſeaſon proves warm, they will ripen their ſeeds very well in autumn; but leſt theſe ſhould miſcarry by the unfavourableneſs of the ſeaſon, it may be proper to put one plant of each ſort in pots filled with light kitchen-garden earth, placing them in the ſhade till they have taken new root, and then they may be removed to a warm ſituation, where they will thrive very well in a good ſeaſon; but if the ſummer proves cold, they ſhould be placed in a dry airy glaſs-caſe, where they may be kept warm, which will ripen their ſeeds.

Some of the ſpecies will not flower the firſt year: in this caſe the plants muſt be placed in a warm ſtove in autumn, and during the winter they muſt be treated as other tender plants from the Eaſt and Weſt Indies. The following ſummer they will flower and produce ripe ſeeds, but being not of long duration in general, there ſhould be a ſucceſſion of young plants raiſed from ſeed.

47. Is an annual plant hardy enough to come up in the common ground, and to perfect its ſeeds without any trouble. It will not bear tranſplanting, unleſs when very young; the ſeeds therefore are beſt ſown where the plants are deſigned to remain; and if they be permitted to fall, they will come up the following ſpring without any care.

On the contrary ſome of the ſpecies from the Weſt Indies will not flower, or indeed live through the winter in England, unleſs they are preſerved in a ſtove. In ſummer they muſt have as much air as poſſible, and be frequently watered.

[SIDA. See *Malachra* and *Napæa*.]

SIDERITIS (*of Pliny.* Σιδηρίτις *of Dioſcorides. From* σίδηρος, *iron. So named on account of its fancied property in healing ſlight wounds.*)

Lin. gen. n. 712. *Reich. n.* 770. *Schreb. n.* 966. *Tournef. t.* 90. *Juſſ.* 113.

Claſſ. 14. 1. Didynamia Gymnoſpermia.

Nat. order of *Verticillatæ*. *Labiatæ*, Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* one-leafed, tubular, oblong, about half five-cleft: *ſegments* acute, almoſt equal.

* Dillenius.

Cor. one-petalled, almoſt equal: *tube* cylindrical, oblong: *throat* oblong, roundiſh: *upper lip* erect, bifid, narrow: *lower lip* trifid; *lateral ſegments* ſharper, commonly ſmaller than the upper lip; *middle ſegment* roundiſh crenate.

Stam. *Filaments* four, within the tube of the corolla, ſhorter than the throat, two of which are ſmaller. *Anthers* roundiſh, two twin.

Pist. *Germ* four-cleft. *Style* filiform, uſually longer than the ſtamens. *Stigmas* two: upper cylindrical, concave, truncate; lower membranaceous, ſhorter, ſheathing the upper.

Per. none. *Calyx* cheriſhing the ſeeds in its boſom.

Seeds four.

ESSENTIAL CHARACTER.

Cal. five-cleft. *Cor.* ringent: upper lip bifid; lower three-parted. *Stam.* within the tube of the corolla. *Stigma* the ſhorter involving the other.

SPECIES.

* *Without brattes.*

1. Sideritis canarienſis. *Canary Iron-wort.*
Lin. ſpec. 801. *ſyſt.* 531. *Reich.* 3. 37. *Willd.* 3. 63. *Jacq. hort.* 3. 18. *t.* 30. *Lin. hort. cliff.* 310. *Pluk. phyt. t.* 322. *f.* 4. (Stachys.)
Shrubby villoſe, leaves cordate-oblong acute petioled, ſpikes whorled, before flowering nodding, branches divaricate.

[2. Sideritis candicans. *Mullein-leaved Iron-wort.*
Lin. ſpec. ed. Willd. 3. 63. *Ait. kew.* 2. 289.
Stachys canarienſis fruteſcens verbaſci folio. *Comm. hort.* 2. 197. *t.* 99.
Shrubby tomentoſe, leaves ovate-lanceolate cordate attenuated at the top ſnow-white beneath, whorls about eight flowered remote.

3. Sideritis cretica. *Cretan Iron-wort.*
Lin. ſpec. 801. *ſyſt.* 531. *Reich.* 3. 37. *Willd.* 3. 64.
Shrubby tomentoſe, leaves cordate-oblong, obtuſe petioled, branches divaricating, ſpikes whorled.

4. Sideritis montana. *Mountain Iron-wort.*
Lin. ſpec. 802. *ſyſt.* 531. *Reich.* 3. 38. *Willd.* 3. 64. *Jacq. auſtr.* 5. 16. *t.* 434. *Kniph. cent.* 7. *n.* 87. *Crantz. auſtr.* 248. *Kreck. ſilef. n.* 909.
Cunila. *Lin. hort. cliff.* 313. *upſ.* 169.
Sideritis montana parvo varioque flore. *Baub. pin.* 233. *Roſi hiſt.* 565.
S. mont. parvo flore nigro-purpureo, capite medio croceo. *Cel. cephr.* 1. 198. *t.* 196.
S. mont. aputa verticolor. *Pork. theat.* 586. 7.
Herbaceous without brattes, calyxes larger than the corolla ſpiny, upper lip trifid.

5. Sideritis elegans. *Dark-flowered Iron-wort.*
Lin. ſyſt. 531. *Willd.* 3. 64. *Murr. in comm. gott.* 1. 1778. *p.* 92. *t.* 4.
S. nigricans. *Lamarck. encycl.* 2. 167.
Mappia. *Fabric. helmſt.* 106.
Herbaceous without brattes villoſe, ſtem diffuſed, ſegments of the calyxes almoſt equal ſpinuloſe.]

6. Sideritis romana. *Roman Iron-wort.*
Lin. ſpec. 802. *ſyſt.* 531. *Reich.* 3. 39. *Willd.* 3. 65. *Villars dauph.* 2. 372. *Allion. pedem. n.* 94. *Deſfont. atlant.* 2. 15. *Cavan. ic.* 2. 69. *t.* 187.
Cunila. *Lin. hort. cliff.* 313.
Sideritis genus verticillis ſpinoſis. *Baub. hiſt.* 3. 428.
S. vert. ſpinoſis, minor procumbens. *Mor. hiſt.* 3. 388. *ſ.* 11. *t.* 12. *f.* 5.
Herbaceous decumbent without brattes, calyxes ſpiny, upper lip ovate.

** *Bratted, with the brattes quite entire.*

7. Sideritis ſyriaca. *Sage-leaved Iron-wort.*
Lin. ſpec. 801. *Reich.* 3. 37. *Willd.* 3. 65. *Fabric. helmſt.* 88. *Sabb. hort.* 3. *t.* 40.
Cunila. *Lin. hort. cliff.* 313.
S. cretica tomentoſa candidiſſima, flore luteo. *Tournef. cor.* 12.
β. Stachys fruticoſa, foliis lanceolato-linearibus integerrimis ſeſſilibus. *Lin. hort. cliff.* 310.
S. minor italica. *Baub. pin.* 236.
S. lychnoides incana anguſtifolia flore aureo. *Barr. ic.* 1187.
Suffruticoſe tomentoſe-woolly, leaves lanceolate almoſt quite entire, flowers whorl-ſpiked cordate acute tomentoſe.

[8. Sideritis taurica. *Tauric Iron-wort.*
Lin. ſpec. ed. Willd. 3. 66.
S. ſyriaca. *Pallas nov. act. petrop.* 10. 312.
Suffruticoſe tomentoſe, leaves lanceolate crenate, flowers whorl-ſpiked, whorls approximating, brattes cordate acuminate netted-nerved.

9. Sideritis diſtans. *Diſtant-whorled Iron-wort.*
Lin. ſpec. ed. Willd. 3. 66.
Suffruticoſe hoary, leaves lanceolate quite entire acute, flowers whorl-ſpiked, whorls diſtant, brattes cordate acuminate mucronate netted-nerved.]

10. Sideritis perfoliata. *Perfoliate Iron-wort.*
Lin. ſpec. 802. *Reich.* 3. 38. *Willd.* 3. 66. *Kniph. cent.* 8. *n.* 86.
S. orientalis phlomidis folio. *Tournef. cor.* 12 ?
Herbaceous hiſpid-hairy, upper leaves lanceolate embracing toothletted, brattes cordate acuminate netted-nerved hairy at the edge.

[11. Sideritis ciliata. *Ciliated Iron-wort.*
Lin. ſyſt. 532. *ed. Willd.* 3. 67. *Thunb. jap.* 245.
Herbaceous, leaves petioled ovate ſerrate, brattes nerved ciliate.

*** *Bratted, with brattes toothed.*

12. Sideritis incana. *Lavender-leaved Iron-wort.*
Lin. ſpec. 802. *Reich.* 3. 39. *Willd.* 3. 67. *Genan illuſtr.* 36. *Cavan. ic.* 2. 69. *t.* 186. *Allion. pedem. n.* 96.
S. hiſpanica erecta, folio anguſtiore. *Tournef. inſt.* 191.
Hyſſopus montanus verticillatus major. *Barr. ic.* 239. *Bocc. muſ.* 2. 77. *t.* 67. *f.* 2.
Suffruticoſe tomentoſe, leaves lanceolate-linear quite entire, brattes toothed, lateral lobes of the upper lip of the corolla acute.

13. Sideritis virgata. *Rod-like Iron-wort.*
Lin. ſpec. ed. Willd. 3. 68. *Deſfont. atlant.* 2. 15. *t.* 125.
Suffruticoſe tomentoſe, leaves linear quite entire, brattes toothed, lateral lobes of the upper lip of the corolla obtuſe.

14. Sideritis glauca. *Glaucous Iron-wort.*
Lin. ſpec. ed. Willd. 3. 68. *Cavan. ic.* 2. 68. *t.* 185.
Hyſſopus montanus verticillatus minor. *Barr. ic.* 250.
Herbaceous perennial, pubeſcent hoary, leaves linear-ſpatulate quite entire, brattes toothed, lateral lobes of the lower lip of the corolla acute.]

15. Sideritis hyſſopifolia. *Hyſſop-leaved Iron-wort.*
Lin. ſpec. 803. *ſyſt.* 531. *Reich.* 3. 39. *Willd.* 3. 69. *hort. cliff.* 313. *Hall. helv. n.* 260. (Betonica.)
Allion. pedem. n. 95.
S. alpina hyſſopifolia. *Baub. pin.* 233.
S. 7. **Cluſ. hiſt.* 2. 41.
S. montana hyſſop. minor. *Barr. ic.* 171. *Villars dauph.* 373. 2. c.
β. S. alpina. *Villars dauph.* 2. 373.
S. montana trifido folio. *Barr. ic.* 171.
S. alpina hyſſopi folio in ſummitate crenato. *Tournef. inſt.* 191.
Leaves lanceolate ſmooth quite entire, brattes cordate tooth-ſpiny, calyxes equal.

16. Sideritis ſcordioides. *Crenated Iron-wort.*
Lin. ſpec. 803. *ſyſt.* 532. *Reich.* 3. 40. *Willd.* 3. 69. *Villars dauph.* 2. 374. *Hall. helv. n.* 261. (Betonica.)
S. montana ſcordioides glabra. *Barr. ic.* 343.
S. foliis hirſutis profunde crenatis. *Baub. pin.* 233.
S. f. ferruminatrix heraclea. *Lob. ic.* 528.
β. S. hirta. *Roth. catal.* 1. 67. *Willd.*
S. hirſuta procumbens. *Baub. pin.* 233.
S. montana ſcordioides tomentoſa. *Barr. ic.* 1160.
Tetrahit herbariorum. *Lob. ic.* 523.
Leaves lanceolate ſomewhat toothed ſmooth above, brattes ovate tooth-ſpiny, calyxes equal.

[17. Sideritis ſpinoſa. *Thorny Iron-wort.*
Lin. ſpec. ed. Willd. 3. 70. *Vahl ſymb.* 1. 41. *Lamarck encycl.* 2. 168. *D'Aſſo arag. n.* 518.
S. ſubſpinoſa. *Cavan. ic.* 3. 5. *t.* 209.
Hirſute, leaves lanceolate with the brattes cordate tooth-ſpiny.]

18. Sideritis hirſuta. *Hairy Iron-wort.*
Lin. ſpec. 803. *ſyſt.* 532. *Reich.* 3. 40. *Knoph. cent.* 4. *n.* 81. *Sabb. hort.* 3. *t.* 58. *Alion. pedem. n.* 97.
Tetrahit caulibus procumbentibus, foliis ſeſſilibus. *Ger. prov.* 272.
S. hirſuta procumbens. *Bauh. pin.* 233.
S. 3. *Cluſ. hiſt.* 2. 40.
Leaves lanceolate obtuſe toothed hairy, bractes tooth-ſpiny, ſtems hirſute decumbent.

[19. Sideritis ovata. *Ovate-leaved Iron-wort.*
Lin. ſpec. ed. Willd. 3. 70. *Carvan. ic.* 1. 36. *t.* 48.
Herbaceous pubeſcent, leaves petioled elliptic obtuſe crenate, ſpike four-cornered, bractes ovate tooth-ſpiny.

20. Sideritis lanata. *Woolly Iron-wort.*
Lin. ſpec. 804. *Reich.* 3. 41. *Willd.* 3. 71.
Leaves cordate obtuſe villoſe, calyxes awnleſs woolly, ſpike long, ſtem erect.]

DESCRIPTIONS, *&c.*

1. Stem five or ſix feet high, ſending out ſeveral woody branches covered with a ſoft down. Leaves on long footſtalks; in young plants often five or ſix inches long, and two and a half broad near their baſe, but in older plants not more than half that ſize; they are very woolly, eſpecially on their under ſide, which is white, but their upper ſurface is of a dark yelloviſh green. The flowers, which grow in thick whorled ſpikes at the end of the branches, are of a dirty white, and appear early in june. The plants frequently produce flowers again in autumn.

[It is a ſhrub with cordate acuminate crenate leaves, green on both ſides. Spikes peduncled, long, nodding: whorls remote; flowers numerous; calyxes rough-haired, mucronate [a].—Native of the Canaries and of Madeira. Cultivated in 1697, by the Dutcheſs of Beaufort.

2. Native of Madeira, where it was found by Mr. Francis Maſſon, and introduced in 1777. It flowers from april to july [b].

3. This is a ſhrub with divaricating branches, very thickly tomentoſe and ſnow-white. Leaves cordate, crenate, tomentoſe on both ſides, obtuſe, very thickly tomentoſe and ſnow-white beneath, green above. Spike from the diviſion of the branches, peduncled, pendulous, tomentoſe, ſnow-white together with the calyxes which are blunt. Flowers about eight in each whorl.—Native of the iſland of Crete or Candia [c].

4. This is an annual plant, with a ſtem decumbent at bottom and then upright, a foot in length. Calyxes ſeſſile, hairy, with awny ſpiny ſegments [d]. Corollas yellow with a ferruginous margin, leſs than the calyx. Whorls ſix-flowered [e]. In rocky ſituations it is upright, in meadows decumbent [f].

Native of Italy, Auſtria and Sileſia. Cultivated in 1758 by Mr. Miller. It flowers in july and auguſt [g].

5. Annual. Calyxes extremely villoſe and ſomewhat pungent, with the uppermoſt ſegment longer than the reſt. Corolla a little longer than the calyx, white with black lips; the upper lip emarginate [h].—The native place of growth not known. Introduced in 1787, by Mr. Zier. It flowers in july [i].]

6. The roots ſeldom continue longer than two years in England. Lower leaves oblong, entire and hairy. Stems ſmooth, hoary, near four feet high, dividing into ſeveral long ſlender branches. Leaves hoary and acute-pointed. Flowers ſmall, whitiſh, in ſmall, compact, remote whorls, having two very ſhort leaves immediately under them, which end in a ſharp ſpine.

[Stems depreſſed, ſtiffiſh. Whorls ſix-flowered. The fifth or upper lobe of the calyx ovate, twice as wide as the others. Corollas like thoſe of Horehound, with the upper lip only emarginate.—Native of the South of Europe [k], and Barbary.

Stems proſtrate or procumbent at the baſe, ſimple or branched at bottom; the branches undivided. Leaves ſpatulate-elliptic, blunt, approximating, ſpreading, nerved, villoſe, produced into the petiole, toothed above. Whorls from bottom to top, ſeſſile. Calyx rigid, villoſe, ſtriated. Corolla a little longer; upper lip linear, ſtanding upright; lower ſpreading, flat, ſlightly three-lobed, the middle lobe rounded. Seeds ſmall, brown, ſhining, blunt, ſlightly three-cornered [l].

Cultivated in 1759 by Mr. Miller. It flowers from june to auguſt [m]; and is generally agreed to be biennial.]

7. This has a ſhort woody ſtem, with a few branches about a foot long. Leaves thick, wedge-ſhaped, very downy and white. Flowers in whorls towards the end of the branches, yellow with ſmooth downy calyxes.

[This little ſhrub has the appearance of a Sage, but is longer. Leaves of Sage, tomentoſe woolly white, the lower petioled, the upper ſeſſile. Flowers yelloviſh-white [n]. The whole plant is covered with a very cloſe white cotton. The root-leaves appear to be quite entire, but on a narrow inſpection they have very minute notches round the edge. Bractes cordate ovate acute, covered with a white nap, a little ſhorter than the calyxes [o].

Native of the Levant. Cultivated in 1739, by Mr. Miller. It flowers from june to ſeptember [p].

8. Stem ſuffruticoſe. Branches a foot long, ſomewhat divided, white-tomentoſe. Root-leaves petioled, ſtem-leaves ſeſſile, all crenate, having a thin nap on them, wrinkle-veined. Bractes cordate, roundiſh-ovate, acuminate, nerved, netted, ſhorter than the calyxes, during the flowering covered with a thin nap, but afterwards almoſt ſmooth, villoſe only at the edge. Corollas yellow, with the tube leſs than the calyx. Quite different from the preceding, by its ſubtomentoſe netted-nerved bractes, and other marks. Native of the Cherſoneſus Taurica.

9. This approaches to the preceding, but differs in having the leaves acute, leſs tomentoſe, quite entire; the ſtem only villoſe, with the whorls very remote; the bractes almoſt ſmooth, mucronate; the tube of the corolla longer than the calyx, with the middle ſegment of the lower lip blunt, not emarginate.

Native place not known, but perhaps from the Levant. Shrubby [q].]

10. Root (perennial, but) ſeldom continuing longer than two years in England. Lower leaves oblong, entire, hairy. Stems near four feet high, dividing into ſeveral long ſlender branches. Stem-leaves hoary, acute-pointed. Flowers ſmall, whitiſh, in ſmall compact remote whorls, having two very ſhort leaves immediately under them, which end with a ſharp ſpine. Calyxes prickly.

[Stem upright, herbaceous. Lower ſtem-leaves petioled, upper ſeſſile, oppoſite, embracing; floral leaves cordate, quite entire, acuminate. Corollas white with ſome rufous veins [r].

Native of the Levant. Cultivated in 1731 by Mr. Miller. It flowers from auguſt to november [s].

11. Stem herbaceous, four-cornered, erect, a foot and more in height, with branches and branchlets like the ſtem and bent in. Leaves acute, pale beneath, dotted above, ſcarcely an inch long: petiole a little ſhorter than the leaf. Spikes of flowers terminating, lanceolate, erect, a finger's length. Bractes ſuborbiculate, acuminate, nerved, imbricate, ciliate not ſpiny, in which it differs from all the reſt. The whole plant is villoſe. Native of Japan [t].

12. This has the habit of Lavender, but it is hoary with a cottony nap. Trunk ſuffruticoſe, for the moſt part decumbent at the baſe; whence ſpring many ſtems or branches, very finely tomentoſe, white, erect, elongated, a foot long, four-cornered. Leaves marked with lines, tomentoſe, white; the lower ones linear-lanceolate, naked above; upper ones linear, more remote; uppermoſt near the whorls ſometimes toothed. Bractes cordate, toothed, ſomewhat ſpiny. Whorls ſix-flowered. Calyxes five-toothed, hoary. Corollas yellow; upper lip erect, linear, often bifid, lower trifid with the middle ſegment four times as wide as the others [u].

[a] Linn. ſpec. [b] Hort. kew. [c] Linn. ſpec. [d] Knocker. [e] Linn. ſpec. [f] Linn. ſyſt. [g] Hort. kew. [h] Willdenow. [i] Hort. kew. [k] Linn. ſpec. & ſyſt.

[l] Deſfontaines. [m] Hort. kew. [n] Linn. ſpec. [o] Willdenow. [p] Hort. kew. [q] Willdenow. [r] Linn. ſpec. [s] Hort. kew. [t] Thunberg. [u] Linn. ſpec.

It varies with the lower leaves linear-ſpatulate and the upper linear; alſo with the lower linear and the upper oblong or ſpatulate; laſtly, with the leaves quite entire and ſubcordate[x].

Native of Spain. Cultivated in 1748 by Mr. Miller[y].

13. This is an upright hoary ſhrub, with rod-like, upright, ſlender, four-cornered branches. Lower leaves approximating, petioled, narrowed at the baſe, linear-lanceolate; upper remote, twice or thrice as ſhort as the internodes, linear or linear-ſubulate. Flowers ſmall, in whorls, ſeſſile at the top of the branches. Whorls three to five, diſtinct, from four to ſix-flowered. Bractes preſſed cloſe, palmate-toothed; ſegments narrow, acute, mucronate. Calyx cylindrical, tomentoſe, five-toothed: teeth ſetaceous-ſpiny: Corolla pale yellow, longer than the calyx.—Native of Barbary, on ſandy hills near Maſcar[z].

Willdenow ſuſpects it to be a variety of the preceding.

14. Nearly allied to *S. incana*, but differing in having the ſtem herbaceous, and in not being tomentoſe.—Native of Spain, in the kingdom of Valencia[a].]

15. This has a ſhort woody ſtem, with branches a foot and half long. Leaves narrow, ſmooth, an inch long, having a ſtrong ſcent when bruiſed. Flowers yellow, in large ſpiked whorls at the end of the branches.

[Stems many, hairy, ſtraight, hard, a foot high. Leaves on ſhort petioles, ſomewhat hairy, elliptic, with a few and ſometimes no teeth, and three nerves. Whorls cloſe, collected into ſhort ſpikes; with ovate acute leaves interpoſed, acutely ſerrate, the ſerratures and tip ending in yellow ſpinules. Calyx two-lipped, awned, villoſe; the lower lip two-toothed, ſeparate from the upper. Corolla pale yellow, with a few lines on the upper lip, waved, produced into a long appendix, emarginate: middle ſegment of the lower lip emarginate, crenate[b].

Native of Switzerland, Italy and the Pyrenees. Cultivated in 1731 by Mr. Miller. It flowers from june to november[c].]

16. Root perennial. Stems a foot long. Leaves lanceolate, deeply crenate, an inch long and half an inch broad, with ſhort heart-ſhaped prickly bractes. The flowers grow in whorled ſpikes at the end of the ſtem, are yellow, and have an equal prickly calyx.

[Stems perennial a little above the ground, aſcending, ſimple. It differs from *S. hirſuta* in the ſtems being more upright, the leaves above often ſmooth, the corollas yellow even on the upper lip, the ſpikes ovate, not interrupted, the bractes ovate, tooth-ciliate[d].

Haller remarks, that it is very like the preceding, but that the ſtem is more tomentoſe, and the leaves deeply crenate.

Native of the South of France, and of Spain. Cultivated in 1739, by Mr. Miller. It flowers from auguſt to november[e].

β. S. hirta of Roth, which he deſcribes as having the ſtem decumbent at the baſe, the leaves toothed and rough-haired, the bractes cordate, and the ſpikes elongated, is only a variety of the *ſcordioides*, there being intermediate ſpecimens which connect them[f].

17. Stem perennial at the baſe, very much branched, diffuſed, rigid, hirſute. Leaves narrow at the baſe, rigid, hirſute: with two teeth on each ſide, ſpiny. Spikes terminating, an inch and half long. Bractes cordate, tooth-gaſhed, nerved, ſmooth, with the teeth ſpiny. Calyxes on each ſide three, ſhorter than the bracte, hirſute, with the ſegments ſpiny and equal[g].

Plant a foot high. Stems round, hoary. Leaves tomentoſe, on each ſide two or three ſtout ſpiny teeth. Whorls remote, with ſix flowers in each. Calyxes equal with five ſpines. Corollas yellow. It varies with the leaves leſs rigid, and having more teeth. It differs from *S. Scordioides* in having the ſpikes not ovate but interrupted, and the leaves more rigid[h].

Native of Spain. Vahl found it common in Caſtille and Arragon.]

18. Root perennial. Stems herbaceous, hairy, trailing, a foot and half long, ſending out branches at the bottom. The upper part of the ſtem has whorls of purple flowers ſtanding pretty far aſunder.

[Stem rigid. Leaves wrinkled and plaited, with three or four ſharpiſh ſerratures. Bractes cordate. Whorls very remote, ſeſſile, ſix-flowered, with the ſtem more hairy between the whorls. Corollas yellow, with the tube curved in, the upper lip linear, ſemibifid, reflexed, erect, ſnow-white, and the lower very ſmall. Calyxes rough-haired, with five equal ſpines. Stamens within the tube[i].

The ſame ſynonym from Caſpar Bauhin is given here and under *Scordioides* β.

Native of the South of Europe. Cultivated in 1731 by Mr. Miller. It flowers in june and july[k].

19. Bractes imbricate in four rows, making a ſquare ſpike. Native of Peru. Perennial[l].

20. Root annual. Plant a ſpan high, upright, wooly all over. Stem quite ſimple. Leaves ſubſeſſile, indiſtinctly crenate. Spike longer than the ſtem itſelf, ſeſſile, compoſed of ſix-flowered, remote, very woolly whorls. Corollas dark violet, length of the calyx. Bractes ovate, indiſtinctly ſerrate, woolly[m].]

PROPAGATION AND CULTURE.

The firſt ſort is generally kept in green-houſes in England, but in moderate winters I have had theſe plants live abroad without cover in a warm dry border: however, if they are ſcreened from hard froſt under a common frame, where they may be expoſed to the open air at all times when the weather is mild, and protected from hard froſts, they will thrive better than with more tender treatment. It is propagated by ſeeds which ſhould be ſown in autumn, for thoſe which are ſown in the ſpring ſeldom ſucceed, or if they do, the plants rarely come up the firſt year.

Moſt of the ſorts are hardy enough to thrive in the open air in England: they are propagated by ſeeds, which, if ſown in autumn, will ſucceed better than thoſe which are ſown in the ſpring. The ſeeds may be ſown in ſhallow drills upon a dry ſpot of ground, and in the ſpring when the plants come up, they muſt be kept clean from weeds; and when the plants are fit to remove, part of each ſort may be drawn out, and planted in a bed at about nine or ten inches diſtance, which will give thoſe which are left in the ſeed-bed room to grow. The plants which are removed ſhould be ſhaded and watered until they have taken new root, after which they will require no other care but to keep them clean from weeds till the following autumn, when they ſhould be tranſplanted to the places where they are to remain. None of the ſorts ſhould be planted in rich ground, for that will cauſe them to grow ſo luxuriant in ſummer, that the froſt or much wet will deſtroy them in winter.

The annual ſorts (n. 4. 5.) ſhould not be removed, but the plants thinned and left in the place where they were ſown, keeping them clean from weeds.

The ſixth and ſeventh ſorts, though properly green-houſe plants, will often live through the winter in the open air, eſpecially if their ſeeds are ſown upon dry rubbiſh; for when either of theſe happen to grow in the joints of old walls, they will endure the greateſt cold of this country, therefore their ſeeds ſhould be ſown in ſuch places. The ſeventh ſort does not produce good ſeeds in England, therefore this is propagated by ſlipping off the heads, planting them in a ſhady border during the ſpring or ſummer months, which will readily take root; ſome of theſe may then be taken up and put into pots, that they may be ſcreened under a frame in winter.

SIDERITIS. See *Betonica*, *Clinopodium*, *Dracocephalum*, *Galeopſis*, *Hyptis*, *Leonurus*, *Lycopus*, *Phlomis*, *Stachys*.

SIDE-SADDLE FLOWER. See *Sarracenia*.

SIDERODENDRUM. (*Iron Tree.*)

Lin. gen. Schreb. n. 169. Sideroxyloides. *Jacqu. amer.* 19.

[x] Willdenow. [y] Hort. kew. Mill. dict. ed. 5. n. 7. [z] Desfontaines. [a] Willdenow. [b] Haller. [c] Hort. kew. [d] Linn. ſpec. [e] Hort. kew. [f] Willdenow. [g] Vahl. [h] Aſſo. [i] Cavanilles. [k] Hort. kew. [l] Linn. mant. [m] Linn. ſpec.

GENERIC CHARACTER.

CAL. *Perianth* one-leafed, very ſmall, four-toothed, acute, placed on the germ.

COR. one-petalled. *Tube* cylindrical, curved in, long. *Border* four-cleft: *ſegments* oblong, obtuſe, flat, reflexed, ſhorter by half than the tube.

STAM. *Filaments* four, very ſhort, ariſing below the diviſions of the border. *Anthers* oblong, erect.

PIST. *Germ* roundiſh, inferior. *Style* filiform, length of the tube of the corolla. *Stigma* oblong, obtuſe, thickiſh. *Jacqu.*

PER. *Berry* dicoccous, crowned with the calyx, two-celled; with the partition contrary.

SEEDS ſolitary, on one ſide convex, wrinkled; on the other flat, margined, faſtened to the partition.

ESSENTIAL CHARACTER.

Cor. one-petalled, ſalver-ſhaped. *Cal.* five-toothed. *Berry* dicoccous, two-celled. *Seeds* ſolitary.

SPECIES.

1. Sidero lendrum triflorum.
   Lin. ſpec. ed. Willd. 1. 812. *Vahl ecl.* 1. 10.
   Sideroxyloides ferreum. *Jacqu. amer.* 19. *t.* 175. *f.* 9. *pict. t.* 259. *f.* 7.
   Sideroxylum americanum, ſ. lignum duritie ferrum æmulans. *Pluk. phyt. t.* 224. *f.* 2.

DESCRIPTION, &c.

This is a tall branching tree, with ovate-lanceolate, acute, quite entire, ſhining, petioled, oppoſite leaves, half a foot long. Peduncles axillary, very ſhort, often three-flowered. Flowers ſmall, roſe-coloured on the outſide, white within[a].

Branches ſmooth, below round, above ſlightly four-cornered, compreſſed at the top. There is a little bractle on each ſide the baſe of the pedicels. The corolla is often changed, perhaps by ſome inſect, into an oblong bag, half an inch in length, fleſhy, hollow within, ending in a point at top, and having the appearance of a fruit[a].

Jacquin found it in the mountain woods of Martinico; and Ryan in Montſerrat.

SIDEROXYLOIDES. See *Sideredendrum.*]

SIDEROXYLON. (*Iron wood.*)
   Lin. gen. n. 264. *Reich. n.* 283. *Schreb. n.* 357. & *p.* 823. *Dill. elth.* 365. *Jacqu. amer.* 55. *Juſſ.* 151.
   Claſſ. 5. 1. Pentandria Monogynia.
   Nat. order of *Dumoſæ. Sapotæ*, Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* five-cleft, ſmall, erect, permanent.

COR. one-petalled, wheel-ſhaped: *ſegments* five, roundiſh, concave, erect. *Toothlet* cuſped, ſerrate, at the baſe of each diviſion of the petal, tending inwards.

STAM. *Filaments* five, awl-ſhaped, length of the corolla, alternate with the toothlets. *Anthers* oblong, incumbent.

PIST. *Germ* roundiſh. *Style* awl-ſhaped, length of the ſtamens. *Stigma* ſimple, obtuſe.

PER. *Berry* roundiſh, one-celled.

SEEDS five.

OBS. S. decandrum *differs in having ten ſtamens. The teeth are wanting in the corolla of* S. mite, melanophlæum, *and ſome others.*

ESSENTIAL CHARACTER.

Cor. five-cleft. *Nect.* (in moſt) five-leaved. *Stigma* ſimple. *Berry* five-ſeeded.

SPECIES.

[1. Sideroxylon mite.
   Lin. ſyſt. 232. *Reich.* 1. 536. *Willd.* 1. 1089. *Jacqu. collect.* 2. 249.
   Unarmed, flowers ſeſſile.]

2. Sideroxylon inerme. *Smooth Ironwood.*
   Lin. ſpec. 278. *ſyſt.* 232. *Reich.* 1. 536. *Willd.* 1. 1089. *hort. cliff.* 69. *Berg. cap.* 47. *Jacqu. collect.* 2. 250. *Thunb. prodr.* 36. *Mill. fig. t.* 299. *Kniph. cent.* 2. *n.* 86. *Dill. elth.* 357. *t.* 263. *f.* 344.
   Unarmed, leaves perennial obovate, peduncles round.

[3. Sideroxylon melanophlæum. *Laurel-leaved Ironwood.*
   Lin. ſyſt. 232. *Reich.* 1. 537. *Willd.* 1. 1089. *mant.* 48. *Jacqu. hort.* 1. 89. *t.* 71. *Thunb. prodr.* 36. *Burm. afr.* 238. *t.* 84. *f.* 2. (Padus.)
   Laurifolia africana. *Comm. hort.* 1. 195. *t.* 109.
   Unarmed, leaves perennial lanceolate, peduncles angular.

4. Sideroxylon cymoſum.
   Lin. ſyſt. 232. *Willd.* 1. 1090. *ſuppl.* 152. *Thunb. prodr.* 36.
   Unarmed, leaves oppoſite petioled, cymes compound and decompound.

5. Sideroxylon ſericeum. *Silky Ironwood.*
   Lin. ſpec. ed. Willd. 1. 1090. *Ait. kew.* 1. 262.
   Unarmed, leaves ovate tomentoſe-ſilky beneath.

6. Sideroxylon argenteum. *Silvery Ironwood.*
   Lin. ſpec. ed. Willd. 1. 1090. *Thunb. prodr.* 36.
   Unarmed, leaves ovate retuſe tomentoſe, flowers peduncled.

7. Sideroxylon tomentoſum.
   Lin. ſpec. ed. Willd. 1. 1090. *Roxb. corom.* 1. 28. *t.* 28.
   Unarmed, leaves oblong acuminate obtuſe, the younger ones tomentoſe, peduncles aggregate axillary, length of the petiole.

8. Sideroxylon lycioides. *Willow-leaved Ironwood.*
   Lin. ſpec. 279. *Reich.* 1. 537. *Willd.* 1. 1090. *Duham. arb.* 2. 260. *t.* 68. *Wangenh. amer.* 117.
   Lycioides. *Lin. hort. cliff.* 488.
   Arbor folio ſalicis, &c. *Boerh. lugdb.* 2. 263.
   Spiny, leaves deciduous.

9. Sideroxylon decandrum.
   Lin. ſyſt. 232. *Reich.* 1. 538. *Willd.* 1. 1091. *mant.* 48.
   Spiny, leaves deciduous elliptic.

DESCRIPTIONS, &c.

1. Royen remarked that the flowers have no teeth between the ſtamens. It is a native of Africa.]

2. At the Cape of Good Hope, where this tree is a native, it riſes to the height of an Engliſh Apple tree; but in Europe it is rarely more than eight or ten feet high. The wood is ſo heavy as to ſink in water, and being very cloſe and hard, the name of Iron-wood has been given it, and hence the generic appellation of Sideroxylon. It divides into many branches, which are covered with a ruſſet bark. Leaves about three inches long, and an inch and half broad in the middle, ending in points at both extremities, placed without order on the branches, having footſtalks an inch long; they are ſmooth, of a lucid green, and continue all the year. The flowers come out in cluſters from the ſide of the branches, upon ſhort footſtalks, which branch out into ſeveral ſmaller, each ſuſtaining a ſingle flower, which is ſmall and white[b].

[Cultivated in 1729, by James Sherard, M. D.[c] It flowered that year in the Eltham garden, in the month of july: but had been there about ſeven years, and was obtained firſt from Dr. Uvedale's garden at Enfield, and afterwards from Holland[d].

3. This tree bears a great reſemblance to the preceding: it has thick branches like that, but without any ſtreaks or warted dots. The leaves are perennial; and the peduncles very ſhort, but not round. Burman's figure repreſents this rather than the inerme. There are no teeth between the ſtamens.—Native of the Cape of Good Hope[e]. Introduced in 1783, by Mr. John Græffer[f].

Sideroxylon tenax and fœtidiſſimum, according to Swartz, ought to be referred to the genus Bumelia, on account of the form of the nectary, and the fruit being a one-ſeeded drupe.

The former is a native of Carolina, and is thus deſcribed in Linneus's mantiſſa.—Height twenty feet, with a white bark, and very tough branches. Buds alternate, from each proceed numerous peduncles, an inch long, one-flowered. Leaves within or between the peduncles five or ſix, petioled, oblong, bluntiſh, quite entire, ſubtomentoſe beneath, the length and breadth of a finger, firm, annual. Flowers ſmall.

[a] Jacquin. [b] Vahl. [c] Mill. fig. [d] Hort. kew. [e] Linn. mant. [f] Hort. kew. [g] Hort. elth.

Calyx ovate, with five ovate blunt leaflets, the outer ones wider and converging. Tube of the corolla length of the calyx: border five-parted; the parts ovate, shorter than the calyx: nectary in the throat of the corolla, a little less than the corolla, five-parted; leaflets trifid, the middle generally longer. Stamens length of the corolla. Germ five-cornered. Style and stigma simple. Drupe oval. Nut ovate, shining, with two holes at the base, separated by an arched septum. Stature of Chrysophyllum or Achras: it varies with very short spines here and there on the branchlets. It is the Chrysophyllum carolinense of Jacquin's observations, and Bumelia tenax of Willdenow's species.

The latter, Sideroxylon fœtidissimum, is a native of St. Domingo; and has the leaves subalternate, lanceolate-oblong, obtuse, subemarginate, shining: the pedunckes axillary, one-flowered, abundant in clusters. It is Bumelia fœtidissima of Willdenow's species.]

Miller, besides the *inerme*, has a second species, which he names *Sideroxylon oppositifolium*. He says it grows more upright and regular; and that the leaves are smaller, more pointed, and placed opposite on the branches.

[4. This is a small shrub, native of the Cape of Good Hope. Thunberg found it on the Tafelberg [x].

5. Native of New South Wales, where it was found by Sir Joseph Banks, and introduced in 1772 [y].

6. Native of the Cape of Good Hope.

7. A small tree, with an erect trunk, covered by an ash-coloured bark. Branches erect, very numerous. Leaves alternate, on short petioles, oval a little scolloped; when full grown smooth, when young covered with much rust-coloured down; from three to five inches long, and an inch and half broad. Pedunckes axillary, numerous, short, downy, bowing, undivided, one-flowered. Flowers small, dirty white. Calyx inferior, five-leaved: leaflets imbricate, downy, permanent. Tube of the corolla short, downy within: margin five-parted; segments spreading, half-lanceolate; acute, waved. Nectary of five petals, alternate with the filaments, waved, length of the stamens. Berry oval, size of an Olive, with one or two seeds only in general, though there are the rudiments of five.

Native of the East Indies, on the tops of mountains chiefly; flowering during the hot season [z].

8. Native of Canada. Perhaps a species of *Bumelia*, Wangenheim having described the fruit to be a dry drupe containing one seed [a]. Cultivated in 1758 by Mr. Miller [a].

9. This is a tree with axillary solitary spines and alternate leaves. Peduncles axillary, one-flowered, very many, a little longer than the petioles. Calyx five-cleft, obtuse. Corolla funnel-form, five-cleft, obtuse; with the segments concave, scarcely unfolded. Nectary five-leaved, serrate, short, each lobe to each segment of the corolla. Stamens ten, awl-shaped, length of the nectary; anthers sagittate. Germ globular: style filiform; stigma very small. Berry black, globular, from three to five-celled, commonly abortive.—It resembles the preceding, yet differs much either in species, or from culture [b].

Native of South America.

Of *Sideroxylon spinosum* there is no specimen in Linneus's herbarium sufficiently perfect to ascertain the species. From Clifford's herbarium, now in the possession of Sir Joseph Banks, it appears, that the Argan of Morocco, had been taken up by Linneus in the Hortus Cliffortianus under this name. This Argan or Olive tree of Morocco, is the Rhamnus pentaphyllus, first published by Linneus (app. syst. nat. ed. 12.) under the name of Rhamnus siculus; as appears from the specimen in Linneus's herbarium, compared with specimens in Sir Joseph Banks's herbarium, from Morocco [c].

Linneus seems to have confounded *Elæodendrum Argan* and *Flacourtia sepiaria* under this name of *Sideroxylon spinosum*, which are both of very different genera from this. Willdenow received the latter of these two plants from Koenig, under the name of *Sid. spinosum*. The synonyms of Commelin (hort. 1. 161. t. 83.) Plukenet (phyt. t. 202. f. 2.) Rheede (5. 77. t. 39.) and Burman (ind. 59.) belong to *Flacourtia sepiaria* [a].

See *Elæodendrum Argan*.

For the other species of Sideroxylon, see *Chrysophyllum*, *Curtisia* and *Olea*.]

PROPAGATION AND CULTURE.

These plants being natives of warm countries, cannot be preserved in England, unless they are placed in a moderate stove. They are propagated by seeds, when these can be procured from abroad. These must be sown in pots filled with light rich earth, and plunged into a good hot-bed in the spring, in order to get the plants forward early in the season. When the plants are fit to transplant, they should be each put into a separate small pot filled with good earth, and plunged into a fresh hot-bed while they are young. In winter they must be plunged into the tan-bed in the stove, and treated in the same manner as has been directed for tender plants from the same countries. As the plants obtain strength, they may be treated more hardily, by placing them in a dry stove in the winter, and giving them a greater share of free air in summer; and when they have obtained strength, they may be placed abroad in summer in a sheltered situation.

I have propagated them by layers, but these were two years before they had made good roots; and sometimes they will take from cuttings, but this is a very uncertain method, nor do the plants so raised ever grow so vigorously as those which come from seeds.

SIGESBECKIA. (*So named from* John George Siegesbeck, *a German, Prefect of the Peterfburgh garden. Author of* Primitiæ Floræ Petropolitanæ. 1736. Rigæ 4°.—De Maianthemo Lilium convallium nuncupato. Petrop. 1736. 4°.—Botanosophiæ verioris sciagraphia. Petrop. 1737. 4°.—Vaniloquentiæ botanicæ specimen. Petrop. 1741. 4°.)

Lin. gen. n. 973. *Reich. n.* 1057. *Schreb. n.* 1320. *Gærtn. t.* 168. *Juss.* 187.

Class. 19. 2. Syngenesia Polygamia Superflua.

Nat. order of *Compositæ Oppositifoliæ.—Corymbiferæ*, Juss.

GENERIC CHARACTER.

CAL. *Common exterior* five-leaved: *leaflets* linear, round, spreading very much, longer than the flower, permanent: *interior* subquinquangular; *leaflets* many, ovate, concave, obtuse, equal.

COR. *Compound*, half-radiate. *Corollets* hermaphrodite many in the disk: *female* five or fewer in the ray, only on one side of the flower.

Proper of the hermaphrodite funnel-form, exceeding the calyx in length, five-toothed or three-toothed.

Female ligulate, wide, three-toothed, very short; or funnel-shaped, trifid, the interior division deeper.

STAM. in the Hermaphrodites: *Filaments* five or three, very short. *Anther* cylindrical, tubular.

PIST. in the Hermaphrodites: *Germ* oblong, curved in, size of the calyx. *Style* filiform, length of the stamens. *Stigma* bifid.—In the *Females*: *Germ* oblong, curved in, size of the calyx. *Style* filiform, length of the hermaphrodite. *Stigma* bifid.

PER. none. *Calyx* unchanged.

SEEDS in the Hermaphrodites solitary, oblong, obtusely four-cornered, thicker above, obtuse, naked. *Pappus* none.—In the Females very like the others.

REC. chaffy: *chaffs* very like the scales of the calyx, concave, wrapping up the seeds on one side and deciduous.

ESSENTIAL CHARACTER.

Cal. exterior five-leaved, proper, spreading. *Ray* halved. *Pappus* none. *Recept.* chaffy.

[a] Willdenow.

[x] Linn. suppl. [y] Willdenow. [z] Hort. kew. [a] Hort. kew. [b] Roxburgh. [c] Linn. mant. Dryander in Linn. transf. 2. 225.

SPECIES.

1. Sigeſtbeckia orientalis. *Oriental Sigeſtbeckia.*
Lin. ſpec. 1269. *ſyſt.* 779. *Reich.* 3. 875. *hort. cliff.* 412. *t.* 23. *npſ.* 267. *Gærtn. fruct.* 2. 424. *Knipb. cent.* 2. *n.* 87. *Buxb. cent.* 3. 29. *t.* 52. (Bidenti ſimilis.) *Pluk. amalth.* 58. *t.* 380. *f.* 2. (Cichorio affinis.)
Petioles ſeſſile, exterior calyxes linear larger ſpreading.

[2. Sigeſtbeckia occidentalis. *American Sigeſtbeckia.*
Lin. ſpec. 1269. *Vaill. act.* 1720. 325. (Eupatorio-phalacron.)
Phaethuſa americana. *Gærtn. fruct.* 2. 425. *t.* 169. & *Diſſ. noſtr.*
Petioles decurrent, calyxes naked.

3. Sigeſtbeckia floſculoſa. *Small-flowered Sigeſtbeckia.*
L'Herit. ſtirp. nov. 37. *t.* 19. *Ait. kew.* 3. 244.
Floſcules three-toothed, the hermaphrodites three-ſtamened.]

DESCRIPTIONS, *&c.*

1. Plant annual, near four feet high, ſending out many branches. Flowers terminating, ſmall, yellow.

[Stem upright. Leaves ovate, acuminate at both ends, ſmiſhing in the petioles, oppoſite, three-nerved, veined, ſerrate. Branches from each upper axil, ſhorter than the ſtem. Peduncles terminating and lateral from the upper branches ſolitary, brachiate, ſuſtaining a fulvous flower, in form of a ſpider, with a ſpreading involucre, fenced by five hiſpid rays, or hairs having a clammy head on the top of each. When the ripe ſeeds are gathered, they move in the hand as if they were alive. It is remarkable for having the ray of the flower on one ſide, as in Milleria [a]. Receptacle narrow, flat. Seeds inverſely pyramidal, rugged with tubercles, glutinous, brown, bald, ſmooth, of a livid lead-colour, or brown [b].

Native of India, China, Media, Otaheite and New Zealand. Cultivated in 1730, by Mr. Miller. It flowers in july and auguſt [c].

2. Stem ſtiff and ſtraight. Leaves oppoſite, lanceolate-ovate, triple-nerved, ſerrate, running down on both ſides along the ſtem, which thence has four membranaceous angles, ſubtomentoſe beneath. Peduncles terminating, brachiate. Calyx oblong. Receptacle naked. Corolla radiate, with a ſingle, ligulate ray, bifid at the top. The ſeeds have a pappus on each ſide of two chaffs [b].

Cultivated in 1731 by Mr. Miller; who has omitted it in the later editions of his Dictionary. It flowers in october and november, and is perennial [c]. See *Phaethuſa.*

3. Plant annual, three feet high. Stem very much branched, round, ſlightly ſtriated, ſomewhat villoſe, jointed, the thickneſs of a reed, duſky purple: branches oppoſite, when flowering dichotomous, diffuſed, ſtriated, marked with rings, villoſe, purpliſh. Leaves oppoſite, embracing, remote, ſpreading, ovate, acute, unequally ſerrate, with appendages ſurrounding the ſtem at the baſe, three-nerved, veined, wrinkled, the upper ſurface ſhining, the lower paler, two inches long and fifteen lines wide. On the flowering branchlets the leaves are alternate, ſeſſile, but not margined at the baſe, ovate-lanceolate, gradually leſs and leſs. Panicle terminating, very looſe, leafy, dichotomous, from the ſtem itſelf. Flowers within the forkings of the branchlets or oppoſite to a leaf, ſolitary, pedunculed, the upper ones cloſely heaped in a ſort of corymb, herbaceous with a yellow diſk. Peduncles erect, filiform, villoſe, four lines long. Calyx glandular-hairy; exterior five-leaved, interior ten-leaved, converging, angular. Compound corolla almoſt uniform, reſembling a floſcular flower, globular; having many hermaphrodite florets in the diſk, and five female in the ray. Seeds to both florets, obovate, curved in, ſomewhat rugged, brown.—This ſpecies is diſtinguiſhed at firſt ſight from the *orientalis* by its floſcular-like flowers, and dichotomous, diffuſed branches. Perhaps it is the only plant which is triandrous, in the claſs Syngeneſia.

Native of Peru, whence it was ſent by Dombey [a].

[a] Linn. cliff. [b] Gærtner. [c] Hort. kew.
[a] Linn. ſpec. & mant. [b] Hort. kew. [a] L'Heritier.

It is an annual plant, flowering in june and july; and was introduced in 1784 by Chev. Thunberg [b].]

PROPAGATION AND CULTURE.

1. Sow the ſeeds on a hot-bed, and ſet out the plants in a warm border the beginning of june, ſupplying them with water in dry weather.

[2. Is a perennial hardy plant.

3. Soon ripens its ſeeds, and may be propagated by them or by cuttings.

SILAGURIUM. See *Silda.*]

SILAUM and SILAUS. See *Peucedanum.*

SILENE. *So named by Linnæus, from* Σιλλος, Σιλλης, *or* Σιλης, *ſpuma, ſaliva, foam or ſpittle.*)
Lin. gen. n. 567. *Reich. n.* 616. *Schreb. n.* 772. *Juſſ.* 302. *Gærtn. t.* 130. Vilcago. *Dill. elth.* 309. &c.
Claſſ. 10. 3. Decandria Trigynia.
Nat. order of *Caryophylleæ. Caryophylleæ*, Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* one-leafed, ventricoſe, five-toothed, permanent.
COR. *Petals* five: *claws* narrow, length of the calyx, margined: *border* flat, obtuſe, often bifid.
Nectary compoſed of two toothlets in the neck of each petal, forming a crown at the throat.
STAM. *Filaments* ten, awl-ſhaped, alternately inſerted into the claws of the petals, and later than the other five. *Anthers* oblong.
PIST. *Germ* cylindrical. *Styles* three ſimple, longer than the ſtamens. *Stigmas* bent contrary to the ſun's apparent motion.
PER. *Capſule* cylindrical, covered, one or three-celled, opening at top into five or ſix parts.
SEEDS very many, kidney-form.
OBS. *It differs from* Cucubalus *in the nectareous crown of the corolla.*

ESSENTIAL CHARACTER.

Cal. ventricoſe. *Pet.* five, with claws, crowned at the throat. *Capſ.* three-celled.

SPECIES.

1. *Flowers ſolitary lateral.*

[1. Silene anglica. *Engliſh Catchfly.*
Lin. ſpec. 594. *Reich.* 2. 344. *Willd.* 2. 691. *hort. upſ.* 113. *Hudſ. angl.* 187. *Wither. arr. ed.* 3. 413. *Smith brit.* 465. *Curt. lond.* 4. *t.* 30. *Relh. cant. ed.* 2. *n.* 364. *Dickſ. fic.* 13. 18 *Allion. pedem. n.* 1564. *Knipb. cent.* 8. *n.* 87 *Dill. elth.* 417. *t.* 309. *f.* 398. (Vilcago.)
S. arvenſis. *Saliſb. prodr.* 301.
Lychnis ſylveſtris flore albo minimo. *Raii biſt.* 996. 13. *ſyn.* 339.
L. ſylv. hirſuta annua, flore minore albo. *Vaill. par.* 121. *t.* 16. *f.* 12.
Hirſute viſcid, petals emarginate, flowers lateral erect alternate, lower fruits divaricate-reflexed.

2. Silene luſitanica. *Portugal Catchfly.*
Lin. ſpec. 594. *Reich.* 2. 345. *Willd.* 2. 691. *hort. cliff.* 172. *upſ.* 113. *Dill. elth.* 420. *t.* 311. *f.* 401. (Vilcago.)
Hirſute, petals toothed undivided, flowers erect, fruits divaricate-reflexed alternate.]

3. Silene quinquevulnera. *Variegated Catchfly.*
Lin. ſpec. 595. *Reich.* 2. 345. *Willd.* 2. 691. *hort. cliff.* 171. *upſ.* 113. *Hudſ. angl.* 188. *Wither. arr. ed.* 3. 413. *Smith brit.* 466. *engl. bot. t.* 86. *Sauv. monſp.* 146. *Kreck. ſileſ. n.* 663. *Allion. pedem. n.* 1566. *Heſſm. germ.* 151.
Lychnis vulnerata. *Scop. carn. n.* 524.
L. ſylveſtris lanuginoſa minor. *Bauh. pin.* 206.
L. hirſuta, flore eleganter variegato. *Raii biſt.* 997. 19.
L. hirta minor, flore variegato. *Dodart mem.* 99. *cum. ic.*
Hirſute, petals roundiſh quite entire, flowers lateral alternate and fruits erect.

[4. Silene ciliata. *Fringed Catchfly.*
Lin. ſpec. ed. Willd. 2. 692.
Lychnis parvo flore calyce ſtriato purpuraſcente. *Tournef. cor.* 24.
Petals two-parted obtuſe, calyxes club-ſhaped pubeſcent ciliate at the tip alternate erect.

[b] Hort. kew.

5. Silene ſericea. *Silky Silene.*
Lin. ſpec. ed. Willd. 2. 692. *Allion. pedem. n.* 1573. *t.* 79. *f.* 3.
Petals biſid, flowers oppoſite peduncled erect, leaves oblong-ſpatulate ſilky-hoary.]
6. Silene nocturna. *Spiked night flowering Catchfly.*
Lin. ſpec. 595. *Reich.* 2. 345. *Willd.* 2. 692. *Allion. pedem. n.* 1568. *Dill. eltb.* 420. *t.* 310. *f.* 400. (Viſcago.)
Lychnis ſylveſtris hirſuta elatior ſpicata lini colore. *Barr. ic.* 10. *t.* 27. *f.* 1.
L. ſylv. nocturna piloſa, floribus unius ordinis dilute purpureis. *Cup. cathol.* 119. *Raii ſuppl.* 480.
L. ſegetum meridionalium annua hirta, flor. albis uno verſu diſpoſitis. *Mor. biſt.* 2. 346. *ſ.* 5. *t.* 36. *f.* 7.
Flowers in ſpikes alternate directed one way, ſeſſile, petals biſid.
[7. Silene gallica. *French Catchfly.*
Lin. ſpec. 595. *Reich.* 2. 346. *Willd.* 2. 693. *Dalib. par.* 129. *Allion. pedem. n.* 1567. *Hall. helv. n.* 914. *Dill. eltb.* 419. *t.* 310. *f.* 399. (Viſcago.)
Lychnis ſylveſtris hirſuta annua, flore minore carneo. *Vaill. par.* 121. *t.* 16. *f.* 12.
Flowers ſubſpiked alternate directed one way, petals undivided, fruits erect.
8. Silene ceraſtoides.
Lin. ſpec. 595. *Reich.* 2. 346. *Willd.* 2. 693. *Dill. eltb.* 416. *t.* 309. *f.* 307. (Viſcago.)
S. rigidula. *Lin. amoen.* 4. 313.
Lychnis ceraſtoides. *Scop. carn. n.* 522.
Hirſute, petals emarginate, fructifications erect, calyxes ſubſeſſile ſometwhat hairy.
2. *Flowers lateral in cluſters.*
9. Silene mutabilis. *Changeable Catchfly.*
Lin. ſpec. 596. *Reich.* 2. 347. *Willd.* 2. 694. *amoen.* 4. 314.
Lychnis flore albo minimo. *Raii biſt.* 996.
L. arvenſis minor anglica. *Raii biſt.* 1004.
Petals biſid, calyxes angular peduncled, leaves lanceolate-linear.
10. Silene chlorantha. *Pale-flowered Catchfly.*
Lin. ſpec. ed. Willd. 2. 694. *Ehr. beitr.* 7. 145.
Cucubalus chloranthus. *Willd. prodr. berol. n.* 477. *t.* 5. *f.* 9. *Hoffm. germ.* 150. *Roth. germ.* 1. 193. 2. 492.
Viſcago nocturna non viſcoſa herbaceo flore. *Dill. eltb.* 425. *t.* 316. *f.* 408.
Lychnis ſylveſtris ſeſamoides major, flore obſolete viridi. *Montz. pug. t.* 2. *f.* 1.
Petals linear biſid, flowers lateral directed one way drooping, root-leaves rugged at the edge.]
11. Silene nutans. *Nottingham Catchfly.*
Lin. ſpec. 596. *ſyſt.* 420. *Reich.* 2. 347. *Willd.* 2. 694. *hort. cliff.* 171. *ſ. ſuec. n.* 588. *Hudſ. angl.* 188. *Wither. arr. ed.* 3. 413. *Smith brit.* 466. *engl. bot. t.* 465. *Fl. dan. t.* 242. *Gunn. norv. n.* 1109. *Hoffm. germ.* 151. *Roth. germ.* 1. 192. 2. 494. *Pollich pal. n.* 417. *Laers herborn. n.* 333. *Kreck. ſileſ. n.* 664. *Villars dauph.* 3. 606. *Allion. pedem. n.* 1569. *Gmel. ſib.* 4. 138.
Viſcago. *Hall. helv. n.* 915.
Lychnis nutans. *Scop. carn. n.* 525.
L. montana viſcoſa alba latifolia. *Bauh. pin.* 205.
L. ſylveſtris albo flore. *Tab.* 293. *Cluſ. pann.* 328.
L. ſilveſt. 9. *Cluſ. biſt.* 290. *f.* 291. 1.
L. ſylveſtris alba nona Cluſii. *Ger. emac.* 470. 8. *Raii ſyn.* 340. *Deering Nott.* 137.
L. ſylv. alba, ſ. Ocymoides minus album. *Park. theat.* 631. 5.
L. ſilv. ſ. montana latifolia viſcoſa, florum petalis ſupra albis, ſubtus vireſcentibus, interdiu ſe contrahentibus. *Mor. biſt.* 2. 535.
Polemonium petræum Geſneri. *Bauh. biſt.* 3. 351.
Flowers panicled directed one way drooping, petals two-parted, with linear ſegments, leaves lanceolate pubeſcent.
[12. Silene amoena.
Lin. ſpec. 596. *Reich.* 2. 347. *Willd.* 2. 695. *hort. upſ.* 114.
Petals biſid, coronet ſubcoaduate, flowers directed one way, peduncles oppoſite three-flowered, branches alternate.
13. Silene paradoxa. *Dover Catchfly.*
Lin. ſpec. 1673. *ſyſt.* 420. *Reich.* 2. 348. *Willd.* 2. 695. *Jacqu. hort. vind.* 3. *t.* 84. *Smith brit.* 467.
Cucubalus viſcoſus. *Hudſ. angl.* 186.
Lychnis major noctiflora Dubrenſis perennis. *Raii biſt.* 995. *ſyn.* 340.
L. viſcoſa peregrina noctiflora odorata. *Zan. biſt. t.* 109.
Flowers panicled directed one way drooping, petals obcordate-emarginate, leaves linear-lanceolate ſmooth.
14. Silene maritima. *Sea Catchfly.*
Wither. arr. ed. 3. 414. *Smith brit.* 468. *engl. bot. t.* 957. *Willd. ſpec.* 2. 700.
S. amœna. *Hudſ. angl.* 188. *Lightf. ſcot.* 227.
Cucubalus Behen β. *Lin. ſpec.* 591. *Fl. dan. t.* 857. *Dict. noſtr.*
C. littoralis. *Donn. hort. cant.* 51.
Lychnis maritima repens. *Bauh. pin.* 205. *Raii biſt.* 998. *ſyn.* 337. *Petiv. brit. t.* 57. *f.* 1.
L. marina anglicana. *Bauh. biſt.* 3. 2. 357. 1. *Ger.* 382. 2. *emac.* 469. 2. *Lob. adv.* 143. *ic.* 337.
L. marina repens alba vel rubra. *Park. theat.* 639, 3, 4.
L. perennis anguſtifolia marina Anglica repens. *Mor. biſt. ſ.* 5. *t.* 20. *f.* 2.
Flowers moſtly ſolitary terminating, petals biſid crowned, calyxes ſmooth netted-veined, ſtems decumbent.]
15. Silene fruticoſa. *Shrubby Catchfly.*
Lin. ſpec. 597. *Reich.* 2. 348. *Willd.* 2. 696. *vir. cliff.* 38. *hort. cliff.* 171. 4. *upſ.* 111. 2. *Knipb. cent.* 5. *n.* 84.
Lychnis fruteſcens myrtifolia, Been albo ſimilis. *Bauh. pin.* 205. *Raii biſt.* 998.
Ocymoides fruticoſum. *Cam. hort. t.* 33.
Saponaria fruteſcens, acutis foliis, ex Sicilia. *Bocc. ſic.* 58. *t.* 30.
Petals biſid, ſtem ſhrubby, leaves broad-lanceolate, panicle trichotomous.
16. Silene bupleuroides. *Hare's-ear-like Catchfly.*
Lin. ſpec. 598. *Reich.* 2. 348. *Willd.* 2. 696. *hort. cliff.* 171. *Deſfont. atlant.* 351.
Lychnis orientalis bupleuri folio. *Tournef. cor.* 2. *it.* 2. 139. *t.* 154.
Petals biſid, flowers peduncled oppoſite, ſhorter than the braſte, leaves lanceolate acute ſmooth.
[17. Silene longiflora. *Long-flowered Catchfly.*
Lin. ſpec. ed. Willd. 2. 696. *Ehr. beitr.* 7. 144.
S. juncea. *Roth. catalect.* 1. 34.
Petals biſid, flowers panicled erect, peduncles oppoſite longer than the braſte, calyxes very long ſmooth.]
18. Silene gigantea. *Gigantic Catchfly.*
Lin. ſpec. 598. *Reich.* 2. 349. *Willd.* 2. 696. *Wachend. ultr.* 391.
Lychnis græca, Sedi arboreſcentis folio & facie, flore albo. *Walth. hort.* 32. *t.* 11.
Petals biſid, root-leaves ſcrew-ſhoped very blunt, flowers in a ſort of whorl.
[19. Silene craſſifolia. *Thick-leaved Catchfly.*
Lin. ſpec. 597. *Reich.* 2. 349. *Willd.* 2. 697.
Petals emarginate, leaves ſuborbiculate fleſhy hirſute, raceme directed one way.]
20. Silene viridiflora. *Green-flowered Catchfly.*
Lin. ſpec. 597. *Reich.* 2. 349. *Willd.* 2. 697. *hort. cliff.* 171. *Gmel. ſib.* 4. 142. *Aſſo arag. n.* 375. *Knipb. cent.* 12. *n.* 89.
Lychnis ocymaſtri facie, flore viridi. *Herm. parad. t.* 199.
Petals cloven half way, leaves ovate ſomewhat rugged acute, panicle elongated almoſt leafleſs.
3. *Flowers from the forks of the ſtem.*
21. Silene conoidea. *Conoid Catchfly.*
Lin. ſpec. 598. *Reich.* 2. 350. *Willd.* 2. 698. *hort. upſ.* 110. *Aſſo arag. n.* 376. *Sauv. monſp.* 146. *Villars dauph.* 3. 606. *Allion. pedem. n.* 1571. *Kreck. ſileſ. n.* 667. *Deſfont. atlant.* 351.
Lychnis ſylveſtris latifolia, calicibus turgidis ſtriatis. *Bauh. pin.* 205.
L. ſylveſtris 2. *Cluſ. biſt.* 1. 288.

L. caliculis ſtriatis 2. Cluſii. *Ger.* 384. 7. *emac.* 470. 7.

L. ſylv. calyculis ſtriatis. *Park. theat.* 631. 4. *Raii hiſt.* 997. 21.

L. glabra annua, fol. oblongis mucronatis, flore amplo rubello, capſula oblonga pyramidali. *Moriſ. hiſt.* 2. 542. *ſ.* 5. *t.* 36. *f.* 6. *t.* 21. *f.* 33. *ſec. Deſfontaines.*

Calyxes of the fruit globular acuminate with thirty ſtreaks, leaves ſmooth, petals entire.

[22. Silene conica. *Conic* or *Corn Catchfly.*
Lin. ſpec. 598. *ſyſt.* 421. *Reich.* 2. 350. *Willd.* 2. 698. *hort. upſ.* 110. *Wither. arr. ed.* 3. 416. *Smith brit.* 470. *engl. bot. t.* 922. *Jacqu. auſtr.* 3. 30. *t.* 253. *vind.* 77. *obſ.* 38. *Scop. carn. n.* 521. *Pollich pal. n.* 418. *Hoffm. germ.* 151. *Roth. germ.* 1. 193. 2. 495. *Villars dauph.* 3. 607. *Allion. pedem. n.* 1572. *Deſfont. atlant.* 351.

S. conoidea. *Hudſ. angl.* 189.

Lychnis ſylveſtris anguſtifolia, caliculis turgidis ſtriatis. *Baub. pin.* 205. *Raii hiſt.* 997. 22. *Dill. in Raii ſyn.* 341.

L. ſylv. altera incana, caliculis ſtriatis. *Lob. ic. t.* 338. *Park. theat.* 633. 11.

L. ſylv. incana Lobelii. *Ger. emac.* 470.—vel potius caliculis ſtriatis, fecunda Cluſii. *Ger. emac.* 470.

Muſcipulæ majori calyce ventricoſo ſimilis. *Baub. hiſt.* 3. 350.

Stem dichotomous, petals bifid, leaves ſoft, calyxes of the fruit conical with thirty ſtreaks.

23. Silene bellidifolia. *Daiſy-leaved Catchfly.*
Lin. ſyſt. 421. *ſpec. ed. Willd.* 2. 698. *Jacqu. hort.* 3. *t.* 81.

Calyxes cylindric-conic pubeſcent erect, petals bifid, racemes geminate terminating directed one way, the middle flower pedunculed, leaves lanceolate pubeſcent.

24. Silene dichotoma. *Forked Catchfly.*
Lin. ſpec. ed. Willd. 2. 699. *Ehr. beitr.* 7. 144.

Calyxes ovate viſcid-hairy erect, petals bifid, racemes geminate terminating directed one way, middle flower pedunculed, leaves petioled ovate-lanceolate ciliate at the baſe.

25. Silene veſpertina. *Evening Catchfly.*
Lin. ſpec. ed. Willd. 2. 699. *Retz. obſ.* 3. 31.

Calyxes club-ſhaped pubeſcent erect, petal bifid, crown connate, racemes geminate terminating directed one way, middle flower peduncled, leaves obovate-lanceolate ciliate at the baſe.

26. Silene Behen. *Bladder Catchfly.*
Lin. ſpec. 599. *Reich.* 2. 350. *Willd.* 2. 699.

Lychnis veſicaria cretica, parvo flore purpuraſcente. *Dill. elth.* 427. *t.* 317. *f.* 409.

L. cret. parvo flore, calyce ſtriato purpuraſcente. *Tournef. cor.* 24.

Calyxes ſmooth ovate netted-veined, capſules three-celled.

27. Silene ſtricta. *Stiff Catchfly.*
Lin. ſpec. 599. *Reich.* 2. 350. *Willd.* 2. 699. *amoen.* 4. 314. & 1. 158.

Petals emarginate, calyxes netted-veined acuminate longer than the peduncle, ſtem dichotomous ſtiff.]

28. Silene pendula. *Pendulous Catchfly.*
Lin. ſpec. 599. *Reich.* 2. 351. *Willd.* 2. 700. *hort. upſ.* 109. *hort. cliff.* 170. (Cucubalus.) *Curt. magaz. t.* 114.

β. Cucubalus floribus trigynis erectis, calycibus fructus pendulis anguloſis. *Lin. hort. cliff.* 171.

Viſcago hirſuta ſicula, lychnidis aquaticæ facie, ſupina. *Dill. elth.* 421. *t.* 312. *f.* 404.

Fruiting calyxes pendulous inflated, angles ten rugged.

[29. Silene procumbens. *Procumbent Catchfly.*
Lin. ſpec. ed. Willd. 2. 701. *Murr. in comm. goett.* 1784. & 1785. *p.* 83. *t.* 2. *Roth. catal.* 1. 55.

Calyxes inflated with about ten angles rugged, petals emarginate, ſtem procumbent, leaves ſeſſile linear-lanceolate.]

30. Silene noctiflora. *Forked night-flowering Catchfly.*
Lin. ſpec. 599. *Reich.* 2. 351. *Willd.* 2. 701. *fl. ſuec. n.* 389. *Hudſ. angl.* 189. *Wither. arr. ed.* 3. 416. *Smith brit.* 470. *engl. bot. t.* 291. *Relh. cant. ſuppl.* 1. 13. *ed.* 2. *n.* 367. *Sibth. oxon. n.* 407. *Abbot bedf. n.* 319. *Gertn. fruct.* 2. 233. *Hoffm. germ.* 151. *Roth. germ.* 1. 193. 2. 495. *Pollich pal. n.* 419. *Krock. ſileſ. n.* 665. *Allion. pedem. n.* 1575. *Villars dauph.* 3. 608.

Viſcago. *Hall. helv. n.* 911.

Lychnis noctiflora. *Schreb. ſpicil.* 31. *Bauh. pin.* 205. *Raii hiſt.* 994. *ſyn.* 340. *Mor. hiſt. ſ.* 5. *t.* 20. *f.* 12.

Ocymoides noctiflorum. *Camer. hort.* 109. *t.* 34. *Beſl. eyſt. æſt.* 7. *t.* 12. *f.* 3.

Stem dichotomous, petals bifid obtuſely crowned, calyxes ten-angled, teeth nearly equal to the tube.

[31. Silene ornata. *Dark-coloured Catchfly.*
Ait. kew. 2. 96. *Curt. magaz.* 382. *Willd. ſpec.* 2. 702.

Calyxes of the fruit oblong keeled hairy, petals bifid, leaves lanceolate pubeſcent viſcid flat, ſtem viſcid.

32. Silene undulata. *Waved-leaved Catchfly.*
Ait. kew. 2. 96. *Willd. ſpec.* 2. 702.

Calyxes of the fruit club-cylindrical hairy, petals bifid, leaves lanceolate pubeſcent waved, ſtem aſcending.

33. Silene virginica. *Virginian Catchfly.*
Lin. ſpec. 600. *ſyſt.* 421. *Reich.* 2. 352. *Willd.* 2. 702. *Gron. virg.* 151. *Pluk. phyt. t.* 203. *f.* 1. (Lychnis.)

Calyxes of the flower cylindrical villoſe, panicle dichotomous.

34. Silene antirrhina. *Snap-dragon-leaved Catchfly.*
Lin. ſpec. 600 *Reich.* 2. 352. *Willd.* 2. 702. *hort. upſ.* 114. *Gron. virg.* 50. *Dill. elth.* 422. *t.* 313. *f.* 403. (Viſcago.)

Leaves lanceolate ſubciliate, peduncles trifid, petals emarginate, calyxes ovate.

35. Silene ſedoides. *Sedum-like Catchfly.*
Lin. ſpec. ed. Willd. 2. 703. *Jacqu. collect. ſuppl.* 112. *t.* 14. *f.* 1.

Lychnis cretica maritima minima portulacæ ſylveſtris folio. *Tournef. cor.* 24.

Glandular-hairy, calyxes club-ſhaped, petals emarginate, leaves oblong-obovate ſmooth, ſtalky.

36. Silene apetala. *Apetalous Catchfly.*
Lin. ſpec. ed. Willd. 2. 703.

Calyxes ovate pubeſcent, flowers apetalous, leaves lanceolate pubeſcent.

37. Silene rubella. *Small red-flowered Catchfly.*
Lin. ſpec. 600. *Reich.* 2. 352. *Willd.* 2. 703. *hort. upſ.* 112. *Dill. elth.* 423. *t.* 314. *f.* 406. (Viſcago.)

Erect even, calyxes ſubglobular ſmooth veined, corollas unopen.

38. Silene inaperta. *Small unopen-flowered Catchfly.*
Lin. ſpec. 600. *Reich.* 2. 352. *Willd.* 2. 703. *Allion. pedem. n.* 1577. *Dill. elth.* 424. *t.* 315. *f.* 407. (Viſcago.)

Stem dichotomous panicled, calyxes even, petals very ſhort emarginate, leaves ſmooth lanceolate.

39. Silene clandeſtina. *Clandeſtine Catchfly.*
Lin. ſpec. ed. Willd. 2. 703. *Jacqu. collect. ſuppl.* 111. *t.* 3. *f.* 3.

Calyxes ovate ten-angled pubeſcent, petals bifid erect a little longer than the calyx, leaves oblong-lanceolate ciliate.

40. Silene portenſis. *Oporto Catchfly.*
Lin. ſpec. 600. *Reich.* 2. 353. *Willd.* 2. 704.

Stem dichotomous panicled, calyxes ſtriated, petals bifid, leaves linear.

41. Silene cretica. *Cretan Catchfly.*
Lin. ſpec. 601. *Reich.* 2. 353. *Willd.* 2. 704. *hort. upſ.* 112. *Dill. elth.* 422. *t.* 314. *f.* 404, 405. (Viſcago.) *Mogn. hort.* 126. (Lychnis.)

Erect even, calyxes erect ten-angled, petals bifid.]

42. Silene Muſcipula. *Spaniſh Catchfly.*
Lin. ſpec. 601. *Reich.* 2. 353. *Willd.* 2. 704. *Pallas it.* 2. 110. *Saxv. monſp.* 145. *Villars dauph.* 3. 609. *Deſfont. atlant.* 353.

Lychnis ſylveſtris viſcoſa rubra altera. *Baub. pin.* 205. *Raii hiſt.* 1001. *Tournef. inſt.* 337.

L. ſylv. 3. *Cluſ. hiſt.* 1. 289. *Tabern. ic.* 295. *Dalech. hiſt.* 818.

L. viſcaria f. Muſcipula. *Ger.* 481. 1. *emac.* 601. *t.*

L. ſylv. rubra minor. *Park. theat.* 632. *n.* 3.

Muſcipula viſcaria f. Lychnidis ſpecies. *Baub. hiſt.* 3. 349.

Petals bifid, ſtem dichotomous, flowers axillary ſeſſile, leaves ſmooth.

[43. Silene polyphylla. *Many-leaved Catchfly.*
Lin. ſpec. 601. *Reich.* 2. 353. *Willd.* 2. 705. *Villars dauph.* 3. 609.
Lychnis ſylveſtris, pluribus foliis ſimul junctis. *Baub. pin.* 205. *Raii hiſt.* 996.
L. ſylv. 8. *Cluſ. hiſt.* 1. 290. *Ger. emac.* 469. 4.— prima Cluſii (hiſp.) *Ger.* 383. 4.
L. ſylveſtris anguſtifolia. *Park. theat.* 632. *n.* 6. *t.* 631. *f.* 6.
Leaves in bundles briſtle-ſhaped, on the flowering-branches oppoſite.]

4. *Flowers terminating.*

44. Silene Armeria. *Common or Lobel's Catchfly.*
Lin. ſpec. 601. *ſyſt.* 422. *Reich.* 2. 354. *Willd.* 2. 705. *hort. cliff.* 172. *upſ.* 110. *Hudſ. angl.* 189. *Wither. arr. ed.* 3. 415. *Smith brit.* 471. *Fl. dan. t.* 559. *Roth. germ.* 1. 293. 2. 496. *Hoffm. germ.* 151. *Krock. ſileſ. n.* 666. *Villars dauph.* 3. 609. *Allion. pedem. n.* 1578. *Kniph. cent.* 8. *n.* 88.
Viſcago. *Hall. helv. n.* 916.
Lychnis Armeria. *Scop. carn. n.* 526.
L. viſcoſa purpurea latifolia lævis. *Baub. pin.* 205. *Raii hiſt.* 1000. *ſyn.* 341. *Mor. hiſt. ſ.* 5. *t.* 21. *f.* 26. *Tournef. inſt.* 335.
L. ſilveſtris 1. *Cluſ. hiſt.* 1. 288.
Armerius flos quartus. *Dod. pempt.* 176. 4.
Muſcipula Lobelii (*obſ.* 242. 3.) *Ger.* 481. 2. *emac.* 601. 2.
Centaurium minus adulterinum, quibuſdam Lychnidis viſcidæ genus. *Baub. hiſt.* 3. 355.
Panicles dichotomous faſtigiate many-flowered, petals emarginate acutely crowned, upper leaves cordate ſmooth.

[45. Silene orchidea. *Orchis-flowered Catchfly.*
Lin. ſyſt. 422. *Willd.* 2. 705. *ſuppl.* 241. *Ait. kew.* 2. 98.
S. Atocion. *Lin. ſyſt.* 421. *Jacqu. hort.* 3. 19. *t.* 32.
Lychnis græca belliſſis folio verna, flore parvo dilute purpuraſcente. *Tournef. cor.* 24.
Petals two-lobed, the borders having on each ſide of the boſe an awl-ſhaped proceſs, leaves even, the lower roundiſh-ſpatulate, petioles ciliate.
46. Silene ægyptiaca. *Egyptian Catchfly.*
Lin. ſyſt. 420. *Willd.* 2. 706. *ſuppl.* 241.
Petals emarginate toothed on both ſides, leaves ſubvomentoſe.
47 Silene Cateſtæi. *Cateſby's Catchfly.*
Lin. ſpec. ed. Willd. 2. 706. *Walt. carol.* 141.
Lychnis viſcoſa virginiana flore amplo coccineo, ſ. Muſcipula regia. *Pluk. phyt. t.* 203. *f.* 1.
Calyxes cylindrical, petals four-cloft acute, panicle terminating, leaves lanceolate.
48. Silene cordifolia. *Heart-leaved Catchfly.*
Lin. ſpec. ed. Willd. 2. 706. *Allion. pedem. n.* 1581. *t.* 23. *f.* 3.
Calyxes pubeſcent angular cylindrical, petals bifid, flowers terminating, leaves roundiſh acute nerved hairy.
49. Silene chloræfolia. *Yellow-wort-leaved Catchfly.*
Lin. ſpec. ed. Willd. 2. 707. *Smith ic. ined.* 1. 13.
Lychnis orientalis viſcoſa centaurei lutei folio, flore longiſſimo. *Tournef. cor.* 24.
Calyxes ſmooth club-ſhaped, petals ſemibifid, leaves glaucous, lower oval, upper cordate embracing.
50. Silene alpeſtris. *Auſtrian Catchfly.*
Lin. ſpec. ed. Willd. 2. 707. *Jacqu. auſtr.* 1. 60. *t.* 96. *Ait. kew.* 2. 98.
Lychnis alpeſtris. *Lin. ſyſt.* 435. *ſuppl.* 244.
L. quadrifida. *Scop. carn. n.* 519.
L. viſcoſa alba anguſtifolia major. *Baub. pin.* 205. *Raii hiſt.* 1002.
L. ſilveſt. 10. *Cluſ. hiſt.* 1. 291.
Caryophyllus minimus humilis alter exoticus flore candido amœno. *Lob. ic.* 445. *Ger. emac.* 595. *f.* 17.
Petals four-toothed, ſtem dichotomous, capſules ovate-oblong, leaves linear-lanceolate ſmooth breſt, peduncles viſcid.
51. Silene rupeſtris. *Rock Catchfly.*
Lin. ſpec. 602. *ſyſt.* 422. *Reich.* 2. 354. *Willd.* 2. 707. *fl. lapp. n.* 183. *ſuec. n.* 390. *Jacqu. collect.* 2. 85. *Gmel. ſib.* 4. 139. *Hoffm. germ.* 151. *Allion. pedem. n.* 1580. *Villars dauph.* 3. 611.
Viſcago. *Hall. helv. n.* 917.
Alſine alpina glabra. *Baub. pin.* 251. *prodr.* 118. *Fl. dan. t.* 4. *Raii hiſt.* 1003, 1031.
Auricula muris alpina glabra. *Baub. hiſt.* 3. 360.
β. Caryophyllus holoſteus alpinus gramineus. *Baub. pin.* 210. *prodr.* 104.
Flowers erect, petals emarginate, calyxes round, leaves lanceolate.
52. Silene Saxifraga. *Saxifrage Catchfly.*
Lin. ſpec. 602. *Reich.* 2. 354. *Willd.* 2. 708. *Jacqu. collect.* 2. 37. *Villars dauph.* 3. 611. *Allion. pedem. n.* 1582. *Thunb. jap.* 184.
Lychnis Saxifraga. *Scop. carn. n.* 520.
L. minor ſaxifraga. *Segu. verona.* 431. *t.* 6. *f.* 1. *Tournef. inſt.* 338. *Garid.* 298.
Caryophyllus ſaxifragus. *Baub. pin.* 211.
Saxifraga antiquorum quibuſdam. *Baub. hiſt.* 3. 338. *Raii hiſt.* 1033.
S. magna Matthioli. *Ger emac.* 605. 1.
S. vera Dioſcoridis. *Matth.* 979. *Park. theat.* 426.
Stems one-flowered, peduncles length of the ſtem, leaves ſmooth, flowers hermaphrodite and female, petals bifid.]
53. Silene valleſia. *Woolly-leaved Catchfly.*
Lin. ſpec. 603. *ſyſt.* 422. *Reich.* 2. 355. *Willd.* 2. 708. *mant.* 385. *Allion. pedem. n.* 1574. *t.* 23. *f.* 2. *Villars dauph.* 3. 612.
Viſcago. *Hall. helv. n.* 910.
Lychnis pumila ſaxatilis alpina, flore carneo, folio craſſo molli tomentoſo. *Lin. amœn.* 1. 158. *Bocc. muſ.* 65. *t.* 54.
L. maritima pinguis e Corſica. *Bocc. muſ. t.* 34?
Stems one-flowered decumbent, leaves lanceolate tomentoſe length of the calyx.
[54. Silene pumilio. *Dwarf Catchfly.*
Lin. ſpec. ed. Willd. 2. 709. *Jacqu. collect.* 2. 126. *t.* 10. *auſtr.* 5. *app. t.* 2.
Cucubalus pumilio. *Lin. mant.* 71. *ſyſt.* 420. *Reich.* 2. 344.
Lychnis pumilio. *Scop. carn. n.* 513.
Betonica coronaria. *Baub. hiſt.* 3. 337.
Caryophyllus ſilv. 7. *Cluſ. hiſt.* 1. 285.
Stems one-flowered two-leaved, petals repand, leaves linear-lanceolate.
55. Silene acaulis. *Stemleſs Catchfly or Moſs Campion.*
Lin. ſpec. 603. *ſyſt.* 422. *Reich.* 2. 355. *Willd.* 2. 709. *fl. lapp. n.* 184. *ſuec. n.* 387. *Wither. arr. ed.* 3. 416. *Smith brit.* 472. *Lightf. ſcot.* 227. *t.* 12. *f.* 1. *Fl. dan. t.* 21. *Hoffm. germ.* 151. *Allion. pedem. n.* 1583. *t.* 79. *f.* 1. *Villars dauph.* 3. 612. *Dickſ. hort. ſicc.* 1. 8.
Viſcago. *Hall. helv. n.* 919.
Cucubalus acaulis. *Gunn. nerv. n.* 117. *Hudſ. angl.* 187.
Lychnis acaulis. *Scop. carn. n.* 516.
L. alpina pumila folio gramineo. *Baub. pin.* 206. *Dill. elth.* 206. *t.* 167. *f.* 206.
L. alp. minima. *Raii hiſt.* 1004. *ſyn.* 341. *Petiv. brit. t.* 56. *f.* 4.
Caryophyllus pumilio alpinus. *Ger. emac.* 593. 8.
Ocymoides muſcoſus alpinus. *Park. theat.* 639. 10.
Muſcus alpinus flore inſigni dilute rubente. *Baub. hiſt.* 3. 768. *Ray*—lychnidis flore. 767. *Linn.*
β. S. exſcapa. *Allion. pedem. n.* 1584. *t.* 79. *f.* 2.
Stemleſs, leaves linear ciliate at the boſe, peduncles ſolitary one-flowered, petals emarginate.

Species from Deſfontaines.

56. Silene hiſpida. *Hairy Catchfly.*
Deſfont. atlant. 348.
Flowers racemed cluſtered directed one way, calyxes very birſute, petals bifid.
57. Silene imbricata. *Imbricate-flowered Catchfly.*
Deſfont. atlant. 349. *t.* 98.
Stem hairy below, leaves lanceolate, flowers ſeſſile directed one way ſtiff in long racemes imbricate.
58. Silene tridentata. *Three-toothed Catchfly.*
Deſfont. atlant. 349.
Lychnis ſilveſtris 6. *Cluſ. hiſt.* 1. 290.
L. ſilv. lanuginoſa minor. *Baub. pin.* 206.
L. parva. *Baub. hiſt.* 3. 352.
L. ſilv. hirta minima. *Lob. ic.* 339.

1. *Silene filv. minima. Tabern. ic. 297.*
Hirſute, leaves narrow-lanceolate, flowers racemed diſtinct ſeſſile, teeth of the calyx awl-ſhaped, capſules acuminate erect.

59. Silene reticulata. *Netted Catchfly.*
Deſfont. atlant. 350. t. 99.
Smooth viſcid, leaves narrow-lanceolate, peduncles two or three-flowered, calyx club-ſhaped netted, petals linear emarginate.

60. Silene bipartita. *Cloven-petalled Catchfly.*
Deſfont. atlant. 352. t. 100.
Lower leaves ſpatulate, flowers racemed directed one way nodding, petals two-parted.

61. Silene Pſeudo-atocion.
Deſfont. atlant. 353.
Loweſt leaves obovate, flowers in bundles terminating, calyxes club-ſhaped, petals linear quite entire.

62. Silene ramoſiſſima. *Branched Catchfly.*
Deſfont. atlant. 354.
Lychnis minima hiſpida noctiflora. *Magn. bot. app. 308.*
Pubeſcent viſcid very much branched, leaves narrow-lanceolate, peduncles from one to three-flowered, calyxes ovate, petals bifid, capſules ſubſeſſile within the calyx.

63. Silene Arenaria. *Sandwort Catchfly.*
Deſfont. atlant. 354.
Lychnis maritima gadenſis anguſtifolia. *Tournef. inſt. 338.*
Villoſe viſcid, leaves linear-lanceolate bluntiſh, flowers looſely racemed, petals bifid, capſules within the calyx pedicelled.

64. Silene arenarioides. *Sandwort-like Catchfly.*
Deſfont. atlant. 355.
Pubeſcent, leaves narrow-linear, peduncles from one to three-flowered, calyxes ten-ſtriated villoſe, petals bifid, capſules round pedicelled.

65. Silene cinerea. *Aſh-coloured Catchfly.*
Deſfont. atlant. 355.
Lower leaves ovate, flowers racemed ſubſeſſile ſolitary two or three together, calyx pubeſcent ten-ſtreaked, petals bifid.

66. Silene patula. *Spreading Catchfly.*
Deſfont. atlant. 356.
Viſcid, branches panicled-ſpreading, lower leaves on long petioles ovate acuminate, peduncles ſubtriflorous, calyx elongated, petals ſemibifid.

DESCRIPTIONS, *&c.*

1. Root annual, fibrous. Stem branched, ſpreading, flexuoſe, round, leafy; branches ſomewhat ſpiked, erect. Leaves linear-lanceolate acute. Flowers axillary, ſolitary, peduncled, white. Calyx nerved, hirſute, cylindrical, finally ventricoſe. Border of the petals elliptic, emarginate, having ſometimes a fleſh-coloured ſpot. Capſules ovate, rigid, the upper ones commonly erect [a]. They cannot be conſidered as pendulous, though Dillenius makes that a character of this ſpecies. The lower ones indeed diverge from the ſtem, and are finally bent downwards.

Linnæus diſtinguiſhes this from the next ſpecies thus. The petals in this are not crenate; in the following they are both crenate and emarginate. Lower leaves obovate-lanceolate, towards the baſe ciliate. Calyxes not hairy, but muricated at the angles with reflex ſcarcely conſpicuous prickles [b].

Native of England and France, in ſandy fields; flowering in june and july. Lobel was the firſt who remarked this plant about Colcheſter and elſewhere. Dale found it in the ſame place, and alſo about Bocking in the ſame county of Eſſex. Johnſon remarked it about Canterbury. Mr. Dent, near the Devil's ditch in Cambridgeſhire. Mr. Relhan in Chippenham gravel-pit, and by the turnpike near Newmarket, in the ſame county. Dr. Smith, at Lakenham and Coſſey near Norwich. Hudſon and Curtis, about Coombe wood in Surry. About Weybridge in the ſame county. Mr. Curtis ſaw it alſo in great abundance in cornfields near Newport in the Iſle of Wight. In Scotland, it has been found between Dundee and St. Andrew's, by Mr. Browne: there and near Perth, by Mr. Mackay.

[a] Smith. [b] Spec.

2. Calyxes of the fruit bent back horizontally, and very hairy. Corolla undivided, crenate, fleſh-coloured. It is an annual plant, native of Portugal [c], and Barbary. Differs from the next in having crenate pale purple petals, horizontal divaricating fruits, and the whole plant rough with ſpreading hairs [d].

3. From a ſmall fibrous annual root ariſe ſeveral flaccid ſpreading ſtems, round, hairy, and a little viſcid; as are alſo the leaves in a ſlight degree. Numerous flowers ſpring in an alternate order from the boſoms of the upper leaves, on pedicels which are erect, or but little divaricated even when the fruit is ripe. The petals are remarkable for the deep red ſpot in their centre, like a drop of blood; whence the trivial name *quinquevulnera*. *S. anglica* has ſometimes pale reddiſh ſpots on the petals, but theſe are emarginate in that ſpecies; which is alſo more viſcid than this, and paler-coloured in all its parts [e]. All the capſules in *quinquevulnera* are for the moſt part erect, though the lower ones are ſometimes bent back. The leaves are ellipſic-lanceolate [f].

Native of the South of Europe, Siberia, and Barbary. Mr. Hudſon is our authority for conſidering this pretty plant as of Britiſh growth; he having mentioned it as growing in ſandy fields about Wrotham in Kent. It has been long cultivated in our Engliſh gardens under the name of dwarf Lychnis, and may frequently be found almoſt naturalized on heaps of rubbiſh. It continues in flower from june till the end of auguſt, and produces great plenty of ſeeds [g].] Theſe were formerly ſown in drills on the edges of borders, with ſeveral other low annual plants; but being of ſhort duration, they were ſoon rejected for this purpoſe. [Ray cultivated it in his little garden at Cambridge, and ſays that the plants which roſe from ſeeds ſelf-ſown in autumn were eighteen inches high.

4. Root ſimple, perpendicular, filiform. Stems ſomewhat branched, ſeveral, aſcending, a finger's length, round, pubeſcent. Root-leaves roundiſh-ſpatulate, pubeſcent. Stem-leaves oblong, acute, pubeſcent. Flowers erect, axillary, alternate, on very ſhort peduncles. Calyx pubeſcent, club-ſhaped, ten-ſtreaked; the teeth ciliate-hairy about the edge. Petals bigger than the calyx, deeply two-parted; the ſegments obovate. Crown two-parted. Capſule elliptic, pedicelled. Flower bigger than in the preceding.—Native of the iſland of Candia [h].

5. Root white, annual, round, not very fibrous. Stem round, divided from the bottom alternately or forked into procumbent branches, not commonly ſimple. The whole plant is ſilky and ſomewhat hoary. Leaves conjugate, embracing. Flower peduncled, terminating each branch. Peduncle length of the calyx and of the leaves. Calyx club-ſhaped, with ten ſtreaks and angles, whitiſh-tranſparent; the larger angles produced into ſegments, below which it is inflated. Claws of the petals linear, ſhining, higher than the calyx; border cordate, pale roſe-coloured, cloven beyond the middle, blunt at the end: ſcales of the crown erect, acute.

Native of Piedmont, on the ſandy coaſt between Oneglia and Porto Maurizio [i].]

6. This is an annual plant with a low branching ſtem, which ſeldom riſes more than eight or nine inches high, and is ſmooth. Leaves very narrow, and ſmooth, placed by pairs. The ſtems are terminated by ſpikes of dark purple flowers ſtanding alternate, and opening in the evening, but cloſely ſhut during the day.

[Lower leaves obovate, concave, rigid. Flowers ſeſſile, from oppoſite bractes alternate, alternately flowering. Petals white, bifid, biggiſh, greeniſh beneath, and not red after flowering. It reſembles *Cucubalus reflexus*, but has a more branched and higher ſtem, with the petals ſpreading beyond the calyx [k].

Native of France and Spain. Cultivated in 1683, by Mr. James Sutherland. It flowers in july [l]. According to Mr. Miller it grows naturally in Sicily and

[c] Linn. ſpec. [d] Deſfontaines. [e] Engl. bot.
[f] Smith brit. [g] Engl. bot. [h] Willdenow.
[i] Allioni. [k] Linn. ſpec. [l] Hort. kew.

at the Cape of Good Hope. Linnæus adds Penſylvania to the European ſtations.

7. This is more viſcid and hairy than the *anglica*. (*n.* 1.) It is more branched and grows higher, from a foot to two and three feet. The lower leaves are wider, the upper narrower and longer. Flowers axillary, on ſhort pedunculs, void of ſcent, opening in the day time, green in the middle, very pale purple above, ſtreaked with deeper purple veins beneath. Calyxes ſtriated, rough with many longiſh hairs[a]. It is an annual plant, native of France and Switzerland: flowering here in may. Cultivated by Sherard at Eltham in 1732; by ſeeds ſent from Holland.

8. This is an annual, upright plant. Lower leaves roundiſh, upper narrower and longer, with the midrib ſcarcely viſible. Calyx marked with ten green ſtreaks, hirſute with long hairs, and ſlightly viſcid, as are alſo the ſtems and leaves. Flower like that of *S. anglica*, but ſmaller, pale purple, with the crown ſcarcely viſible. Capſules erect, not in ſo long a row as in *S. anglica*, and the whole plant leſs hirſute and viſcid; the petals alſo are emarginate[b].

Native of the South of Europe. Cultivated by Sherard in 1732.

9. Leaves narrow; lower three inches long, and ſcarcely an inch wide; on the ſtem gradually ſhorter and narrower; hairs on the upper ſurface fewer and longer, on the under more frequent and ſhorter. Stem eighteen inches high, round, weak, hairy, red towards the bottom: joints frequent, with a pair of ſeſſile leaves at each, from a wide baſe contracting to a point. Flowers ſolitary and alternate from the upper axils, on ſhort pedunculs, the lower ones being ſcarcely half an inch long, very ſmall, fugacious, and ſeldom expanding, uſually white, but ſometimes purple on the ſame plant. Calyxes rough with long hairs. Petals narrow, ſcarcely bifid, the edges bent inwards[c].

It is an annual plant, native of the South of Europe. Ray had the ſeeds from Sir Hans Sloane, and cultivated it before 1688.

Linnæus remarks that it is allied to *Cucubalus reflexus*; to which (as he ſays) Ray united it; but that, on being ſown, they appeared to be different. I cannot find that Ray any where confounds theſe two plants.

10. Root perennial. Bottom leaves ſpread in a ring, oblong, narrow, ſmooth, without veins. Stems two feet high, and ſometimes more, round, ſmooth, green in the lower part, purpliſh in the upper, with a glaucous bloom, not at all viſcid. From the middle upwards at each joint ſpring round pedunculs in pairs, tinged with purple, ſubdivided into more ſlender ones, each of which bears a flower or two. Calyxes oblong, round, ſmooth, glaucous, divided into five ſhort ſegments at the top. Corollas herbaceous or greeniſh yellow, of five narrow petals, divided to the middle, without any viſible crown, opening only at night. Capſule rigid, membranaceous, ventricoſe, opening in ſix parts. The flowers at firſt form an oblong pendulous ſpike; afterwards become looſe in a thin nodding panicle; and when the ſeeds ripen, the whole panicle is upright. It is known by the leaves and ſtems being ſmooth and not viſcid; the petals narrow and herbaceous[d].

Native of Germany. Cultivated in the Eltham garden in 1732. The ſeeds came from Boerhaave, who ſent Sherard rare plants and ſeeds every year. It alſo came from Paris[e].

11. Root ſomewhat woody, perennial. Stems ſeveral, ſimple, (according to Mr. Woodward, frequently branched from the root,) a foot or more in height, erect, leafy, round, pubeſcent, jointed at the baſe, viſcid in the upper part, terminating in a forked panicle, the ſummit and branches of which all droop towards one ſide. Leaves lanceolate acute, quite entire, pubeſcent on both ſides, of a paleiſh green; the radical ones inclining to obovate, and forming thick tufts. Flowers drooping, white, of a delicate texture. Calyx ten-ribbed, half an inch long, ſlightly pubeſcent, ſometimes purpliſh, as are very generally the long foot-ſtalks of the leaves at their inſertion, and the baſe of the ſtem. Petals expanding in the evening, divided almoſt to the baſe; ſegments linear, obtuſe. Crown cloven, acute. Five of the ſtamens projecting, the other five ſhorter, faſtened to the petals. Styles pubeſcent varying in length. Capſule ovate. Seeds kidney-form, wrinkled[f].

Native of ſeveral parts of Europe, chiefly on lime-ſtone rocks: alſo of Barbary, on hills about Algiers. In England, it was firſt ſhewn to Mr. Ray by Thomas Williſel, on the walls of Nottingham caſtle and thereabout. Morton found it between Harringworth and Wakerly in Northamptonſhire. Mr. Woodward has ſince obſerved it on rocks in Dovedale, Derbyſhire. Archdeacon Pierſon, about Knareſborough, Yorkſhire. Mr. Pennant, near Gloddaeth in Caernarvonſhire. Mr. Mackay obſerved it in Scotland, in 1793, near North Queen's-ferry. It flowers in june and july.

12. Stems diffuſed, ſmoothiſh, aſcending. Branches divaricating, ſhorter. Leaves ſmooth above. Calyxes have ten purpliſh villoſe angles. Petals white, cloven half way. Diviſions of the nectary (or crown) bifid, patulous, with a white ſtreak. It is a perennial plant, native of Tartary[g].

The plant which ſome of our botaniſts took for this, and which Linnæus made to be a variety of his *Cucubalus Behen*, is the *Lychnis maritima repens* of Caſp. Bauhin and Ray; and Silene maritima of Withering and Smith. See *n.* 14.

13. This has the habit of *nutans*, but is twice or thrice as large. The leaves are much narrower, linear-lanceolate and ſmooth. Calyx an inch long, more cloſely pubeſcent. Border of the petals obcordate (not cloven half way,) the ſegments widening and rounded; by no means divided to the baſe into linear ſegments, as in *nutans*[h].

This plant was long miſtaken for *Cucubalus viſcoſus* of Linnæus; and lately was referred to *Silene nutans*. It is now aſcertained by Dr. Smith to be the *paradoxa* of Linnæus and Jacquin. It cannot be the *Cucubalus dubrenſis* of Miller. See our *Cucubalus viſcoſus*.

Native of Italy, and of England on Dover cliffs, where it was found by Mr. Newton. Mr. Dillwyn (Linn. tranſ. 6.) affirms that *S. nutans* grows on the cliffs about Dover abundantly, and on Sandgate caſtle; but believes that *S. paradoxa* is not to be found in the neighbourhood.

14. Root perennial, creeping. Stems many, proſtrate, leafy, with the extremities only growing upright, and terminating in a handſome white flower, generally ſolitary, but ſometimes accompanied by one or two more; but the ſtem never bears ſo many flowers as in the common Spatling Poppy (*Cucubalus Behen* or *Silene inflata*,) neither is the capſule ſo long as in that. In the leaves and calyx there is a conſiderable affinity between them. The petals are conſtantly crowned at their baſe; a circumſtance which ſometimes though rarely occurs in the Spatling Poppy or Bladder Campion, from which this is clearly diſtinct: indeed few plants vary leſs in their habit, though in the number of its ſtyles and their correſponding fruit-cells it varies from three, the prevailing number, to four or five[i].

Stems ſmooth, procumbent, ſpreading. Flowering-branches aſcending, from ſix to twelve inches high. Leaves connate, lanceolate, ſmooth, one or two inches long, and one or two lines broad. Each branch bears on its ſummit from one to three flowers on ſhort fruitſtalks, much reſembling thoſe of *Cucubalus Behen*; but in this the reticulated veins of the calyx are deep purple. The petals are deeply cloven, with oval ſegments; beneath which are two prominent teeth forming the crown. Anthers deep purple[k].

The leaves vary much in breadth, thoſe on the barren and trailing branches being the narroweſt; the edges are tranſparent, ſerrate with very minute prickles. Pedunculs either axillary or terminating; moſtly ſolitary, though in the larger and more upright plants

[a] Diſſen. elth. [b] Idem. [c] Ray hiſt. [d] Dill. elth. [e] Idem. [f] Smith brit. & engl. bot. [g] Linn. ſpec. [h] Smith brit. [i] Engl. bot. [k] Woodw. Mſs.

there

there are ſometimes three terminating flowers, as figured in Flora Danica. Floral leaves two, oppoſite, ſpear-ſhaped, at ſome diſtance from the flower. Calyx ſemi-tranſparent, with a net-work of veins, but neither hairy nor ribbed, often coloured. Petals white, cloven; ſegments rounded very entire; the crown formed by two little plaits in each petal. Styles ſometimes five. Germ oblong, mulberry-coloured. Seeds fixed on ſhort pedicels to the receptacle, which becomes looſe[a].

Native of Norway, Gothland and Britain. Common on many of our coaſts, as Southwold in Suffolk, Wells in Norfolk. Suſſex and almoſt all the ſouthern and weſtern coaſts: found by Johnſon in 1632 in the Iſle of Thanet oppoſite to Sandwich: Portreth near Hayle in Cornwall; on Cheſil bank, and at Weymouth, Swanage, Studland, Poole, and the north ſhore of Dorſetſhire. Cardiganſhire in Wales; and in Scotland.——Mr. Thomas Heſketh reported to Gerarde, that by the ſea ſide in Lancaſhire, at Lytham, five miles from Wigan, there is a variety with red flowers.

For *Silene inflata* or Bladder Campion ſee *Cucubalus Behen*, and for *Silene Otites* ſee *Cucubalus Otites*.]

15. Stem low, ſhrubby, dividing into ſeveral ſhort branches. Leaves ſmooth, ending in acute points. The flower-ſtalks riſe about a foot high, and divide into ſpreading panicles, ſuſtaining two and three flowers, of an herbaceous white colour. Capſules oval, ſmooth, having thick covers.

Native of Sicily [and Germany. Cultivated in the Edinburgh garden in 1683. It flowers in june and july[a].]

16. Root perennial (or biennial.) Lower leaves narrow, ſpear-ſhaped, ſmooth, gathered in cluſtered heads, from the middle of which riſes an erect clammy ſtem a foot and half high, with very narrow leaves on it. Flowers from the upper axils, on ſhort peduncles ſuſtaining two white flowers, having long tubes, and ſtanding erect. The flowers are cloſed during the day, but expand at night.

[It is a very ſmooth plant, with wand-like jointed ſtems, often decumbent at the baſe, even, round, ſingle at bottom, but looſely panicled at top. Leaves oppoſite, narrow-lanceolate, acuminate: lower ſtem-leaves decurrent, much longer than the internodes; upper ſhorter, ſeſſile. Bracteæ narrow-lanceolate, very ſharp. Peduncles one, two or three-flowered. Each flower pedicelled, nodding a little. Calyx ſmooth and even, tubular, often violet-coloured, five-toothed; teeth ovate, acute. Petals white above, pale violet beneath, cloven beyond the middle; ſegments narrowed at the baſe, blunt at the end; claws a little longer than the calyx, with two teeth at the top. Stamens projected. Capſule oblong on a long pedicel within the calyx. The ſtems are ſometimes green, ſometimes purple[a].

Native of Perſia and Mount *Atlas*. Cultivated by Mr. Miller in 1759.

17. Root perennial. Leaves lanceolate-linear, ſmooth. Stems panicled, ſmooth. Peduncles ſhorter than the calyx. Calyx ſubclavate, cut out at the baſe. Petals bifid with the ſegments divaricating.—Native of Hungary[b].]

18. Lower leaves obtuſe, and gathered in circular heads, like ſome of the Houſeleeks or the Auricula, ſmooth and of a pretty thick conſiſtence. Stems five or ſix feet high and viſcous. Leaves lanceolate, oppoſite. Flowers on ſhort peduncles from the axils in whorls; each peduncle ſuſtaining three or four greeniſh flowers. Capſules oval, ſpreading open at top, and filled with angular ſeeds.

[Leaves of the former year very large. Stem of the ſecond year two feet high, ſimple; the lower joints ſhort and villoſe; the upper very long, naked, viſcid. Lower leaves obovate, fleſhy, fragile, concave, pubeſcent, ſeſſile. Common peduncles oppoſite, ſpreading horizontally, very ſhort, dichotomous. Calyxes pubeſcent. Corollas green, with a very indiſtinct crown. The flowers open only by night.

Native of Africa[c]:—Mr. Miller ſays, of Sicily and Crete. Cultivated by him in 1759.

19. Root biennial. Stem two feet high, firm, hirſute; with alternate branches. Leaves orbiculate or obovate, very blunt, like thoſe of Purſlane, thick, fleſhy, hairy on both ſides. Raceme terminating, compoſed of from eight to twelve flowers, of a dull colour, with hirſute calyxes and ovate bractes. Petals emarginate, properly crowned. Piſtils three.

Native of the Cape of Good Hope[d]. Introduced in 1774, by Mr. Francis Maſſon. It flowers in july and auguſt[e].]

20. Lower leaves roundiſh and hollowed like a ſpoon: thoſe upon the ſtalks obtuſe, and ſtanding by pairs, threes or fours round the ſtalks; they are deep green, ſmooth and ſeſſile. Stalks round, ſmooth, from two to three feet high. Flowers in looſe ſpikes at the top, of a green colour.

[Root biennial. Plant a foot high and more. Stems erect, round, pubeſcent, thickening at the joints. Leaves lanceolate-ovate, pubeſcent, green, acute. Branches alternate. Panicle brachiate, with dichotomous few-flowered peduncles. Calyxes nodding, cylindrical, with ten angles, viſcid like the peduncles. Flowers greeniſh white, with the petals cloven half way; the lobes recurved and linear. Stamens the length of the tube. Piſtils the length of the petals[f].

Native of Spain, Portugal and Siberia.—Cultivated in 1739, by Mr. Miller. It flowers in june and july[g].]

21. Annual, with an upright branching ſtalk, a foot and half high, having ſwelling viſcous joints, with narrow, acute-pointed, ſmooth leaves, ſeſſile and near three inches long. Flowers terminating, ſmall and red. Capſules globular, ending in acute points, and with ſtriped calyxes over them.

[Plant pubeſcent. Stem dichotomous at top, with corymbed branches. Flowers erect, pedicelled. Calyx marked with thirty ſtreaks, and having five awl-ſhaped teeth; when young it is ovate-cylindrical, but when the fruit is ripe, it is inflated, large, globular, acuminate, cloſed. Petals ſmall, roſe-coloured. Capſule within the calyx, ſeſſile, ſhaped like the bottle gourd[h].]

Native of France, Spain and Italy, among corn. It flowers in june, and the ſeeds ripen in auguſt. [Cultivated by Mr. Miller in 1759.

22. Root annual, ſmall, ſomewhat branched. Stem erect, round, pubeſcent, leafy, dichotomous. Leaves linear-lanceolate, acute, quite entire, very ſoftly pubeſcent on both ſides, and of a grayiſh-green colour. Flowers from the divarications of the ſtem, ſolitary, pedicelled, erect, in an evening exhaling a ſweet ſmell approaching to that of a Honeyſuckle, but weaker. Calyx cylindrical, becoming conical as the fruit ſwells, membranous, with thirty green downy prominent equal ribs, and five ſharp teeth. Petals narrow; the border cloven, roſe-coloured, with a ſharp tooth on each ſide of the baſe, and a notched ſcale above, forming the crown. Capſule ovate. Seeds rough[i].

Native of Germany, France, Spain, Italy, the Levant, and Barbary.—In England, it is found only in Kent, on the ſand hills near Sandown caſtle, where it was found by Sherard and Rand; and oppoſite the Warren houſe at New Romney, found by the Rev. Mr. Stacey. It flowers in july.

Dr. Smith thinks it to be more than probable that *S. conoidea* is a very ſlight variety of this, with ſmoother leaves; the diviſion of the petals not being an invariable mark.

23. This has an upright, round, ſubvilloſe and rather glutinous ſimple ſtem, ſlightly dichotomous at the top, with but few flowers: leaves oblong-lanced, entire, oppoſite, ſeſſile, roughiſh and hairy: flowers on very ſhort footſtalks, opening by night; petals ſemibifid, roſe-coloured. It is an annual, riſing from a ſlender root[k].

24. This is an annual or biennial plant. Leaves five-nerved, petioled, rugged. Stem dichotomous,

[a] Withering. [b] Ehrhart and Roth. [c] Linn. ſpec. [d] Idem. [e] Hort. kew. [f] Linn. ſpec. [g] Hort. kew. [h] Deſfontaines. [i] Engl. bot. [k] Jacquin.

pubeſcent downwards. The primary flower from the fork; the reſt ſpike-racemed ſolitary, directed one way, nodding. Calyx ten-angled, rugged. Petals bifid, crenate. Capſule erect[1].—Native of Hungary.

25. Plant annual, rough-haired all over, not viſcid, half a foot high. Stem branched, erect; the branches moſtly alternate. Lower leaves ovate; upper lanceolate, quite entire, ſeſſile, oppoſite. Raceme bifid, with one pedicelled flower in the fork, and three or four alternate on each branchlet ſhortly pedicelled, ſupported by two linear leaves, fleſh-coloured, opening in the evening. The raceme is alſo frequently ſimple. Calyx oblong, ſomewhat club-ſhaped, hairy, with ten green ſtreaks. Capſule ovate, ſubtrigonal, within the calyx on a long pedicel, opening by a ſix-toothed mouth. Seeds ſmall, kidney-form, grooved at the back.

26. This differs from *Cucubalus Behen* in having a crown to the corolla; the laminæ of the petals ſcarcely a third of the length of the calyx; the root annual; the corollas purpliſh, with white anthers; the calyx obtuſe; the flowers nodding, on a peduncle from the fork, ſhorter than the flower.

Native of the iſland of Candia or Crete[m]. Cultivated by Sherard in 1732.

27. Plant annual. Flowers erect, ſubſeſſile or on very ſhort peduncles. Leaves lanceolate, hairy-viſcid. Native of Spain and Toulouſe[n].]

28. Plant annual, from whoſe root come out ſeveral branching ſtalks, near a foot and half long, which trail upon the ground, oppoſite. Leaves oval, acute-pointed. The flowers come out ſingly from the axils, upon ſhort peduncles; they are large, and of a bright red colour, reſembling thoſe of the common wild red Campion. Capſules large, in inflated calyxes, having ten rough angles, containing many large roundiſh ſeeds, the weight of which cauſes the capſules to hang down.

[Native of Sicily and Crete or Candia. Cultivated in 1732 by James Sherard, M. D. It flowers in may and june[o].

29. A perennial ſpecies, of a weak or tender appearance and very ſmooth: ſtalks very numerous, procumbent, round, ſlender, and about two feet long, ſpreading in all directions, furniſhed with pretty numerous joints, from each of which proceeds a branchlet: leaves narrow, acute, ſmooth, but rough on the edges; thoſe on the firſt branches larger than the others: flowers ſolitary, upright, riſing from the diviſions of the ſtems and the tops of the branchlets; calyx purple-green with ten prominent lines: corolla purpliſh white, marked beneath with purple veins[p].

30. Root annual, ſmall in proportion to the herb, which often becomes very luxuriant in a manured ſoil. The whole plant is hairy. Stem erect, round, leafy, ſpreading, branched, dichotomous in the upper part. Leaves lanceolate, acute, ſoft and downy, deep green, ſeſſile; the lower ones obovate. Flowers few, ſolitary at the forks, erect on hairy viſcid peduncles, which are ſhort at firſt, but are afterwards lengthened out to about an inch. Calyx hairy, viſcid, white, with ten green branching veins, and linear teeth almoſt the length of the tube. Petals cloven half way, crowned with obtuſe toothlets at the throat, of a cream colour tinged with red, the border rolled in during the day, but unfolding in the evening, and then the flowers become very ſweet-ſcented, at leaſt while warm weather continues[q]. Capſule clothed with the calyx marked with alternate branching veins, ovate-conical, one-celled at top, three-celled below, opening in ſix parts: partitions membranaceous, very thin, very ſhort, at the upper wall of the capſule ending in mere raiſed ſtreaks. Receptacle columnar, free above, hiſpid, thick, longer than half the capſule. Seeds very numerous (150) kidney-form globular, flattiſh on the back, rugged with acuminate tubercles in rows, yelloviſh ruſt-coloured[r].

Native of Sweden, Germany, Switzerland, Dauphiné, Piedmont, England, in ſandy fields. In the midland, eaſtern and ſouthern counties. In Norfolk and Suffolk not uncommon; eſpecially on the weſt ſide of Norwich. In Cambridgeſhire, found by Dale by the road from Newmarket to Canvaſs-hall in Wood Ditton; by Relhan, near the turnpike on Newmarket heath, near Catlidge-hall, between Snailwell and Chippenham, and between Chippenham-park wall and the gravel-pit. In Bedfordſhire, Oakley weſtfield, by Dr. Abbot. In Oxfordſhire, Headington, Cowley, Stanton Harcourt and South Leigh, by Dr. Sibthorp. Near Wetherby, in great abundance, by Sir Thomas Frankland. It flowers in july.

31. This is a biennial plant, with dark red flowers, ſomewhat like that of the Clove Pink, in which the beauty of this plant chiefly conſiſts; for the plant itſelf is of rude growth. It grows readily, riſing to the height of about two feet, blows freely during moſt of the ſummer months, and ripens its ſeeds[s].—Native of the Cape of Good Hope. Introduced by Mr. Maſſon in 1775. It flowers from may to ſeptember.

32. Biennial. Native of the Cape. Introduced with the preceding at the ſame time by Mr. Maſſon. It flowers in auguſt[t].

33. Plant perennial, polymorphous. Flowers as in *Lychnis dioica* white and deep red. Calyxes narrower than its congeners, hirſute. The ſtamens with the ſtyles prominent beyond the flower. Stem ſometimes ſimple, a finger's length, terminated by flowers collected into a bundle; ſometimes a foot high, trichotomous at the end, with a middle peduncle always one-flowered. Leaves oblong or broad-lanceolate, as in *Gompbrena globoſa*.—Native of Virginia[u].

34. Root annual, ſlender, fibrous. Stems round, ſmooth, viſcid at the joints, dichotomous, the laſt diviſion trifid, with a ſingle flower between. Peduncles long and ſlender. Flowers open during the night, crowned at the throat. Calyxes ten-ſtreaked, and divided at the end into five ſhort purpliſh ſegments. Capſules obſcurely three-ſided, three-celled.—Native of Virginia and Carolina[x]. Cultivated in 1732, by James Sherard, M. D. It flowers in june and july[y].

35. Root annual: ſtem branching, diffuſe, about half a foot in length, with villoſe dichotomous branches: leaves oppoſite, ſeſſile, ſubcuneiform, rather obtuſe, perfectly entire, ſomewhat fleſhy, and very ſlightly muricated on the edges; they are about an inch in length: flowers ſmall, upright, on ſolitary ſooſtalks of about half an inch long, riſing from the boſoms and tops of the branches: calyx tubular, and thickly covered with headed hairs: petals rather longer than the calyx, fleſh-coloured above, and white beneath.—Native country uncertain[z].

36. This is an annual plant, differing from all the ſpecies of Silene in the flowers being clandeſtine from the defect of petals. The whole is pubeſcent. Stem round, ſix inches high, with the branches ſimple and oppoſite. Lower leaves obovate-lanceolate, upper lanceolate, uppermoſt linear. Peduncles ſolitary in the forks of the ſtem, the length of the calyx. Calyx erect, oblong-ovate, ten-ſtreaked. Capſule ſhortly pedicelled[a].

37. Root annual, ſimple, fibrous, deſcending ſtraight down. Sometimes the ſtem is ſimple and upright. Sometimes there are ſeveral ſtems decumbent at bottom, with three or four joints in the lower part from an inch to two inches diſtant from each other, and only one joint on the upper part a hand or more in length, before the ſtem divides into branchlets and peduncles. Root-leaves oblong; upper ones narrower, reſembling thoſe of *Antirrhinum* or Snapdragon. Flowers ſmall, with reddiſh cloven petals, and a ſcarcely perceptible crown. Pedicels at firſt ſhort, but lengthening as the capſules advance to maturity. Calyxes ſwelling, ten-ſtreaked, five ſtreaks longer, and five ſhorter. The joints are viſcid, but very ſparingly. It flowers in may[b].

Native of Portugal and the Levant. Cultivated in the Eltham garden in 1732.

[1] Ehrhart. [m] Linn. ſpec. [n] Linn. amoen. [o] Hort. kew. [p] Murray. [q] Smith brit. & engl. bot. [r] Gartner.

[s] Curtis. [t] Hort. kew. [u] Linn. ſpec. [x] Dillenius. [y] Mort. kew. [z] Jacquin. [a] Willdenow. [b] Dillenius.

[38. Root annual, fibrous. Stem from a foot to a foot and half in height, ſlender but firm and erect, round, ſmooth, green, putting out many branches from the very bottom. Leaves from the joints glaucous, ſmooth; the lower ones wider, bent back, thoſe at the middle, joints narrower, leſs bent back; the upper ones ſhorter and narrower, upright or but little bent back. Flowers frequent on the branches, on pedicels as fine as a hair, never opening, whitiſh within, obſoletely ochre-coloured on the outſide: petals five, narrow, cloven, not crowned. Capſule of an oblong round form, three-celled, opening at top into ſix parts. Calyx cylindrical, five-toothed. Stems and branchlets ſomewhat viſcid to the middle of the internodes[c]. According to Linneus, the corolla has no border, and there are frequently only five ſtamens. Dillenius ſays that there are ten ſtamens concealed within the corolla, having ſmall whitiſh anthers. It flowers in july and auguſt.

Native of the South of Europe according to Linneus. Allioni ſpecifies the county of Nice, and Seopoli, Carniola. The Kew catalogue makes it indigenous of Madeira.—Cultivated in 1732, by James Sherard, M. D.[d]

39. This is an annual plant, reſembling the preceding, but differing from it in having an angular calyx, a border to the corolla, and ciliate leaves.—Native of the Cape of Good Hope[e].

40. This alſo is an annual plant with the habit of *S. inaperta*; but the leaves are narrower, and the calyxes ſtreaked longitudinally. The plant is a ſpan high, brachiate and dichotomous. Leaves linear, acute, ſmooth. Peduncles filiform, very narrow, long, erect, from the forks, one-flowered. Calyxes club-ſhaped, long, purpliſh, with alternate white ſtreaks. Stamens almoſt the length of the corolla. It may perhaps be only a variety of *S. inaperta*[f].—Native of Portugal. Cultivated in 1759, by Mr. Miller. It flowers in july and auguſt[g].

41. Stem dichotomous-panicled, ſpreading, filiform, with the joints viſcid. Calyxes ſmooth. Flowers bright purple, with the petals cloven half way, from upright ſpreading a little[h].

Stems from a foot to two feet and more in height, round, ſmooth and ſomewhat glaucous, viſcid at the joints, dividing about the middle into ſlender branches, at the top of which, on long ſlender peduncles, are middle-ſized flowers, without ſcent, expanding only in the day-time, crowned. Capſules ſwelling in the middle, narrowed towards the top. Calyxes deeply ſtriated, and when the capſules ſwell, the ſtreaks become ribs. The lower leaves are like thoſe of the Daiſy and ſubhirſute; the next are narrower and leſs hairy; thoſe at the upper joints are quite ſmooth and ſomewhat glaucous, as in the Pink[i].

Native of Crete or Candia. Cultivated in 1732, by James Sherard, M. D. It flowers from june to auguſt[k]. Dillenius ſays in may; and mentions a variety, which is higher, with a ſhorter and more ſwelling calyx, and a capſule ſomewhat more turgid eſpecially at the baſe, that flowers a fortnight earlier than the other.]

42. Root biennial. Stalk round, clammy, a foot and half high, having ſwelling joints. Leaves narrow and ſmooth, growing round the ſtalk in cluſters. The upper part of the ſtalk divides into ſpreading branches by pairs, and has red flowers coming out ſingly from the axils, and ſeſſile. Capſules oblong, viſcous, filled with angular ſeeds.

[Root annual. Stem upright, round, ſmooth, thickiſh, with ſtiff branches. Leaves very ſmooth, broad-lanceolate, quite entire, longer than the internodes; the lower running down into the petiole and blunt, the middle and upper attenuated to both ends and ſeſſile: the branch-leaves narrow-lanceolate. Flowering-branches dichotomous. Flowers ſubſeſſile in the forks. Bractes awl-ſhaped, ſome of them often longer than the flower. Calyx tubular, membranaceous, five-toothed, when the fruit is ripe ovate, five-cornered, narrowed at the baſe. Corolla ſmall, of a deep roſe-colour, a little longer than the calyx; the border of each petal emarginate. Capſule ovate-conical, ſhortly pedicelled, length of the calyx, opening at top in five parts, three-celled. Seeds rufous, ſmall, kidney-form, wrinkled. The plant is extremely viſcid[l].—Native of the South of France, Spain, Siberia and Algiers.

The ſliminеſs of this plant is ſuch, ſays Gerarde, that if you take it in your hands, your fingers will cleave together, as if your hand touched bird-lime; and if flies do light upon the ſame, they will be ſo intangled with the liminеſs, that they cannot fly away. Whereupon I have called it *Catch-flie* or *Limewort*. We have theſe plants in our London gardens, rather for toys of pleaſure, than any vertues they are poſſeſſed with.

43. Root perennial. Stems branching and frequently lying on the ground. Flowers ſmall, whitiſh with a tinge of Carnation, and greeniſh beneath, often incloſed in a calyx with ten cylindrical ſtreaks[m].

Native of Dauphiné, Hungary, Auſtria, and Bohemia.]

44. This is an annual plant with erect ſtalks, a foot and half high, for more than an inch below each joint very glutinous. Lower leaves broad, oblong, ſmooth, ſeſſile. Flowers in terminating bunches, ſtanding erect, and forming a kind of umbel. Capſules ſlender, oblong, filled with angular ſeeds.

[Root ſmall, ſtem branched, leafy, ſmooth. Leaves embracing, ovate, glaucous, ſmooth. Panicles terminating, leafleſs, many-flowered, dichotomous, faſtigiate with little bractes. Flowers erect. Calyx clavate-linear, ten-angled, very ſmooth and even, glaucous, with ſmall, rounded, purpliſh teeth. Petals rounded, emarginate, acutely crowned. Capſule elliptic, pedicelled[n].

Native of Denmark, Germany, France, Switzerland, Carniola, Piedmont. England, obſerved on the banks of the river half a mile below Cheſter, by Dr. Richardſon. It flowers in july and auguſt. This plant is not properly indigenous of our iſland, but, as Miller obſerves,] having been many years cultivated in our gardens, the ſeeds have ſpread upon walls, buildings, &c. ſo far, as to induce ſome to believe it a native.

There are three varieties which generally retain their differences: one has a bright purple flower; the ſecond a pale red; and the third a white flower.

[45. Root annual. Stem erect, dichotomous, ſomewhat viſcid above, branched below. Leaves oleraceous, the lower glandular-ciliate, the upper ſeſſile. Flowers terminating, dichotomous, in bundles, faſtigiate. Calyx erect, club-ſhaped. Corolla bright purple, with a white band, crowned at the throat. Petals ovate, bifid, with a more ſlender tooth or ſegment at the baſe of the border on each ſide[o].

Native of the Levant. Introduced in 1781, by P. M. A. Brouſſonet, M. D. It flowers in may and june[p].

46. Stem herbaceous, a palm high, brachiate, very ſlightly tomentoſe. Leaves obovate, narrowed at the baſe, ſcarcely fleſhy, even, ſharpiſh. Flowers terminating, one or two, peduncled, erect. Calyx club-ſhaped, ſubpubeſcent, with ſhort teeth. Petals obcordate or emarginate, obtuſe, fleſh coloured, ſhorter than the calyx, with a ſharp tooth on each ſide, and therefore four-cleft. The coronet is very ſhort, obtuſe and emarginate. The ten ſtamens are in the throat; and the three ſtyles oblique.——Native of Egypt[q].

47. Petals deeply bifid with a tooth on each ſide.—Native of Carolina[r].

48. Root fibrous, perennial. Stems many, forming a tuft, filiform, a finger's length and half. Leaves oppoſite, ſeſſile, ovate, acuminate, reſembling thoſe of common Chickweed, but ſlightly ſinuate and very finely villoſe: the firſt pair is ſmaller, the next wider,

[c] Dillenius. [d] Hort. kew. [e] Willdenow. [f] Linn. amoen. [g] Hort. kew. [h] Linn. ſpec. [i] Dillenius. [k] Hort. kew. [l] Desfontaines. [m] Villars. [n] Smith brit. [o] Linn. ſuppl. [p] Hort. kew. [q] Linn. ſuppl. [r] Willdenow.

the uppermoſt more acuminate and again ſmaller; often five pairs in the whole. The ſtem ends in a ſhort peduncle, bearing a ſingle flower, ſometimes accompanied with one on each ſide, whitiſh tinged with roſe-colour, and yelloviſh on the outſide. Petals half-five-cleft, the ſegments linear-roundiſh, with a deeply biſid crown. Calyx inflated, pale green, except towards the ſun where it is reddiſh, ten-angled with the angles alternately larger and ſmaller, five-toothed. Capſule oblong, one-celled, opening by four two-toothed valves, not revolute. The plant is viſcid all over.

Native of the higher rocks of Piedmont, the county of Nice and the Col de Tende [a].

49. Root probably perennial. Stems very many, a foot high, erect, dichotomous, round, ſmooth. Leaves oppoſite, naked, ſomewhat fleſhy, mucronate, rugged at the edge. Peduncles long, viſcid in the middle. Flowers erect, very large. Calyx ten-ſtreaked, curved in a little, five-cleft at the mouth; the teeth acute membranaceous at the edge. Claws of the petals longer than the calyx; borders cordate, patulous, with a biſid, upright crown. Five of the ſtamens the length of the corolla, and five ſhorter. Anthers linear, emarginate. Germ oboonical. Styles longer than the ſtamens. Stigmas revolute, pubeſcent. Capſule erect, ovate, ſhining, three-celled, opening irregularly.

Native of Armenia, where it was found by Tournefort [b].

50. Root perennial. Stems a ſpan high, erect, even. Flowers in a dichotomous panicle. Calyx even, with blunt teeth. Petals four-cleft, white, the length of the calyx. Capſule longer than the calyx.

Native of the mountains of Auſtria [c]. Introduced in 1774, by Joſeph Nicolas de Jacquin, M. D. It flowers from may to july [d].

51. This is a little plant which ſpreads and branches out dichotomouſly. Leaves oval, ſeſſile, ſmooth, entire, glaucous. Flowers ſmall, funnel-ſhaped; petals ſlightly emarginate, or only truncate, white. It is biennial. The crown is ſcarcely apparent; and the hollow or funnel ſhape of the calyx and corolla diſtinguiſhes this ſpecies [e].

According to Haller, the root is large, woody and rugged; the ſtems erect, very much branched and brachiate; the leaves glaucous, ſmooth, and ovate-lanceolate; the flowers terminating, on long pedunicles, ſolitary, forming all together a looſe umbel; the calyx bell-ſhaped, inverſely conical, marked with lines; the petals milk-white, emarginate, cordate, with earlets forming a coronet. Fruit conical.

Native of Lapland, Sweden, Germany, Dauphiné, Piedmont, Siberia. Introduced in 1771, by Monſ. Richard. It flowers from june to auguſt [f].

52. Root woody, branched. Stems ſeveral, a finger's length, ſmooth. Leaves oppoſite, linear, acute, from four to ſix pairs. Peduncle terminating, filiform, length of the ſtem: ſometimes but ſeldom there is a ſecond lateral peduncle. Flowers ſolitary. Calyx club-ſhaped, ſmooth. Border of the petals ſhorter than the calyx, red beneath [g].

It is a creeping plant, with the branches commonly ſimple, and viſcid. Petals pale red, rolled inwards, within an oblong, reddiſh calyx, a little channelled and viſcid [h].

Native of France, Italy, Carniola and Japan. Introduced in 1772, by Monſ. Richard. It flowers from june to auguſt [i].

53. This plant ſeldom riſes more than ſix inches high, ſending out many ſhrubby decumbent branches. The flowers grow erect, are of a pale red colour, and are ſucceeded by turgid capſules, filled with roundiſh ſeeds.

[Stems a hand in length, filiform, woody. Leaves wider towards the end, acute, glutinous, oppoſite in cluſters. Peduncle terminating, ſolitary, one-flowered, length of the flower. Flower erect: petals biſid, with a ſmall crown: calyx club-ſhaped, with ten raiſed browniſh ſtreaks, and ſmall blunt teeth. When the flowering is paſt, it increaſes three times in ſize, is club-ſhaped, ſcarioſe, and inflated as in Behen [k].

Root hard, woody, perennial. Stems one-flowered, or dichotomous and three-flowered. Leaves linear-elliptic, acuminate, ſeſſile, hairy-viſcid. Calyx inflated, at firſt cylindrical, then oval, an inch long, five-toothed, ten-ſtreaked, viſcid-hairy, netted with purple veins. Petals quadrangular cordate, within white, very pale roſe-coloured, or whitiſh, on the outſide purple with red veins; the border often rolled back towards the centre of the flower: ten ſcales of the ſame colour form an internal corolla, and the petals have a wing on each ſide. Capſule three-celled, cloven into five or ſix parts at the top.

Native of the higher alps of the Vaudois, the Valais and Dauphiné. Cultivated in 1768, by Mr. Miller. It flowers from june to auguſt [l].

54. Root perennial. Root-leaves heaped into a tuft, linear, blunt, even. Stems quite ſimple, very ſhort, often three-jointed. Calyx oblong, bell-ſhaped, ſpreading, blunt, pubeſcent, length of the ſtem.

Native of the mountains of Italy, Moravia and Carinthia [m].

55. The root is perennial, forms a thick tuft, and deſcends far in the earth. Leaves heaped, ſheathing, ſpreading, ſlightly keeled. Peduncles terminating, erect, naked, indiſtinctly quadrangular, ſmooth, lengthening out after flowering (to two inches.) Flowers erect, pretty, roſe-coloured (or bright purple.) Calyx bell-ſhaped, half-five-cleft, five-ribbed, ſmooth. Petals ſlightly emarginate, crowned. Capſule cylindrical, double the length of the calyx [n].

Leaves awl-ſhaped, ſmooth, ſet at the edges with hooked teeth pointing downwards. Petals cordate, with two ſmall teeth forming a coronet. Capſule ſmooth and ſhining, tinged with purple [o].

Linnæus remarks that the herb reſembles a *Bryum*.

Native of the mountains of Lapland, Denmark, Britain, Germany, Dauphiné, Auſtria, Piedmont, Switzerland and the Pyrenees. On the higheſt mountains of Devonſhire, Wales and Scotland. Dartmoor; Caernarvonſhire near Llanberys, Ben Lomond, &c. Iſles of Mull, Rum and Skye. It flowers from may to july.

56. Stem ſimple or ſparingly branched, hairy. Leaves alſo hairy: the lower ſpatulate, obtuſe, running down the petiole; middle and upper ſtem-leaves lanceolate, acute, ſeſſile. Flowers ſubſeſſile, erect. Bractes lanceolate-ſubulate, twice or three times ſhorter than the calyx. Calyx tubular, ſtriated, five-toothed; when the fruit is ripe ovate, narrowed at the baſe. Capſule ovate, ſmooth, pedicelled, erect, three-celled, many-ſeeded. Annual.—Native of Mount Atlas.

57. Stem erect, with ſlender rod-like branches. Leaves villoſe; lower obtuſe, upper narrow, lanceolate, acute. Flowers ſeſſile or on very ſhort pedicels, ſolitary, preſſed cloſe, a little longer than the internodes, except the lower ones. Bractes ſmall, awl-ſhaped. Calyx tubular, ſmooth, ten-ſtreaked, five-toothed. Petals white, biſid. Capſule ſmooth, ovate-oblong, pedicelled within the calyx. Annual.—Native of Barbary, in fields near Maſcar.

58. Stem erect, hairy, branched. Branches ſlender, erect. Leaves hairy: root-leaves ſpatulate or obovate; lower and middle ſtem-leaves narrow-lanceolate. Flowers in looſe racemes, alternate, ſeſſile or ſubſeſſile, axillary; the lower ſhorter than its linear-ſubulate leaflet. Calyx hirſute, tubular, ten-ſtreaked, erect, when the fruit is ripe ovate-round, five-toothed; teeth longiſh ſubulate. Capſule even, ovate, acuminate, opening at top, ſubſeſſile within the calyx. Petals roſe-coloured, a little longer than the calyx, for the moſt part three-toothed. Annual.—Found in corn fields near Algiers, by Deſfontaines; and in Spain by Cluſius, flowering in may.

59. Stem erect, ſmooth, branched, viſcid, ſlender.

[a] Allioni. [b] Smith. ic. ined. [c] Linn. [d] Hort. kew. [e] Villars. [f] Hort. kew. [g] Linn. ſpec. [h] Villars. [i] Hort. kew. [k] Linn. mant. [l] Hort. kew. [m] Linn. mant. [n] Smith brit. [o] Woodw. Mſs.

Leaves

Leaves very smooth, acute. Flowers panicled. Peduncles filiform, one, two or three-flowered; the middle flower sessile or on a short pedicel. At the base of the pedicels are two awl-shaped leaflets. Calyx thin, club-shaped, very slightly ten-streaked, netted with purplish veins, five-toothed: teeth ovate, acute. Corolla small, rose-coloured: border of the petals linear, narrow, emarginate, with a slender claw, the length of the calyx, having two appendicles at the top. Capsule smooth, ovate-oblong, on a long pedicel, scarcely surpassing the calyx, opening at the top, three-celled. Seeds many, small, brown, kidney-form, wrinkled, inserted into a central, elongated, branched receptacle.—Native of Algiers.

60. Stem pubescent, jointed, erect or else decumbent at the base, branched. Branches simple or forked at top. Flower solitary in each fork. Leaves opposite; lower pubescent, spatulate, blunt, decurrent into a ciliate petiole; middle and upper leaves lanceolate, sessile. Flowers on short pedicels, nodding a little. Bractes ovate-lanceolate. Calyx round, narrowed at bottom, membranaceous, ten-grooved, five-toothed; when the fruit is ripe ovate, contracted at the base. Petals rose-coloured; border deeply two-parted; segments narrow, distinct, oblique, obtuse, with two appendicles at the top of the claw, forming the coronet. Capsules ovate, smooth, erect, pedicelled, from five to seven-valved at top, three-celled. Seeds many, brown, kidney-form. This is a very handsome species, flowering during spring in the fields of Sbiba in Barbary. Annual.

Brouffonet found a variety in Morocco, which was smaller, and had villose calyxes.

61. Stems often many from the same tuft, branched, erect, hairy, seldom smooth. Leaves opposite; lower obovate, decurrent, ciliate at the base; middle and upper stem-leaves sessile or subsessile, ovate, often acuminate. Flowers one, two or three from one peduncle. Peduncles villose. Calyx tubular, round, slender, pubescent; when the fruit is ripe widening from the middle to the top, five-toothed; teeth acute. Petals rose-coloured, blunt: claws a little longer than the calyx, with two appendicles at the top. Capsule ovate, opening at top, three-celled. It has very much the appearance of Jacquin's *S. Atocion*, (Orchidea, n. 45.) but differs in having the petals quite entire. Perhaps it may be a variety. Annual.—Native of Mount Atlas.

62. This is a viscid plant covered with very short villose hairs, and for the most part covered with sand and dust. Stem erect, very much branched; the branches panicled. Flowers very numerous. Peduncles axillary, unequal. Pedicels erect. Calyx ten-streaked, ovate, five-toothed; teeth small, acute. Petals white, small. Capsule smooth, even, ovate, very shortly pedicelled within the calyx, five-valved at the top. Perennial on sand by the coast of Barbary.

63. This also is a villose glutinous plant, covered with sand. Stems procumbent at the base, jointed, branched. Branches alternate, striated. Leaves like those of *Cerastium vulgatum*, thickish, villose; root-leaves spatulate; stem-leaves linear-lanceolate, obtuse. Flowers axillary and terminating, solitary or in pairs, pedicelled. Calyx tubular, when the fruit is ripe ovate, pubescent, ten-streaked, five-toothed; teeth acute. Petals small, white, bifid. Capsule ovate, smooth, five or six-valved at the top, pedicelled within the calyx. Allied to *S. ramosissima*; but differs in having much fewer branches, the lower leaves with longer hairs, the stem decumbent at the base, flowers fewer, and the capsules pedicelled within the calyx. Perennial.—Native of sandy shores of the Mediterranean sea.

64. Stems from the same tuft many, erect or decumbent at the base, slender, pubescent, simple or sparingly branched. Lower leaves a little narrower towards the base, blunt ish; upper stem-leaves awl-shaped, connate, ciliate below. Peduncles lateral and terminating. Calyx purplish, tubular, when the fruit is ripe subovate, narrowed at the base, five-toothed; teeth small, ovate, obtuse. Claws of the petals a little longer than the calyx. Capsule even, shortly pedicelled within the calyx, five-valved, opening at top, three-celled.—Native of Barbary in fields.

65. This has the appearance of *S. nocturna*. Stem pubescent with a very short pile. Lower leaves sessile; upper lanceolate, remote. Flowering branches often forked. Lower flowers in threes; upper solitary. Calyx round; when the fruit is ripe ovate, narrowed below, five-toothed; teeth small, acute, silky. Petals a little longer than the calyx, white; segments narrow, linear. Capsule ovate, pedicelled within the calyx. Flower in the fork, solitary, shortly pedicelled.—Native of fields about Algiers.

66. Leaves pubescent with a very short pile: lower obovate, running down into a long petiole; middle and upper stem-leaves remote, narrow-lanceolate. Stem erect, pubescent below, branched. Branches opposite, panicled, spreading, viscid, often bifid or trifid. Flowers on each peduncle one, two or more commonly three, the middle one on a shorter pedicel. At the base of the calyx two ovoid acute little bractes. Calyx tubular, narrower below, ten-streaked, smooth or scarcely pubescent, when the fruit is ripe from the middle to the point widened, ovate, five-toothed; teeth small, ovate, erect. Corolla white, the size of *Lychnis dioica*: claws a little longer than the calyx, with two teeth at top forming the coronet. Capsule ovate, pedicelled within the calyx, opening at top, three-celled. The flowers open at sunset and then smell very pleasantly. Perennial.—Native of Barbary, in fields[1].]

PROPAGATION AND CULTURE.

Many of these plants are hardy annuals, which rise easily from seeds sown in the autumn, or spontaneously from scattered seeds.

3. Sow the seeds thin upon a border of light earth in autumn; and in the spring thin the plants to the distance of four inches, and keep them clean from weeds. They will flower in may and june. If some seeds be sown in the spring, the plants will flower a month later. These directions will serve for several other species.

2, 4, 5, 6, 21, 33, 34, 38, 40, 41, 45, &c. Sow the seeds upon a warm border in the autumn.

15. This may be increased by slips planted in a shady border: and if the plants are set in a warm dry border, they will live several years without shelter, but in moist ground they frequently rot in winter. This also rises easily from seeds.

16. As the seeds seldom ripen here, it is difficult to propagate this species. The only way is to slip off the heads in june, and plant them under a glass; these will take root, if shaded from the sun and duly watered.

18, 19, 20. Sow the seeds in autumn upon a warm border. When the plants are fit to remove set them on a dry soil in a warm situation, where they will live through the winter, and the following summer they will flower and ripen their seeds and then decay.

1, 28, 30, 44, &c. Permit the seeds to scatter, and the plants will come up without farther care.

[31, 32. These require the protection of a dry stove, greenhouse or glass-case. They may easily be raised from seeds, but are more commonly increased from cuttings, which strike freely.]

42. Sow the seeds in autumn. When the plants are fit to remove transplant them into a bed of fresh earth at six inches distance, shading and watering them until they have taken new root. Keep them clean from weeds till autumn, and then transplant them to the places where they are designed to remain for flowering. When the seeds happen to scatter upon a wall, the plants will continue much longer than in the ground.

[50, 51, 52, 53. These are perennial species, and may be propagated by seeds or cuttings. They are all hardy.] The seeds of the last should be sown in dry rubbish, where the plants will live many years; but in rich moist soils they rarely live through the winter.

[1] Desfontaines.

[SILENE. See *Cucubalus, Lychnis, Saponaria, Velezia.*]

SILER. See *Laserpitium*, [*Peucedanum, Sefeli.*]

SILIQUA. See *Ceratonia*, [*Cercis, Poinciana, Tamarindus.*]

SILIQUASTRUM. See *Cercis.*

[SILK COTTON. See *Bombax.*]

SILPHIUM (*of Pliny.* Σιλφιον *of Dioscorides.*)
Lin. gen. n. 986. *Reich. n.* 1069. *Schreb. n.* 1334. *Gærtn. t.* 171. *Juss.* 188. Asteriscus. *Dill. eltb.* 39. 42.
Class. 19. 4. Syngenesia Polygamia, Necessaria.
Nat. order of *Compositæ Oppositifoliæ. Corymbiferæ*, Juss.

GENERIC CHARACTER.

CAL. *Common* ovate, imbricate, squarrose: *scales* ovate-oblong, bent back in the middle, prominent every way, permanent.
COR. *Compound* radiate. *Corollets* hermaphrodite in the disk many: females in the ray fewer.
Proper of the hermaphrodites one-petalled, funnel-form, five-toothed; the tube scarcely narrower than the border:—of the females lanceolate, very long, often three-toothed.
STAM. in the hermaphrodites: *Filaments* five, capillary, very short. *Anther* cylindrical, tubular.
PIST. in the hermaphrodites: *Germ* round, very slender. *Style* filiform, very long, villose. *Stigma* simple:—in the females, *Germ* obcordate. *Style* simple, short. *Stigmas* two, bristle-shaped, length of the style.
PER. none. *Calyx* unchanged.
SEEDS in the hermaphrodites none:—in the females solitary, submembranaceous, obcordate, with the edge membranaceous, two-horned, emarginate.
REC. chaffy: *chaffs* linear.

ESSENTIAL CHARACTER.

Cal. squarrose. *Seed-down* margined-two-horned. *Recept.* chaffy.

SPECIES.

[1. Silphium laciniatum. *Jagged-leaved Silphium.*
Lin. spec. 1301. *syst.* 789. *Reich.* 3. 919. *Lin. fil. suppl.* 1. *t.* 1.
Leaves alternate pinnate-sinuate.
2. Silphium terebinthinum. *Broad-leaved Silphium.*
Lin. syst. 789. *suppl.* 383. *Jacqu. hort.* 1. 16. *t.* 43. *Ait. kew.* 3. 267. *Gærtn. fruct.* 2. 445.
Leaves alternate ovate serrate rugged, root-leaves cordate.
3. Silphium perfoliatum. *Square-stalked Silphium.*
Lin. spec. 1301. *syst.* 789. *Reich.* 3. 920. *Gouan monsp.* 462.
Leaves opposite deltoid petioled perfoliate, stem four-cornered even.
4. Silphium connatum. *Round-stalked Silphium.*
Lin. syst. 789. *Reich.* 3. 920. *mant.* 574.
Leaves opposite sessile perfoliate, stems round rugged.]
5. Silphium Asteriscus. *Hairy-stalked Silphium.*
Lin. spec. 1302. *Reich.* 3. 920. *hort. cliff.* 494. *Fabric helmst.* 141. *Gron. virg.* 133.
Asteriscus Coronæ-folis folio & facie. *Dill. eltb.* 42. *t.* 37. *f.* 42.
Leaves undivided sessile opposite, lower alternate.
6. Silphium trifoliatum. *Three-leaved Silphium.*
Lin. spec. 1302. *Reich.* 3. 921. *Gron. virg.* 133.
Chrysanthemum virginianum, foliis asperis tribus s. quaternis ad genicula sitis. *Mor. hist.* 3. 24. *s.* 6. *t.* 3. *f.* 68. *Raii suppl.* 211.
Leaves in threes.
[7. Silphium trilobatum. *Three-lobed Silphium.*
Lin. spec. 1302. *Reich.* 3. 921. *amœn.* 4. 307. *Brown. jam.* 321. 4. (Buphthalmum.) *Plum. spec.* 10. *ic.* 107. *f.* 2. (Corona solis.) *Sloan. jam.* 1. 262. *t.* 155. *f.* 1. *Pluk. phyt.* 1. 450. *f.* 4.
Leaves opposite sessile wedge-form.]
8. Silphium arborescens. *Tree Silphium.*
Mill. dict. n. 4.
Corona solis americana arborescens, flore parvo luteo, semine alato. *Houst. Mss.*
Leaves lanceolate, alternate rugged slightly serrate, stem shrubby.

DESCRIPTIONS, *&c.*

[1. Root perennial. Stem twice the height of a man, as thick as the thumb, quite simple, smooth below, above rugged with brown tubercles and white spreading hairs, round. Leaves petioled, two feet in length and a foot in breadth, embracing at the base, pinnatifid; segments on each side four or five, distant, narrow, tooth-sinuate, rugged, with very solid ribs raised on both sides; margin of the upper leaves purplish. Calyx of ten scales, ending in large awl-shaped spines. Petals of the ray thirty, length of the calyx, with a bifid slender style. Florets of the disk yellow, many, separated by chaffs, attenuated at the base; with a simple style. Seeds in the ray membranaceous, oval, emarginate, with two small awns:—in the disk columnar, four-cornered, abortive [k].

Native of North America. Introduced in 1781 by Monsr. Thouin. It flowers from july to september [l].

2. Stems two or three in number, strong, upright, annual, smooth: panicled above, but without any branches throughout the whole length, being beset with distant leaves: radical and lower cauline leaves large, heart-shaped, upright, rough, sharply toothed on the edges, and ciliated with very short hairs: they are very veiny, but not wrinkled: the footstalks are long and embrace the stem at their base: the stem-leaves are similar, but scarcely hearted at the base, and the others are more oblong, and half embrace the stem: the peduncles are elongated, round, and mostly leafless; though a few of them are furnished with two opposite leaflets: the terminal flower on the stem flowers first, and when this begins to seed the lateral peduncles of the panicle begin to extend and proceed to flower. The smell of the flower, which is moderately large, and yellow, is similar to that of the Sun-flower [m]. Calyx ventricose at the base, squarrose above. Chaffs of the disk almost the length of the barren flowers:—of the ray ovate-oblong, flat, a little shorter than the seed, to the base of which they are fastened. Seeds ovate-rounded, plano-convex, very much compressed, pedicelled with a setaceous base, simply emarginate at top, without any visible seed-down [n].

Native of North America. Introduced in 1756, by Messrs. Kennedy and Lee. It flowers in august and september [o].

3. Root perennial. Stem higher than a man, four-cornered, even. Leaves opposite, ovate or deltoid, serrate, decurrent along the petioles, and oppositely perfoliate. Upper leaves sessile, very wide, perfoliate. Peduncle terminating and from the axil of the last leaves, round, inclined. Calyx squarrose, blunt. Corolla yellow with twenty-four rays and two-parted styles: those of the disk have simple longer styles, and are barren [p].

Native of North America. Cultivated in 1766 by Peter Collinson, Esq. It flowers from july to october [q].

4. Root perennial. Stem the height of a man, as thick as the thumb, erect, quite simple, round except at the bottom where it is indistinctly four-cornered, rugged with hairs bent down. Leaves connate-perfoliate, ovate-oblong, with the disk concave, as in *Dipsacus laciniatus*, sessile and not with the last petioles connate-perfoliate as in *S. perfoliatum*, rugged, a span long, sharpish, serrate. Panicle terminating, dichotomous: peduncles of the forking solitary, one-flowered, length of the internodes. Calyx squarrose, with the scales ovate, blunish, even, flat and reflexed at the top, as in *S. Asteriscus*. Corolla radiate, yellow: florets of the disk many, hermaphrodite, abortive, with a simple style standing out:—of the ray twelve, elongated, female, fertile, with a bifid pistil shorter than the corollets [r].

Native of North America. Introduced in 1765, by Messrs. Kennedy and Lee. It flowers from july to october [s].]

5. Root perennial. Stem four or five feet high,

[k] Linn. spec. [l] Hort. kew. [m] Jacquin.
[n] Gærtner. [o] Hort. kew. [p] Linn. spec.
[q] Hort. kew. [r] Linn. mant. [s] Hort. kew.

thick, ſolid, ſet with prickly hairs, and having many purple ſpots. Lower leaves alternate; upper oppoſite and ſeſſile, rough, about two inches long and an inch broad near the baſe, having a few ſlight indentures on their edges. The upper part of the ſtem divides into five or ſix ſmall branches, terminated by yellow radiated flowers like thoſe of the perennial Sun-flower, but ſmaller, having generally nine florets in the ray.

[Native of North America. Cultivated in 1732, by James Sherard, M. D. from Carolina ſeeds. It flowers from july to ſeptember *.]

6. Root perennial and woody. Stems annual, riſing five feet high or more in good land, of a purpliſh colour, and branching towards the top. Leaves oblong, rough, having ſome ſharp teeth on the edges; they are from three to four inches long, and almoſt two broad; towards the bottom of the ſtem they ſtand by fours at each joint; higher up they are by threes, and at the top by pairs, ſitting cloſe to the ſtems. Flowers upon pretty long pedunculs, ſolitary. Calyx of three rows of imbricate leaves, the outer row ſmalleſt. In the ray thirteen yellow florets, three-toothed at the end.—Native of many parts of North America.

[Cultivated in 1759, by Mr. Miller. It flowers from july to october *.

7. This is a weakly plant, creeping far among other vegetables, but more luxuriant and upright towards the top.

Native of the Weſt Indies. Frequent in Jamaica, in low marſhy lands *.]

8. This riſes with a ſhrubby ſtalk to the height of eight or ten feet, ſending out woody branches, with ſpear-ſhaped leaves placed alternately on every part; they are four inches long, and an inch and half broad in the middle, ending in acute points; their ſurface is rough, and their edges ſlightly ſerrate. Flowers terminating, ſome ſingly on ſlender pedunckes, others by two or three upon each peduncle, unequal in height. They have ſhort ſcaly calyxes; florets of the ray ſhort; thoſe of the diſk more prominent than in the other ſorts: colour deep yellow.

Diſcovered by Dr. William Houſtoun at La Vera Cruz in New Spain.

PROPAGATION AND CULTURE.

Theſe plants may be increaſed by parting the roots, in the ſame manner as is practiſed for the perennial Sun-flower. The beſt time for this is in autumn, when the ſtalks begin to decay. Treat them afterwards in the ſame way as the perennial Sun-flower.

8. Slip off the young ſhoots in july, plant them in a pot filled with light loam, plunge it in a gentle hot-bed, covering the pot cloſely with a bell or hand-glaſs, and ſhade it from the ſun. When the ſlips are rooted, plant each in a ſeparate pot; place them, during the warm months, in the open air, in a warm ſituation; but in winter keep them in a moderate ſtove.

[SILPHIUM SOLIDAGINOIDES. See *Buphthalmum helianthoides*.

SILVER-BUSH. See *Anthyllis*.

——— TREE. See *Protea*.

——— WEED. See *Potentilla*.

SILYBUM. See *Carduus* and *Gundelia*.

SIMARA. See *Zwingera*.

SIMIRA. See *Pſychotria*.

SIMPLER'S JOY. See *Verbena*.

SINAPI. See *Braſſica*, *Bunias*, *Myagrum*, *Sinapis*, *Siſymbrium*.]

SINAPIS (*of Plautus*. Sinapi *of Pliny*. Sinape *of Columella*. Σινηι *of Theophraſtus and Dioſcorides. Alſo* ΚΟΚΚΟΣ ΣΙΝΕΠΤΟΣ; ΠΑΡΑ ΤΟ ΠΙΠΤΕΙΝ ΤΟΥΣ ΝΥΑΣ; *from its making the eyes water.*)

Lin. gen. n. 821. *Reich. n.* 885. *Schreb. n.* 1097. *Gærtn. t.* 143. *Juſſ.* 238. Sinapi. *Tournef. t.* 112.

Claſſ. 15. 2. Tetradynamia Siliquoſa.

Nat. order of *Siliquoſæ* or *Cruciformes*.—*Cruciferæ*, Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* four-leaved, ſpreading: *leaflets* linear, concave-channelled, cruciform-ſpreading, deciduous.

COR. four-petalled, cruciform. Petals roundiſh, flat, ſpreading, entire: *claws* erect, linear, ſcarcely the length of the calyx.

Nectareous glands four, ovate: one on each ſide between the ſhorter ſtamen and the piſtil; and one on each ſide between the longer ſtamens and the calyx.

STAM. *Filaments* ſix, awl-ſhaped, erect: two of them oppoſite, the length of the calyx, and four longer. *Anthers* from erect ſpreading, acuminate.

PIST. *Germ* cylindrical. *Style* length of the germ, height of the ſtamens. *Stigma* capitate, entire.

PER. *Silique* oblong, toroſe below, rugged, two-celled, two-valved: *partition* for the moſt part twice the length of the valves, large, compreſſed.

SEEDS many, globular.

OBS. *Hence* Sinapis *differs from* Braſſica, *in having the calyx ſpreading, but the claws of the corolla erect. Crantz unites this genus with* Raphanus.

ESSENTIAL CHARACTER.

Cal. ſpreading. *Cor.* claws erect. *Gland* between the ſhorter ſtamens and piſtil, and between the longer ſtamens and calyx.

SPECIES.

1. Sinapis arvenſis. *Wild Muſtard* or *Charlock*.
Lin. ſpec. 933. *ſyſt.* 602. *Reich.* 3. 280. *Willd.* 3. 554. *hort. cliff.* 338. *fl. ſuec. n.* 610. *Hudſ. angl.* 298. *Wither. arr. ed.* 3. 594. *Smith brit.* 721. *Lightf. ſcot.* 360. *Curt. lond.* 5. *t.* 47. 321. *Relh. cant. ed.* 2. *n.* 558. *Sibth. oxon. n.* 589. *Abbot beſf. n.* 484. *Fl. ruſt. t.* 101. *Fl. dan. t.* 753. *Hall. helv. n.* 467. *Hoffm. germ.* 242. *Roth. germ.* 1. 288. 2. 122. *Pollich pal. n.* 642. *Krock. ſileſ. n.* 1100. *Neck. gallob.* 286. *Scop. carn. n.* 842. *Villars dauph.* 3. 338. *Allion. pedem. n.* 957.
Sinapi arvenſe præcox ſemine nigro, foliis integris. *Tournef. inſt.* 227.
Rapiſtrum. *Dod. pempt.* 675. 1.
R. flore luteo. *Bauh. pin.* 95. *hiſt.* 2. 844.
R. arvorum. *Lob. obſ.* 99. 1. *ic.* 1. 196. 2. *Ger. emac.* 232. 2. *Park. theat.* 862. 3. *Raii hiſt.* 802. *ſyn.* 295. *Petiv. brit. t.* 45. *f.* 12.
Irion. *Fuchſ. hiſt.* 257.
Siliques multangular toroſe-turgid longer than the ancipital beak, leaves ovate ſubpyrate.

[2. Sinapis orientalis. *Oriental Muſtard*.
Lin. ſpec. 933. *ſyſt.* 602. *Reich.* 3. 281. *Willd.* 3. 554. *amœn.* 4. 280. *Murr. prodr.* 167.
S. orientale maximum, rapi folio. *Tournef. cor.* 17.
Siliques hiſpid backwards ſlightly four-cornered and compreſſed at the tip.

3. Sinapis braſſicata. *Cabbage Muſtard*.
Lin. ſyſt. 602. *Reich.* 3. 281. *Willd.* 3. 555. *Lour. cochinch.* 399. *ed. Willd.* 485.
Leaves obovate toothletted even.]

4. Sinapis alba. *White Muſtard*.
Lin. ſpec. 933. *ſyſt.* 602. *Reich.* 3. 281. *Willd.* 3. 555. *mant.* 429. *hort. cliff.* 338. *upſ.* 191. *Gærtn. fruct.* 2. 299. *Hudſ. angl.* 298. *Wither. arr. ed.* 3. 594. *Smith brit.* 722. *Lightf. ſcot.* 361. *Curt. lond.* 5. *t.* 46. 322. *Relh. cant. ed.* 2. *n.* 559. *Sibth. oxon. n.* 590. *Abbot beſf. n.* 485. *Fl. ruſt. t.* 70. *Hall. helv. n.* 466. *Roth. germ.* 1. 289. 2. 123. *Krock. ſileſ. n.* 1101. *Villars dauph.* 3. 338. *Allion. pedem. n.* 958.
Sinapi album. *Ger. emac.* 244. 4. *Blackw. t.* 29.—ſiliqua hirſuta, ſemine albo & ruſſo. *Bauh. hiſt.* 2. 856. *Raii hiſt.* 802. *ſyn.* 295. *Petiv. brit. t.* 45. *f.* 10.
S. apii folio. *Bauh. pin.* 99.
S. ſativum alterum. *Dod. pempt.* 707. 1.
S. primum genus. *Fuchſ. hiſt.* 538.
S. ſecundum. *Matth.* 563.
Siliques hiſpid toroſe ſhorter than the ancipital beak, leaves hiſpid.

[1] Hort. kew. [2] Idem. [3] Browne.

5. Sinapis nigra. *Common* or *Black Muſtard.*
Lin. ſpec. 933. *Reich.* 3. 282. *Willd.* 3. 555. *hort. cliff.* 338. *fl. ſuec. n.* 611. *mat. med.* 164. *Woodv. med. bot.* 409. *t.* 151. *Hudſ. angl.* 297. *Wither. arr. ed.* 3. 595. *Smith brit.* 722. *engl. bot. t.* 969. *Lightf. ſcot.* 361. *Relh. cant. n.* 560. *Sibth. oxon. n.* 591. *Abbot bedf. n.* 486. *Fl. riſt. t.* 51. *Hoffm. germ.* 242. *Roth. germ.* 1, 289. 2. 123. *Pollich pal. n.* 643. *Krock. ſileſ.* 1102. *Villars dauph.* 3. 339. *Allion. pedem. n.* 959. *Blackw. t.* 446. *Regnault bot.*
Sinapi rapi folio. *Baub. pin.* 99. *Tournef. inſt.* 227.
S. ſativum 2. *Ger. emac.* 244. *Raii hiſt.* 803. *ſyn.* 295.
S. fat. prius. *Dod. pempt.* 706. 2.
S. ſiliqua latiuſcula glabra, ſemine ruſſo ſ. vulgare. *Baub. hiſt.* 2. 856.
S. 1. *Matth.* 562.
Siliques ſmooth four-cornered preſſed to the raceme, upper leaves linear-lanceolate quite entire ſmooth.
[6. Sinapis pyrenaica. *Pyrenean Muſtard.*
Lin. ſpec. 934. *ſyſt.* 602. *Reich.* 3. 282. *Willd.* 3. 556. *Allion. pedem. n.* 960. *t.* 55. *f.* 1.
Eryſimum dentis leonis folio perenne pyrenaicum. *Tournef. inſt.* 228.
β. Sinapis maritima. *Allion. pedem. n.* 961.
Siliques ſtreaked rugged, leaves runcinate even.
7. Sinapis pubeſcens. *Pubeſcent Muſtard.*
Lin. ſyſt. 602. *Reich.* 3. 282. *Willd.* 3. 556. *mant.* 95. *Ard. ſpec.* 1. 21. *t.* 9.
Siliques pubeſcent erect, beak compreſſed, leaves lyrate villoſe.
8. Sinapis hiſpida. *Hiſpid Muſtard.*
Lin. ſpec. ed. Willd. 3. 556.
Siliques hiſpid erect, leaves lyrate very rugged, ſtem hiſpid.
9. Sinapis chinenſis. *Chineſe Muſtard.*
Lin. ſyſt. 602. *Reich.* 3. 283. *Willd.* 3. 557. *mant.* 95. *Ard. ſpec.* 1. 23. *t.* 10. *Laur. cochinch.* 399. *ed. Willd.* 483.
Siliques even ſlightly jointed patulous, leaves lyrate-runcinate ſubhirſute.]
10. Sinapis juncea. *Fine-leaved Muſtard.*
Lin. ſpec. 934. *ſyſt.* 602. *Reich.* 3. 283. *Willd.* 3. 557. *hort. upſ.* 191. *Jacqu. hort.* 2. 80. *t.* 171.
Branches in bundles, upper leaves lanceolate quite entire.
[11. Sinapis Allionii.
Lin. ſyſt. 602. *Willd.* 3. 557. *Jacqu. hort.* 2. *t.* 168.
Siliques ovate-oblong patulous, leaves pinnatifid, ſegments gaſhed.]
12. Sinapis erucoides. *Dwarf Muſtard.*
Lin. ſpec. 934. *ſyſt.* 602. *Reich.* 3. 283. *Willd.* 3. 557. *mant.* 429. *amoen.* 4. 322. *Jacqu. hort.* 2. *t.* 170.
Sinapi hiſpanicum pumilum album. *Tournef. inſt.* 227.
Eruca ſylveſtris flore albo italica. *Barr. ic.* 432.
Siliques ſmooth equal, leaves lyrate oblong ſmooth, ſtem rugged.
[13. Sinapis cerina. *Pendulous Muſtard.*
Lin. ſyſt. 602. *Willd.* 3. 557. *Thunb. jap.* 261.
Siliques even patulous, root-leaf lyrate, end-lobe very large ovate gaſh-toothed.]
14. Sinapis hiſpanica. *Spaniſh Muſtard.*
Lin. ſpec. 934. *Reich.* 3. 283. *Willd.* 3. 558. *hort. cliff.* 338.
Sinapi hiſpanicum, naſturtii folio. *Tournef. inſt.* 227.
Leaves doubly pinnate, ſegments linear.
[15. Sinapis japonica. *Japoneſe Muſtard.*
Lin. ſyſt. 602. *Willd.* 558. *Thunb. jap.* 262.
Siliques even erect, leaves gaſh-pinnatifid ſmooth.
16. Sinapis incana. *Hoary Muſtard.*
Lin. ſpec. 934. *ſyſt.* 602. *Reich.* 3. 283. *Willd.* 3. 558. *amoen.* 4. 281. *Gouan illuſtr.* 45. *Jacqu. hort.* 2. 79. *t.* 169. *Hall. helv. n.* 463.
Eryſimum foliis ſubincanis, ſiliquis breviſſimis. *Therm. par. t.* 115. *Vaill. par.* 51.
Siliques preſſed to the raceme even, lower leaves lyrate rugged, upper lanceolate, ſtem rugged.

17. Sinapis fruteſcens. *Shrubby Muſtard.*
Lin. ſpec. ed. Willd. 3. 559. *Ait. kew.* 2. 404.
Siliques linear even, lower leaves oblong toothed, upper lanceolate entire, ſtem ſmooth ſhrubby.
18. Sinapis radicata.
Lin. ſpec. ed. Willd. 3. 559. *Deſfont. atlant.* 98. *t.* 167.
Root-leaves deeply lyrate hiſpid, ſtem-leaves pinnate, branches rod-like ſmooth, ſiliques awl-ſhaped toruloſe ſpreading.
19. Sinapis lævigata. *Smooth Muſtard.*
Lin. ſpec. 934. *Reich.* 3. 284. *Willd.* 3. 559. *amoen.* 4. 281.
Eryſimi varietas. *Herm. par.* 155.
Siliques even patulous, leaves lyrate ſmooth, upper lanceolate, ſtem even.

DESCRIPTIONS, *&c.*

1. Root annual, fuſiform, ſmall, rigid. Stem from nine inches or a foot to a foot and half in height, upright, round, ſtriated or grooved, rough with a few ſtiff hairs or briſtles bent ſomewhat downwards, commonly much branched, and the branches ſpreading. Leaves petioled, harſh or rugged, deeply and irregularly indented and ſerrate, ſometimes entire, but moſt frequently jagged at the baſe, and ſometimes lyrate or pinnatifid. Flowers at the ends of the ſtem and branches, each on a pedicel the length of the calyx and ſlightly hiſpid. Calyx-leaves green or yellow, linear, compreſſed-concave, half as long as the corolla, ſtanding open at top. Corolla always yellow. Siliques ſpreading, ſcarce perceptibly angular, (ſuboctangular, *Sm.*) ſlightly hairy or ſometimes ſmooth, toroſe or ſwelling, ending in a ſhort, compreſſed, enſiform, grooved beak. Seeds dark brown, ſhining, eight or nine [a].

The ſtem is either wholly green or tinged with red. Among corn it is more drawn up, and often ſcarcely branched. The leaves vary much in form and degree of diviſion. The plant differs in height and degree of hairineſs [b].

It is confounded by huſbandmen, under the name of Charlock, with *Raphanus Raphaniſtrum*, which is as common a weed in ſome fields, as this is in others. But the ſtem and leaves of *Sinapis arvenſis* are green without any glaucous caſt; the ſtem hirſute with very rigid hairs; the pods ſmooth and bellying, but not angular; the flowers ſmaller; calyx-leaves ſpreading, yellow, half the length of the petals; corolla ſmaller, yellow and without veins [c].

Native of Europe, in corn fields, flowering in may and june, and perfecting its ſeeds before harveſt; it is therefore very abundant in ſpring corn.

Its claſſical name in Engliſh is Wild Muſtard; but it is known among huſbandmen by the names of Charlock, Garlock, Warlock, Chadlock, Cadlock, and Kedlock, all evidently the ſame name originally, only variouſly pronounced in different counties. We find the laſt in Fitzherbert and our other early Engliſh writers. In ſome parts of Yorkſhire it is ſaid to be called Runſh.

The young plants, and particularly the tender tops before they flower, are boiled and eaten as greens by huſbandmen in Scandinavia, Ireland, and many parts of England.]

The ſeed is commonly ſold under the title of Durham Muſtard-ſeed.

[2. Like the preceding, but the beak only of the pod ſmooth. Native of the Levant.

3. Stature of Cabbage or Lettuce, but the calyx of Muſtard. Stem a foot and half high, very ſmooth. Root-leaves oleraceous, obovate, obtuſe, toothed, ſmooth, white-veined, with the petioles channelled: middle ſtem-leaves oblong, ſometimes eared at the baſe of the petiole: upper lanceolate, ſeſſile, embracing. Flower very like that of the common Cabbage. Calyx yellow, ſpreading. Petals yellow, ſcarcely emarginate. Pod like that of Cabbage.

Native of China [d]. Cultivated abundantly both there and in Cochinchina [e].

[a] Fl. ruſt. and Smith. [b] Fl. ruſt. [c] Woodw. Mſs. [d] Linn. [e] Loureiro.

4. Root annual. That and the ſtem nearly as in the *arvenſis*. Stem ſtrong, hard, nearly round, upright, branched, ſtriated or finely grooved, ſet with numerous ſtiffiſh hairs pointing downwards, from a foot and half to two feet in height. Leaves petioled, alternate, pale green, rough with ſtrong hairs on both ſides, all deeply indented or lobed, the terminating ſegment very broad and large, and frequently a pair of ſmall wings on the petiole; the lowers ones deeply pinnatifid; the upper ones ſublyrate. Flowers on looſe racemes or bunches at the ends of the branches, on horizontal pedicels, which have four grooves or corners, and ſtrong hairs pointing downwards. Calyx-leaves linear, ſpreading a little at top and ending bluntly, green-yellow or ſometimes purpliſh. Petals yellow, with upright narrow claws ſcarcely the length of the calyx; lamina or border obovate and entire. Siliques ſpreading on almoſt horizontal peduncles, an inch long, roundiſh, ribbed, toroſe or ſwelling where the ſeeds are, hiſpid, ſeparated into two cells, by a membranaceous partition, which is produced above the valves into a very long coriaceous, enſiform, flattened, greeniſh, rugged beak. Seeds three or four, globular, very large, white, yellowiſh, brown or dark ruſt colour [a].

Ray diſtinguiſhes this ſpecies from common Muſtard and Charlock, by the leaves being more deeply and frequently cut; the pods hairy and ſtanding out more from the ſtalk; the ſeeds very large, ſo as to ſwell out the pod into knots; and the pod itſelf finiſhing in a broad thin oblong ſword-ſhaped point. Haller remarks, that the flower is larger than in the common Muſtard.

Native of Germany, France, Flanders, Switzerland and Britain, in corn fields, on banks, and by road ſides; flowering in june, and ripening its ſeeds in auguſt. Mr. Curtis obſerves, that Muſtard is as common in the fields about High Wycomb, in Bucks, as Charlock (Sinapis arvenſis) is in other places.

White Muſtard is generally cultivated in gardens as a ſalad herb, with Creſſes, Radiſh, &c. for winter and ſpring uſe. The ſeeds have nearly the ſame properties with thoſe of common Muſtard [b] (Sinapis nigra.)

5. Root annual, ſmall. Stem upright, round, ſtreaked, the upper part ſmooth, three or four feet in height, with many diſtant ſpreading branches. Leaves petioled, variouſly lobed and toothed; thoſe next the root lyrate, rugged; on the ſtem ſmooth, the upper ones frequently ſimple, lanceolate, and ſharply toothed, the very uppermoſt quite entire. Calyx and corolla pale yellow. Siliques ſhort, parallel to the ſtem, with a ſmooth beak: the peduncles are ſlightly hairy. Seeds brown [c].

"Our ordinarie Muſtard," ſays Johnſon, (Ger. emac. 243.) "hath leaves like Turneps, but not ſo rough, the ſtalks are ſmooth, and grow ſometimes to three, four or five cubits high; they have many branches, and the leaves upon theſe branches, eſpecially the uppermoſt, are long and narrow, and hang downward on ſmall ſtalks; the cods are ſhort, and lie flat and cloſe to the branches, and are ſomewhat ſquare: the ſeed is reddiſh or yellow."

This hanging down of the upper leaves on the branchlets, remarked by Johnſon, diſtinguiſhes this at firſt ſight from its congeners [d].

Ray's diſtinctions are good ones. "It is a loftier plant than either White Muſtard or Charlock; the upper part of the ſtem and the branches are ſmooth, the pods ſhort, preſſed cloſe to the ſtem and almoſt quadrangular. The ſeeds are the ſmalleſt among theſe plants." We may add, that the leaves are of a much darker colour, and their diviſions blunter than in the White Muſtard; the flowers are ſmaller, the pods for the moſt part quite ſmooth, and ſcarcely toruloſe.

Native of Europe, in corn fields, on the banks of ditches, and by way ſides; flowering in june and july. Whenever they throw the earth out of their ditches in the iſle of Ely, the bank comes up thick with Muſtard; the ſeed falling into the water and ſinking to the bottom, will remain embalmed in the mud for ages without vegetating. The tender leaves are ſometimes boiled and eaten as greens in the ſpring. But it is principally cultivated for the ſeed, which is uſed both medicinally and for culinary purpoſes [e].

The ſeeds reduced to powder make the common Muſtard for the table. When freſh, this powder has little pungency and much bitterneſs; but moiſtened with vinegar and kept for a day, the eſſential oil is evolved, and it becomes conſiderably more acrid. By diſtillation with water they yield an eſſential oil of great acrimony. Subjected to the preſs, they yield a conſiderable quantity of inild inſipid oil, which is as free from acrimony as that of Almonds [f].

The ſeeds unbruiſed taken inwardly, in the quantity of a table ſpoonful or more, gently looſen the bowels, and are of ſervice in aſthma, chronic rheumatiſm and palſy. The powdered ſeeds curdle milk, and give a ſtrong impregnation to boiling water. This infuſion, taken in conſiderable quantity, vomits; in ſmaller doſes it is an uſeful aperient and diuretic. Cataplaſms formed with crum of bread, vinegar and powdered muſtard ſeed are very commonly applied to the ſoles of the feet, as ſtimulants in fevers that require ſuch treatment; they are uſed with advantage, topically applied, in fixed rheumatic and ſciatic pains. Upon the whole, whenever we want a ſtrong ſtimulus, that acts upon the nervous ſyſtem, without exciting much heat, we know none preferable to Muſtard ſeed. Its acrimony is not to be aſcribed to volatile alkali, but conſiſts in an eſſential oil [g].

Bergius informs us, that he found Muſtard of great efficacy in curing vernal intermittents; for this purpoſe he directed a ſpoonful of the whole ſeeds to be taken three or four times a day, during the apyrexia; and when the diſeaſe was obſtinate, he added flour of Muſtard to the bark. Muſtard-ſeed may be moſt conveniently given entire or unbruiſed, and to the quantity of a ſpoonful or half an ounce to a doſe [h].

6. Root biennial. Leaves runcinate, ſmooth, with a whitiſh rib; the triangular ſegments of the root-leaves toothletted, of the ſtem-leaves lanceolate. Stem ſmoothiſh. Flowers racemed, ſmall, yellow. Siliques ſtraightiſh, ſtriated, rugged, with indiſtinct hairs pointing upwards [i].

Stems angular, even, round, ſtriated, flexuoſe, ſmooth. Margin of the leaves and rib ſhortly ſubhirſute: the leaves themſelves pinnatifid, with the pinnas triangular, toothed, eſpecially below, on a grooved petiole. Flower-ſtalks from the axils of the leaves. Flowers firſt in an umbel, afterwards in a raceme. Pedicels round. Calyx-leaves linear, greeniſh-yellow, about the length of the claws. Petals ovate, quite entire. Siliques ſtriated, toroſe, round. Seeds ten or twelve, oblong, grooved in the inner part [k].

Native of the Pyrenees, mont Cenis, the Alps of the Vaudois and di Viu.

8. This, according to Allioni, differs not only in its place of growth, but in ſome other marks. The biennial roots bear the root-leaves on long petioles, ſinuate-angular eſpecially towards the petiole. The ſtem-leaves are more ſparingly toothed, and longer with the end triangular; the upper ones ſcarcely angular and rather haſtate. All juicy and thickiſh, very ſmooth, ſubglaucous, concave above. Stem a yard high, firm, erect, branched, round, very ſmooth; with a raceme of flowers on each branch. Calyx ſpreading. Petals ovate, clawed, ſulphur-coloured. The peduncles thicken after flowering. Siliques irregularly preſſed cloſe to the branches and commonly twiſted, round, toruloſe, narrower towards the end, thickened (but not horned or beaked) with a two-necked permanent ſtigma. In the other the ſtigma is not cloven.

Native of the coaſt of Uneglia, the deſcent of the Col di Tenda and the following mountains towards Nice, &c.

7. Stem perennial, ſhrubby. The whole plant

[a] Fl. ruſt. Smith, Withering, Woodw. Mſs. Curtis, Gærtner.
[b] With. & Fl. ruſt. [c] Fl. rud. Smith. Relh. Woodw. With.
[d] Goodenough in Smith brit.
[e] Fl. ruſt. [f] Woodville. [g] Withering.
[h] Woodville. [i] Linn. ſpec. [k] Allioni.

villose. Leaves blunt. Petals yellow, entire.—Native of Sicily [a].

8. Root annual. Stem hispid-muricated. Leaves pinnatifid, blunt, toothed, the end lobe oblong and very large, very rugged on both sides with short rigid hairs. Petioles hispid. Flowers yellow. Beak of the filique long, blunt and flat.—Native of Morocco [b].

9. Root annual. Stem hispid below. Leaves toothed, rugged about the edge and along the rib. Flowers white, small [c].

Stem three feet high, thick, striated, branched. Root-leaves large, oblong-oval, lyrate-runcinate, wrinkled, with few hairs, often none: petioles roundish, channelled, short, fleshy. Stem-leaves cordate-conical, embracing, subserrate, alternate, smooth, with rounded ears. Flowers terminating, yellow, in long simple spikes. * Siliques torose; containing brown, globular seeds.

Native of China and Cochinchina, and very extensively cultivated in both countries.

There are two varieties of it in Cochinchina, with entire leaves, not lyrate. These being more tender and having more flavour, are preferred for eating. The seeds are used internally as a stimulant, and externally as sinapisms [d].

Introduced in 1782 by Monf. Thouin; and flowering here in july [e].

Loureiro has another species, (S. pekinensis) which is cultivated about Pekin, and esteemed the best of all the sorts. It grows higher in Cochinchina, but is inferior in quality. Loureiro sowed the seeds in Portugal, on his return home, but found that it degenerated every year. He describes it as annual, two feet high, with an upright, thick, round, smooth stem: the root-leaves turbinate-ovate, entire, serrate-runcinate, curled, smooth, yellowish, very tender; on flattish, very wide, white, grooved, half-embracing petioles; stem leaves conical, sessile, quite entire. Spikes solitary, very long, spreading. Calyx-leaves oblong, blunt, upright, yellow. Corolla yellow, spreading. Siliques linear, compressed, smooth. Seeds globular, rufous.

Loureiro regards *Sinapis juncea* and *cernua* as varieties of the *chinensis*; and considering how the Cabbage varies in Europe by culture, he doubts whether all these plants may not be varieties, rather than true species.]

10. Stems three or four feet high. Root-leaves broad, smooth, jagged; but the upper ones are entire. Flowers yellow. Pods smooth and turgid.

Native of China, whence the seeds are frequently brought to England. This plant is used as a boiled salad by the Chinese, but in England it is not regarded. It flowers in june and the seeds ripen in august.—Calyx hairy, pale green: flowers white.

[Cultivated in 1731, by Mr. Miller [f].

11. Root fibrous, white, and annual: the whole plant is either perfectly smooth, or at most scattered over with a few distant whitish hairs: stem solitary, round, branchy, and about a foot and half high: all the leaves laciniated in a pinnatifid manner, rather obscure, infipid, with the segments unequally toothpinnated: upper leaves sessile, the rest footstalked: no radical leaves, except the seed-leaves: flowers thinly placed on upright racemes, almost inodorous: calyx yellowish, with a tinge of green: petals yellow: siliques ovate-oblong, wrinkled, glaucous, not at all hairy, and marked by a few longitudinal prominent lines [g].]

12. This seldom rises more than eight or nine inches high. Leaves smooth and much jagged. The stalk branches towards the top, and is terminated by a loose spike of white flowers: these are succeeded by smooth, taper, blunt pods, filled with small brown seeds. It flowers in june, and the seeds ripen in august.

[Root annual. Stem purplish, somewhat angular, rugged. Leaves lyrate-runcinate, sharpish, serrulate. Racemes corymbed. Calyx half-spreading, pubescent. Petals white, obtuse, scarcely emarginate. Filaments purplish [h].

Native of Italy and Spain, in vineyards and by way sides.

13. The whole plant is smooth. Root-leaf lyrate: lobes nearly opposite, oblong, entire, half an inch long, the length of the internodes: terminating lobe ovate, obtuse, gashed, toothed with wide teeth, little curled, nerved, almost the size of a Cabbage leaf. Stem-leaves subsessile, oblong, entire below, toothed above, nerved, a finger's length, with the upper ones gradually smaller. Stem striated, smooth, branched at top. Flowering-branches drooping. Flowers terminating, racemed, white. Peduncles capillary, spreading. Siliques linear, attenuated at the top, even, smooth.

Native of Japan [i], and China. Annual.

14. Native of Spain. Cultivated in 1759 by Mr. Miller, who has however given no description of it.

15. The whole plant is smooth and herbaceous. Stem erect, striated, even, branched. Branches spreading, like the stem, subdivided. Leaves petioled, rounded at the corners, acute, a finger's length: the upper ones less deeply pinnatifid, often toothed at the end. Raceme of flowers very long. Peduncles capillary, from spreading upright. Corollas yellowish. Siliques erect, somewhat angular, smooth and even, attenuated at the top.—Native of Japan about Jedo, flowering in may [k].

16. Root branched, hard, acrid, having the taste and smell of *Brassica Napus* or Navew. Root and stem-leaves on long petioles, lyrate, very hairy, hoary, with the lobes ovate, decurrent, alternate, toothed; axillary leaves lanceolate-linear, quite entire, seldom toothed. Stem panicle-branched, hispid, with hairs pointing backwards. Branches stiffish. Racemes terminating and axillary. Flowers small, yellow. Siliques pressed close to the raceme, as in *Erysimum officinale*, at first rough-haired, then smooth, composed of one lower long many-seeded joint, and one upper shorter commonly one-seeded. Style very short. In gardens the stem is more upright, less branched, smoother, less hoary, with branches less wandlike [l].

Native of France, Spain, Portugal and Switzerland. Introduced in 1778, by Monf. Thouin. It is biennial and flowers in july.

17. Native of the island of Madeira. Introduced in 1777, by Mr. Francis Maffon. It flowers from december to june [m].

18. Root perennial, very long, twisted, having filiform branches. Stem hispid at the base, smooth above, even, erect, with long, erect branches. Root-leaves and lower stem-leaves petioled, hispid, deeply lyrate; with the pinnules alternate, remote, obtuse, often narrowed at the base, unequally toothed, with smaller ones interposed; the end-lobe larger, rounded or oblong. Middle and upper stem-leaves few, remote, pinnate, smooth, with the pinnules lanceolate or linear-lanceolate, acute, entire or toothed. Flowers of the same size as in *S. juncea*. Calyx coloured, loose, with linear-elliptic leaflets. Petals pale yellow, with the border obovate and quite entire. Siliques loosely racemed, pedicelled, torulose, smooth, spreading, with an awl-shaped point. Pedicels filiform, a little shorter than the filique.—Near Algiers, on barren hills [n].

Desfontaines has other species: as 2. *Sinapis circinata*. Pubescent all over, with an upright, striated stem, sparingly branched. Leaves petioled, soft: the upper ones simple, toothed, ovate, obtuse; the lower pinnate-lyrate, pinnules three or five, unequally crenate; the end lobe very large, circinate, crenate, the other lobes smaller, oblong, obtuse, unequal. Flowers in racemes, pedicelled. Calyx pubescent, coloured, patulous, deciduous. Corolla yellow, the same size as in *S. arvensis*: border obovate, quite entire. Germ pubescent. It is an annual plant, found among corn in Barbary.

2. *Sinapis recurvata*. *Allion. pedem. n.* 963. *t.* 82. *f.* 1. Root perennial (biennial, *Allion.*) Leaves petioled,

[a] Linn. mant. [b] Willdenow. [c] Linn. mant. [d] Loureiro. [e] Hort. kew. [f] Idem. [g] Jacquin.

[h] Linn. mant. [i] Thunberg. [k] Idem. [l] Gouan. [m] Hort. kew. [n] Desfontaines.

petioled, ſmooth, deeply pinnate-lyrate; with the lobes diſtinct, unequal, acute or obtuſe, running down the petiole: the end one larger, ovate, unequally toothed. Flowering branches ſmooth, ſimple, leafy at the baſe, naked above, aſcending. Flowers pedicelled, racemed. Calyx ſmooth. Petals pale yellow. Siliques ſmooth, toruloſe, awl-ſhaped at top, pedicelled, looſely racemed, when ripe nodding.

Found by Bellardi in Piedmont, and by Deſfontaines in the clefts of rocks on mount Hamamelif near Tunis.

3. *Sinapis bipinnata.* This has the appearance of a *Siſymbrium*, and perhaps may belong to that genus. Root annual. Stem erect, ſlender, ſimple or ſparingly branched, tubercled, rugged, hairy, with ſhort hairs turned back. Leaves petioled, ſmooth, bipinnate; pinnules linear, unequal, entire or toothletted. Flowers at firſt in a corymb, afterwards in a raceme. Calyx ſmall, ſmooth; leaflets linear-elliptic, obtuſe. Petals pale yellow, with the claw longer than the calyx, and the border obovate and entire.—Native of the mountains of Caſſa.

4. *Sinapis geniculata.* Allied to *S. nigra*, but differing in having the ſiliques more ſlender, ſtriated, pubeſcent, with the point blunniſh, longer, jointed and bent in. It is an annual plant found among corn in Barbary [t].

10. This is a biennial plant, native of Spain and Portugal. Introduced in 1770, by Monſ. Richard. It flowers in june [*].

PROPAGATION AND CULTURE.

1. This and the other ſpecies, when they are weeds among corn, being annuals, may be deſtroyed, or at leaſt checked, by ſpring-feeding with ſheep, or by weeding with the hook, to prevent its flowering. The ſeed will lie in the ground, till turned up within the ſphere of vegetation; by which means it may be deſtroyed on fallows.]

4. White Muſtard is chiefly cultivated in gardens for a ſalad herb in the winter and ſpring. For this purpoſe ſow the ſeeds very thick in drills, upon a warm border, or in very cold weather upon a moderate hot-bed. They will be fit for uſe in ten days or a fortnight, for if they are large and have rough leaves, they are too ſtrong to put into ſalads.

To ſave the ſeeds, a ſpot of ground muſt be ſown in the ſpring, and when the plants have four leaves, hoe the ground in the ſame manner as for Turneps, in dry weather. In a month hoe the ground over again, leaving the plants eight or nine inches aſunder. If this be well performed, and in dry weather, the ground will remain clean till the ſeeds are ripe. As ſoon as the pods change brown, cut the plants off, and ſpread them upon cloths two or three days to dry, and threſh them out for uſe.

5. Common Muſtard is cultivated only for the ſeeds, which ſhould be ſown in the ſame way as thoſe of the preceding, and treated in the ſame manner, only allowing the plants twice as much room, or hoeing them out to the diſtance of eighteen inches. Sometimes this ſort requires to be hoed three times.

The other ſorts are cultivated only for variety, and may be treated in the ſame way.

[SINAPISTRUM. See *Cleome*.

SINGANA. See *Sterbeckia*.

SINGLE-SEEDED CUCUMBER. See *Sicyos*.

SIO ATTIAN. See *Cardamine*.

SIOPANNA POLA-TALI. See *Crinum*.

SIPANEA. See *Virecta*.

SIPHONANTHEMUM. See *Siphonanthus*.

SIPHONANTHUS. (*From* Σιφων, *a ſiphon or tube; and* ανθος, *a flower.*)

Lin. gen. n. 129. *Reich. n.* 135. *Schreb. n.* 165. *Juſſ.* 132. Siphonanthemum. *Amman. act. petrop.* 1736.

Claſſ. 4. 1. Tetrandria Monogynia.

Nat. order of *Borragineæ*, Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* one-leafed, five-parted, wide, permanent.

COR. one-petalled, funnel-form: *tube* filiform, very narrow, ſeveral times as long as the calyx: *border* four-parted, ſpreading, leſs than the calyx.

STAM. *Filaments* four, longer than the border of the corolla. *Anthers* oblong, triangular.

PIST. *Germ* four-cleft, very ſhort, ſuperior. *Style* filiform, length of the ſtamens, recurved at the tip. *Stigma* ſimple.

PER. *Berries* four, with the ſpreading calyx, roundiſh.

SEEDS ſolitary, roundiſh.

ESSENTIAL CHARACTER.

Cor. one-petalled, funnel-form, very long, inferior. *Berries* four, one-ſeeded.

SPECIES.

1. Siphonanthus indica.

Lin. ſpec. 159. *ſiſt.* 152. *Reich.* 1. 319. *Willd* 1. 606. *Amm. act. petrop.* 1736. *p.* 214. *t.* 15. *Lamarck encycl. t.* 79. *f.* 1.

Border of the corolla ſpreading, ſtigma undivided.

2. Siphonanthus anguſtifolia.

Lin. ſpec. ed. Willd. 1. 606. *Lamarck encycl. t.* 79. *f.* 2.

Border of the corolla two-lipped, ſtigma biſid.

DESCRIPTIONS, *&c.*

1. Stem herbaceous, quite ſimple. Leaves oppoſite and alternate, linear-lanceolate. Flowers in axillary corymbs, three or four together. Border of the corolla flat, with the ſegments ſpreading and acute. Anthers triangular, ſagittate. Stigma undivided, thickiſh. Native of South America.

2. This has leaves like thoſe of the preceding, but much narrower, and by threes. Flowers axillary in biſid corymbs ſix-flowered or three-flowered. Tube of the corolla curved in; ſegments of the corolla blunt, three of them bent back, the uppermoſt erect, as in a labiate flower. Anthers roundiſh. Stigma biſid [*].

SIPHONIA. (*From* Σιφων; *the inſpiſſated juice, under the name of Eaſtic Gum, being uſed in making Siphons, among many other things.*)

Lin. gen. Schreb. n. 1466. Hevea. *Aubl. t.* 335. *Juſſ.* 389. Caoutchouc. *Act. D. Richard.*

Claſſ. 21. 8. Monoecia Monadelphia.

GENERIC CHARACTER.

* *Male* flowers numerous, in racemes.

CAL. *Perianth* one-leafed, globular-bell-ſhaped, half-five-cleft: *teeth* erect, acute, reflex at the edge.

COR. none.

STAM. *Filament* a Column ſhorter than the calyx. *Anthers* five, growing to the column below the top of it, ſubovate.

* *Female* terminating, one in each raceme.

CAL. *Perianth* one-leafed, turbinate-bell-ſhaped, five-cleft: *teeth* acute, from ſpreading-recurved, deciduous, the circular baſe only remaining.

PIST. *Germ* conical-globular, ſhorter than the calyx. *Style* none. *Stigmas* three, thickiſh, depreſſed-two-lobed.

PER. *Capſule* large, tricoccous, depreſſed, hollowed at the baſe, woody, very hard, covered with a fibroſe bark, three-celled: *cells* two-valved; valves opening elaſtically.

SEEDS ſolitary, (or two or three) ſubovate, with a brittle ſpotted ſhell.

ESSENTIAL CHARACTER.

Cal. one-leafed. *Cor.* none.

MALE. *Anthers* five, growing below the top of the column.

FEM. *Style* none. *Stigmas* three. *Capſ.* tricoccous. *Seed* one, (ſometimes two or three.)

SPECIES.

1. Siphonia elaſtica. *Elaſtic-Gum Tree.*

Jatropha elaſtica. *Lin. ſyſt.* 865. *ſuppl.* 422. *Dict. noſtr.*

Hevea guianenſis. *Aubl. guian.* 871. *t.* 335.

DESCRIPTION, *&c.*

See *Jatropha elaſtica.*

SIPONIMA. See *Symplocos.*

SIRIBOA. See *Piper.*

[Deſfontaines. [Hort. kew. [t Willdenow.

SIRIUM. See *Piper* and *Sentalum*.
SIRUM. See *Piper*.
SISARUM. See *Sium*.]
SISON. (*Sweet of Dioscorides.*)
Lin. gen. n. 349. *Reich. n.* 379. *Schreb. n.* 481. *Juss.* 221.
Class. 5. 2. Pentandria Digynia.
Nat. order of *Umbellatæ* or *Umbelliferæ*.

GENERIC CHARACTER.

CAL. *Umbel universal* with fewer than six rays, unequal: *partial* with fewer than ten rays, unequal.
Involucre universal mostly four-leaved, unequal: *partial* confimiliar.
Perianth scarcely manifeſt.
COR. *universal* uniform. *Florets* all fertile.
Proper equal: petals five, lanceolate, inflected, flattiſh.
STAM. *Filaments* five, capillary, length of the corolla. *Anthers* ſimple.
PIST. *Germ* ſubovate, inferior. *Styles* two, reflected. *Stigmas* obtuſe.
PER. none. *Fruit* ovate, ſtriated, bipartile.
SEEDS two, ovate, convex and ſtriated on one ſide, flat on the other.

ESSENTIAL CHARACTER.

Involucres mostly four-leaved. *Fruit* ovate, ſtriated.

SPECIES.

1. Siſon Amomum. *Hedge Honewort* or *Baſtard Stone Parſley.*
Lin. ſpec. 362. *ſyſt.* 285. *Reich.* 1. 695. *Willd.* 1. 1436. *mant.* 355. *hort. cliff.* 98. *Hudſ. angl.* 119. *Wither. arr. ed.* 3. 300. *Smith brit.* 315. *engl. bot. t.* 954. *Relh. cant. ed.* 2. *n.* 258. *Sibth. oxon. n.* 298. *Abbot hedf. n.* 214. *Jacqu. hort. vind.* 3. *t.* 17. *Hoffm. germ.* 101. *Sauv. monſp.* 232. *Villars dauph.* 2. 607. *Allion. pedem. n.* 1364. *Plenck, ic.* 200.
S. quod Amomum officinis noſtris. *Bauh. pin.* 154. *Mor. hiſt. ſ.* 9. *t.* 5. *f.* 7.
S. ſ. officinarum Amomum. *Bauh. hiſt.* 3. *p.* 2. 107. *Raii hiſt.* 443.—vulgare, vel Amomum germanicum. *Park. theat.* 914. 1.
Sium Amomum. *Reich. germ.* 2. 336.
S. aromaticum Siſon Oli. *Tournef. inſt.* 308. *Raii ſyn.* 211.
Seſeli Amomum. *Scop. carn. n.* 355.
Cicuta Amomum. *Crantz umb.* 96.
Petroſelinum. *Lucdy. hiſp.* 655.
P. macedonicum Fuchſii. *Dod. pempt.* 697. 1. *Ger. emac.* 1016. 1.
Leaves pinnate, umbels erect moſtly four-rayed.
2. Siſon ſegetum. *Corn Honewort.*
Lin. ſpec. 362. *ſyſt.* 285. *Reich.* 1. 696. *Willd.* 1. 1436. *Hudſ. angl.* 120. *Wither. arr. ed.* 3. 300. *Smith brit.* 1. 316. *engl. bot.* 228. *Relh. cant. ed.* 2. *n.* 259. *Sibth. oxon. n.* 299. *Abbot hedf. n.* 215 *Dickſ. hort. ſicc.* 12. 17. *Jacqu. hort. vind.* 2. *t.* 134. *Hall. helv. n.* 779.
Sium arvenſe ſ. ſegetum. *Tournef. inſt.* 308. *Raii ſyn.* 211.—tertium. *Mor. hiſt.* 3. 283. *ſ.* 9. *t.* 5. *f.* 6. *ord.* 2.
Selinum Sii foliis. *Ger. emac.* 1018. *Raii hiſt.* 443.
S. ſegetale. *Park. theat.* 932.
Leaves pinnate, leaflets roundiſh numerous, umbels drooping irregular.
3. Siſon canadenſe. *Three-leaved Honewort.*
Lin. ſpec. 363. *ſyſt.* 285. *Reich.* 1. 696. *Willd.* 1. 1436. *hort. cliff.* 99. *Gron. virg.* 147. *Kalm. it.* 3. 259. *ed. angl.* 3. 27. *Tbunb. jap.* 118.
Myrrhis canadenſis trilobata. *Mor. hiſt.* 3. 301. *ſ.* 9. 11. *f.* 4.
M. canadenſis. *Riv. pent. t.* 53.
Leaves ternate.
[4. Siſon Ammi.
Lin. ſpec. 363. *ſyſt.* 285. *Reich.* 1. 696. *Willd.* 1. 1437. *hort. upſ.* 63. *mat. med.* 81. *Jacqu. hort. vind.* 2. *t.* 202. *Cavan illuſtr.* 17. *Plenck, ic.* 199.
Ammi. *Lin. hort. cliff.* 81. *Cather. epit.* 522.
A. parvum foliis fœniculi. *Bauh. pin.* 159.
A. femine tenuiſſimo & odoratiſſimo. *Bauh. hiſt. Raii hiſt.* 455.
A. creticum aromaticum. *Lob. ic.* 724.
A. perpuſillum. *Ger. emac.* 1037. 3.
Leaves tripinnate, root-leaves linear, ſtem-leaves briſtle-ſhaped, ſtipular-leaves longer.
5. Siſon inundatum. *Water Honewort.*
Lin. ſpec. 363. *ſyſt.* 285. *Reich.* 1. 696. *Willd.* 1. 1437. *fl. ſuec. n.* 249. *Fl. dan. t.* 89. *Hoffm. germ.* 101. *Hudſ. angl.* 120. *Wither. arr. ed.* 3. 301. *Engl. bot. t.* 227. *Sibth. oxon. n.* 300. *Dickſ. hort. ſicc.* 3. 3. *Villars dauph.* 2. 607.
Hydrocotyle inundata. *Smith brit.* 290. *Relh. cant. ed.* 2. *n.* 237.
Sium inundatum. *Roth. germ.* 1. 128. 2. 336. *Hall. helv. n.* 780.
S. puſillum foliis variis. *Raii ſyn.* 212. *Petiv. brit. t.* 26. *f.* 4.
S. minimum. *Raii hiſt.* 444.—umbellatum foliis variis. *Pluk. phyt. t.* 61. *f.* 3.
S. min. fol. imis ſeruiaceis. *Mor. hiſt.* 3. 223. *ſ.* 9. *t.* 5. *f.* 5.
Leaves pinnate gaſhed, thoſe under water cut as fine as hairs into many parts, umbels five-flowered biſid.
[6. Siſon ſaſſum.
Lin. ſyſt. 285. *Willd.* 1. 1438. *ſuppl.* 181.
Peucedanum redivivum. *Pallas act. petrop.* 1779. 2. *p.* 252. *t.* 8. *f.* 1—3.
Root-leaves compound, leaflets ſubverticillate-bundled lanceolate, ſtem leaflets, branches umbelliferous dichotomous.
7. Siſon crinitum.
Lin. ſpec. ed. Willd. 1. 1438. *Pallas act. petrop.* 1779. 2. *p.* 250. *t.* 7.
Root-leaves triplicate-pinnate, ſtem-leaves bipinnate, leaflets briſtle-ſhaped, univerſal involucre many-leaved bipinnate.

DESCRIPTIONS, *&c.*

1. Root annual or biennial, ſpindle-ſhaped, with lateral branches. Stem erect, two or three feet high (except in dry places), much branched and ſpreading, rather flexuoſe, round, furrowed, ſmooth, leafy. Leaves pinnate with a terminating lobed leaflet, unequally ſerrate: the lower ones have ſeven or nine leaflets, ovate, gaſhed, ſerrate, ſometimes compound; the upper ones have the leaflets narrower, deeper cut, and often pinnatifid. Umbels numerous, terminating, ſolitary, erect when in flower, compoſed of four, ſeldom more, unequal rays; with a ſmall four-leaved general involucre. Partial umbels likewiſe have but few rays, and thoſe unequal, with a ſmall four-leaved partial involucre. Calyx ſcarcely perceptible. Petals white, inflexed, broader than thoſe of *S. ſegetum*. Fruit ovate, ſhort, compreſſed, ribbed. Seeds aromatic and pungent when ripe and dry; but in an early ſtate they, like the whole herb, have a peculiar nauſeous ſmell[a].
Native of England, Germany, South of France, Carniola and Piedmont. With us not unfrequent in moiſtiſh ſpots under hedges, where the ſoil is marly or chalky, flowering in the latter part of ſummer.
2. Root ſmall but ſtrong, annual in general but often biennial. Stems very much branched, round, ſtriated, ſlender and ruſh-like, leafy. Leaves unequally pinnate; leaflets numerous, ovate-roundiſh, ſerrate, ſcarcely gaſhed, the end one trifid; radical leaves largeſt, conſiſting of from ſeven to fifteen leaflets. General umbels of few (two or three) very unequal rays. Partial umbels nodding, few-flowered, with the pedicels of various lengths. Involucre two-leaved, lanceolate. Involucrets moſtly five-leaved, ovate, acute, concave. Flowers very ſmall, regular, white or fleſh-coloured. Calyx five-toothed. Petals incurved. Anthers purple. Fruit oblong-ovate, doubly ribbed, pungent and aromatic, as is the whole plant in ſome degree[b].
Native of Switzerland and England, in corn fields in a chalk and clay ſoil, but not very frequently. Obſerved by Goodyer about Mapledurham, Hants, long before 1620, in which year he deſcribed it. The whole account of this herb by this accurate obſerver, with the origin of its name *Honewort*, from its curing a ſwelling in the cheek called a *Hone*, with the hiſtory

[a] Engl. bot.
[b] Smith brit. & engl. bot.

of

of Miſtris Urſula Leigh, and Miſtris Charitie Leigh, is a model of accurate inquiry and preciſe information.[a] It occurs in Madingley road near Cambridge, and about Haddenham, in the iſle of Ely. About Goldington and Clapham in Bedfordſhire. Found near Kelmarſh in Northamptonſhire by William Hanbury, Eſq. At South Leigh, in Oxfordſhire, by Dr. Sibthorp. At Binham in Norfolk by Mr. Crowe. At Walthamſtow in Eſſex by Meſſrs. Forſters. It flowers in july and auguſt.

3. Root perennial. Radical leaves ternate, ſerrate; the middle leaf trifid, the two ſide ones bifid. Stem-leaves ternate, ſerrate, lanceolate, ſhining. Umbel four-cleft, unequal, without any involucre. Umbellets moſtly ſeven-flowered, with a very ſmall involucret. Petals white, equal. General involucre none[b].

Stem round, upright, ſmooth, little branched, two feet high and more. Leaves petioled, all ternate, paler beneath, ſmooth, the lower ones larger, the upper gradually leſs; leaflets ovate, acute, gaſhed, ſharply ſerrate, almoſt equal, the lateral ones ſeſſile, the middle one ſubpetioled. Radical petioles capillary, ſmooth, many times longer than the leaves; thoſe of the ſtem-leaves a little ſhorter. Flowers axillary, panicled and umbelled. Pedunicles and pedicels capillary, looſe, ſmooth. Corollas white. Seeds oblong, ſcored, ſmooth[c].

Native of North America and Japan. Introduced before 1699, by William Sherard, Eſq.[d]

Kalm ſays that it abounds in the woods of all North America; that the French call it *Cerfeuil ſauvage*, and make uſe of it in ſpring in green ſoups, like Chervil, and that it is univerſally commended in North America as a wholeſome antiſcorbutic plant.

4. Root annual. Radical leaves linear, ſuperdecompound, flat: leaflets ſeſſile, folded back and imbricate. Stem-leaves ſuperdecompound-pinnate, briſtle-ſhaped: thoſe which terminate the petiolar ſheath are trichotomous and longer than the others[e].

Stem a foot high, ſimple, erect, very ſlightly grooved: branches very few, at the top of the ſtem, or from the axils of the middle, not the lower leaves. Leaves uniform, triangular, tripinnate; leaflets ſetaceous-ſubulate, two or three lines in length, trifid or cared, ſeldom quite entire. Petioles of the radical leaves two inches long; of the middle ſtem-leaves an inch. Sheaths membranous at the edge, wider at the baſe, half-embracing; very much narrowed at the top, not two-lobed, running into the petioles. Umbels of two or three rays, half an inch long, remote; without any general involucre. Umbellets of eight to twelve rays, for the moſt part equal. The ſheaths of the middle and branch-leaves are often two-lobed. This plant has a fragrant aromatic ſmell[f].

Native of Portugal, Apulia and Egypt.

5. Root annual or biennial. Stems creeping, floating, round. Leaves alternate, unequally pinnate, with membranous ſheathing ſtipules embracing the ſtem: ſuch leaflets as are above the water are oblong, trifid, often pinnatifid; thoſe under water, eſpecially at any depth, are finely divided into capillary ſegments, as in *Ranunculus aquatilis*. The umbels are placed oppoſite to each leaf, juſt within the ſtipule, on longiſh pedunicles, and conſiſt of only two partial umbels, without any general involucre. Each partial umbel has about five, white, ſlightly radiant flowers, with oval, entire, ſpreading petals; and for the moſt part a four-leaved involucre. Fruit elliptic, ſtriated[g].

Dr. Smith, in Engl. bot. ſuggeſted that this plant rather belongs to the genus *Hydrocotyle*; and in his Britiſh Flora he has removed it into that genus. Haller and Roth make it a *Sium*, as the old authors had done.

Native of the North of Europe, Britain, Germany, Switzerland and Dauphiné. It ſeems not to be unfrequent in wet places overflowed in winter, as well as ditches and pools. It flowers in may.

6. Leaves only radical, in bundles, ſhorter, pinnate: pinnas oppoſite, oblong, the firſt pair decompounded, the reſt not: leaflets with lanceolate pinnas, green, with a white membranaceous border, in bundles. Stem conſiſting of umbelliferous branchlets with awl-ſhaped bractes at the ramifications: branchlets divaricate. Umbels ſmall, erect. Involucres ſmall, awl-ſhaped. The leaves flouriſh in the ſpring, and after they wither away the ſtem grows up, and flowers in auguſt, in a manner leafleſs.—Native of Siberia, in the ſalts near the Wolga[h].

7. Native of Siberia, where it was diſcovered by Pallas.]

PROPAGATION AND CULTURE.

1. 2. Sow the ſeeds in autumn, in a moiſt ſhady ſpot of ground; or permit the ſeeds to ſcatter, and the plants will riſe without care.

3. 4. 6. 7. Sow the ſeeds as above. The plants require no other culture than to thin them where they are too cloſe, and keep them clean from weeds. They delight in a moiſt ſoil and ſhady ſituation, where the roots will continue ſeveral years.

[Siſon verticillatum. See *Sium*.

SISYMBRIA. See *Siſymbrium*.

Siſymbrii ſpecies. See *Cardamine*.

SISYMBRIUM (*of Pliny.* Σισυμβρίον *of Theophraſtus* Σισύμβριον *of Nicander in Ther.*)

Lin. gen. n. 813. *Reich. n.* 877. *Schreb. n.* 1086. *Tourn. t.* 109. *Juſſ.* 239. Radicula. *Dill. gen.* 6.

Claſs, 15. 2. Tetradynamia Siliquoſa.

Nat. order of *Siliquoſæ, Cruciformes* or *Cruciferæ*.

GENERIC CHARACTER.

CAL. *Perianth* four-leaved: *leaflets* lanceolate-linear, ſpreading, colored, deciduous.

COR. four-petalled, cruciform. *Petals* oblong, ſpreading, commonly leſs than the calyx, with very ſmall claws.

STAM. *Filaments* ſix, longer than the calyx: of theſe two oppoſite a little ſhorter. *Anthers* ſimple.

PIST. *Germ* oblong, filiform. *Style* ſcarcely any. *Stigma* obtuſe.

PER. *Silique* long, incurved, gibbous, round, two-celled, two-valved: *valves* in opening ſtraightiſh: partition a little longer than the valves.

SEEDS very many, ſmall.

OBS. Sophia *has the corolla ſhorter than the calyx, and a very ſlender very long ſeſſique.*

Radicula *of Dillenius, produces a very ſhort gibbous ſilique, as* S. ſylveſtre, amphibium, *and* pyrenaicum.

ESSENTIAL CHARACTER.

Silique opening with ſtraightiſh valves. *Cal.* and *Cor.* ſpreading.

SPECIES.

1. *Siliques declined ſhort.*

1. Siſymbrium Naſturtium. *Common Water Creſs.*

Lin. ſpec. 916. *Juſſ.* 294. *Reich.* 3. 249. *Willd.* 3. 489. *hort. cliff.* 336. *fl. ſuec. n.* 592. *mat. med.* 167. *Woodv. med. bot.* 134. *t.* 48. *Hudſ. angl.* 296. *Wither. arr. ed.* 3. 580. *Smith brit.* 700. *engl. bot. t.* 855. *Curt. lond.* 6. *t.* 44. *Lightf. ſcot.* 350. *Relh. cant. ed.* 2. *n.* 542. *Smith. exon. n.* 583. *Abbot beſſ. n.* 472. *Fl. dan. t.* 690. *Hoffm. germ.* 234. *Roth germ.* 1. 289. 2. 124. *Pollich pal. n.* 623. *Kreck. ſileſ. n.* 1055. *Hall. helv. n.* 482. *Scop. carn. n.* 820. *Villars dauph.* 3. 339. *Allion. pedem. n.* 998. *Gron. virg.* 170. *Hounb. pop.* 260. *Dodart. atlant.* 81. *Bulliard. herb. t.* 302.

S. Cardamine. *Fuchſ. hiſt.* 723.—*f.* Naſturtium aquaticum. *Bauh. hiſt.* 2. 884. *Raii ſyn.* 300. *Petiv. brit. t.* 47. *f.* 2.

S. aquaticum. *Matth.* 487. *Tournef. inſt.* 226.

Naſturtium aquaticum. *Dod. pempt.* 592. 1. *Trag.* 82. 2.—ſupinum. *Bauh. pin.* 104. *Tabern. ic.* 455. *Mer. hiſt. f.* 3. *t.* 4. *f.* 8. *Blackw. t.* 260.

N. aquat. vulgare. *Park. theat.* 1239. 1. *Raii hiſt.* 816.

N. aquat. ſ. Creſſæ Sium. *Ger. emac.* 257. 5. *Lob. obſ.* 105. 3. *ic.* 1. 209. 1.

[a] Ger. emac. 1018. Engl. bot. 228.
[b] Linn. ſpec.
[c] Thunberg.
[d] Hort. kew.
[e] Linn. ſpec.
[f] Smith brit. & engl. bot.
[g] Gouan.

* Linn. ſuppl.

β. N. aquat. foliis minoribus, præcocius. *Raii syn.* 301. *Petiv. brit. t.* 47. *f.* 3.

γ. N. aquat. pinnulis paucioribus. *Dill. in Raii syn.* 391.

Siliques declined, leaves pinnate, leaflets cordate-roundish.

2. Silymbrium sylvestre. *Creeping Water Rocket.*
Lin. spec. 916. *fyst.* 594. *Reich.* 3. 250. *Willd.* 3. 489. *hort. diss.* 336. *fl. suec. n.* 594. *Hudf. angl.* 296. *Wilber. arr. ed.* 3. 581. *Smith brit.* 702. *Curt. lond.* 3. *t.* 41. *Lightf. scot.* 351. *Relh. cant. ed.* 2. *n.* 543. *Sibth. oxon. n.* 584. *Abbot hedf. n.* 473. *Hoffm. germ.* 234. *Roth. germ.* 1. 290. 2. 125. *Hall. helv. n.* 485. *Scop. carn. n.* 822. *Villars dauph.* 3. 345. *Krock. silef. n.* 1056. *Gmel. sib.* 3. 268. *Knipb. cent.* 12. *n.* 93.

S. palustre repens, nasturtii folio. *Tournef. inst.* 226. & *fl. par.*

Brachiolobus sylvestris. *Allion. pedem. n.* 1012. *t.* 56. *f.* 2.

Eruca palustris, nasturtii folio, siliqua oblonga. *Bauh. pin.* 98.

E. sylvestris minor, luteo parvoque flore. *Bauh. pin.* 98.

E. quibusdam sylvestris repens, flosculo luteo. *Bauh. hist.* 2. 866. 2.

E. palustris minor. *Tabern. ic.* 447.

E. sylvestris. *Fuchf. hist.* 263.

E. aquatica. *Ger. emac.* 248. 6. *Park. theat.* 1242. *Raii hist.* 808. *syn.* 297. *Petiv. brit. t.* 46. *f.* 5. *Mor. hist. f.* 3. *t.* 6. *f.* 17.

Siliques declined, leaves pinnate, leaflets lanceolate gash-serrate.

3. Silymbrium terrestre. *Annual Water Rocket.*
Curt. lond. 5. *t.* 49. 289. *Wilber. arr. ed.* 3. 582. *Smith brit.* 701. *Relh. cant. n.* 544. *Sibth. oxon. n.* 585. *Abbot hedf. n.* 475.

S. palustre. *Lin. spec. ed. Willd.* 3. 490. *Hoffm. germ.* 234. *Roth. germ.* 1. 290. 2. 127. *Pollich pal. n.* 625. *Leyss. hal. n.* 679. *Fl. dan. t.* 931.

S. amphibium α. *Hudf. angl.* 296. *Milk. dict. n.* 3.

Raphanus aquaticus, foliis in profundas lacinias divisis. *Bauh. pin.* 97. *prodr.* 38. *Raii syn.* 301. *Petiv. brit. t.* 49. *f.* 9.

Radicula *n.* 487. *Hall. helv.*

Siliquas declined turgid, leaves pinnatifid unequally toothed, root simple, petals shorter than the calyx.

4. Silymbrium amphibium. *Great Water Rocket.*
Lin. spec. 917. *Reich.* 3. 250. *Willd.* 3. 491. *Wilber. arr. ed.* 3. 581. *Smith brit.* 702. *Lightf. scot.* 353. *Relh. cant. n.* 545. *Sibth. oxon. n.* 586. *Abbot hedf. n.* 474. *Fl. dan. t.* 984. *Hoffm. germ.* 234. *Roth. germ.* 1. 290. 2. 126. *Krock. silef. n.* 1057.

S. aquaticum. *Mill. dict. n.* 4.

S. amphibium β. *Hudf. angl.* 296. et forte γ. 297.

Raphanus aquaticus. *Ger. emac.* 240.—alter. *Bauh. prodr.* 38.

Radicula sylvestris. *Bauh. hist.* 2. 866. *Raii syn.* 301. *Petiv. brit. t.* 49. *f.* 8, 10.

Radicula *n.* 486. *Hall. helv.*

Siliques declined pedicelled, leaves oblong pinnatifid or serrate, petals longer than the calyx.

[5. Silymbrium pyrenaicum. *Pyrenean Wild Rocket.*
Lin. spec. 916. *fyst.* 594. *Reich.* 3. 251. *Willd.* 3. 491. *Villars dauph.* 3. 341. *t.* 38. *Asso arag. n.* 608. *De la Chenal in act. helv.* 4. 288. *t.* 15. *Hall. helv. n.* 488. (Alyssum.)

Brachiolobus pyrenaicus. *Allion. pedem. n.* 1013. *t.* 18. *f.* 1.

Raphanus minimus, repens luteus, foliis tenuiter divisis. *Mor. hist.* 2. 236. *f.* 3. *t.* 7. *f.* 1. *Raii hist.* 809.

Siliques subovate, lower leaves lyrate, upper bipinnatifid embracing, styles filiform.]

6. Silymbrium tanacetifolium. *Tansy-leaved Wild Rocket.*
Lin. spec. 916. *Reich.* 3. 251. *Willd.* 3. 492. *Villars dauph.* 3. 348. *Allion. pedem. n.* 999. *Hall. helv. n.* 490. (Eruca.)

Eruca tanacetifolia. *Mill. dict. n.* 5. *H. R. Par.* & *Tournef.*

E. tanaceti folio. *Mor. hist.* 2. 231. *f.* 2. *t.* 6. *f.* 19. *Bocc. mus.* 145.

E. fruticosa, fol. tanaceti, indica. *Zan. hist.* 86. *t.* 33. 104. *t.* 172.

Leaves pinnate, leaflets lanceolate gash-serrate, the uppermost confluent.

[7. Silymbrium ceratophyllum. *Horn-leaved Wild Rocket.*
Lin. spec. ed. Willd. 3. 492. *Desfont. atlant.* 82. *t.* 155.

Siliques elliptic, leaves linear-subulate pinnatifid toothed, stem ascending.

8. Silymbrium coronopifolium. *Buck's-horn leaved Wild Rocket.*
Lin. spec. ed. Willd. 3. 492. *Desfont. atlant.* 82. *t.* 154.

Siliques linear incurved, leaves lanceolate pinnatifid-toothed pubescent, stem ascending.]

9. Silymbrium tenuifolium. *Fine-leaved Wild Rocket.*
Lin. spec. 917. *fyst.* 594. *Reich.* 3. 252. *Willd.* 3. 493. *Smith brit.* 703. *engl. bot. t.* 525. *Hoffm. germ.* 235. *Roth. germ.* 1. 290. 2. 128. *Pollich pal. n.* 627. *Villars dauph.* 3. 354. *Allion. pedem. n.* 1000. *Krock. silef. n.* 1060.

Braffica muralis. *Hudf. angl.* 290. *Wilber. arr. ed.* 3. 592. *Curt. lond.* 3. *t.* 38. 158.

B. Eruca strum. *Hudf. angl. ed.* 1. 253.

Eruca perennis. *Milleb. n.* 3.

E. *Hall. helv. n.* 461. *Ger. prov.* 369. 2.

E. tenuifolia perennis, flore luteo. *Bauh. hist.* 2. 861. *Tournef. inst.* 227. *Vaill. par.* 50. *Garid.* 161.

E. fativa. *Fuchf. hist.* 262.

E. sylvestris. *Dod. pempt.* 708. 2. *Matth.* 531. *Ger.* 191. 2. *emac.* 246. 2. *Raii hist.* 807. *syn.* 296. *Blackw. t.* 266. *Petiv. brit. t.* 46. *f.* 8.

E. sylv. vulgatior. *Park. theat.* 818. 1.—major fœteus. *Mor. hist.* 2. 230.

Siliques erect, leaves smooth almost quite entire pinnatifid and bipinnatifid, upper ones entire.

[10. Silymbrium sagittatum. *Arrow-leaved Wild Rocket.*
Lin. spec. ed. Willd. 3. 493. *Ait. kew.* 2. 390.

S. molle. *Jacqu. collect.* 1. 68. *ic. rar. t.* 122.

Pubescent, siliques cylindrical declined, leaves obovate-oblong toothed, root-leaves hastate, stem-leaves sagittate embracing.

11. Silymbrium amplexicaule. *Clasping-leaved Wild Rocket.*
Lin. spec. ed. Willd. 3. 493. *Desfont. atlant.* 81. *t.* 153.

Smooth, siliques compressed erect, leaves toothed, root-leaves obovate, stem-leaves oblong cordate embracing.

2. *Siliques sessile axillary.*

12. Silymbrium supinum. *Decumbent Wild Rocket.*
Lin. spec. 917. *Reich.* 3. 252. *Willd.* 3. 494. *hort. upf.* 192. *Amæn. acad.* 1724. *p.* 295. *t.* 18. (Eruca.)

Siliques axillary subsessile solitary, leaves tooth-sinuate.]

13. Silymbrium polyceratium. *Dandelion-leaved Wild Rocket.*
Lin. spec. 918. *fyst.* 595. *Reich.* 3. 252. *Willd.* 3. 494. *hort. upf.* 193. *Jacqu. hort. vind.* 1. 34. *t.* 79. *Hall. helv. n.* 483. *Savv. monsp.* 283. *Allion. pedem. n.* 1008.

Erysimum polyceratium I. corniculatum. *Bauh. pin.* 101.

E. alterum Matthioli siliquis parvis, quibusdam Dentaria. *Bauh. hist.* 2. 864.

E. alt. Italicum. *Ger. emac.* 254. *f.* 2.

Irio altera. *Dalech. hist.* 653.

Siliques axillary sessile awl-shaped aggregate, leaves repand-toothed.

[14. Silymbrium filifolium. *Thread-leaved Wild Rocket.*
Lin. spec. ed. Willd. 3. 495.

Siliques axillary subsessile compressed, leaves linear.

15. Silymbrium burfifolium. *Shepherd's Purse-leaved Wild Rocket.*
Lin. spec. 918. *fyst.* 595. *Reich.* 3. 253. *Willd.* 3. 495. *amœn.* 4. 323. *Gouan illustr.* 42. *Hall. helv. n.* 481. *Villars dauph.* 3. 345.

S. dentatum. *Allion. pedem. n.* 1001. *t.* 57. *f.* 3.

Hesperis dentata. *Lin. spec.* 928. *Dill. eltb.* 179. *t.* 148. *f.* 177.

Raceme flexuose, leaves lyrate, stem erect, leafy.

16. Sisymbrium toruloſum. *Sweln-podded Wild Rocket. Lin. ſpec. ed. Willd.* 3. 495. *Desfont. atlant.* 84. *t.* 159.
Raceme erect, ſiliques ſeſſile pubeſcent, leaves lanceolate toothed.
3. *Stem naked.*
17. Sisymbrium murale. *Wall Wild Rocket. Lin. ſpec.* 918. *ſyſt.* 595. *Reich.* 3. 253. *Willd.* 3. 496. *hort. cliff.* 337. *Villars dauph.* 3. 351. *Allion. pedem. n.* 1002.
Eruca viminea, iberidis folio, flore luteo. *Barr. rar.* 421. *t.* 131.
β. S. Erucaſtrum. *Gouan illuſtr.* 42. *t.* 20.
Almoſt ſtemleſs, leaves lanceolate ſinuate-ſerrate, ſmoothiſh, ſcapes ſomewhat rugged aſcending.
18. Sisymbrium monenſe. *Procumbent Sea Rocket. Lin. ſpec. ed.* 1. 658. *ed.* 2. 918? *Willd.* 3. 496. *Lightf. ſcot.* 353. *t.* 15. *f.* 1. *Smith brit.* 704. *engl. bot. t.* 962. *Dickſ. hort. ſicc.* 17. 13.
Braſſica monenſis. *Hudſ. angl.* 291. *Wither. arr. ed.* 3. 593.
Eruca monenſis laciniata lutea. *Raii ſyn.* 297.
E. mon. lacin. flore luteo majore. *Dill. elth.* 135. *t.* 111. *f.* 135.
Siliques almoſt upright, leaves pinnatifid ſomewhat hairy, ſtems quite ſimple almoſt naked-ſmooth.
19. Sisymbrium repandum. *Sinuate-leaved Sea Rocket. Lin. ſpec. ed. Willd.* 3. 497.
S. monenſe. *Villars dauph.* 3. 350. *t.* 39. *Ger. prov.* 360. 8. *Allion. pedem. n.* 1003.
Eruca perennis & ſaxatilis, radice craſſa e rupe victoriæ. *Tournef. ſibol. hot.* 81. *Garid. aix.* 162.
Stemleſs, leaves oblang repand-ſinuate ſmooth, ſcapes ſmooth, ſiliques compreſſed-four-cornered.
20. Sisymbrium Tillieri. *Lin. ſpec. ed. Willd.* 3. 497. *Bellardi opp. alt. ad. flor. pedem.*
Stem almoſt naked panicled, leaves ſmooth, root-leaves runcinate-ſubly rate, ſtem-leaves pinnatifid at the baſe.
21. Sisymbrium vimineum.
Lin. ſpec. 919. *Reich.* 3. 254. *Willd.* 3. 497. *Villars dauph.* 3. 353. *Allion. pedem. n.* 1004.
Eruca pumila ſicula, burſæ paſtoris folio. *Bocc. ſic.* 19. *t.* 10.
E. minimo flore, monſpelienſis. *Bauh. hiſt.* 2. 862.
E. vinealis, parvis luteis floribus. *Mor. hiſt.* 263.
Stemleſs, leaves lyrate even, ſcapes aſcending, flowers minute.
22. Sisymbrium Barrelieri. *Small Wild Rocket. Lin. ſpec.* 919. *ſyſt.* 595. *Reich.* 3. 254. *Willd.* 3. 498. *Allion. pedem. n.* 1005.
Eruca ſylveſtris minor, burſæ paſtoris folio. *Bauh. pin.* 98. *prodr.* 39.—lutea, italica. *Barrel. ic.* 1016.
Stem almoſt naked branched, root-leaves runcinate toothed biſpid.
23. Sisymbrium arenoſum. *Sandy Wild Rocket. Lin. ſpec.* 919. *Reich.* 3. 255. *Willd.* 3. 498. *fl. ſuec. n.* 597. *Crantz auſtr.* 47. *Hoffm. germ.* 235. *Kreck. fileſ. n.* 1062.
Arabis arenoſa. *Scop. carn. n.* 837. *t.* 40. *Roth. germ.* 1. 285. 2. 111.
Eruca *n.* 462. *Hall. helv.*
E. cærulea in arenoſis proveniens. *Bauh. pin.* 99. *prodr.* 40. *Barr. ic.* 196.
E. ſylveſtris major minorque, foliis ſubaſperis in orbem ſparſis. *Loeſ. pruſſ.* 68. *t.* 13.
Stem ſomewhat leafy branched, leaves lyrate rectangular-toothed biſpid with branched hairs.
24. Sisymbrium valentinum. *Valentia Wild Rocket. Lin. ſpec.* 920. *Reich.* 3. 255. *Willd.* 3. 498. *Kreck. fileſ. n.* 1063.
Erucula hirſuta, floribus albis. *Barr. rar.* 423. *t.* 195. *Bocc. muſ.* 2. 84. *t.* 80.
Stem ſimple erect ſmooth above, leaves lanceolate biſpid toothed in front.
4. *Leaves pinnate.*
25. Sisymbrium Parra. *Braſil Wild Rocket. Lin. ſyſt.* 595. *Reich.* 3. 255. *Willd.* 3. 499. *mant.* 855.
Caulicſcent, leaves runcinate muricate.
26. Sisymbrium aſperum. *Rough-podded Wild Rocket. Lin. ſpec.* 920. *ſyſt.* 595. *Reich.* 3. 256. *Willd.* 3. 499. *mant.* 428. *Sauv. monſp.* 283. 255. *Ger. prov.* 360. *n.* 10. *Villars dauph.* 3. 349.
Sinapi parvum, ſiliqua aſpera. *Bauh. pin.* 499. *prodr.* 41.
S. paluſtre minus, fil. aſpera. *Tournef. inſt.* 226. *Garid.* 442.
S. monſpeſſulanum, fil. aſp. hirſuta. *Bauh. hiſt.* 2. 858.
Siliques rugged, leaves pinnatifid, pinnas linear lanceolate ſomewhat toothed, corollas longer than the calyx.
27. Sisymbrium lævigatum. *Smooth-podded Wild Rocket. Lin. ſpec. ed. Willd.* 3. 500.
Siliques ſmooth, leaves pinnate, pinnules of the lower toothed, of the upper linear and quite entire.
28. Sisymbrium millefolium. *Milfoil-leaved Wild Rocket. Lin. ſpec. ed. Willd.* 3. 500. *Ait. kew.* 2. 391.
Sinapis millefolia. *Jacqu. collect.* 1. 41. *ic. rar.* 1. *t.* 127.
Leaves ſuper decompound tomentoſe, petals bigger than the calyx.]
29. Sisymbrium Sophia. *Flix-weed. Lin. ſpec.* 920. *ſyſt.* 596. *Reich.* 3. 256. *Willd.* 3. 500. *fl. ſuec. n.* 595. *lapp. n.* 261. *mat. med.* 161. *Hudſ. angl.* 297. *Wither. arr. ed.* 3. 582. *Smith brit.* 704. *engl. bot. t.* 963. *Lightf. ſcot.* 354. *Relh. cant. n.* 546. *Sibth. oxon. n.* 588. *Abbot bedf. n.* 476. *Fl. ruſſ. t.* 57. *Fl. dan. t.* 528. *Hall. helv. n.* 484. *Hoffm. germ.* 235. *Roth. germ.* 1. 291. 2. 130. *Pollich pal. n.* 629. *Kreck. fileſ. n.* 1064. *Crantz auſtr.* 53. *Scop. carn. n.* 821. *Villars dauph.* 3. 347. *Allion. pedem. n.* 1006. *Ludwig. t.* 73. *Knipb. cent.* 6. *n.* 86. *Blackw. t.* 440.
Naſturtium ſylveſtre tenuiſſime diviſum. *Bauh. pin.* 105.
Eryſimum Sophia dictum. *Raii ſyn.* 298. *Petiv. brit. t.* 46. *f.* 12.
Sophia. *Dod. pempt.* 133. 2.
S. chirurgorum. *Lob. obſ.* 426. *ic.* 1. 738. 2. *Ger.* 910. 1, 2. *emac.* 1068. *Park. theat.* 830. 3. *Raii hiſt.* 812.
Sériphium Abſinthium. *Fuchſ. hiſt.* 2.
Ser. germanicum ſ. Sophia quibuſdam. *Bauh. hiſt.* 2. 886. 2.
Leaves pinnate-decompounded ſomewhat hairy, petals ſmaller than the calyx.
[30. Sisymbrium album. *White Wild Rocket. Lin. ſpec. ed. Willd.* 3. 501. *Pallas it.* 3. *app. n.* 102. *t.* U. *Gmel. ſib.* 3. 269.
Leaves obtuſiſh-pubeſcent pinnate, leaflets obtuſe attenuated at the baſe.
31. Sisymbrium cinereum. *Aſh-coloured Wild Rocket. Lin. ſpec. ed. Willd.* 3. 501. *Desfont. atlant.* 83. *t.* 157.
Leaves pubeſcent ſomewhat fleſhy pinnate, pinnas linear-filiform.]
32. Sisymbrium altiſſimum. *Tall Wild Rocket. Lin. ſpec.* 920. *ſyſt.* 596. *Reich.* 3. 257. *Willd.* 3. 501. *hort. upſ.* 193. *Sauv. monſp.* 229. *Pallas it.* 3. 556. *Kreck. fileſ. n.* 1065.
S. Waltheri. *Crantz auſtr.* 51. *n.* 6.
Eryſimum ſiliquis laxis, fol. haſtato-pinnatis. *Lin. hort. cliff.* 338. *Sauv. monſp.* 284. *Buxb. cent.* 5. 26. *t.* 51. *Walth. hort.* 133. *t.* 22.
Leaves runcinate flaccid, leaflets ſublinear quite entire, peduncles loſe.
[33. Sisymbrium echartſbergenſe. *Auſtrian Wild Rocket. Lin. ſpec. ed. Willd.* 3. 502.
S. auſtriacum. *Jacqu. auſtr. t.* 262? *
Leaves runcinate flaccid rugged at the edge and quite entire, ſiliques filiform inflex-patulous.
34. Sisymbrium pannonicum. *Hungarian Wild Rocket. Lin. ſpec. ed. Willd.* 3. 502. *Jacqu. collect.* 1. 79. *ic. rar.* 1. *t.* 123. *Ait. kew.* 2. 392.
S. Sinapiſtos. *Retz. obſ.* 3. 37.
Lower leaves runcinate toothed, upper pinnate, pinnas linear quite entire, ſiliques ſpreading rectangularly.
35. Sisymbrium eryſimoides. *Lin. ſpec. ed. Willd.* 3. 502. *Desfont. atlant.* 84. *t.* 158.
Leaves runcinate-lyrate toothed ſmooth, ſiliques ſpreading rectangularly ſubpeduncled.]

36. Siſymbrium Irio. *London Wild Rocket*, or *broad-leaved Hedge Muſtard.*
Lin. ſpec. 921. *ſyſt.* 596. *Reich.* 3. 257. *Willd.* 3. 503. *fl. ſuec. n.* 596. *amoen.* 4. 279. *Huds. angl.* 297. *Wither. arr. ed.* 3. 583. *Smith brit.* 705. ' *Curt. lond.* 5. *t.* 48. 311. *Relh. cant. n.* 547. *Sibth. oxon. n.* 587. *Jacqu. auſtr.* 4. 11. *t.* 322. *Hoffm. germ.* 236. *Roth. germ.* 1. 291. 2. 132. *Pallas it.* 3. 681. *Villars dauph.* 3. 356. *Allion. pedem. n.* 1007. *Vahl ſymb.* 2. 77. *Krock. ſileſ. n.* 1068.
S. pinnatifidum. *Forſk. deſcr.* 118.
Eryſimum latiſolium majus glabrum. *Bauh. pin.* 101. *Mor. hiſt. ſ.* 3. *t.* 3. *f.* 3.
E. latiſolium neapolitanum. *Park. theat.* 834. 4. *Raii hiſt.* 811. *ſyn.* 298. *Petiv. brit. t.* 46. *f.* 4.
Irio lævis apulus, Erucæ folio. *Col. ecphr.* 1. 264. *t.* 265.
Leaves runcinate toothed naked, ſtem ſmooth, ſiliques erect.
37. Siſymbrium Columnæ. *Columna's Wild Rocket.*
Lin. ſyſt. 596. *Willd.* 3. 503. *Jacqu. auſtr.* 4. *t.* 325. *Hoffm. germ.* 236. *Roth. germ.* 2. 133.
S. Irio. *Crantz auſtr.* 49.
Rapiſtrum montanum Irionis folio. *Col. ecphr.* 1. 266. *t.* 268.
Leaves runcinate toothed with the ſtem villoſe and ſomewhat hoary, ſiliques erect.
38. Siſymbrium Loeſelii. *Laeſelius's Wild Rocket.*
Lin. ſpec. 921. *ſyſt.* 596. *Reich.* 3. 258. *Willd.* 3. 503. *amoen.* 4. 322. *Hoffm. germ.* 236. *Roth. germ.* 1. 291. 2. 133. *Pollich pal. n.* 630. *Gouan illuſtr.* 42. *Jacqu. auſtr. t.* 324. *Knipb. cent.* 12. *n.* 92. *Crantz auſtr.* 48. *n.* 4. *Krock. ſileſ. n.* 1069.
Sinapi eryſimo Tragi cognatum. *Bauh. hiſt.* 2. 857.
Eryſimum anguſtifolium majus. *Bauh. pin.* 107.
E. hirſutum ſiliqua Erucæ. *Loeſ. pruſſ.* 69. *t.* 14.
Rapiſtrum montanum, Irionis folio, macroleptoceratum. *Col. ecphr.* 1. 266. *t.* 268.
Leaves runcinate acute rough-haired, ſtem biſpid backwards.
39. Siſymbrium obtuſangulum.
Lin. ſpec. ed. Willd. 3. 504. *Schleicher catal.* 48.
Eruca. *Hall. helv. n.* 459.
E. inodora. *Bauh. hiſt.* 2. 862.
Leaves pinnatifid obtuſe toothed embracing, ſtem biſpid backwards.
40. Siſymbrium orientale. *Oriental Wild Rocket.*
Lin. ſpec. 921. *Reich.* 3. 258. *Willd.* 3. 504. *amoen.* 4. 322.
Eryſimum orientale, folio ſonchi, flore ſulphureo, ſiliquis longiſſimis. *Boerh. lugdb.* 1. 14. *Hall. goett.* 248.
Leaves runcinate tomentoſe, ſtem even.]
41. Siſymbrium barbareæ.
Lin. ſpec. 921. *ſyſt.* 596. *Reich.* 3. 258. *Willd.* 3. 505. *Krock. ſileſ. n.* 1067.
S. orientale, barbareæ facie, plantaginis folio. *Tournef. cor.* 16.
Eryſimum orientale. *Mill. dict. n.* 4.
Leaves ſimple ſpatulate-ovate embracing naked.
[42. Siſymbrium lyratum. *Lyrate-leaved Wild Rocket.*
Lin. ſpec. ed. Willd. 3. 505. *Burm. ind. fl. cap.* 17.
Lower leaves lyrate-runcinate toothed, upper linear-lanceolate remotely toothed.
43. Siſymbrium catholicum. *Portugueze Wild Rocket.*
Lin. ſyſt. 596. *Reich.* 3. 258. *Willd.* 3. 505. *mant.* 93. *Krock. ſiloſ. n.* 1066.
Siliques ſiliform even, leaves pinnate toothletted.
44. Siſymbrium heterophyllum. *Various-leaved Wild Rocket.*
Lin. ſpec. ed. Willd. 3. 505. *Forſk. prodr. n.* 250.
Leaves pinnate, leaflets kidney-form ſubtrilobate, loweſt pinnatifid hairy.
45. Siſymbrium glaciale. *Icy Wild Rocket.*
Lin. ſpec. ed. Willd. 3. 505. *Forſk. in com. gott.* 9. 36.
Siliques ſiliform even, leaves pinnate, leaflets kidney-form ciliate.]

5. Leaves lanceolate entire.
46. Siſymbrium ſtrictiſſimum. *Spear-leaved Wild Rocket.*
Lin. ſpec. 922. *ſyſt.* 596. *Reich.* 3. 259. *Willd.* 3. 506. *hort. cliff.* 337. *upſ.* 192. *Jacqu. vind.* 122. *auſtr.* 2. 56. *t.* 194. *Crantz auſtr.* 54. *crucif.* 139. *n.* 24. *Hoffm. germ.* 236. *Roth germ.* 1. 291. 2. 134. *Villars dauph.* 3. 356. *Allion. pedem. n.* 1009. *Krock. ſileſ. n.* 1070.
Eruca. *Hall. helv. n.* 458.
Heſperis lutea ſiliquis ſtrictiſſimis. *Tournef. inſt.* 222.
Draba lutea. *Park. theat.* 851. 7.—ſil. ſtrictiſſimis. *Bauh. pin.* 110.
D. 4. *Ger. emac.* 275.
Arabis quibuſdam dicta planta. *Camer. epit.* 342.
Eryſimum non laciniatum Draba dictum. *Raii hiſt.* 811.
Leaves oblong-lanceolate toothed pubeſcent petioled, ſiliques ſpreading.
[47. Siſymbrium pendulum. *Pendulous Wild Rocket.*
Lin. ſpec. ed. Willd. 3. 506. *Deſcent. atlant.* 82. *t.* 156.
Leaves lanceolate gaſh-toothed biſpid, ſiliques pendulous.
48. Siſymbrium hiſpanicum. *Spaniſh Wild Rocket.*
Lin. ſpec. ed. Willd. 3. 507. *Jacqu. collect.* 1. 69. *ic. rar.* 1. *t.* 124.
Leaves lanceolate toothed ſeſſile ſmooth, ſiliques preſſed cloſe, ſtem branched divaricating.
49. Siſymbrium pumilum. *Dwarf Wild Rocket.*
Lin. ſpec. ed. Willd. 3. 507.
Leaves lanceolate toothed ſagittate embracing pubeſcent, ſiliques ſtem erect ſpreading.
50. Siſymbrium ſalſuginoſum. *Salt Wild Rocket.*
Lin. ſpec. ed. Willd. 3. 507. *Pallas itin.* 2. *app. n.* 114. *t.* V.
Leaves lanceolate quite entire cordate embracing ſmooth, ſiliques ſpreading.
51. Siſymbrium integrifolium. *Entire-leaved Wild Rocket.*
Lin. ſpec. 922. *Reich.* 3. 259. *Willd.* 3. 508. *Gmel. ſib.* 3. 270. *t.* 63.
Leaves linear quite entire, peduncles glutinous-biſpid.
52. Siſymbrium indicum. *Indian Wild Rocket.*
Lin. ſyſt. 596. *Reich.* 3. 259. *Willd.* 3. 508. *mant.* 93. *Burm. ind.* 140.
Leaves lanceolate-ovate ſerrate petioled even, ſiliques ſlightly bowed.
53. Siſymbrium hiſpidum. *Hairy Wild Rocket.*
Lin. ſpec. ed. Willd. 3. 508. *Vahl ſymb.* 2. 77.
Sinapis Harra. *Forſk. deſcr.* 118.
Cauleſcent, leaves petioled oblong toothed biſpid, ſtem alſo biſpid.

DESCRIPTIONS, &c.

1. Roots perennial, conſiſting of long white fibres, the lowermoſt fixed in the ſoil, the reſt ſuſpended in the water. Stems ſpreading, declining or floating, angular, branched, leafy. Leaves alternate, pinnate, ſomewhat lyrate, the terminating and upper leaflets being the largeſt: all the leaflets roundiſh, more or leſs heart-ſhaped, ſmooth, ſhining, waved or toothed, frequently tinged with a purpliſh brown hue. Flowers white, in a corymb, ſoon lengthened out into a ſpike. Pods ſhortiſh, on horizontal pedicels, but the pods themſelves recurved upwards. Stigmas nearly ſeſſile '.

According to Curtis, the root is annual. Withering marks it as biennial. Stems numerous, from a foot to two feet or more in height. Leaves half-embracing, compoſed of three or four pairs of leaflets, which are oppoſite, ovate, obtuſe, with a ſlight indentation at the end, bluntly toothed, ſeſſile, the end-leaflet rounder and larger, often running out to a point. The leaves, when the plant grows in the ſhade, are green; when expoſed to the ſun, purpliſh brown: when growing in a rapid current, they are ſometimes conſiderably lengthened out; as is the caſe with other plants in the ſame circumſtances. In this ſtate, there is a poſſibility that the leaves may be miſtaken for thoſe of the creeping Water-Parſnep (Sium nodiflorum), which commonly grows with it; but the leaves of the Water-Parſnep are not only long and pointed, but ſerrate, of a much paler colour, and without any of that creſs-like taſte, which is to be found in Water-Creſſes '.

' Engl. bot. ' Curtis.

Native of Europe, Aſia, Africa and America, in ſprings, pools and rivulets; flowering in june and july.

Water-Creſs is reputed an excellent antiſcorbutic, with leſs acrimony than Scurvy-graſs. It is ſuppoſed to purify the blood, and to open viſceral obſtructions. In the ſpring it is very frequently eaten as a ſalad. The juice is directed, with that of Scurvy-graſs and Seville Oranges, and thus forms a popular remedy, under the name of Spring juices [1].

2. Root perennial, whitiſh, ſlender, remarkably creeping, thickly beſet with germs, which give it a knobbed appearance. Stems numerous, a foot high, upright or nearly ſo, leafy, flexuoſe, weak, ſometimes purpliſh, ſmooth, ſomewhat angular and finely grooved, branched: the branches very ſlightly hairy, forming a ſort of panicle. Leaves alternate, pinnate, ſmooth; leaflets in the lower decurrent, elliptic, oblong, toothed, in the upper, narrower, ſubpetioled, gaſh-ſerrate. Petioles channelled above, often purpliſh. Common peduncle flexuoſe; pedicels alternate, ſpreading almoſt horizontally or bent a little upwards, generally longer than the pod; all together forming finally very long racemes. Calyx-leaves ovate, concave, upright, equal, yellowiſh. Corolla ſmall, yellow or gold-coloured; petals obtuſe, a little longer than the calyx. Nectary of four deep-green glands, united in a circle. Filaments yellow: anthers incumbent. Germ the length of the ſtamens: ſtyle very ſhort: ſtigma villoſe. Silique ſcarcely half an inch long, cylindrical, curved upwards, generally abortive, as is frequently the caſe in plants that increaſe very much by the root. Both Ray and Tournefort mention the ſeeds; it is probable therefore that they found it in dry ſituations favourable to their ripening [2]. The pod then aſſumes an oblong-ovate form, as Linneus deſcribes it [3].

Mr. Woodward ſays, that he never found the pods producing perfect ſeeds; and remarks, that the pedicels are indeed at firſt parting from the branch curved downwards, but the pod itſelf riſes upwards, which cannot anſwer to Linneus's deſcription of *ſiliquis declinatis*.

Native of Sweden, Britain, Germany, France, Switzerland, Carniolia, Piedmont, Siberia. From Tournefort, who has deſcribed the plant with much accuracy, it appears to be plentiful, not only along the banks of the Seine, but in the courts of houſes, and moſt moiſt ſituations. With us it is not of ſuch general growth, but where it does occur, it is found in great abundance. The watery part of Tothillfields, Weſtminſter is overrun with it [4], and it is found on the banks of the Thames in ſeveral places. On Cambridge common; between Cheſterton-ſluice and Barnwell-pool; and in the Iſle of Ely. On Bungay common in Suffolk. In Bedfordſhire frequent. In Oxfordſhire, on the banks of the canal beyond Highbridge, Port meadow, Binſey common, and Otmore. On the banks of the Severn near Worceſter. On the banks of the Aire below Leeds [5].

3. The annual Water-Rocket, which was probably unknown to Linneus, and was confounded by Hudſon, with the great Water-Rocket or Water-Radiſh, differs from it in the following circumſtances: 1. It is an annual plant, whereas the *amphibium* is not only a perennial, but has a creeping root. 2. It is a much ſmaller plant, ſeldom acquiring half the height of the *amphibium*. 3. It is ſeldom in water, except accidentally. 4. Its foliage is very different, the radical leaves much reſembling thoſe of *Eryſimum officinale*. 5. The ſeed-veſſels are always turgid, and full of ſeeds, while thoſe of the *amphibium* are uſually abortive [6].

To theſe marks it may be added, that the root is ſimple, fuſiform and ſmall; the ſtem generally upright, branched, a foot high and ſmooth; the leaves lyrate-pinnatifid, ſmooth, unequally and obtuſely toothſerrate; the flowers ſmall, the petals being ſhorter than the calyx, and ſometimes emarginate; the fruiting racemes very long; the ſiliques ſpreading horizontally, a little curved in, ſhort, obtuſe, even, many-ſeeded (twenty), terminated by a very ſhort ſtyle [7].

Mr. Woodward remarks, that the pinnas of the upper leaves are lanceolate and toothed, the terminating one very large, confluent with the next pair, deeply indented.

When this plant happens to be overflowed, which is frequently the caſe, it is then more procumbent, and will ſometimes take root at the joints; in which ſtate it appears to be the *Siſymbrium paluſtre repens, parvo flore* of Vaillant.

It has a taſte ſimilar to moſt plants of the Creſs kind, but is not very pungent.

Common about London, with *Rumex maritimus*, on the edges of wet ditches, and on ground apt to be occaſionally overflowed; as on Tothill-fields, &c. Hauxton in Cambridgeſhire, and near Ely-bridge [8]. Elſtow and Goldington in Bedfordſhire [9]. Oxfordſhire, near the Diamond Houſe [10]. On Bungay common in Suffolk, by Mr. Woodward.—It flowers from june to ſeptember.

4. Root perennial fibrous. Stems elongated, rooting, ſomewhat flexuoſe, leafy, grooved, little branched. Leaves alternate, oblong, ſerrate or pinnatifid; the upper ones commonly quite entire; the radical ones petioled, and when they grow out of the water ſometimes pubeſcent. Flowers yellow, with the petals longer than the calyx. Germ pedicelled, globular. Siliques very ſhort, terminated with the elongated ſtyle [11]. According to the obſervation of Mr. Woodward, they are at firſt ſpreading, but afterwards hang down, and the fruitſtalks are much longer than the pods themſelves. This differs materially from the *terreſtre* in theſe particulars: the pods being not above half as long, and hanging perfectly down, and yet the fruitſtalks being much longer than the other.

In rivers and brooks, and ſometimes on the banks that are ſeldom overflowed, in moſt parts of Europe: flowering from june to auguſt.

5. Root perennial. Petioles embracing. Style capillary. Silique oval [12].

Stem-leaves bipinnate, with the pinnules linear, acute and quite entire. Flowers yellow [13].

Dillenius, Haller and Allioni have ſeparated this from Siſymbrium, each under a different name, on account of the ſhortneſs of the pod.

Native of the Pyrenees, Aragon, Dauphiné and Switzerland.—Introduced in 1775, by Moni. Thouin. It flowers in may and june [14].]

6. Leaves finely divided, ſomewhat like thoſe of Tanſy, but of a hoary green colour. The ſtalks riſe a foot and half high, fully clothed with leaves of the ſame form, but gradually diminiſhing in ſize upwards. Flowers in terminating cluſters, ſmall and pale yellow. Pods ſlender, taper, two inches long. Seeds ſmall and round.

[Height from two to three feet. Stems ſtraight, and ſimple except a few branches at the top. Leaves, though green, covered with ſtellate hairs, and ſo like thoſe of Tanſy, that one might be deceived were it not that they want the peculiar ſmell of that herb. Corolla yellow, in a coloured calyx ſhorter than the petals. Siliques ſtraight and thin [15].

Guettard and Villars would make a diſtinct genus of this and Sophia.

Native of Italy, Dauphiné and Switzerland.—Cultivated by Mr. Miller in 1731 [16].

7. Root annual. Stems aſcending or erect, ſlender; branched below, pubeſcent. Leaves ſmooth or ſlightly pubeſcent; lower toothed, upper quite entire. Calyx ſmall, coloured. Corolla yellow, twice as long as the calyx; border of the petals obovate, quite entire. Siliques ſmooth, ſlender, compreſſed a little, diſpoſed in a naked, looſe, long raceme, on filiform pedicels almoſt twice their length. Style very ſhort. Seeds four, five or ſix, ſmall, rufeſcent. Allied to *S. coronopifolium*, but differs in having linear leaves, twice or

[1] Woodville, Withering. Engl. bot.
[2] Withering.
[3] Curtis.
[4] Curtis and Smith.
[5] Smith and Withering.
[6] Curtis.
[7] Smith.
[8] Curtis.
[9] Relhan.
[10] Abbot.
[11] Sibthorp.
[12] Smith.
[13] Linn. ſpec.
[14] Aſſo.
[15] Hort. kew.
[16] Villars.
[17] Hort. kew.

thrice

thrice narrower than in that. Found in ſands near Caſſa in Barbary.

8. Lower leaves almoſt like thoſe of *Plantago Coronopus*, with the teeth remote, linear, entire, uniform, pectinated, ſhorter or longer. Stems often many, ſimple or little branched, diffuſed or decumbent at the baſe, villoſe, very ſlightly ſtriated. Calyx pubeſcent, looſiſh, coloured, deciduous, with elliptic leaflets. Corolla twice or thrice the length of the calyx, yellow, border of the petals obovate, quite entire. Style none. Siliques ſlender, ſmooth, in looſe racemes, compreſſed a little, many-ſeeded, on filiform, pubeſcent pedicels, ſcarcely longer than the ſilique. It flowers in winter.—Native of the deſert near Caſſa, in ſands [a].

9. Root perennial, fuſiform, whitiſh, ſomewhat woody. Stem very much branched, a foot and half high, leafy, round, glaucous, ſmooth with ſometimes a few ſcattered hairs. Leaves rather fleſhy, glaucous, quite entire or ſometimes ſlightly notched; the uppermoſt generally but not always ſimple. Flowers large, lemon or ſtraw-coloured, handſome but ſmelling unpleaſantly. Calyx ſpreading, commonly rough-haired at the end. Siliques erect, oblong, ſmooth, round, with a raiſed line on each ſide; terminated by a ſhort ſtyle. Seeds elliptic, compreſſed. Every part of the herb is pungent to the taſte [b].

Mr. Curtis remarks, that the calyx, before it opens, appears to have two little ſhort horns, from each of which iſſue one or more fine hairs; that when the flower is expanded two of the calyx-leaves ſtand almoſt upright, while the other two bend back; and that two of the four glands are uncommonly long.

Mr. Hudſon at firſt took this plant for Linneus's *Braſſica Erucaſtrum:* in his ſecond edition he called it *Braſſica muralis*, quoting *Sifymb. murale* as a ſynonym, which is very different. Linneus adopted his *S. tenuifolium* from Dalibard, without ſeeing a ſpecimen, nor is it, as ſuch, in his herbarium. The ſpreading calyx makes it a *Siſymbrium*, not a *Braſſica*, ſo that there is no occaſion to recur to the uncertain mark of the nectariferous glands. The name *tenuifolium*, taken from John Bauhin, is certainly exceptionable, ſome of the genus having much more finely cut leaves [c]. *Murale* would have been better, had it not been preoccupied.

Native of Germany, France, Piedmont, Switzerland and England: flowering from july to october. On many old walls and caſtles throughout England, about the Tower of London, London Bridge, Bethlehem Hoſpital, Hyde Park, &c. Windſor, Cheſter, Briſtol, Yarmouth, Lichfield, Taunton, Exeter, Berwick, Sunderland, Tinmouth, &c.

Linneus latterly confounded this with his *S. catholicum*, which has ſharply ſerrate leaves, and is a ſmaller more delicate plant [d].

10. The radical leaves petioled haſtate or ſubruncinate [e]. Perennial. Native of Siberia. Introduced in 1780, by Peter Simon Pallas, M. D. It flowers in may and june [f].

11. Root annual. Stems even, erect, having a few ſhort hairs at the baſe, ſmooth above, branched, ſlightly ſtreaked. Branches ſlender, erect, ſpreading. Leaves ſmooth; radical and lower ſtem-leaves obovate or wedge-form, ſomewhat toothed, running down the ſhort petiole; middle and upper ſtem-leaves few, remote, embracing, lanceolate or cordate-lanceolate, toothed or quite entire. Calyx ſmall, with elliptic, coloured leaflets. Petals yellow, twice or thrice the length of the calyx, with an ovate border quite entire. Style ſhort, acute, permanent. Siliques forming a raceme, ſpreading, erect, on capillary pedicels, ſmooth, ſlender, compreſſed a little, drawn to a point at each end, mucronate at the tip, ſhorter by half than the pedicel, or nearly ſo. Seeds from three to five, very ſmall, ruſeſcent. It flowers early in the ſpring.

Native of the hills about Algiers [g].

12. This is an annual plant, native of the South of Europe; flowering in june and july. Introduced in 1778 by Monſ. Thouin [h].

13. This differs from the preceding in having the teeth of the leaves ſharper, and the ſiliques not ſolitary in the axils of the leaves. Annual [i]. According to Allioni it is biennial.

Haller remarks, that in leaves and flower it agrees entirely with the common Hedge-Muſtard, *Eryſimum officinale*, which Allioni conſiders to be of this genus; but the leaves are ſmooth, with fewer and wider pinnas; upper leaves entire, triangular as in *Atriplex*, or ſemipinnate, with the nerve leſs denudated than in *Eryſimum*, and not pinnate. Flowers ſmall, yellow. The whole ſilique different, erect, curved, two or three together, in bundles, ſeſſile: partition hollowed out deeply. Seed very ſmall.]

Miller deſcribes it as an annual plant, with the ſtalks ſpreading and declining, a foot long, and dividing into many branches. Leaves ſmooth, ſhaped like the point of a halbert, deeply ſinuated and indented, with the indentures turning backward. Flowers in axillary cluſters, ſmall and yellow. Pods ſlender, crooked in cluſters. It flowers in june and july.

Native of the South of France, and of Italy, [and Switzerland.—Johnſon ſaw it in the garden of Maſter Parkinſon, who muſt therefore have cultivated it before 1633 [k].

14. This is a very ſmall annual, not more than an inch and half or two inches in height. Leaves ſubſeſſile, an inch long, ſmoothiſh, very narrow, ſharpiſh, the upper ones ſometimes bifid. Flowers ſmall. Petals white, linear, obtuſe, a little longer than the calyx. Siliques linear, blunt, ſomewhat rugged—Native of Siberia, by the river Kuma [l].

15. Annual. Native of Italy, in moiſt places on mountains. It is doubtful whether Linneus's plant be the ſame with Gouan's or Allioni's, &c. See Villars.

16. Stems branched, rough with ſhort ſpreading hairs. Branches ſpreading, hirſute, rigid. Leaves pubeſcent, decurrent along the ſhort petiole. Flowers ſmall. Calyx hirſute, coloured; with linear leaflets. Petals white, a little longer than the calyx; border obovate, quite entire. Style none or very ſhort. Stigma thickiſh. Siliques in racemes, ſlender, awl-ſhaped, round, toruloſe, erect, villoſe. Seeds ſmall, many. There are often ſome racemes of flowers from the root. It flowers early in ſpring.

Native of the kingdom of Tunis near Sbiba, in fallows [m].

17. Root annual. Stems ſomewhat rugged, having a few ſtiff hairs ſcattered over them, branched and leafy above the baſe. Leaves petioled, oleraceous, having a few ſcartered hairs underneath. Scapes long, at firſt decumbent, and then aſcending. Calyxes half-ſpreading arched at the top, having a few hairs. Corollas yellow, very blunt, large, the diameter of the leaves. Siliques thickiſh, compreſſed a little, with the valves indiſtinctly keeled [n]. It differs in very few circumſtances from the next ſpecies. The leaves are indiſtinctly of only here and there and very remotely ſerrate [o].

The conſtant characters of this are, longiſh hairs at the bottom of the ſcape, which ſometimes becomes a ſtem; a villoſe calyx, a little gibbous at the upper part exteriorly; and petals of a deep yellow colour, very blunt or ſlightly emarginate: there are alſo two glands at the baſe of two of the petals, ſharp like the point of a pin, ſometimes a quarter of a line in length, but often ſhorter. Leaves often ſmooth, but ſometimes a little villoſe. Petals as long again as the calyx. Siliques an inch in length, a little gibbous, on a ſhort peduncle [p].

Native of France and Italy. On the 6th of october, 1801, L. W. Dillwyn, Eſq. ſent information to the Linnean Society of London, that he had diſcovered this plant growing wild abundantly on the pier at Ramſgate and other places thereabouts; and that

[a] Deſfontaines. [b] Smith brit. [c] Engl. bot.
[d] Idem. [e] Willdenow. [f] Hort. kew.
[g] Deſfontaines.
[h] Hort. kew. [i] Willdenow. [k] Ger. emac. & Hort. kew.
[l] Willdenow. [m] Deſfontaines. [n] Linn. ſpec.
[o] Linn. ſyſt. [p] Villars.

he

he believed it to be rather common throughout the isle of Thanet [a].

β. S. Erucastrum of Gouan is probably a variety of this.

18. Root perennial and strong. Stems several, six or eight inches high, spreading unbranched, round, smooth, for the most part destitute of leaves, except about the bottom. Leaves many, on longish stalks, rather fleshy and inclining to a glaucous hue, pinnatifid; their lobes narrowish, distant, entire or toothed, having here and there a few bristly hairs. Flowers large, in a corymb. Calyx tipped with hairs; its leaves but little expanded. Petals lemon-coloured veined with purple. Pods loosely spreading, not quite erect, beaked, obscurely square, smooth.—In a garden the stems become taller and leafy, sometimes branched [b].

Native of Britain. Found in the isle of Man, between the landing-place at Ramsey and the town plentifully: by Mr. Lawson, in Sella fields, Seabank, Cumberland; also between Marsh-grainge and the isle of Walney, but not plentifully. Near Abermeney-ferry in Anglesea, by Mr. Llwyd [c], who shewed it to Dillenius in 1726. He conveyed some plants to London, and planted them in the Eltham garden, where they flowered the year following in may [d]. Several persons have found it since in Walney island. In Scotland, on sandy coasts in many places; as in the isles of Bute, Skye and Arran, and in Cantire [e].

S. monense of Villars and Allioni, and n. 8. of Ger. prov. which Linneus had before him when writing the second edition of his *Species Plantarum*, is the next species. It has smaller flowers than this, less evidently veined, and differs in its general aspect [f].

19. This is very distinct from the preceding. The leaves are never pinnate, but only sinuate and sometimes almost quite entire, and altogether smooth. Pods very long (two inches,) compressed, and the valves have a raised longitudinal suture through the middle, which gives them a square appearance. Perennial.—Native of Provence, Dauphiné and Piedmont [g].

20. Root biennial. The whole plant smooth. Radical leaves petioled runcinate-pinnatifid, with the terminating lobe roundish-five-cornered, a little larger than the others. Stem upright, panicled at top with three or four racemes. Stem-leaves oblong, the lower runcinate pinnate at the base, the upper oblong blunt toothed very fine pinnatifid at the base. Flowers yellow.—Native of the Val d'Aost [h].

21. This has the appearance of *S. muralis* and *monense*, but the leaves, though small and a finger's length, are lyrate altogether like those of *Barbarea*, blunt and even. Scapes filiform, almost upright. Flowers yellow, not larger than those of *Sophia*. Petals erect, blunt, scarcely twice the length of the calyx.—Native of the South of France and Sicily [i].

22. Root annual. Leaves radical, very many, lyrate, toothed as in *Taraxacum*, though scarcely an inch long, hispid all over with pellucid bristles. Stem erect, more thinly hispid, with few branches, under which is an awl-shaped leaf. Calyxes even. Petals yellow, oblong, biggish, entire. Siliques oblong, swelling a little at the seeds [k]. Allied to the next, but differing in having yellow flowers [l].

Native of Spain and Italy. Introduced in 1770, by Monf. Richard. It flowers in july [m].

23. Root annual. Radical leaves very many, lanceolate-lyrate, hispid on both sides with branching bifid or trifid hairs. Stem-leaves lanceolate, toothed, hispid like the others. Stem rough with a few simple hairs. Calyxes smooth. Corollas white tinged with pale violet [n], or quite white or all purple.

Native of Sweden, Germany, Switzerland, Austria and Carniola.

24. Root annual. Stem erect, round, a foot high, very slender, and scarcely branched, having a few hairs scattered over it below, smooth above. Root-leaves narrow-lanceolate, with four stout teeth standing out forwards, hispid with white simple hairs some longer, others shorter. Stem-leaves fewer, lanceolate-linear, not toothed. Pedunceles filiform, longer than the flower.

Native of Spain, in the kingdom of Valencia and about Madrid [o].

25. Root annual or biennial. Leaves radical, spreading in a ring, abundant; the interior ones less, a span long, runcinate, like those of Shepherd's-purse; the upper surface, especially the edge muricated with warts, or scattered mucronate tubercles, having a transparent point. These tubercles for the most part disappear when the leaves are more advanced. They are also rugged on the lower surface. Pinnas opposite, wider at the base, toothed, pressed close by pairs at the upper base. The first year it is stemless; the second year it produces a stem; it flowers in both. Scapes erect, even, with remote scattered strigæ, panicled, a foot high. Pedicels remote, spreading, stiff, longer than the flower, a day or two before flowering (which is singular) recurved; erect. Calyx closed, even, pale, gaping with a more swelling base. Petals obovate, obtuse, quite entire, distant, twice as long as the calyx, yellow. Nectareous glands four, two opposite between the longer stamens, and the inner leaflets of the calyx, awl-shaped, longer than in most of this class. Silique round, cylindrical, even, swelling a little at the seeds.—Native of Brasil [p].

26. Root annual. Stems half a foot long and almost trailing. Leaves green, winged, and the leaflets sometimes cut. Flowers small and yellow. Siliques about half an inch long, rather thick in proportion to the size of the plant, round, rude and villose [q].

Native of the South of France and marshes about Estremadura. Introduced in 1778, by Monf. Thouin. It flowers in may and june [r].

27. Root annual. Radical and lower leaves pinnate, with the pinnas linear and grossly toothed: stem-leaves pinnate, with the pinnas linear, acute, quite entire. Flowers yellow. Siliques an inch and half long, smooth. It resembles the preceding.

28. This resembles the following species, but the stem is shrubby, the leaves are hoary, the leaflets oblong, and the petals bigger than the calyx.

Native of the rocks of Teneriffe [s]. Found there by Mr. Francis Masson, and introduced in 1779. It flowers from may to september [t].

29. Root annual, small, tapering. Stem a foot and half or two feet high, upright, round, much branched and very leafy. Leaves alternate, spreading, three inches long and more, two inches broad, very finely divided; doubly pinnate, or perhaps more properly pinnatifid, for the principal and partial divisions are all confluent; the last segments are lanceolate, acute, entire, more or less evidently hairy; the terminating ones largest. Flowers in corymbs, very small, numerous, frequently more than a hundred in a single corymb. Petals pale yellow, so minute as to be almost hidden by the calyx, which has nearly as much colour as themselves. The corymb soon grows out into a very long spike of slender pods, which stand erect on spreading pedicels: they are about half an inch in length, so obscurely four-cornered as to seem round, and swell out a little where the seeds are. Seeds numerous, small, roundish, smooth, yellow or reddish.

Flix-weed is so named, from the quality attributed to it of curing immoderate laxity of the bowels. It is not uncommon in most parts of Europe, on walls, among rubbish, about church-yards, waste ground, hedges and dunghills; flowering in june, july and later, and ripening its seeds in august and september. The pods retain the seeds all winter, for the food of small birds.

According to Linneus, sheep and kine eat the plant, horses and goats are not fond of it, and swine refuse it. With us it seems seldom to be cropped by cattle, except from wantonness. The force of gunpowder is said to be augmented, by mixing a tenth part of the

[a] Linn. transf. 6. 389. [b] Engl. bot. [c] Ray syn. [d] Hort. elth. [e] Lightfoot. [f] Engl. bot. [g] Willdenow. [h] Idem. [i] Linn. spec. [k] Idem. [l] Willdenow. [m] Hort. kew. [n] Linn. spec.

[o] Linn. spec. [p] Linn. mant. & syst. [q] Villars. [r] Hort. kew. [s] Willdenow. [t] Hort. kew.

seeds with the other ingredients. The plant is sometimes prescribed in dysenteries and hysteric cases; and the seeds are given to destroy worms [a].

30. Root perennial. Stems a span high, upright, very finely tomentose, several from a somewhat woody root. Leaves becoming hoary; those next the root pinnate, with obovate pinnas most commonly two-parted, the upper ones confluent: stem-leaves pinnate, with the pinnas lanceolate, quite entire, obtuse, attenuated at the base, the upper ones confluent. Petals bigger than the calyx, white. Siliques linear, round, even, erect.—Native of Siberia, by the lake Baikal.

31. Root annual. Plant a span high. Stem upright, branched. Leaves pubescent, somewhat fleshy; lower subbipinnate, upper simply pinnate, with the pinnas distinct, linear-filiform, obtuse. Flowers pale violet.—Native of Barbary, near Cassa, in sands [b].

32. Lower leaves flaccid, runcinate, ending in arrow-pointed lobes. Stalks three or four feet high, with linear leaflets. It branches out greatly on every side. Flowers scattered at the ends of the branches. Pods very long, slender, smooth; filled with small yellowish seeds. [Annual. Native of Siberia, Armenia, and Austria.—Cultivated by Mr. Miller in 1768. It flowers in august [c].

33. This is very like the preceding, but differs in having the leaves rugged at the edge, and especially in having the siliques much narrower and shorter, filiform, bent in and spreading a little, but not spreading wide and divaricating. Annual. Supposed to be native of Thuringia [d].

34. This is a biennial plant, or annual. Stems three or four feet high, branched, erect, slightly angular. Lower leaves runcinate-pinnatifid with toothed lobes, the lower of which are distinct and remote, the upper confluent, little hairy, except along the nerves and margin, which have white hairs: they have the taste of Mustard. Calyx and corolla yellow. Stigma headed, perforated, large. Between the pistil and each shorter stamen is a large gland. Siliques spreading, very narrow, swelling a little, smooth [e].

Native of Hungary. Introduced in 1787, by Mr. Zier. It is annual, and flowers in august [f].

35. Leaves smooth, pinnatifid; segments oblong, toothed at the end, the terminating one very large, rhomb-shaped, gash-toothed. Racemes long. Flowers small, white. Siliques linear, an inch long and more, spreading horizontally, almost sessile.—Native of Tunis near Kerwan, in sandy places [g].

36. Root annual, fusiform, small. The whole plant perfectly smooth, with the biting taste of Mustard. Stem upright, from one to two feet high, round, shining, here and there purplish, somewhat flexuose, leafy, not striated or grooved, branched at top, and often quite from the bottom. Leaves alternate, except the uppermost runcinate-pinnatifid, unequally and variously cut, toothed or serrate, petioled, spreading and flaccid, the lobes for the most part acute, the end one larger and longer: the uppermost leaves are hastate or simply lanceolate, entire or having one or two teeth towards the base. Flowers in corymbs, soon lengthened out into long spikes. Calyx spreading and yellowish. Corolla small, yellow; petals longer than the calyx, obtuse, oblong, spreading widely. Siliques numerous, slender, nearly round, about two inches long, on short pedicels. Seeds very small, pale yellow; and being a little protuberant, the pods have the appearance of being finely jointed; a character which readily distinguishes this plant [h].

Native of many parts of Europe, in corn fields, with us on dry banks, old walls, and among rubbish; flowering from june or july to august or september. Mr. Ray observed it at Faulkbourn in Essex, and on the walls of Berwick upon Tweed; though scarce in many parts of Britain, it is frequent in the neighbourhood of London. After the great fire in 1666, it came up in such abundance on the ruins, that in many places it might have been mowed like a field of corn [i].

37. Like the preceding, but pubescent and somewhat hoary all over, and the flower paler. Annual.—Native of Germany, Austria and Italy, in dry places [k].

38. Root annual, fusiform. Stem upright, two or three feet high, often variously flexuose, round, slightly striated, hispid. Branches alternate. Leaves like those of *Erysimum officinale*, alternate, petioled, wider below, and narrowing gradually to the top into a linear lobe, pinnatifid, the lower pinnas lanceolate-linear, bluntish, toothletted, towards the upper part gradually less pinnatifid, and at length toothletted, somewhat hairy above and below, ciliate and roughish about the edge. Petioles channelled within. Petals blunt, twice as long as the calyx, yellow. Siliques in a loose raceme [l].

Native of Germany, Austria, Prussia, and France. Introduced in 1787, by Mr. Zier. It flowers in august [m].

39. Root annual. Stem erect, grooved, having a few reflex hairs especially towards the base. Leaves almost like those of *Pedicularis Sceptrum*, pinnatifid, with blunt pinnas obtusely and grossly toothed, the lower ones gradually smaller, the last pair embracing the stem like stipules. Flowers yellow. Siliques obtusely four-cornered, smooth.

Native of Switzerland, and distinct from *Braffica Erucastrum* [n].

40. An annual plant, native of the Levant. Introduced in 1775, by Chevalier Murray. It flowers in july [o].

41. Root perennial. Plant very like to *Erysimum Barbarea*, but insipid. Stem angular. Radical leaves quite entire, cordate-ovate [p].—Native of the Levant. Cultivated by Mr. Miller in 1759.

42. Stem-leaves linear-lanceolate remotely and grossly toothed. It is a perennial plant, native of the Cape of Good Hope [q].

43. Stems a palm or a foot in height, even. Both root and stem-leaves pinnate, even, brittle: leaflets oblong, serrate or toothed, at the top of the petiole often confluent. Raceme oblong. Flowers on long peduncles. Petals yellow, obovate, entire, large. Calyx even. Siliques remote.—Native of Spain and Portugal [r].

44. Native of New Zealand.

45. Root perennial. Stem herbaceous, a palm high, roundish, smoothish, simple, dichotomous towards the top, flowering branchlets erect. Root-leaves in tufts; stem-leaves alternate, all pinnate, composed of three or four pairs of leaflets, and an odd one, larger than the rest, kidney-form, somewhat crenate, seldom cut; the lateral ones gradually smaller, roundish, oblique, all ciliate, subsessile, somewhat remote. Floral leaves pinnatifid. Flowers white, biggish in proportion to so small a plant. It is allied to the preceding, but different.

Native of Terra del Fuego, in wet places, almost under the snow itself [s].

46. Root perennial. Leaves pubescent on both sides and much veined. Anthers, when they have shed their pollen, violet-coloured [t]. Siliques spreading very much. It varies sometimes with the leaves quite entire [u].]

Stems branching, near three feet high. Leaves about three inches long, and an inch broad, of a deep green, alternate. Flowers in loose terminating spikes, small and yellow, appearing in june. The pods ripen in august.

[Native of Germany, Austria, Switzerland, and Italy.—Cultivated 1658, in the botanic garden at Oxford [v].

47. Stem somewhat branched, upright. Leaves hispid, lanceolate, gash-toothed, attenuated at the base into the petiole. Flowers yellow. Siliques linear, on long peduncles, pendulous.—Native of Barbary, near Cassa, in sands.

[a] Fl. ruff. & Engl. bot. [b] Willdenow. [c] Hort. kew. [d] Willdenow. [e] Petræus. [f] Hort. kew. [g] Willdenow. [h] Curtis. [i] Morison prælud. [k] Willdenow. [l] Pollich. [m] Hort. kew. [n] Willdenow. [o] Hort. kew. [p] Linn. syst. [q] Willdenow. [r] Linn. mant. [s] Forster. [t] Linn. spec. [u] Willdenow. [v] Hort. kew.

48. Root biennial. Stem erect, branched, divaricate. Leaves alternate, bluntly toothed especially towards the top, and sometimes quite entire. Racemes long. Flowers yellow. Siliques filiform, short, bowed. Native of Spain.

49. Root annual. Plant a finger or a span in length, hoary-pubescent all over. Stem branched at the base. Radical leaves blunt, runcinate; stem-leaves embracing, sagittate, toothed. Racemes very long. Flowers yellow. Siliques linear, half an inch long, erect or a little spreading.—Native of the northern parts of Persia.

50. Root annual. Plant very smooth, glaucous. Leaves sharpish. Flowers small, white. Siliques thick, erect or spreading.—Native of salts in Siberia[x].

51. Root annual. Stem a finger's length. Leaves linear, smooth, bluntish. Racemes terminating, pubescent, viscid. Flowers biggish, white. Siliques linear. Native of Siberia[y]. It varies, according to Gmelin, with yellow flowers[z].

52. Root annual. Stem about a foot high, almost upright, flexuose, angular, even, somewhat branched below. Leaves wide-lanceolate or lanceolate-ovate, naked, much pointed, petioled except the upper ones. Racemes terminating and axillary, longer than the leaves. Flowers small, white, with the petals scarcely longer than the calyx. Siliques round, very slightly bowed.—Native of the East Indies[a].

53. Plant a palm high, sometimes but seldom scarcely a span, branched, erect, hispid all over except the peduncles and siliques. Leaves an inch long, thickish, unequally toothed, veinless, ending in the petiole. Pedicels declining, short. Siliques length of the pedicels, linear, remote. It approaches to Gouan's *Sisymb. Erucastrum*, but differs in the form of the leaves, its hairiness, size, and in having an upright leafy stem[b].—Native of Egypt.]

PROPAGATION AND CULTURE.

1. Water Cress is generally gathered for a spring salad in ditches or other standing or slow-flowing waters; and is also cultivated to supply the London markets. This may be easily done, by taking some of the plants from the places of their natural growth early in the spring, being careful to preserve their roots as entire as possible, and plant them in mud, letting water in upon them by degrees. They will soon flourish, and spread over a large compass; they should not be cut the first season, but suffered to run to seed; for the seeds will fall into the water, and furnish a sufficient supply of plants.

Where the water is so deep that it is not easy to plant it, procure a quantity of plants in july, just as their seeds are ripening, and throw them on the surface of the water, where they are designed to grow: the seeds will ripen, fall to the bottom and take root there without any farther care.

2, 3, 4. The other Water-Rockets may be propagated in the same manner, or by seeds sown on the banks of ditches or streams.

5, &c. Those which grow on dry land may easily be propagated, by sowing the seeds in autumn, or by permitting them to scatter; thinning them, and keeping them clean from weeds. Most of them prefer a dry soil, and some flourish best on walls.

[SISYMBRIUM. See *Arabis*, *Brassica*, *Cardamine*, *Erysimum*, *Mentha*.]

SISYRINCHIUM (*of Pliny.* Σισυριγχιον *of Theophrastus. From* σις *a sow, and* ρυγχος *rostrum. Swine's snout. From the form of the flower.*

Lin. gen. n. 1017. *Reich. n.* 1103. *Schreb. n.* 1101. *& nov. act. nat. cur.* 3. 344. *t.* 6. *Cavan. diss.* 6. 344. *t.* 190—192. *Juss.* 57. Bermudiana. *Tournef. t.* 208. *Dill. elth.* 41. *f.* 49. 42. *Gærtn. t.* 11.

Class. 16. 1. Monadelphia Triandria.
(olim 20. 2. Gynandria Triandria.)
Nat. order of *Ensatæ*. *Irides*, Juss.

[x] Willdenow. [y] Linn. spec. [z] Reichard. [a] Linn. mant. [b] Vahl.

GENERIC CHARACTER.

CAL. *Spathe common* ancipital, two-leaved: valves compressed, acuminate. *Proper* several, lanceolate, concave, obtuse, one-flowered.

COR. one-petalled, superior, six-parted: *segments* obovate with a point, from erect spreading: *three outer* alternate a little wider.

STAM. *Filaments* three, united into a subtriquetrous tube shorter than the corolla, distinct at the top. *Anthers* bifid below, fastened by the back.

PIST. *Germ* obovate, inferior. *Style* three-sided, length of the tube. *Stigmas* three thickish, awl-shaped at the top, erect.

PER. *Capsule* obovate, rounded-three-sided, three-celled, three-valved; with the *partitions* contrary.

SEEDS several, globular.

ESSENTIAL CHARACTER.

Spathe two-leaved. *Cal.* none. *Pet.* six, almost equal, *Style* one. *Capf.* three-celled, inferior.

SPECIES.

[1. Sisyrinchium elegans.
Lin. spec. ed. Willd. 3. 577.
Morœa elegans. *Jacqu. hort. Schœnbr.* 1. 6. *t.* 12.
Scape round one-flowered simple, leaf radical linear, acuminate shorter, petals oblong acute.

2. Sisyrinchium collinum.
Lin. spec. ed. Willd. 3. 578. *Cavan. diss.* 6. 346.
Morœa collina. *Thunb. monogr.* 11. *n.* 13. *& prodr.* 11. *Jacqu. ic.* 2. *t.* 226.
Scape round somewhat branched, stem-leaf linear-acuminate shorter, petals oblong acute.

3. Sisyrinchium grandiflorum. *Great-flowered Sisyrinchium.*
Lin. spec. ed. Willd. 3. 578. *Cavan. diss.* 6. 346. *t.* 192. *f.* 2.
Scape round simple, spathe subtriflorous, petals obovate obtuse, leaves lanceolate plaited.)

4. Sysyrinchium Bermudiana. *Iris-leaved Sisyrinchium.*
Lin. spec. 1353. *fisl.* 820. *Reich.* 4. 42. *Willd.* 3. 578. *hort. cliff.* 431. *ups.* 278. *Schreb. in nov. act. nat. cur.* 3. 341. *t.* 6. *b. & tom.* 4. 145. *Lamarck encycl.* 1. 403. *Cavan. diss.* 6. 346. *t.* 192. *f.* 1. *Pluk. phyt. t.* 61. *f.* 2. *Mill. illustr.*
S. irichoides. *Curt. magaz. t.* 94.
Bermudiana iridis folio, radice fibrosa. *Tournef. inst.* 388. *Dill. elth.* 48. *t.* 41. *f.* 48.
Scape ancipital branched leafy, spathe subquadriflorous shorter than the flowers, petals mucronate, leaves ensiform.

5. Sisyrinchium anceps. *Narrow-leaved Sisyrinchium.*
Lin. spec. ed. Willd. 3. 579. *Lamarck encycl.* 1. 403. *Cavan. diss.* 6. 345. *t.* 190. *f.* 2. *Pluk. phyt. t.* 61. *f.* 1.
S. Bermudiana *a. Lin. spec.* 1353. *Reich.* 4. 42. *Gron. virg.* 140. *Ait. kew.* 3. 304. 1.
S. angustifolium. *Mill. dict. n.* 2.
S. gramineum. *Curt. magaz.* 464.
Bermudiana graminea, flore minore cæruleo. *Dill. elth.* 49. *t.* 41. *f.* 49.
Gladiolus cæruleus hexapetalus caule etiam gladiato. *Banist. virg.* 1926. *Raii hist. app.* 1928. *& suppl.* 569. *n.* 6.
Scape ancipital winged simple almost leafless, spathe subquadriflorous unequal longer than the flowers, petals mucronate, leaves ensiform.

[6. Sisyrinchium micranchum. *Small-flowered Sisyrinchium.*
Lin. spec. ed. Willd. 3. 579. *Cavan. diss.* 6. 345. *t.* 191. *f.* 2.
Scape ancipital branched leafy, spathe subtriflorous unequal nearly equal to the flowers, petals linear acuminate, leaves grassy channelled.

7. Sisyrinchium palmifolium. *Palm-leaved Sisyrinchium.*
Lin. spec. ed. Willd. 3. 579. *fisl.* 820. *Reich.* 3. 43. *mant.* 122.
Morœa palmifolia. *Thunb. monogr.* 8. *n.* 6.
Scape ancipital, flowers in spikes, leaves ensiform nerved and plaited.

8. Sisyrinchium striatum.
Lin. spec. ed. Willd. 3. 580. *Smith ic. rar.* 2. *t.* 9.

S. fili-

S. ſpicatum. *Cavan. ic.* 2. *t.* 104.
Moræa ſertata. *Jacqu. hort. Schoenbr.* 1. 6. *t.* 11.
Scape ancipital leafy, flowers in ſpikes, petals roundiſh-ovate acute, leaves linear-enſiform.

9. Siſyrinchium ixioides.
Forſt. prodr. n. 325.
Ferraria ixioides. *Lin. ſpec. ed. Willd.* 3. 582.
Moræa ixioides. *Thunb. monogr.* 8. *n.* 7.
Scape compreſſed panicled at top; petals flat, the outer ones ſmaller by half, leaves enſiform nerved.

10. Siſyrinchium narciſſoides.
Cavan. diſſ. 6. 347. *t.* 191. *f.* 3.
Galaxia narciſſoides. *Lin. ſpec. ed. Willd.* 3. 583.
Stem erect round, ſpathe two-valved ſubquadriflorous, flowers drooping, leaves linear-enſiform.

DESCRIPTIONS, *&c.*

1. Scape covered with oblong acuminate alternate ſpathes. There is only one procumbent linear acuminate leaf, twice as long as the ſcape; and one large terminating flower. Corolla yellow on the outſide, marked in the middle of the three outer petals within with a large green ſpot; petals linear-oblong acute.—Native of the Cape of Good Hope.

2. Very like the preceding, but differs in having the ſcape much higher and ſubtriflorous, having one flower upon each branch; the leaf not procumbent but hanging down; the corolla larger and unſpotted, red or pale yellow.—Native of the hills near the Cape, where it is very abundant.

3. Root bulbous. Root-leaves as well as thoſe of the ſcape lanceolate and attenuated to both ends, plaited and ſtriated. Spathe terminating, three-flowered. Corolla an inch and half in diameter, yellow; petals obovate, very blunt.—Native of Peru[a].

4. Root fibrous, from which ariſe ſome ſtiff ſword-ſhaped leaves, four or five inches long and half an inch broad, of a dark green colour; from among theſe comes out the ſtalk (ſcape) ſix inches high; it is compreſſed, and has two borders or wings running the whole length, and three or four ſpear-ſhaped leaves embracing it; theſe grow erect, and are hollowed like the keel of a boat. The ſtalk is terminated by a cluſter of ſix or ſeven flowers, on ſhort peduncles, and incloſed in a two-leaved, keel-ſhaped ſheath, before they open; they are of a deep blue colour with yellow bottoms; when fully expanded they are an inch over.—Native of Bermuda.

[Height from a foot to a foot and half. Leaves like thoſe of the Iris, but ſmaller. Stem or ſcape compreſſed and ſtriated like the leaves, only firmer and ſomewhat thicker in the middle, and branched a little at the top. Sheath ſimple or double. Flowers four, five or more, on ſhort peduncles: the three inner petals are ſomewhat narrower, of a violet purple colour within, with yellow crenate ſpots at the baſe, and marked with deeper-purple ſtreaks; the outſide is of a pale violet, with greeniſh-yellow claws: the petals are blunt, ending ſuddenly in a point, which is ſhorter than in the next ſpecies. The capſules alſo are leſs blunt and rounded than in that, the flowers are larger and of a different colour, and the whole plant is bigger[c].]

5. Root perennial, fibrous, from which ariſe many very narrow ſpear-ſhaped leaves, about three inches long, and ſcarcely an eighth of an inch broad, of a light-green colour. Stalks about three inches high, very ſlender, compreſſed and bordered, having ſhort, narrow, ſword-ſhaped, embracing leaves: they are terminated by two ſmall pale-blue flowers, incloſed in a two-leaved ſheath, upon longer peduncles than thoſe of the preceding; flowering about the ſame time. The leaves, ſtalks and flowers of the fourth are three times as large as in this, and the ſheath incloſes ſix or ſeven flowers; whereas this has rarely more than two, and theſe expand only for a ſhort time in the morning, but the others continue open the whole day.

[Mr. Curtis alſo remarks, that it is far more diminutive than the Bermudiana, with much ſmaller flowers, of a paler blue colour; a much hardier plant, producing abundance of flowering-ſtems in June and July.

Dillenius remarks, that the petals do not end ſo bluntly, but more gradually in a longer point; that they have fewer ſtreaks and thoſe only towards the baſe; and that they are of the ſame colour both within and without.

Native of Virginia and other parts of North America. Cultivated in 1693, by Mr. Jacob Bobart[d].

6. This is a ſmall plant, two inches high. Leaves linear-acuminate. Spathe two-valved as long as the flowers or a little ſhorter. Flowers two or three, very ſmall, with linear, acuminate petals.—Native of Peru.

7. This very much reſembles *S. Bermudiana*, but the ſtem is two feet high. The leaves are twice as wide, folding with five or ſix nerves. Glumes and flowers numerous in a terminating bundle, ſcarcely larger than thoſe of Bermudiana. Style trifid beyond the middle. It is very different from *Moræa plicata*, with which it has been confounded.——Native of Braſil[e].

8. Root tuberous. Stem two feet high, erect, ſmooth, much branched, many-flowered. Leaves ſword-ſhaped, pointed, entire, ſlightly ribbed, glaucous, ſmooth, with a little membranous border: thoſe next the root equitant, ſtem ones alternate, embracing. Flowers in terminating and lateral heads, a little drooping, very numerous but ſhort-lived, with ſcarcely any ſmell, pale yellow ſtreaked with purple, the colours ſtrongeſt on the outſide. Spathes of a ſingle leaf, concave, carinated, acute, ribbed, with a membranous margin, the external one largeſt, but ſhorter than the flowers, and enfolding them along with the interior ſpathes which are much ſmaller, and one to each flower. Peduncles about the length of the outer ſpathe, triangular, ſingle-flowered. Petals obovate, obtuſe with a little point, at the baſe ſlightly connected, and ſpotted within, ſomewhat concave, with a ſpreading border, the three outer a little ſmaller. Filaments ſhorter than the corolla, united into a tube for more than half the length, ſpreading in the upper part, ſmooth: anthers verſatile, ſmall. Germ roundiſh, ſmooth, green: ſtyle length of the ſtamens, three-cleft in the upper part: ſtigmas notched. Capſule roundiſh, three-lobed; valves carinated at the back.

Sent from Italy by P. Stephens, Eſq. to Mr. Forſyth. It thrives and flowers abundantly in the open ground, but its native country we have yet to learn[g]. Willdenow makes it the ſame with *S. ſpicatum* of Cavanilles, which is a native of Mexico; but if it comes from ſo hot a country, it is ſingular that it ſhould thrive and flower in England in the open ground.

9. Root fibrous. Scape compreſſed, branched at the top, ſtriated, ſmooth, erect, two feet high and more. Radical leaves very many, diſtich, linear, attenuated at the top, ſtriated, ſmooth, erect, almoſt the length of the ſcape, on which a ſingle leaf, or a few, ſimilar. Flowers on the branchlets, terminating, umbelled, ſmall, white, about three or four. Spathes lanceolate, ſhorter than the peduncles; which are capillary and an inch long[h].

Native of New Zealand[i]. Thunberg has made it a *Moræa*, and Willdenow, a *Ferraria*. The former of theſe differs in having the ſtamens ſeparate; the latter in having the ſtyle divided at the top into ſix parts. Mr. Saliſbury unites the three genera into one. And, as Dr. Smith obſerves, in an order ſo natural as this, it is very difficult to find generic characters that ſhall be ſtable, and not ſet aſide by new ſpecies.

10. This has the habit of a *Narciſſus*, with the flower of a *Galaxia*, to which genus Willdenow has removed it from this in which it was placed by Cavanilles. It differs only in having a two-valved ſpathe; and has nothing in common with the genus *Siſyrinchium*, except the ſpathe and cohering ſtamens[k]. The corolla is white, but there is a fine variety, with the flowers ſtreaked longitudinally within and without with deep purple.—Native of the ſtraits of Magellan[l].]

[a] Hort. kew. [b] Willdenow from Thunberg. [c] Willdenow. [d] Dillenius. [e] Willdenow. [f] Willdenow. [g] Smith. [h] Willdenow. [i] Forſter. [k] Cavanilles.

PROPAGATION AND CULTURE.

4. 5. Theſe plants are propagated by ſeeds and alſo by parting of their roots: if they are raiſed from ſeeds, theſe ſhould be ſown in autumn ſoon after they are ripe, upon an eaſt aſpected border, where they may have only the morning ſun: the beſt way will be to ſow them in drills at three or four inches diſtance, covering them about half an inch with light earth. In the ſpring the plants will appear, when their leaves will have much reſemblance to Graſs, therefore care ſhould be taken that they are not pulled up as weeds by thoſe who clean the ground. During the firſt ſummer they will require no other care but to keep them clean from weeds, unleſs the plants ſhould come up ſo cloſe as not to have room to grow, in which caſe, part of them ſhould be drawn out to give room to the others, and theſe may be planted in a ſhady border at three inches diſtance, where they may remain till autumn, when they ſhould be tranſplanted to the places where they are to remain, and the following ſummer they will flower. Theſe plants love a ſhady ſituation and a ſoft, loamy, undunged ſoil.

The time for tranſplanting and ſlipping off the old roots is early in autumn, that they may get good roots before winter. The fifth is ſo hardy as to thrive in the open air in England, and is very rarely injured by cold.

[The Bermudiana (n. 4.) is a tender plant, and requires the protection of a green-houſe or glaſs-caſe. The anceps (n. 5.) is a hardy perennial, adapted to the open border, in which it will grow readily".

The firſt and ſecond ſpecies muſt be kept in the dry ſtove, and the reſt in the bark-bed. They may all be increaſed by the root.

SISYRINCHIUM. See *Amaryllis, Ferraria, Galaxia, Gladiolus, Iris, Ixia, Morœa, Tulipa, Wachendorfia.*

SITTODIUM. See *Artocarpus.*

SITS ſ. SITS-DIU. See *Rhus vernix.*]

SIUM (*of Pliny: ὁτι ὑγιεινὸν, from its being ſoaken by the ſtream in which it grows.*)

Lin. gen. n. 348. *Reich. n.* 378. *Schreb. n.* 480. *Tournef. t.* 162. *Juſſ.* 222. *Garin. t.* 23. Siſarum. *Tournef. t.* 163.

Claſſ. 5. 2. Pentandria Digynia.

Nat. order of *Umbellatæ* or *Umbelliferæ.*

GENERIC CHARACTER.

CAL. *Umbel univerſal* various in different ſpecies: *partial* ſpreading, flat.

Involucre univerſal many-leaved, reflex, ſhorter than the umbel, with lanceolate leaflets: *partial* many-leaved, linear, ſmall.

Perianth proper ſcarcely obſervable.

COR. *univerſal* uniform: *floſcules* all fertile.

Proper of five inflex-cordate, equal petals.

STAM. *Filaments* five ſimple. *Anthers* ſimple.

PIST. *Germ* very ſmall, inferior. *Styles* two reflex. *Stigmas* obtuſe.

PER. none. *Fruit* ſubovate, ſtriated, ſmall, bipartile.

SEEDS two ſubovate, convex and ſtriated on one ſide, flat on the other.

ESSENTIAL CHARACTER.

Involucre many-leaved. *Petals* cordate. *Fruit* ſubovate, ſtriated.

SPECIES.

[1. Sium filifolium. *Thread-leaved Water Parſnep. Lin. ſpec. ed. Willd.* 1. 1431. *Thunb. prodr.* 50. Conium tenuifolium. *Vahl ſymb.* 3. 49.

Leaves filiform, involucres elongated.]

2. Sium latifolium. *Broad-leaved Water Parſnep. Lin. ſpec.* 361. *Fl. ſuec.* 284. *Reich.* 1. 693. *Willd.* 1. 1431. *hort. cliff.* 98. *Fl. ſuec. n.* 247. *Huds. angl.* 118. *Wither. arr. ed.* 3. 298. *Smith brit.* 312. *engl. bot. t.* 204. *Relh. cant. ed.* 2. *n.* 254. *Sibth. oxon. n.* 294. *Abbot bedf. n.* 210. *Fl. dan. t.* 246. *Hall. helv. n.* 777. *Hoffm. germ.* 100. *Pollich pal. n.* 286. *Krock. ſilef. n.* 435. *Jacqu. auſtr. t.* 66. *Villars dauph.* 2. 597. *Allion. pedem. n.* 1367. *Gmel. ſib.* 1. 200. *Plenck, ic.* 190. *Willich illuſtr. n.* 39. *Baub. pin.* 154.

* Canis,

S. medium. *Bauh. hiſt.* 3. 173.—item maximum latifolium, *ejuſd. ib.* 175. 1.

S. majus latifolium. *Ger.* 200. 1. *emac.* 256. 1. *Raii hiſt.* 443.

S. Dioſcoridis ſ. Paſtinaca aquatica major. *Park. theat.* 1240. 1.

S. latifolium foliis variis. *Merr. pin. Raii ſyn.* 211.

Sium. *Dod. cereal.* 248. *pempt.* 589. *Riv. pent.*

S. aquaticum majus erectum latifolium. *Mor. hiſt. ſ.* 9. *t.* 5. *f.* 1. *ord.* 2.

Coriandrum latifolium. *Crantz auſtr.* 212. *Roth. germ.* 1. 133. 2. 349.

Leaves pinnate, leaflets oblong-lanceolate equally ſerrate.

3. Sium anguſtifolium. *Narrow-leaved Water Parſnep. Lin. ſpec.* 1672. *Fl. ſuec.* 284. *Reich.* 1. 693. *Willd.* 1. 1431. *Huds. angl.* 119. *Wither. arr. ed.* 3. 299. *Smith brit.* 313. *engl. bot. t.* 139. *Lightf. ſcot.* 160. *Relh. cant. ed.* 2. *n.* 255. *Sibth. oxon. n.* 295. *Abbot bedf. n.* 211. *Hoffm. germ.* 100. *Roth. germ.* 1. 127. 2. 333. *Pollich pal. n.* 287. *Leers herborn. n.* 202. *Krock. ſilef. n.* 436. *Jacqu. auſtr. t.* 67. *Villars dauph.* 2. 597. *Allion. pedem. n.* 1368. *Hall. helv. n.* 778. *Plenck, ic.* 191. *Retz. obſ.* 1. 14. *n.* 29.

S. nodiflorum. *Fl. dan. t.* 247. *Weig. obſ.* 27. *Willich illuſtr.* 31. *Krock. ſilef. n.* 437.

S. erectum. *Huds. angl. ed.* 1. 103.

S. Berula. *Gouan monſp.* 218.

S. minus. *Riv. pent. t.* 79.—alterum. *Park. theat.* 1241. 2.

S. majus anguſtifolium. *Ger. emac.* 256.

S. ſ. Apium paluſtre foliis oblongis. *Baub. pin.* 154. *Rati ſyn.* 211.

S. umbelliferum. *Baub. hiſt.* 3. 172.

S. erectum umbellatum ſ. Paſtinaca aquatica. *Lob. Raii hiſt.* 444.

S. aquaticum humilius foliis profunde ſerratis. *Mor. hiſt. ſ.* 9. *t.* 5. *f.* 2. *ord.* 2.

Leaves pinnate, leaflets unequally-lobed and ſerrate, umbels peduncled oppoſite to the leaves, ſtem erect.

4. Sium nodiflorum. *Procumbent Water Parſnep. Lin. ſpec.* 361. *Reich.* 1. 694. *Willd.* 1. 1432. *hort. cliff.* 98. *fl. ſuec. n.* 248. *Huds. angl.* 119. *Wither. arr. ed.* 3. 299. *Smith brit.* 313. *engl. bot. t.* 699. *Lightf. ſcot.* 161. *Relh. cant. ed.* 2. *n.* 256. *Sibth. oxon. n.* 296. *Abbot bedf. n.* 212. *Woodv. med. bot.* 494. *t.* 182. *Hoffm. germ.* 100. *Roth. germ.* 1. 127. 2. 334. *Pollich pal. n.* 288. *Sauv. monſp.* 231. *Villars dauph.* 2. 598. *Allion. pedem. n.* 1369. *Weig. obſ.* 26. *Retz. obſ.* 1. 14. *n.* 30.

S. umbellatum repens. *Ger. emac.* 256. 258. *Raii hiſt.* 444. *ſyn.* 211. *Petiv. brit. t.* 26. *f.* 3.

S. aquaticum repens & procumbens ad alas floridum. *Mor. hiſt. ſ.* 9. *t.* 5. *f.* 3.

Leaves pinnate, leaflets ovate equally ſerrate, umbels ſeſſile oppoſite to the leaves, ſtem procumbent.

[5. Sium repens. *Creeping Water Parſnep. Lin. ſyſt.* 284. *Willd.* 1432. *ſuppl.* 181. *Wither. arr. ed.* 3. 300. *Smith brit.* 314. *Relh. cant. ed.* 2. *n.* 257. *Sibth. oxon. n.* 297. *Abbot bedf. n.* 213. *Jacqu. auſtr. t.* 260. *Hoſt. ſyn.* 158.

Leaves pinnate, leaflets roundiſh tooth-goſhed, umbels peduncled oppoſite to the leaves, ſtem creeping.]

6. Sium verticillatum. *Whorled Water Parſnep. Smith brit.* 314. *Roth. germ.* 2. 336.

Siſon verticillatum. *Lin. ſpec.* 363. *Reich.* 1. 697. *Willd.* 1437. *Huds. angl.* 120. *Wither. arr. ed.* 3. 301. *Lightf. ſcot.* 1096. *t.* 35. *Engl. bot. t.* 395. *Mill. dict. n.* 4. *Hoffm. germ.* 101. *Villars dauph.* 2. 607.

Daucus pratenſis. *Daiech. hiſt.* 718. *Park. theat.* 900. *n.* 13. *Raii hiſt.* 459.—millefolii paluſtris folio. *Baub. pin.* 150.

Oenanthe millefolii paluſtris folio. *Mor. umb. t.* 6. *f.* 3. *hiſt.* 3. 289. *ſ.* 9. *t.* 7. *f.* 10.

Carui foliis tenuiſſimis, Aſphodeli radice. *Tournef. inſt.* 306.

Leaflets multifid-capillary in whorls.

7. Sium Sisarum. *Skirret.*
Lin. spec. 361. *Reich.* 1. 694. *Willd.* 1433. *hort. cliff.* 98. *upſ.* 62. *Leur. cochinch.* 179. *ed. Willd.* 223. *Pleuck, ic.* 188.
Siſarum. *Dod. pempt.* 681. *Ger.* 871. *emac.* 1026. *Raii hiſt.* 442.—germanorum. *Bauh. pin.* 155.
Siſer vulgare. *Park. theat.* 945. 1. *Parad. t.* 507. *f.* 1.
β. Sium Niniſi. *Lin. ſpec.* 361. *Reich.* 1. 694. *mat. med.* 117. 81. *Burm. ind. t.* 29. *f.* 1. *Thunb. jap.* 118. *Blackw. t.* 514. *Dryand. in act. Lin. ſoc.* 2. 228.
Siſarum montanum coræenſe, radice non tuberoſa. *Kæmpf. amoen.* 817. *t.* 818.
Leaves pinnate, floral leaves ternate.
[8. Sium rigidius. *Virginian Water Parſnep.*
Lin. ſpec. 362. *Reich.* 1. 694. *Willd.* 1. 1433. *Gron. virg.* 32. (Pimpinella.)
Oenanthe maxima virginiana, pæoniæ feminæ foliis. *Mor. hiſt.* 3. 288. *ſ.* 11. *t.* 7. *f.* 1.
Leaves pinnate, leaflets lanceolate almoſt quite entire.
9. Sium japonicum. *Japoneſe Water Parſnep.*
Lin. ſyſt. 284. *Willd.* 1. 1433. *Thunb. jap.* 118.
Leaves pinnate, leaflets gaſhed, umbels terminating.]
10. Sium Falcaria. *Decurrent Water Parſnep.*
Lin. ſpec. 362. *ſyſt.* 284. *Reich.* 1. 694. *Willd.* 1. 1434. *hort. cliff.* 98. *Gærtn. fruct.* 1. 104. *Hoffm. germ.* 100. *Roth. germ.* 1. 127. 2. 335. *Pollich pal. n.* 289. *Krock. ſileſ. n.* 438. *Jacqu. auſtr.* 3. 32. *t.* 257. *Hall. helv. n.* 782. *Sauv. monſp.* 232. *Villars dauph.* 2. 598. *Allion. pedem. n.* 1370. *Gmel. ſib.* 1. 201. *Deſfont. atlant.* 255.
Seſeli Falcaria. *Crantz auſtr.* 208. *Scop. carn. n.* 354.
Falcaria. *Riv. pent. t.* 47.
Eryngium arvenſe foliis ſerratis. *Bauh. pin.* 386.
E. quartum. *Dod. pempt.* 732.
Ammi perenne. *Tournef. inſt.* 305.—repens. *Mor. hiſt.* 3. 294. *ſ.* 9. *t.* 8. *f.* 1.
Crithmum umbelliferum. *Bauh. hiſt.* 3. 195.
Leaflets linear decurrent connate.
[11. Sium grandiflorum. *Great-flowered Water Parſnep.*
Lin. ſpec. ed. Willd. 1. 1434. *Thunb. prodr.* 50.
Leaves bipinnate, leaflets roundiſh gaſh-toothed.
12. Sium paniculatum. *Panicled Water Parſnep.*
Lin. ſpec. ed. Willd. 1. 1434. *Thunb. prodr.* 51.
Leaves bipinnate, leaflets linear gaſh-pinnatifid.
13. Sium patulum. *Spreading Water Parſnep.*
Lin. ſpec. ed. Willd. 1. 1434. *Thunb. prodr.* 51.
Leaves bipinnate, leaflets trifid, branches diffuſed.
14. Sium græcum. *Grecian Water Parſnep.*
Lin. ſpec. 362. *Reich.* 1. 695. *Willd.* 1. 1434. *hort. cliff.* 98. *Laur. cochinch.* 179. *ed. Willd.* 223.
Liguſticum græcum folio apii. *Tournef. cor.* 23.
Leaves bipinnate, leaflets lanceolate ſerrate, the uppermoſt confluent.
15. Sium decumbens. *Proſtrate Water Parſnep.*
Lin. ſyſt. 285. *Willd.* 1. 1435. *Thunb. jap.* 118.
Leaves bipinnate, leaflets trifid, ſtem decumbent.]
16. Sium ſiculum. *Sicilian Water Parſnep.*
Lin. ſpec. 362. *ſyſt.* 284. *Reich.* 1. 695. *Willd.* 1. 1435. *Jacqu. hort.* 2. *t.* 133. *Deſfont. atlant.* 256.
Myrrhis foliis paſtinacæ læte virentibus. *Tournef. cor.* 22.
Daucus paſtinacæ folio ſiculus. *Zan. hiſt.* 78. *t.* 30.
Radical leaves ternate, ſtem-leaves bipinnate.
[17. Sium aſperum. *Rough Water Parſnep.*
Lin. ſpec. ed. Willd. 1. 1435. *Thunb. prodr.* 51.
Leaves tripinnate, peduncles and pedicels rugged.
18. Sium hiſpidum. *Shaggy Water Parſnep.*
Lin. ſpec. ed. Willd. 1435. *Thunb. prodr.* 51.
Leaves tripinnate, petioles and peduncles rugged.
19. Sium villoſum. *Villoſe-leaved Water Parſnep.*
Lin. ſpec. ed. Willd. 1. 1435. *Thunb. prodr.* 51.
Leaves tripinnatifid, ſegments ovate gaſh-ſerrate villoſe.

DESCRIPTIONS, &c.

1. Stem herbaceous, erect, a foot high, ſcarcely branched, ſlender, round, ſmooth, ſlightly ſtreaked. Leaves all ſimple, very narrow, a little wider and ſomewhat ſheathing at the baſe, very ſmooth; the lower ones four inches long or a little more; ſtem-leaves remote. Pedúncles lateral and terminating, few, remote. Involucre five-leaved: leaflets awl-ſhaped, ſtiffiſh, ſhorter than the umbel. Involucrets length of the umbellet. Umbel ſmall, five-rayed. Umbellets eight or ten-flowered. Seeds oblong, ſtreaked, ſmall, ſmooth. Styles permanent, divaricating.—Native of the Cape of Good Hope [a].

2. Broad-leaved Water-Parſnep is one of the largeſt among the umbelliferous tribe. Its perennial root, creeping among mud and gravel, throws up round, hollow, upright, ſmooth, deeply furrowed ſtems, four, five, and ſometimes even ſix feet in height; clothed with alternate leaves, compoſed of ſeven, or ſometimes nine, oppoſite, ſeſſile, ovate or lanceolate, veined, ſmooth leaflets, varying much in breadth, but always very equally and neatly ſerrate; in which reſpect they differ materially from *S. anguſtifolium*, as well as in being much longer. Mr. Hudſon well remarks, that ſuch as grow under water are often laciniated. Umbels ſolitary, terminating and lateral, erect, large, flatiſh, many-flowered. Involucre of many, lanceolate, unequal leaflets, ſometimes lobed and often ſerrate. Involucrets ovate, ſhort. Petals acuminate, inflex-cordate, white, uniform, but a little unequal in ſize. Fruit ſmall, ſtriated.

It is a plant of an acrid poiſonous quality, particularly the roots [b].

Native of many parts of Europe, and of Siberia. It is not of rare occurrence in rivers and fens throughout England. Mr. Doody obſerved it in the ditches between Rotherhithe and Deptford. Northfleet in Kent. In Cambridgeſhire, the Iſle of Ely, and Norfolk, not uncommon. Bedfordſhire. Oxfordſhire. Moors near Pitchcroft, Worceſter. Pool in Nottingham-park. In all the ditches near a pool of water called Brayford, near Lincoln, &c. In the Stour, Froome and Piddle, Dorſetſhire. Firſt obſerved in England in *Phyt. brit.* It flowers in july and auguſt.

3. Root perennial, creeping, ſo as to occupy much ſpace. It is ſmaller and weaker than the preceding. Stem upright, with whorls of radical fibres in its lower part under water, round, ſtriated, ſmooth, much branched above, leafy. Leaves alternate, ſimply pinnate: leaflets numerous, ſeſſile, the lowermoſt pair remote from the reſt, and ſmaller, at leaſt in the lower leaves, in which alſo the leaflets are obliquely heart-ſhaped at the baſe; otherwiſe they are lanceolate, often ſo deeply lobed as to become haſtate, pointed, very irregularly and ſharply ſerrate, and very ſmooth: the end one commonly trifid. Umbels ſolitary, oppoſite to each leaf, peduncled, erect, hemiſpherical, peduncles divaricated, ſomewhat ſhorter than the adjoining leaf. General involucre of many drooping leaves, which are occaſionally entire, ſerrate or pinnatifid; the partial ones ovate and more entire. Calyx of five minute teeth, ſcarcely viſible. Petals white, uniform and almoſt equal. Fruit ſmall, ſmooth, ſlightly ribbed, ovate [c].

Dr. Withering remarks, that this and the *latifolium* are readily diſtinguiſhable by the ſpecific characters, but that the trivial names of *broad* and *narrow* leaved are ill appropriated becauſe tending to miſlead, for neither the leaves nor leaflets of the latter are narrower than thoſe of the former, and if there is a difference it is generally the reverſe of what the trivial names would lead us to expect.

It was originally conſidered by Linneus as a variety of the *latifolium*, and was firſt eſtabliſhed as a diſtinct ſpecies by Mr. Hudſon [d]. It was however conſidered as diſtinct by Miller, Ray, Rivinus, Moriſon, and the old botaniſts in general.

Native of moſt parts of Europe. Frequently found in Britain, in ditches and rivulets; in Cambridgeſhire, Norfolk, Bedfordſhire, Oxfordſhire; Dorſetſhire in the Stour; Kingſton Pool, near Stafford; King's Park, meadows and ditches near Edinburgh. It flowers in july and auguſt.

[a] Vahl. [b] Smith brit. & engl. bot. [c] Idem. [d] Engl. bot.

Doody conſidered it as a ſpecific in ſcrophula, eſpecially the expreſſed juice[1]: and Dr. Withering obſerves, that it certainly poſſeſſes active properties which ought to be inquired into.

4. Root perennial, creeping. Stems procumbent or floating, often creeping, various in length, branched, round, hollow, ſlightly ſtriated, ſmooth, leafy. Leaves unequally pinnate: leaflets from five to nine, ſeſſile, ovate, all neatly and equally ſerrate; the odd one largeſt, and ſometimes united with the neighbouring pair. Umbels lateral, each ſingly oppoſite to a leaf, nearly ſeſſile, compoſed of from five to ſeven divaricated rays. Umbellets bearing twelve flowers or more. General involucre one-leafed; often entirely wanting: partial, of ſeveral ovate concave leaflets, as long as the pedicels. Flowers ſmall, greeniſh white, with ſlight traces of a calyx. Fruit ovate[2].

Native of many parts of Europe. Common in Britain, in ditches and rivulets; flowering in july and auguſt.

This plant is not admitted into the Materia Medica of any Pharmacopœia, except that of London, where it is received in the character of an antiſcorbutic, or rather as a corrector of acrid humours, eſpecially when manifeſted by cutaneous eruptions and tumours in the lymphatic ſyſtem. The beſt proofs of its efficacy are from Dr. Withering.—A young lady, ſix years old, was cured of an obſtinate cutaneous diſeaſe, by taking three large ſpoonfuls of the juice twice a day: and I have repeatedly given to adults, ſays the doctor, three or four ounces every morning, in ſimilar complaints, with the greateſt advantage. It is not nauſeous, and children take it readily if mixed with milk. In the doſe I have given it, it neither affects the head, the ſtomach, nor the bowels[3].

This plant therefore, if it ſhould be eaten for Water Creſs, does not ſeem to be very dangerous, or to require all that caution which Mr. Miller preſcribes. For the difference between them ſee the article *Siſymbrium Naſturtium*; and the 13th and 21ſt plates to the letters on the Elements of Botany.

5. Stems proſtrate, creeping, round, ſtriated, leafy. Leaves unequally pinnate: leaflets roundiſh, ſometimes wedge-ſhaped, tooth-gaſhed and variouſly lobed, veined; the end one three-parted. Umbels oppoſite to a leaf, peduncled. Umbellets few, divaricating, many-flowered. Involucres and involucrets many-leaved, ovate, nerved, bent down. Calyx indiſtinct. Fruit roundiſh, compreſſed[4].

According to Hoſt, the leaflets are oppoſite, ſeſſile, ovate-roundiſh, unequally ſerrate, the end one, for the moſt part, more or leſs three-lobed. Involucres and involucrets ſix-leaved or nearly ſo. Willdenow remarks, that this plant reſembles *Siſon inundatum*, but that the leaves are wider, blunter and uniform; and that the umbels are four-rayed, with a general involucre.

Native of Bohemia in wet meadows, and of Auſtria on the banks of the Danube. In England, it has been found in Cambridgeſhire, on Coldham common near Cambridge, by Mr. Relhan; on Bullington-green, and Cowley-bottom, near Oxford, by Dr. Sibthorp; on Gokington-green, and Stevington-bogs, in Bedfordſhire, by Dr. Abbot; in wet places in the ſouth of Scotland by Mr. Dickſon; and at Fiſkerrow, five miles from Edinburgh, and in abundance on the moiſt parts of Guillon Links, Eaſt Lothian, by Dr. Hope. It flowers from june to auguſt.

6. Root perennial, conſiſting of ſeveral oblong tubers, tapering to a point. Stem from twelve to eighteen inches high, erect, round, ſtriated, ſmooth, little branched and almoſt naked. Leaves moſtly radical and very remarkable, conſiſting of a ſimple rib, along which are arranged pairs of deeply cloven leaflets, the numerous ſegments of which are linear, acute, extremely narrow, pointing in all directions ſo as to form whorls, and that as truly as the flowers do in the Mints and other whorled plants properly ſo called; for thoſe grow only on two ſides of the ſtem, though they ſeem to embrace it all round. Umbels terminating, erect, of eight or ten rays, with a general involucre of five or ſix ovate, deflected, ſhort leaflets. Partial umbels more denſe, and nearly flat, with ſimilar involucres of more numerous leaflets. Calyx indiſtinct. Petals white, inflex-cordate, uniform and nearly equal. Fruit ovate-roundiſh, ſlightly compreſſed, deeply furrowed, crowned with the ſhort recurved ſtyles. Seeds ſlightly, but not pleaſantly aromatic[5].

On account of its many-rayed umbels, many-leaved involucres and involucrets, and cordate petals, Dr. Smith has removed this plant from the genus *Siſon* to this of *Sium*, to which it ſeems more properly to belong.

Native of Germany, France, the Pyrenees, and Britain, in moiſt meadows in the weſtern parts of Scotland and Wales; in the latter, as far as I know, it was firſt obſerved to grow abundantly about St. David's, by the late Canon Holcombe; or in Glamorganſhire, by the late Rev. Sir John Cullum, Bart. and by Mr. Pennant in almoſt every moiſt meadow in Caermarthenſhire and Pembrokeſhire abundantly. In Scotland it was firſt found by Dr. Houſtoun in moiſt meadows about Greenock plentifully: and ſince, in many like places it has occurred in Nithſdale and Galloway, and alſo in Annandale, particularly in the meadow between the farm-houſe of Stank in Ruthwell, and the bathing-place on the ſhore, by Dr. Burgeſs. It has alſo of late been diſcovered in the iſle of Man, by the Rev. Mr. Davies, of Beaumaris in Angleſey[6]. In my herbarium there is a ſpecimen ſent by Houſtoun, and in the paper that accompanies it he ſays, that it grows plentifully near Greenock, and a village about two miles thence called Gourack; he remarks, that it has roots of two ſorts, the one bulbs like thoſe of Aſphodelus or Oenanthe, the others fibrous and creeping, ſomewhat like thoſe of the common Dog-graſs.]

7. The root of the common Skirret is compoſed of ſeveral fleſhy tubers as large as a man's little finger, and joining together in one head. The lower leaves are pinnate, having two or three pairs of oblong leaflets terminated by an odd one. The ſtalk riſes a foot high, and is terminated by an umbel of white flowers, which appear in july, and are ſucceeded by ſtriated ſeeds like thoſe of Parſley, which ripen in autumn.

[Our Engliſh name *Skirret* ſeems to be a corruption from the old name *Skirwort*. *Skir* may be corrupted from the barbarous latin *Chervillum*, the Spaniſh *Cherinia*, or the French *Cherui*.

β. Sium Ninſi of Linneus and Thunberg is the ſame plant, or at moſt a variety of our Skirrets. Linneus took it up from Kæmpfer's figure, which certainly repreſents *Sium Siſarum*. It is probable that the Japoneſe, being impoſed upon by the Chineſe, have taken this for the plant which furniſhed the Ginſeng: but we are now certain, from the figure drawn by Father Jartoux, on the ſpot where this famous root is collected, that it is the root of *Panax quinquefolium*. See his figure in vol. 10. of Lettres edifiantes, copied in Philoſ. tranſ. vol. 28. t. 5. and in Deſcription de la Chine par du Halde, fol. edit. vol. 2. p. 154[7]. See alſo Panax quinquefolia in this Dictionary.

Loureiro deſcribes the ſtem as three feet high, almoſt upright, round, ſtriated, almoſt ſimple. Upper leaves ternate, ſerrate-gaſhed, ſmooth. Flowers white; general and partial umbels many-leaved, entire. Seeds ovate, ſtriated.—Native of China and Cochinchina, in watery places.

It appears from Gerarde's herbal that it was cultivated here in 1597[8].] Formerly the roots were more uſed than they are at preſent; being eſteemed wholeſome and nutritive, but flatulent: their ſweet taſte is diſagreeable to many palates. [They were eaten boiled, and ſtewed with butter, pepper and ſalt; or rolled in flour and fried; or elſe cold with oil and vinegar, being firſt boiled[9].

8. Stem ſtiffiſh. Leaves unequally pinnate, with

[1] Ray ſyn. [2] Smith brit. & engl. bot. [3] Woodville. [4] Smith ex Linn. ſil. [5] Smith brit. & engl. bot. [6] Lightfoot. [7] Dryand. in Linn. tranſ. [8] Hort. kew. [9] Parkinſon.

five

five or six pairs of leaflets; which are lanceolate, ſtiffiſh, and have a few teeth towards the top. Petioles channelled. Flowers ſmall.

Native of Virginia[a]. Introduced in 1774, by Mr. William Young. It flowers in july and auguſt[a].

9. Stem erect, flexuoſe, branched at top. Leaves pinnate, ſmooth; the loweſt largeſt: pinnas of different ſhapes, oblong, ovate, entire, gaſhed, ſpreading: upper ones very ſmall, with lanceolate entire leaflets. Umbels terminating the branches.

Native of Japan, in the iſland Nipon, flowering in june[c].]

10. Roots creeping, and ſpreading very far under ground, thick, fleſhy, and taſting like thoſe of Eryngo. The leaves are divided into linear ſegments, and their baſe embraces the ſtalks, which riſe two feet high, and are terminated by large flat umbels of white flowers; theſe appear in july, but the ſeeds do not often ripen here.

[General involucre eight-leaved bent back; leaflets linear, entire: partial, ſeven or eight-leaved. General umbel of fifteen; partial of about ſixteen rays[c]. Fruit ſmall, ovate-oblong, ſtriated, crowned with the permanent calyx, and within that by a tubercle bearing the ſtyle and fenced round with ſmall ſcales. Seeds ſemicylindrical, ſcored on one ſide with five rounded furrows, marked in the middle with a capillary ſtreak, approximating pale; on the other ſide flat: the interſtices between the grooves deepiſh, narrow, aſh-coloured.

S. Siſarum (*n.* 7.) has an elliptic fruit, with the ſtyliferous tubercle, but no veſtige of the calyx. Seeds five-cornered, acuminate at both ends, commonly curved in when ripe: ribs five, very narrow, linear, diſtant, ſtraw-coloured or yelloviſh; the interſtices between them wide, ſtattiſh, ferruginous or brown[c].

S. Falcaria is a native of many parts of Europe; alſo of Aſia and Africa.—Cultivated by Mr. Miller in 1759. It flowers in july and auguſt[b].

11. 12. 13. Natives of the Cape of Good Hope, where they were found by Thunberg[f].

14. Flowers yellow. Native of Greece. Loureiro has a ſpecies under this name, but that is more probably the ſame with *S. decumbens* of Thunberg, for *S. græcum* of Tournefort and Linneus has an erect jointed ſtem, and yellow flowers, whereas Loureiro deſcribes his plant as having the branches procumbent and ſometimes even creeping, and the flowers white, without any general involucre, and the partial only one-leafed[g].

15. Stem decumbent, dwarfiſh. Leaves radical, on long petioles, ſmooth, bipinnate: leaflets trifid. Umbel terminating, almoſt ſimple. Seeds ovate, obtuſe with the ſtyles permanent, ſtriated, ſmooth.

Native of Japan, on the iſland of Nipon, near Jedu and Fakona[f].]

16. Lower leaves pretty broad, and of a lucid green. Stem two feet high, terminated, in july, by an umbel of yellow flowers.

[It is a very ſmooth plant, with an upright ſtem, branched at the baſe and ſlightly ſtriated. Umbel flat, with unequal rays. Involucres many-leaved, with linear-ſubuliform acute leaflets. Seed elongated, ſmooth, ſtriated, ſemicylindrical[h].

Native of Sicily and the hills near Algiers. Cultivated by Mr. Miller.

17. 18. 19. Natives of the Cape of Good Hope, where they were found by Thunberg[f].

PROPAGATION AND CULTURE.

2—6. Being marſh or water plants, if cultivated in gardens, muſt be placed in tubs filled with water, having earth in the bottom, or by the ſides of canals or ponds.]

7. This plant is cultivated two ways, firſt by ſeeds, and afterward by ſlips from the root: the former method I think the more eligible, becauſe the roots which are raiſed from ſeeds, generally grow larger than thoſe raiſed by ſlips, and are leſs ſubject to be ſticky. The ſeeds ſhould be ſown the latter end of march or the beginning of april, either in broad caſt or in drills; the ground ſhould be light and moiſt, for in dry land the roots are generally ſmall, unleſs the ſeaſon proves very moiſt. If the ſeeds are good, the plants will appear in five or ſix weeks after they are ſown, and, when they have put out their leaves ſo as to be well diſtinguiſhed from the weeds, the ground ſhould be hoed over to deſtroy the weeds in the ſame manner as is practiſed for Carrots; and where the ſeeds are ſown in broad caſt, the plants ſhould be cut up, leaving them at the ſame diſtance as Carrots. Thoſe ſown in the drills ſhould be alſo thinned to the diſtance of four inches, and the ground hoed over to deſtroy the weeds. This ſhould be repeated three times, as is uſually done for Carrots, and if well performed in dry weather, will keep the ground ſufficiently clean unleſs much rain ſhould fall about midſummer, for the leaves will ſpread and cover the ground. In autumn, when the leaves begin to decay, the roots will be fit for uſe, and will continue till they begin to ſhoot in the ſpring, when they will become ſticky, as do thoſe which run up to ſeed the firſt ſummer.

To propagate this plant by offſets, dig up the old roots in the ſpring, before they begin to ſhoot, and ſlip off the ſide ſhoots, preſerving an eye or bud to each: plant them in rows one foot aſunder and four inches diſtant in the row.

10. The leaſt part of the roots will grow, ſo that it will ſoon multiply of itſelf.

16. Sow the ſeeds ſoon after they are ripe.

[SIUM. See *Cardamine, Cicuta, Siſon, Thapſia.*

SKIMMI. See *Illicium.*

SKIMMIA. (*A Japaneſe vernacular name from Kæmpfer.*)
Lin. gen. Schreb. n. 200. *Thunb. fl. jap. 4. nov. gen.* 57. *Juſſ.* 425.
Claſſ. 4. 1. Tetrandria Monogynia.

GENERIC CHARACTER.

CAL. *Perianth* one-leafed, very ſmall, permanent, almoſt four-parted to the baſe: *ſegments* ovate, acute.
COR. *Petals* four, ovate, concave, minute.
STAM. *Filaments* four, very ſhort.
PIST. *Germ* ſuperior. *Style* ſingle.
PER. *Berry* ovate, umbilicate, indiſtinctly grooved, ſmooth, farinaceous-pulpy within, four-valved.
SEEDS four, ſubtrigonal, or externally convex, oblong, white.
OBS. *Perianth ſeldom five-parted.*

ESSENTIAL CHARACTER.

Cal. four-parted. *Pet.* four, concave. *Berry* four-ſeeded.

SPECIES.

1. Skimmia japonica.
Lin. ſyſt. 157. *Willd.* 1. 671. *Thunb. jap.* 62. *Kæmpf. amoen.* 5. 779. *ic. ſelect.* 1. 5.

DESCRIPTION, *&c.*

Stem ſhrubby, erect, ſmooth. Branches alternate, four-cornered. Leaves at the ends of the branches, alternate, frequent, oblong, waved, entire, obſcurely crenate towards the top, erect, the margin bent back, a finger's length, above green and wrinkled, beneath pale and dotted, evergreen, with an aromatic taſte. Petioles ſemicylindrical, thickiſh, ſhort. Flowers terminating, in panicles. Pedunckes round, thickening, ſhort.

Native of Japan, near Nagaſaki and elſewhere. The fruit is ripe in december[c].

SKINNERA. See *Fuchſia.*

SKULL-CAP. See *Scutellaria.*

SLIPPER, LADY'S. See *Cypripedium.*

SLIPPERWORT. See *Calceolaria.*

SLOANA. See *Sloanea.*

SLOANEA. (*So named by Plumier, in memory of Sir Hans Sloane, Bart. Phyſician to the King, and Preſident of the Royal Society, author of the Natural Hiſtory of Jamaica, &c.*)
Lin. gen. n. 655. *Reich. n.* 711. *Schreb. n.* 888. *Aubl. guian.* 533. *t.* 212. *Swartz prodr.* 82. *Juſſ.* 291. Sloana. *Plum.* 15.

[a] Lin. ſpec.
[b] Hort. kew.
[c] Thunberg.
[d] Pollich.
[e] Gærtner.
[f] Hort. kew.
[g] Thunb. prodr.
[h] Willdenow.
[i] Thunb. jap.
[k] Desfontaine.
[l] Thunb. prodr.
[m] Thunb. jap.

Claſſ. 13. 1. Polyandria Monogynia.
Nat. order of *Amentaceæ*. *Tiliaceæ*, Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* one-leafed, five-parted: *ſegments* ovate, a little unequal.
COR. none.
STAM. *Filaments* numerous (above 100) very ſhort, inſerted into a villoſe receptacle. *Anthers* oblong, growing to the ſide of the filaments.
PIST. *Germ* oblong, angular. *Style* ſimple. *Stigma* five-cleft, acute.
PER. *Capſule* large, roundiſh, echinate with deciduous prickles, five-celled, five-valved: *partitions* oppoſite to the valves.
SEEDS ſolitary or in pairs, oblong, involved in a berried *aril*.
OBS. *The number of parts varies from three to ſix. Aubl. Sw.*

ESSENTIAL CHARACTER.

Cal. one-leafed, from five to nine-cleft. *Cor.* none. *Anthers* growing to the filaments below the top. *Capſ.* echinate, from three to ſix-celled, from three to ſix-valved. *Seeds* two in a berried aril.

SPECIES.

1. Sloanea dentata.
Lin. ſpec. 730. *Willd.* 2. 1155. *Swartz prodr.* 82. *obſ.* 213.
S. Plumierii. *Aubl. guian.* 1. 536.]
S. amplis caſtaneæ foliis, fructu echinato. *Plum. gen.* 49. *ic.* 244.
Caſtanea Sloanea. *Mill. dict. n.* 3.
Leaves ovate, ſtipules cordate-triangular ſerrate.
[2. Sloanea Maſſoni.
Lin. ſpec. ed. Willd. 2. 1115. *Swartz prodr.* 82. *deſcr.* 938.
Leaves cordate-elliptic, ſtipules linear, calyx five-parted, briſtles of the capſule very long.
3. Sloanea ſinemarienſis.
Lin. ſpec. ed. Willd. 2. 1155. *Swartz prodr.* 82. *Aubl. guian.* 534. *t.* 212.
S. Aubletii. *Swartz deſcr.* 940.
Leaves roundiſh-ovate quite entire, capſules ovate briſtly opening from the top.

DESCRIPTIONS, *&c.*

1. The trunk of this tree riſes to forty or fifty feet, and is two feet in diameter. The leaves are large like thoſe of the Cheſtnut. The flowers alſo are very large, indented at the edge, oval and ending in a point, on a long pedicel, having two ſtipules deeply toothed, at the baſe. They grow in bunches from the axils [1].

Native of South America:] according to Mr. Miller, of South Carolina, whence he ſays the fruit with the outer covers were ſent to John Duke of Bedford, they were round and as large as a tennis-ball, armed all over with ſtrong ſpines, and divided regularly into four cells, each containing one ſmall Cheſtnut. He thinks that Plumier muſt have found this tree in Louiſiana, the heat of the Weſt India iſlands being too great for it. [If the Sloanea dentata be the ſame with the Caſtanea Sloanea of Miller, he cultivated it in 1756. Aublet ſays, that in Guiana it flowers in november.

2. This is a tall tree, with alternate leaves more than a foot long, angular-toothed, nerved, ſmooth on both ſides, ſomewhat coriaceous, on long round pubeſcent petioles. Flowers in axillary racemes towards the end of the branchlets, much ſhorter than the leaves, many-flowered, nodding, on long peduncles moſtly two together, bearing each one biggiſh green flower.—It differs from the preceding in having the leaves rounded at the end; the ſtipules linear, not cordate-deltoid; the flowers ſmaller with the calyx commonly five-leaved; and the capſules with longer briſtles.

Native of the Weſt Indies. Found in the iſland of St. Chriſtopher by Maſſon.

3. Height forty or fifty feet, with a cloven ferruginous or cinereous bark. Leaves alternate, about a foot long, ſlightly waved at the edge, nerved and veined, ſmooth on both ſides, coriaceous, on petioles almoſt the length of the leaves, round, ſpreading, even, thickened at the baſe and under the leaf. Stipules long, acuminate, deciduous. Racemes axillary, ſhorter than the petioles, many-flowered. Flowers ſmall, on ſhort one-flowered peduncles, with a ſingle little bracte at the baſe. Capſule the ſize of a large Walnut, four or five-celled and valved, the valves red within. Seeds ſolitary, covered with a red pulpy aril.

Native of South America and the Weſt Indian iſlands. Found in Guiana by Aublet, and in the iſland of St. Chriſtopher's by Maſſon'.

[1] Aublet.

SLOE TREE. See *Prunus*.]
SMALLAGE. See *Apium*.
SMILAX (*of Pliny*. Σμιλαξ *of Dioſcorides*. *Derivation unknown.*)
Lin. gen. n. 1120. *Reich. n.* 1225. *Schreb. n.* 1528. *Tournef. t.* 421. *Juſſ.* 42. *Gærtn. t.* 16.
Claſſ. 22. 6. Dioecia Hexandria.
Nat. order of *Sarmentaceæ*. *Aſparagi*, Juſſ.

GENERIC CHARACTER.

* *Male.*
CAL. *Perianth* ſix-leaved, ſpreading bell-ſhaped: *leaflets* oblong, approximating at the baſe, bent back and ſpreading at the tip.
COR. none, unleſs the calyx be taken for it.
STAM. *Filaments* ſix, ſimple. *Anthers* oblong.
* *Female.*
CAL. as in the male, deciduous.
COR. none.
PIST. *Germ* ovate. *Styles* three, very ſmall. *Stigmas* oblong, bent back, pubeſcent.
PER. *Berry* globular, three-celled.
SEEDS two, globular.

ESSENTIAL CHARACTER.

Cal. ſix-leaved. *Cor.* none.
FEM. *Styles* three. *Berry* three-celled. *Seeds* two.

SPECIES.

1. *Stem prickly angular.*
1. Smilax aſpera. *Rough Smilax.*
Lin. ſpec. 1458. *Reich.* 4. 254. *hort. cliff.* 458. *Gron. orient.* 316. *Scop. carn. n.* 1221. *Gouan hort. monſp.* 505. *Ger. prov.* 136. *Villars dauph.* 3. 272. *Allion. pedem. n.* 2115. *Aſſo arag. n.* 959.
α. S. aſp. ſimplicifolia. *Common Smilax* or *Rough Bindweed.*
Ait. kew. 3. 401. *α.*
S. aſpera. *Matth.* 1211. *Bauh. hiſt.* 2. 115. *Ger.* 709. 2. *emac.* 859. 2.
S. aſp. fructu rubente. *Bauh. pin.* 296. *Tournef. inſt.* 654.
S. aſp. rutilo fructu. *Cluſ. hiſt.* 1. 122.
S. aſp. fructu rubro. *Park. theat.* 173. *t.* 174. *f.* 1. *Raii hiſt.* 655.
S. aſpera minus ſpinoſa, fructu nigro. *Bauh. pin.* 296. *Raii hiſt.* 656. 2.
S. aſp. nigro fructu. *Cluſ. hiſt.* 1. 113. *Park. theat.* 173. *n.* 2.
S. aſp. luſitanica. *Ger.* 711. 3. *emac.* 860. 3. *cum ic.*
β. S. aſp. auriculata. *Ear-leaved Smilax* or *Rough Bindweed.*
Ait. kew. 3. 401. *β. Pluk. phyt. t.* 110. *f.* 3.
Stem prickly angular, leaves toothed and prickly cordate nine-nerved.
2. Smilax excelſa. *Tall Smilax.*
Lin. ſpec. 1458. *Reich.* 4. 255.
S. orientalis, ſarmentis aculeatis excelſas arbores ſcandens, foliis non ſpinoſis. *Tournef. cor.* 45. *Buxb. cent.* 1. 18. *t.* 27.
S. aſpera. *Alp. ægypt. ed.* 2. 140. *t.* 141. *ed.* 1. 55 & 56. *ed.* 3. 68. *t.* 49?
Stem prickly angular, leaves unarmed cordate nine-nerved.
[3. Smilax zeylanica. *Ceylon Smilax.*
Lin. ſpec. 1459. *ſyſt.* 887. *Reich.* 4. 255. *fl. zeyl. n.* 364. *Burm. ind.* 313. *zeyl.* 22. *Gærtn. fruct.* 1. 59.

[1] Swartz.

China amboinenſis. *Rumph. amb.* 5. 437. *t.* 161.
Stem prickly angular, leaves unarmed, ſtem-leaves cordate, branch-leaves ovate-oblong.]

4. Smilax Sarſaparilla. *Medicinal Smilax* or *Sarſaparilla. Lin. ſpec.* 1459. *Reich.* 4. 255. *hort. cliff.* 459. *mat. med.* 214. *Woodv. med. bot.* 528. *t.* 194. *Gron. virg.* 120. 156. *Blackw. t.* 393. *Regnault bot. Pluk. phyt. t.* 111. *f.* 2. *Raii ſuppl.* 345. *n.* 6.
S. aſpera peruviana ſ. Salſaparilla. *Baub. pin.* 296. *Raii hiſt.* 656.
S. peruviana Salſaparilla. *Ger.* 709. 1. *emac.* 859. 1.
S. aſp. peruana. *Park. theat.* 173. *t.* 174. *f.* 3.
Stem prickly angular, leaves unarmed ovate retuſe-mucronate three-nerved.
[5. Smilax oblongata.
Swartz prodr. 59. *deſcr.* 673.
Stem prickly angular, leaves oblong acuminate ſmooth three-nerved, nerves prickly underneath.]

2. *Stem prickly round.*

6. Smilax China. *Chineſe Smilax.*
Lin. ſpec. 1459. *Reich.* 4. 256. *mat. med.* 214. *Gmel. it.* 3. 32. *t.* 6. *Blackw. t.* 433. *Gron. orient.* 317. *Brown. jam.* 359. 1. *Thunb. jap.* 152. *Lour. cochinch.* 622. *ed. Willd.* 763. *Kempf. amoen.* 781. *t.* 782. *Pluk. amalth. t.* 408. *f.* 1.
China radix. *Baub. pin.* 296. *Park. theat.* 1578. *Raii hiſt.* 657.
C. vulgaris officinarum. *Ger. emac.* 1618.
C. michuacanenſis. ſ. Smilax aſpera minor. *Plum. ic.* 183.
Stem prickly roundiſh, leaves unarmed ovate-cordate five-nerved.
[7. Smilax rotundifolia. *Round-leaved Smilax.*
Lin. ſpec. 1460. *Reich.* 4. 256.
Stem prickly round, leaves unarmed cordate acuminate five or ſeven-nerved.]
8. Smilax laurifolia. *Bay-leaved Smilax.*
Lin. ſpec. 1460. *Reich.* 4. 257. *Gron. virg.* 193. 156.
China altera aculeata, foliis oblongis cuſpidatis. *Plum. ic.* 85.
Stem prickly round, leaves unarmed ovate-lanceolate three-nerved.
9. Smilax tamnoides. *Black Briony-leaved Smilax.*
Lin. ſpec. 1460. *Reich.* 4. 257. *Cateſb. car.* 1. *t.* 52.
Stem prickly round, leaves unarmed cordate oblong ſeven-nerved.
10. Smilax caduca. *Deciduous Smilax.*
Lin. ſpec. 1460. *Reich.* 4. 257. *Lour. cochinch.* 622. *ed. Willd.* 764.
Stem prickly round, leaves unarmed ovate three-nerved.

3. *Stem unarmed angular.*

[11. Smilax bona nox. *Ciliated Smilax.*
Lin. ſpec. 1460. *Reich.* 4. 257. *Pluk. phyt. t.* 111. *f.* 1.
S. aſpera Indiæ occidentalis. *Baub. pin.* 296.
β. S. caroliniana. *Pluk. phyt. t.* 111. *f.* 3.
Stem unarmed angular, leaves ciliate-prickly.
12. Smilax herbacea. *Herbaceous Smilax.*
Lin. ſpec. 1460. *Reich.* 4. 258. *Gron. virg.* 193. 156. *Raii ſuppl.* 345. *n.* 10. *Pluk. phyt. t.* 225. *f.* 4.
Stem unarmed angular, leaves unarmed ovate ſeven-nerved.
13. Smilax tetragona. *Square-ſtalked Smilax.*
Lin. ſyſt. 888. *ſuppl.* 427.
Stem unarmed four-cornered, leaves cordate five-nerved acuminate unarmed.

4. *Stem unarmed round.*

14. Smilax lanceolata. *Spear-leaved Smilax.*
Lin. ſpec. 1461. *Reich.* 4. 258. *hort. cliff.* 459. *Cateſb. car.* 2. *t.* 84. *Lour. cochinch.* 623. *ed. Willd.* 764.
Stem unarmed round, leaves unarmed lanceolate.
15. Smilax Pſeudo-China. *Baſtard Chineſe Smilax.*
Lin. ſpec. 1461. *Reich.* 4. 258. *hort. cliff.* 459. *Gron. virg.* 193. 156. 120. *Brown. jam.* 359. 2. *Sloan. jam.* 1. 31. *t.* 143. *f.* 1. *Thunb. jap.* 152. *Lour. cochinch.* 623. *ed. Willd.* 765. *Plum. ic.* 82. *Pluk. phyt. t.* 110. *f.* 5.
China ſpuria nodoſa. *Baub. pin.* 297. *Raii hiſt.* 658.
Pſeudo-China. *Ger. emac.* 1618.
Stem unarmed round, leaves unarmed, ſtem-leaves cordate, branch-leaves ovate-oblong five-nerved.
16. Smilax Ripogonum.
Forſt. prodr. n. 372.
Ripogonum ſcandens. *Forſt. gen.* 25.
Stem unarmed round rooting, leaves ovate-lanceolate acuminate five-nerved, flowers hermaphrodite.
17. Smilax purpurata.
Forſt. prodr. n. 373.
Stem unarmed round dichotomous, leaves cordate-acute acuminate clawed quite entire five-nerved, peduncles axillary umbelliferous.]
18. Smilax ariſtolochiæfolia.
Mill. dict. n. 7.
S. aſpera, ariſtolochiæ foliis longioribus, ad baſin auriculatis. *Houſt. Mſs.*
Stem prickly round, leaves unarmed ſagittate bluntiſh three-nerved.
19. Smilax ſpinoſa.
Mill. dict. n. 8.
S. viticulis aſperis, foliis oblongis, nervis foliorum ſpinoſis. *Houſt. Mſs.*
Stem prickly round, leaves ovate-lanceolate, nerves of the leaves prickly underneath.
20. Smilax virginiana.
Mill. dict. n. 9. *Pluk. phyt. t.* 110. *f.* 4.
Stem prickly angular, leaves lanceolate unarmed acuminate.
21. Smilax canellæfolia.
Mill. dict. n. 10. *Pluk. phyt. t.* 110. *f.* 5.
Stem unarmed round, leaves unarmed ovate three-nerved.
22. Smilax humilis.
Mill. dict. n. 11. *Cateſb. car.* 1. 47.
Stem unarmed round, leaves unarmed ovate-cordate three-nerved, flowers corymbed.
23. Smilax hederæfolia.
Mill. dict. n. 12. *Pluk. phyt. t.* 225. *f.* 3.
Stem unarmed round, leaves unarmed, ſtem-leaves cordate, racemes ovate-oblong.

DESCRIPTIONS, &c.

1. Roots perennial, compoſed of many thick fleſhy fibres, ſpreading wide, and ſtriking deep. Stems ſeveral, ſlender, angular, armed with ſhort crooked ſpines, and having claſpers on their ſides, by which they faſten themſelves to any neighbouring plant for ſupport, and riſe five or ſix feet high. Leaves ſtiff, heart-ſhaped, and acute-pointed, three-quarters of an inch broad at the baſe and about two inches long, of a dark green, marked with five longitudinal nerves, and the edges ſet with a few ſhort reddiſh ſpines. Flowers axillary in ſhort bunches, ſmall and whitiſh. Thoſe on the female plants are ſucceeded by red berries which ripen in autumn. [The berries are ſometimes black; and there is a variety which has the leaves eared at the baſe.

Native of the South of France, Italy, Spain, Carniola; near Tripoli, and between Rama and Joppa.—Cultivated in 1656, by Mr. John Tradeſcant, junior. It flowers in ſeptember[1].

The druggiſts in the South of Europe often ſell the roots of this ſpecies for thoſe of Sarſaparilla. (n. 4.) They have the ſame qualities, but in an inferior degree; and may be diſtinguiſhed by being larger, more porous, much leſs compreſſed, not ſo well packed, and faſtened by thread or oziers[2].]

2. Roots like thoſe of the preceding. Stems four-cornered and prickly, mounting to the tops of trees by their claſpers. Leaves two inches long, and an inch and three quarters broad at the baſe, having five longitudinal nerves, but no ſpines on their edges. The flowers and fruit are like thoſe of the firſt ſort. Native of Syria.

[3. Petioles two-toothed, not cirrhoſe. Claſpers from the axils or rudiment of the peduncle.——

[1] Hort. kew. [2] Villars.

Native of Ceylon [a]. Introduced in 1778, by Patrick Ruſſel, M. D.*

Loureiro has a ſpecies, under the name of Smilax perfoliata, which, as he ſays, ſeems to be allied to Rumphius's plant, which Linnæus makes to be ſynonymous with his Sm. zeylanica: it differs however from that in having perfoliate ſtipules and five-nerved leaves. It is found on the woody hills of Cochinchina.

Desfontaines has a ſpecies, under the name of S. mauritanica, which is not the ſame with the excelſa, as appears from comparing the plant with the ſpecimens of that in Tournefort's and Vaillant's herbariums. The ſtem is prickly, angular and ſcandent; the leaves cordate, mucronate, unarmed or very ſeldom prickly, marked with about ſeven nerves, and the berries are red. It is allied to S. aſpera, but the ſtem is higher, the leaves three or four times as large and not ſpotted. They vary, ſome being prickly, others not, ſome are rounded at the end, but moſt are acute and mucronate.

Native of Algiers near Bone, and of mount Atlas.

4. Root perennial, divided into ſeveral branches, which are ſomewhat thicker than a gooſe quill, ſtraight, externally brown, internally white, and three or four feet in length. Stems ſhrubby, long, ſlender, ſcandent. Leaves alternate, pointed, with long tendrils at the baſe. Flowers lateral, uſually three or four together upon a common pedunclè [b].

Native of America (Peru, Braſil, Mexico, Virginia.) Cultivated in 1691, by Mr. Foſter, according to Plukenet. It flowers in july and auguſt [c]. The root, as a medicine, was introduced into Spain, according to Caſpar Bauhin, about the year 1573, but Monarda informs us, that it was brought from New Spain to Madrid twenty or thirty years before that. The common name is of Spaniſh origin, from Zarza red, and Parilla a little vine.

Sarſaparilla, at its firſt introduction, was conſidered as an undoubted ſpecific in ſiphilitic and ſome chronic diſorders; but whether owing to a difference of climate or other cauſes, European practitioners ſoon found that it by no means anſwered the character which it had acquired in the Spaniſh Weſt Indies, and therefore it became very much neglected. Many phyſicians however ſtill conſider it as a medicine of much efficacy, and aſſert that the lues venerea is much ſooner ſubdued, by giving Sarſaparilla along with Mercury. It is in frequent uſe at moſt of the London hoſpitals; and Dr. Woodville relates, that he has known patients, after the uſe of Mercury, much ſooner reſtored to health by this root, than could have been accompliſhed by any other medicine with which we are acquainted, eſpecially when employed in powder.

This root is alſo recommended in rheumatic affections, ſcrophula, and cutaneous complaints where an acrimony of the fluids prevail. It may be given in decoction or powder, and ſhould be continued in large doſes for a conſiderable time [d].

5. Native of the Weſt Indies, in the Caribbee iſlands, St. Vincent. Stem fruteſcent, ſcandent. Branches ſubdivided, diverging, round, rigid, prickly, with raiſed decurrent lines between the prickles, which are ſtout, remote, thicker at the baſe, ſtretched out. Leaves alternate, veined, quite entire, rigid, on ſhort petioles ſheathing at the baſe and keeled. Flowers in peduncled umbels many together. Peduncles ſhorter than the petioles: pedicels the length of the peduncles, one-flowered. Flowers ſmall, greeniſh. Berry roundiſh, the ſize of a black Currant, blackiſh blue [e].]

6. Stems taper, very ſtrong, armed with ſhort ſtiff ſpines, and riſing twenty feet high by their claſpers. Leaves thick, four inches long, and three inches and a half broad at their baſe, ending in an obtuſe point, and having five longitudinal veins. Flowers in cloſe bunches. Berries red.

[Stem round, branched, with claſpers in pairs, and a few very ſhort ſcattered prickles. Leaves acute, three-nerved, ſmooth, alternate, ſeldom cordate or retuſe; without any ſtipules. Flowers in ſmall axillary umbels. Berry ſmall, round, red, one-ſeeded. Root horizontal, creeping far and wide, with oblong tubers, knobbed and warted, ſometimes branched, pale or reddiſh within, half a foot long, roundiſh, ſcattered [f]. According to Rochon, the root is as large as a child's hand, twiſted, full of knots, reddiſh on the outſide, fleſh-coloured in the heart, and deſtitute of ſmell. It muſt be choſen full, heavy and compact, of a reddiſh colour, and free from rottenneſs; for it is much ſubject to be gnawed by worms. It is employed with ſucceſs as a medicine in the province of Onanſi in China, where it abounds. The Chineſe uſe it for food, inſtead of Rice; and this contributes not a little to render them luſty [g].

Native of China, Cochinchina and Japan.] Mr. Miller, who cultivated it in 1759, ſays, that he had it from Carthagena in New Spain; and that it was the ſame which he received from China by the title of China-root.

[Browne ſays, it is frequent in the more cool inland parts of Jamaica, where it riſes from a thick porous root, and climbs by a pretty ſlender rigid ſtem to the top of the talleſt trees in the woods; that it has a few prickles towards the bottom, divides into many branches at the top, and throws out its winding tendrils from the foot-ſtalks of the leaves; that the root is commonly uſed in Jamaica, and obſerved to anſwer as well as that from the Eaſt Indies; that it is of a ſheathing nature, and a very fit ingredient in all diluting apozems; that the plant might eaſily be propagated ſo as to ſupply the European markets, but what grows wild is more than ſufficient to ſupply the inhabitants, and ſerves frequently to feed the hogs, which are ſaid to live chiefly upon it, when there is a ſcarcity of wild fruit.

7. Stem naked, flexuoſe, with a very few ſtraight prickles. Leaves naked, five-nerved, wider than long, acute, on ſhort petioles, with two filiform claſpers.

Native of Canada, where it was found by Kalm [h]. Cultivated before 1760, by Archibald Duke of Argyle [i].]

8. Stalk thick, taper, riſing by claſpers ten or twelve feet high. Leaves thick, three inches and a half long, and an inch and half broad. Flowers axillary in round bunches, and ſucceeded by black berries.

[Linnæus remarks, that the leaves, as to their conſiſtence, are the thickeſt of any in the genus.

Native of Virginia and Carolina. Cultivated by Mr. Miller in 1739. It flowers in july [k].]

9. Stems taper. Leaves four inches long, and two inches and a half broad at their baſe, having ſeven longitudinal veins: the flowers come out in long looſe bunches from the ſide of the ſtalks, and the berries are black.

[Native of North America. Cultivated in 1739, by Mr. Miller. It flowers in june and july [l].

10. Stem naked, flexuoſe, with a few ſtraight prickles black at the tip. Leaves annual, acute, on ſhort petioles, from which ſpring two capillary claſpers. Umbels of flowers below the leaves, on peduncles which are ſcarcely longer than the petiole.

Native of Canada [m]. Introduced in 1775, by Mr. William Young [n].]

Mr. Miller has a ſpecies under the ſame name, but without any reference to Linnæus. He ſays that it grows naturally at Carthagena in New Spain; that it has ſtrong taper ſtalks armed with a few ſhort ſpines; that the leaves are thick, unarmed and heart-ſhaped, five inches long, and three inches and a half broad at their baſe, ending with an acute point; and that it climbs to the height of thirty feet.

[Loureiro has alſo a S. caduca, and refers to Linnæus, and alſo to Tournefort, inſt. 694. n. 3.—The ſtem is very prickly at the baſe, and the claſpers are in pairs from the petioles. Leaves all broad-ovate, re-

[a] Lin. ſyſt. [b] Hort. kew. [c] Woodville. [d] Woodville. [e] Hort. kew. [f] Swartz. [g] Memoir on the Chineſe trade, p. 449. [h] Linn. ſpec. [i] Hort. kew. [k] Idem. [l] Linn. ſpec. [m] Hort. kew. [n] Idem.

tuſe,

tuſe, ſmooth, alternate. Stipules none. Flowers in ſmall lateral umbels.

Native of the woods of Cochinchina.—It is not probable that the ſame ſpecies is indigenous of three climates ſo different as that, the Spaniſh Weſt Indies and Canada.

11. Native of North America. Introduced about 1778, by Mr. William Young. It flowers in june and july [l].

12. Native of North America. Cultivated in 1669, by the Dutcheſs of Beaufort. It flowers in july [m].

The leaves have the form of the hederaceous plants, but not the conſiſtence, for they are thin. The little umbels of ſmall flowers are on very long ſlender peduncles, from the boſoms of the leaves. It was brought to England by Vernon and Kreig, at their return from Maryland [n].

Plukenet's figures 3 and 4 are wrong marked, and ſhould be tranſpoſed to agree with the names under the plate; the figure at top marked 4 is Phytolacea decandra.

13. Stem four-cornered, altogether flexuoſe. Petioles the length of the earlets or lobes of the heart of the leaf. Leaves narrower than in moſt of the ſpecies [o].

14. Stem herbaceous, unarmed, round, ſhort, very branching, ſcandent, cirrhoſe. Leaves quite entire, ſmooth, three-nerved, alternate. Root filiform, long, not tuberous [p].

Supported on trees and ſhrubs, claſping them with their tendrils. Leaves long, and narrowed at both ends, thick, ſtiff and ſhining, with a ſingle rib in the middle, alternate at wide diſtances. At the ends of the ſmaller branches are produced greeniſh-white flowers in tufts, ſucceeded by globular mucilaginous red berries, each containing a very hard round ſtone. Theſe ſerve as food to birds [q].

Native of Virginia, Carolina and Cochinchina.—Introduced in 1785, by Mr. William Young [r].

15. Stem ſhrubby, very long, ſlender, with few ſcandent branches. Leaves ſmall, the lower cordate, the upper ovate-lanceolate, three-nerved, quite entire, flat, with the margin bent back. Flowers in lateral umbels. Berries red. The root is horizontal, ſimple, thick, ſhort, tubercled, with many, long, undivided fibres [s]. According to Browne, the roots are ſmall, and divided into a number of ſlender branches. He thinks it to be very like the Sarſaparilla of Piſo, p. 278. Thunberg remarks, that there are two, three, four, or five ſeeds in a berry.

Native of Virginia, Jamaica, China and Cochinchina.—In the latter they uſe the ſtem for making baſkets and other wicker ware [t].

In Chineſe it is named Cum Kong Cunn, and is frequently uſed by them inſtead of the true China root. A ſmall quantity of it even in cold water tinges of a deep red; whereas the true root yields a light yellow brown [u].

16. Forſter, in his genera, made this a new genus, under the name of *Ripogonum*, from ῥιπὶς, *virga*, *vimen*, and γονυ, *genu*, *a joint*; being a vimineous, jointed plant, as indeed moſt of the Smilaces are, to which genus he afterwards referred it. The leaflets of the calyx are lanceolate, acute and almoſt erect; the anthers are linear, quadrangular, three times as long as the calyx, erect; the germ globular; the ſtyle filiform of the ſame length with the calyx, and the ſtigma blunt; the berry globular and two-ſeeded; the ſeeds ſolitary and hemiſpherical.—Native of New Zealand.

17. Native of New Caledonia [x].

In the appendix to the Journal of a voyage to New South Wales by John White, Eſq. Surgeon General to the ſettlement, a ſhrub is figured under the name of the Tea tree of New South Wales, Sweet Tea Plant, or Smilax glycyphylla. The leaves are about two inches long, ovate-lanceolate, pointed, entire, marked with three longitudinal ribs, and many tranſverſe elevated veins, ſmooth and ſhining above, glaucous beneath, with a thick cartilaginous edge. They have the taſte of liquorice root accompanied with bitter, and the infuſion is ſaid to be good for the ſcurvy, and not unpleaſant. It is judged to belong to this genus, but the leaves only having been ſeen, the generic and even the ſpecific character cannot be aſcertained.]

18. The 18th ſort grows naturally at La Vera Cruz in New Spain; this has a thick, taper, prickly ſtalk, which climbs up the neighbouring trees to the height of thirty or forty feet. The leaves are thick, ſtiff, and unarmed; they are ſeven inches long, and have two round ears at their baſe, where they are three inches and a half broad, but the other part of the leaves are two inches broad at their top, where they are rounded; they have three longitudinal veins, and ſtand on ſhort foot-ſtalks.

19. The 19th ſort grows alſo naturally at La Vera Cruz; this has ſlender, taper, prickly ſtalks, which faſten themſelves to any neighbouring ſupport by their claſpers, and riſe eight or ten feet high. The leaves are four inches and a half long, and two and a half broad in the middle; they have no ſpines on their edges, but their midrib and veins on their under ſide are armed with ſhort reddiſh ſpines.

20. The 20th ſort grows naturally in Jamaica. The ſtalks of this are ſlender, angular, and prickly; the leaves are ſpear-ſhaped, ending in acute points; they are three inches long, and half an inch broad, having no ſpines; their baſe is a little rounded, but they have no ears.

21. The 21ſt ſort grows naturally in Jamaica; this has thick, fleſhy, creeping roots. The ſtalks are taper and unarmed; theſe climb up the neighbouring trees and buſhes to the height of ten or twelve feet. The leaves are ovate and end in acute points; they are five inches long and three broad, and have three longitudinal veins, but no ſpines.

[Miller has the ſame ſynonym of Plukenet under his S. canelleſolia, which Linneus refers to his S. Pſeudo-China. See n. 15.]

22. The 22d ſort grows naturally in Carolina; this has taper unarmed ſtalks which riſe three or four feet high. The leaves are ovate-heart-ſhaped, about three inches long, and almoſt two broad, rounded at their points, and have three longitudinal veins. The flowers come out from the wings of the ſtalk at every joint, ſtanding upon ſhort foot-ſtalks, formed in a round bunch; theſe are ſucceeded by roundiſh red berries.

23. The 23d ſort grows naturally in Jamaica, and alſo in Maryland. The ſtalks of this are ligneous, taper, and unarmed; theſe have very long claſpers, by which they faſten to any neighbouring ſupport, and riſe twenty feet high. The leaves are ſome ovate and others heart-ſhaped; they are about three inches and a half long, and two and a half broad. The flowers come out from the wings of the ſtalk in oblong bunches; theſe are ſucceeded by red berries.

[Miller, under his hederæfolia, has given Linneus's character of S. Pſeudo-China, with a reference to Plukenet's figure, which Linneus attributes to his S. herbacea, n. 12.]

PROPAGATION AND CULTURE.

Theſe plants are many of them preſerved in the gardens of the curious for the ſake of variety, but ſome of them may ſo be diſpoſed as to make them ornamental, becauſe thoſe ſorts which grow naturally in North America, and the two firſt ſorts, are ſo hardy as to thrive in the open air in England; and as they retain their verdure all the year, if the plants are placed on the borders of woods or groves in gardens, and their branches properly ſupported, they will ſcreen the nakedneſs of the ground under the trees from ſight, and in winter, when their leaves are in beauty, they will make a pleaſing variety, when the plants are properly intermixed with other evergreens; and as ſome of the ſorts will riſe five or ſix feet high, they will ſhut out from view any diſagreeable objects.

Thoſe ſorts which require a ſtove to protect them in winter are little eſteemed, becauſe they require much room; and as their flowers have no beauty to recommend them, few perſons care to be at the trouble of preſerving them for that of their leaves, becauſe there

[l] Hort. kew. [m] Idem. [n] Ray. [o] Linn. ſuppl. [p] Loureiro. [q] Catesby. [r] Hort. kew. [s] Loureiro. [t] Idem. [u] Blake, MS. [x] Forſter.

are

are many other plants whoſe leaves make a better appearance, and the plants do not require ſo much room, ſo theſe plants are rather the proper furniture of botanic gardens than thoſe of pleaſure.

They are all propagated by ſeeds, which muſt be procured from the countries where they naturally grow, for there are none of theſe plants which produce ripe ſeeds here. Thoſe ſorts which have been brought from the north of America, ſometimes produce flowers in England, but the ſummers here are neither warm enough, nor of a proper duration to ripen their ſeeds, ſo that theſe are propagated by parting their roots; for when the roots have obtained ſtrength, they ſpread very far in the ground, and ſend up ſtalks at a diſtance from the old roots, whereby they may be greatly increaſed when the ſorts are once obtained. The beſt time for tranſplanting and parting their roots is early in autumn, that the offſets or young plants may have time to get good roots before the froſt comes on, and if after they are planted, the cold ſhould come on earlier, or be more ſevere than ordinary, if the ſurface of the ground about their roots is covered with ſome old tanners bark or mulch to keep the froſt out of the ground, it will preſerve them; but theſe roots ſhould not be parted oftener than every third or fourth year, for unleſs the roots are large, there will be few ſtalks to each, and they will make but little appearance.

The tender ſorts muſt be kept in pots, and plunged into the tan-bed of the bark-ſtove, in order to have them ſtrong; for although they will live in moderate warmth in winter, they will make but little progreſs, and their ſtalks will be ſhort, their leaves ſmall, and the plants weak, ſo will make but a poor appearance; therefore, unleſs they can be allowed room in the warm ſtove, and conſtantly kept in the tan-bed, they will not be worth preſerving.

All the ſorts grow naturally under hedges and in woods, therefore they ſhould be diſpoſed in ſuch a manner, as to imitate their places of growth, and not place them in the open ſun, where they will not thrive; therefore the hardy kinds ſhould be placed under the ſhade of trees, and the tender ones may be placed between the pots which contain tall plants, whoſe branches may ſcreen them from the ſun. Such of theſe plants as are tender muſt be frequently watered in hot weather, and ſhould then have a large ſhare of air admitted to them, but in winter they muſt be watered ſparingly, for their roots are apt to rot with too much wet.

When the ſeeds of theſe plants are obtained from abroad, they ſhould be ſown in pots filled with freſh light earth, and plunged into a moderate hot-bed, obſerving to water the earth frequently to keep it moiſt, becauſe the ſeeds, being hard, will not vegetate without a conſiderable ſhare of moiſture; theſe generally remain in the ground a whole year before they grow, ſo that if the plants do not come up the firſt ſeaſon, the pots ſhould be kept clean from weeds all the ſummer, and in winter the hardy ſorts ſhould be ſheltered from froſt under a common frame, and the tender ones plunged into the bark-bed in the ſtove: the following ſpring they muſt be again plunged into the hot-bed, which will bring the plants up very ſoon. When the plants are come up, they muſt be conſtantly kept clear from weeds, and frequently watered in warm weather, and toward the end of may the hardy ſorts ſhould be inured to the open air by degrees, and in june they may be removed out of the bed, and placed abroad in a ſheltered ſituation, where they ſhould remain till the froſt comes on in autumn, when they muſt be removed into ſhelter. If the pots are plunged into an old tan-bed under a frame, where they may be protected from the froſt, and in mild weather be expoſed to the open air, they will thrive much better than with more tender treatment.

The tender ſorts ſhould be plunged between the other pots in the bark-bed of the ſtove, where they ſhould remain all the winter. Theſe plants ſhould remain untranſplanted in the ſeed-pots till the following ſpring, when they ſhould be turned out of the pots, carefully ſeparated, and planted into pots filled with freſh earth; and if the hardy ſorts are plunged into a very temperate hot-bed, it will cauſe them to take new root very ſoon, and greatly ſtrengthen the plants; but the tender ſorts ſhould be plunged into a good hot-bed of tanners-bark to bring the plants forward, that they may get ſtrength before winter, when they muſt be treated in the manner before directed.

The hardy ſorts ſhould be kept in pots for two or three years that they may be ſheltered in winter, by which time they will have ſtrength enough to bear the cold in the open air; ſo in the ſpring they may be turned out of the pots, and planted where they are deſigned to remain, obſerving, if the ſpring ſhould prove dry, to refreſh them now and then with water, as alſo to lay ſome mulch about them to prevent the earth from drying; and while the plants are young, if ſome mulch is laid about their roots in winter, it will be a ſure method to preſerve them.

[SMILAX. See *Ciſſampelos, Convolvulus, Ipomæa, Phaſeolus, Quercus, Uvularia.*

SMITHIA. (*So named in honour of James Edward Smith, M.D. F.R.S. &c. Preſident of the Linnean Society, Poſſeſſor of the Linnean collection, author of ſeveral uſeful and ſplendid works.*)

Lin. gen. Schreb. n. 1760. *p.* 809. *Ait. kew.* 3. 512.

Claſſ. 17. 4. Diadelphia Decandria.

Nat. order of *Papilionaceæ* or *Leguminoſæ*.

GENERIC CHARACTER.

CAL. *Perianth* one-leafed, two-lipped: *ſegments* ovate-lanceolate, almoſt equal.

COR. papilionaceous. *Standard* obcordate. *Wings* oblong, obtuſe, a little ſhorter than the ſtandard. *Keel* linear-oblong, cloven at the baſe, length of the wings.

STAM. *Filaments* ten, united into two equal bodies. *Anthers* oblong.

PIST. *Germ* contracted at the baſe of the calyx. *Style* capillary, permanent. *Stigma* ſimple.

PER. *Legume* incloſed within the calyx, compoſed of from four to ſeven joints; diſtinct, connected by the permanent ſtyle, orbicular, muricated, one-ſeeded.

SEEDS kidney-form, compreſſed, ſmooth.

ESSENTIAL CHARACTER.

Legume with diſtinct one-ſeeded joints, connected by the ſtyle. *Stam.* divided into two equal bodies.

SPECIES.

1. Smithia ſenſitiva. *Annual Smithia.*

Ait. kew. 3. 496.

DESCRIPTION, *&c.*

Root annual. Stem decumbent, round, even. Branches ſpreading very much. Leaves alternate, abruptly pinnate, compoſed of from four to ten obovate-oblong leaflets, briſtly on the edge and along the rib beneath. Petiole very ſhort; rachis briſtly. Stipules in pairs, permanent, ſemi-lanceolate above the inſertion, quite entire, acuminate; below the inſertion bifid: one ſegment blunt, the other longer, acuminate. Racemes axillary, from three to ſix-flowered. Peduncle longer than the petiole, filiform. Pedicels ſhorter than the calyx. Bracte under each of the pedicels, like the ſtipules, but leſs produced downwards: bractes under the calyx two, reſembling the exterior calyx, ovate-lanceolate, muricate. Calyx muricate with briſtle-bearing tubercles. Corolla yellow.

Native of the Eaſt Indies, and introduced in 1785, by John Gerard Koenig, M.D. It flowers in october[†].

SMYRNIUM. (*Σμυρνιον of Dioſcorides, from the city of Smyrna: or, from σμυρνα the ſame with μυρρα, the root yielding a gum like Myrrh.*)

Lin. gen. n. 363. *Reich. n.* 393. *Schreb. n.* 495. *Tourn. t.* 168. *Juſſ.* 219. *Gærtn. t.* 22.

Claſſ. 5. 2. Pentandria Digynia.

Nat. order of *Umbellatæ* or *Umbelliferæ*.

GENERIC CHARACTER.

CAL. *Umbel univerſal* unequal, becoming daily bigger. *Partial* erect.

Involucre univerſal none. *Partial* none.

Perianth proper ſcarcely apparent.

COR. *univerſal* uniform. Floſcules of the diſk abortive. *Proper* of five lanceolate petals, ſlightly bent in, keeled.

† Hort. kew.

STAM. *Filaments* five, ſimple, length of the corolla. *Anthers* ſimple.
PIST. *Germ* inferior. *Styles* two, ſimple. *Stigmas* two, ſimple.
PER. none. *Fruit* oblong, ſtriated, bipartile.
SEEDS two, lumulate, on one ſide convex, marked with three angles, flat on the other.

ESSENTIAL CHARACTER.

Petals acuminate, keeled. *Fruit* oblong, ſtriated.

SPECIES.

1. Smyrnium perfoliatum. *Perfoliate Alexanders.*
Lin. ſpec. 376. *Reich.* 1. 720. *Willd.* 1. 1467. *hort. cliff.* 104. *upſ.* 66.
S. peregrinum rotundo ſ. oblongo folio. *Baub. pin.* 154. *prodr.* 82.
S. amani montis. *Dod. pempt.* 698.
S. creticum. *Ger.* 869. *emac.* 1024. *Park. theat.* 930. *f.* 2. *Raii hiſt.* 437.
Stem-leaves ſimple embracing.

[2. Smyrnium ægyptiacum. *Egyptian Alexanders.*
Lin. ſpec. 376. *ſyſt.* 290. *Reich.* 1. 720. *Willd.* 1. 1467. *amoen.* 4. 270. *cent.* 25.
Floral leaves two ſimple, cordate quite entire.

3. Smyrnium laterale. *Side-flowering Alexanders.*
Lin. ſpec. ed. Willd. 1. 1467. *Thunb. prodr.* 51.
Stem-leaves ternate gaſhed ſerrate, umbels lateral ſeſſile.

4. Smyrnium Oluſatrum. *Common Alexanders.*
Lin. ſpec. 376. *Reich.* 1. 720. *Willd.* 1. 1467. *hort. cliff.* 105. *Gærtn. fruct.* 1. 101. *Sauv. monſp.* 262. *Allion. pedem. n.* 1346. *Desfont. atlant.* 264. *Lamarck illuſtr. t.* 204. *Hudſ. angl.* 126. *Wither. arr. ed.* 3. 310. *Smith brit.* 328. *engl. bot. t.* 230. *Relh. cant. ed.* 2. *n.* 272. *Sibth. oxon. n.* 312. *Dickſ. hort. ſicc.* 9. 2. *Regnault ic. Blackw. t.* 408. *Plenck ic. t.* 220.
Smyrnium. *Matth.* 773. *valgr.* 2. 130. *Tournef. inſt.* 316. *Riv. pent. t.* 69. *Raii ſyn.* 208. *Petiv. brit. t.* 24. *f.* 1.
S. ſemine magno nigro curvo. *Mor. hiſt.* 3. *ſ.* 9. *t.* 4. *f.* 1. *umb. t.* 1. *f.* P. p.
Hippoſelinum. *Dod. pempt.* 698. 1. *Ger.* 864. *emac.* 1019. *Raii hiſt.* 437.
H. ſ. Smyrnium vulgare. *Park. theat.* 930 *f.* 1.
H. Theophraſti, ſ. Smyrnium Dioſcoridis. *Baub. pin.* 154.
Macerone quibuſdam Smyrnium, ſemine magno nigro. *Baub. hiſt.* 3. 2. 126.
Petroſelinum alexandrinum. *Trag.* 436.
Stem-leaves ternate petioled ſerrate.

5. Smyrnium apiifolium. *Smallage-leaved Alexanders.*
Lin. ſpec. ed. Willd. 1. 1468.
S. creticum paludapii folio. *Tournef. cer.* 23.
S. creticum. *Mill. dict. n.* 4.
Stem-leaves wedge-ſhaped obtuſe trifid toothed.

[6. Smyrnium aureum. *Golden Alexanders.*
Lin. ſpec. 377. *Reich.* 1. 720. *Willd.* 1. 1468.
Ægopodium foliis caulinis ſummis novenis. *Lin. hort. cliff.* 107.
Angelica acadienſis flore luteo. *Dodart mem.* 55. *Raii hiſt.* 1868.
A. humilior & minor flore luteo. *Mor. hiſt.* 3. 281. *n.* 13.
β. S. foliis caulinis decompoſitis acuminatis. *Gron. virg.* 148.
S. aureum, lobis ternis quinifve, marianum. *Pluk. mant.* 173.
Leaves pinnate ſerrate, binder ternate; all the flowers fertile.]

7. Smyrnium integerrimum. *Entire-leaved Alexanders.*
Lin. ſpec. 377. *Reich.* 1. 721. *Willd.* 1. 1468.
S. fol. caulinis ternatis petiolatis, foliolis oblongo-ovatis integerrimis. *Gron. virg.* 148.
Stem-leaves doubly-ternate quite entire.

DESCRIPTIONS, &c.

1. The lower leaves are ſupendecompounded, and the leaflets are in threes, ovate and indented. Stem ſmooth, hollow, three feet high, dividing towards the top into two or three branches. At each joint is placed one large orbicular leaf, the baſe of which is embracing; theſe are of a yellow colour, and their edges are entire. The branches are terminated by ſmall umbels of yelloviſh flowers, on pedicels of unequal lengths.

Mr. Miller names this S. rotundifolium, and diſtinguiſhes the long-leaved variety under the name of S. perfoliatum.—The lower leaves of this, he ſays, are larger, the ſtalk is not ſo high, the ſtem-leaves are much larger, cordate-ovate and indented, and their texture is thinner. The umbels and ſeeds are ſmaller. He affirms that he has cultivated both many years, and has not found either of them alter: [And yet, ſays Parkinſon, both ſorts have riſen in my garden from one kind of ſeed, and therefore I hold them to be one.

Native of Candia and Italy. Ray found it in Sicily, near Punto Cerciolo, not far from Puzzallu.—It groweth, ſays Gerarde, in my garden (1596) in great plenty.—It is a biennial plant, and flowers in may. The leaves are not properly perfoliate, but embracing.

2. Native of Egypt.

3. Native of the Cape of Good Hope.

4. Root biennial, fleſhy, branched. The whole herb of a pale bright green, (often, ſays Withering, of a ſickly yelloviſh caſt,) ſmooth, ſucculent, in flavour ſomething like Celeri, but more ſtrong and bitter. Stem round, ſtrong, deeply grooved. Upper leaves ternate, lower triternate; leaflets wide, varying in form, gaſhed and ſerrate, ſubpetioled. Common petiole dilated at the baſe, ventricoſe and nerved. Umbels terminating, globular, many-rayed. Flowers ſmall, numerous, irregular, greeniſh yellow[a]. Fruit large, black, remarkably gibbous, deeply grooved: each ſeed ſemilunate, thick, with three acute-angled and almoſt winged ribs on the back, and ſomewhat wrinkled between the ribs; the belly prominent with a longitudinal groove in the middle[b].

Native of France, Spain, Italy, Belgium, and Britain. It is rather a maritime plant, and is found near our coaſt in many places; as about Scarborough caſtle, and about Dover, common. Ray ſays it is common in Angleſea; and Pennant, that it almoſt covers the S. W. end of the iſland, where it is greedily eaten when boiled, by ſailors returning from long voyages. It is very common in all the weſtern counties, and in the flat parts of Glouceſterſhire. About Poole, on the ramparts going into Wareham, and in many other places in Dorſetſhire. It occurs alſo about many inland towns, as Nottingham, York, Bury, Newmarket, and about Mackerell's tower, Norwich; Bungay in Suffolk, ſeveral places in Cambridgeſhire, near Benſington, in Oxfordſhire, between Great Comberton and Woollerſhill, at Hill Croome and Pirton in Worceſterſhire. In the neighbourhood of London, about Deptford, Vauxhall and Batterſea. Cliffe in Kent. Cowley in Middleſex. In Scotland, upon the coaſt at Dunglaſs, on the edge of Berwickſhire.

It was noticed as indigenous of England by Turner. Parkinſon ſays it was firſt found wild in ſome of the iſles about our own land by Mr. William Quicke, a worthy apothecary in his time, who gave him and Mr. William Cole a famous gentleman, and a great lover of plants, ſome of the ſeeds.

This plant was formerly eaten in various parts of Europe, either as a ſalad or pot-herb, whence, and from its blackneſs, the name *oluſatrum*. Ray ſays it was called *Alexanders*, becauſe in Italy and Germany it had long been denominated *herba alexandrina*; having been ſuppoſed to be brought from Alexandria. It flowers in may; and by the middle of july the ſtalks are dried up, but remain laden with large black ſeeds[b].]

5. The lower leaves of this are ſmaller than thoſe of the preceding, and more like thoſe of Smallage. The ſtalk riſes higher, and grows more erect. The lower ſtem-leaves are large and ſerrate; they ſtand by threes at the joints; their baſe ſet cloſe, having no foot-ſtalks: the upper leaves are of the ſame form, but ſtand by pairs. The umbels are much ſmaller, and the ſeeds are leſs.—Native of Crete or Candia.

6. Root perennial, black, and thick with cluſtered fibres. Stems ſeveral, ſtriated, angular, a palm and

[a] Smith. [b] Gærtner. [b] Engl. bot.

half in height, from the bottom of which arise petioles, membranaceous at the base, and then triangular, subdivided into three petioles, the middle one bearing five toothletted leaflets, and the other two, three only. Some of the stems emit branchlets from the axils of the leaves. Each stem and branch is terminated by an umbel of very small yellow flowers. Seeds brown, striated, not unlike those of Caraway. The whole plant is acrid, bitter and aromatic [c].

Native of North America. (Dodart says, it was sent by Richer, who was commissioned by the King of France to Acadia and Cayenne.) It was cultivated here before 1699, by Mr. Jacob Bobart [d]; to whom it was sent by Sherard from the Paris garden. He describes it as not more than eighteen inches or two feet in height; the leaves very like those of Podagraria, divided by threes, acute, equally and not deeply serrate. Umbels flat, of golden or yellow flowers. Seeds small, oblong, striated, approaching very near to those of Podagraria [e].

7. Root perennial. Stem a foot and half high, even, little branched. Leaves almost like those of Aquilegia or Columbine, triternate, oblong-ovate, smooth, quite entire, glaucous-green. Florets in the disk of the umbellets male.

Native of Virginia [f]. Mr. Miller has this species, but without any description.

PROPAGATION AND CULTURE.

These plants are most of them biennial, perishing after their seeds are ripe; they flower in june, and their seeds ripen in august.

The fourth is that which was ordered for medicinal use, but is seldom now prescribed; and at present is seldom cultivated in gardens, though formerly it was greatly used in the kitchen, before Celery was so much cultivated, which has taken place of Alexanders, and entirely supplanted it. The other sorts are preserved in *botanic* gardens for variety, but may be cultivated for the use of the kitchen. The first sort is much preferable to the fourth for blanching, and will be tenderer, and not quite so strong.

All these plants may be propagated by sowing their seeds upon an open spot of ground in august, as soon as they are ripe; for if they are preserved till spring, they often miscarry; or at least do not come up until the second year; whereas those sown in autumn rarely fail of coming up in the spring, and will make much stronger plants than the other.

The common sort, when cultivated for the table, should be treated in the following manner:

In the spring the plants should be hoed out, so as to leave them ten inches or a foot apart each way; and during the following summer, they must be constantly cleared from weeds, which, if permitted to grow among them, will draw them up slender, and render them good for little. In february following the plants will shoot up again vigorously, at which time the earth must be drawn up to each plant, to blanch them, and in three weeks after they will be fit for use, when they may be dug up, and the white part preserved, which may be stewed and eaten as Celery.

[SNAIL-FLOWER. See *Phaseolus Caracalla.*
——— TREFOIL. See *Medicago.*
SNAKE-GOURD. See *Trichosanthes.*
——— PIPE. See *Equisetum.*
——— ROOT. See *Asarum, Aristolochia, Eryngium, Polygala, Veratrum.*
——— WEED. See *Polygonum Bistorta.*]
SNAP-DRAGON. See *Antirrhinum.*
[———, American. See *Barleria.*
SNAP-TREE. See *Justicia.*]
SNEEZE-WORT. See *Achillea.*
[SNOWBALL TREE. See *Viburnum.*
SNOWBERRY. See *Chiococca.*]
SNOWDROP. See *Galanthus*, [and *Leucoium.*
——— TREE. See *Chionanthus* and *Halesia.*
SOAP BERRY. See *Sapindus.*
SOAPWORT. See *Saponaria.*

[c] Ray hist. from. Dodart. [d] Hort. kew. [e] Mor. hist. [f] Linn. spec.

SOCCUS. See *Artocarpus.*
SODA. See *Salsola.*
SOFT GRASS. See *Holcus.*
SOJA. See *Dolichos Soja.*
SOLANASTRUM. See *Solanum sodomeum.*

SOLANDRA. (*So named by the younger Linnæus, in honour of Daniel Charles Solander, a Swede, and disciple of Linnæus, L. L. D. F. R. S. Under Librarian of the British Museum, Librarian to Sir Joseph Banks, whom he accompanied in his voyage round the world. He died in* 1782.)

Lin. gen. Schreb. n. 1732. *p.* 793. *Lin. fil. Swartz act. holm.* 1787. *t.* 11. *prodr.* 42. *Salisb. in Linn. transf.* 6. 99. *t.* 6.

Class. 5. 1. Pentandria Monogynia.

GENERIC CHARACTER.

CAL. *Perianth* one-leafed, large, angular, permanent, three-cleft or five-cleft: *segments* lanceolate, erect.
COR. one-petalled, funnel-form, very large: *tube* bell-shaped, ventricose, a little shorter than the calyx: *border* five-cleft; *segments* roundish, waved, patulous.
STAM. *Filaments* five, filiform, length of the tube, ascending at the top. *Anthers* oblong, versatile.
PIST. *Germ* superior, oval. *Style* filiform, longer than the stamens, bent in. *Stigma* obtuse, bifid: *segments* ovate.
PER. *Berry* oval, conical at top, smooth, four-celled.
SEEDS very numerous, oblong, nestling.

ESSENTIAL CHARACTER.

Cal. bursting. *Cor.* clavate-funnelform, very large. *Berry* four-celled, many-seeded.

SPECIES.

1. Solandra grandiflora. *Great-flowered Solandra.*
Lin. spec. ed. Willd. 1. 936. *Swartz act. holm.* 1787. *p.* 300. *t.* 11. *prodr.* 42. *descr.* 1. 387. *t.* 9. *Ait. kew.* 1. 228. *Salisb. in transf. linn.* 6. 100. *t.* 6. *Meen exot. bot. t.* 6.
Stramonium scandens flore luteo. *Plum. ic. ined.*

DESCRIPTION, &c.

This is a small tree from twelve to twenty feet high, with a branching trunk, and a cloven ash-coloured bark, green within. The wood is spongy. The branches are loose, bent down, divaricating, very long. The leaves are in clusters towards the ends of the branchlets, obovate-oblong, acute, quite entire, smooth, thickish and somewhat succulent, from three to seven inches in length, on round smooth petioles, five times shorter than the leaves. Flowers terminating, subsessile, subsolitary, very large. Peduncles very short, thick, round, smooth, one-flowered. Calyx from two to three inches long, subquinquefid, as the fruit ripens bursting to the base into three or five segments. Tube of the corolla greenish white. Border ten times shorter than the tube, patulous, pale flesh-colour, somewhat irregular, veined: the opening four inches in diameter; segments wide, very bluntly waved, crenulate at the edge, almost equal the upper ones being scarcely larger. Filaments inserted into the base of the tube, yellow: anthers large, ferruginous. Germ smooth: style ascending at the top and yellow: lobes of the stigma roundish, green. Berry often the size of a hen's egg, but thicker below, acuminate with the permanent base of the style, smooth and even, white, pulpy and red within. Seeds black. The very handsome sweet flowers appear in the months of january and february. The fruit ripens in august, and is of a sweet subacid flavour.

Native of Jamaica, on very large trees, or in the fissures of rocks, scandent and subparasitical. It is known there by the name of Peach-coloured Trumpet Flower [g].

Mr. Salisbury describes it as a shrub from nine to twenty feet in height. The root brown, running out far, very much branched, of a spongy woody substance. Stem ash-coloured, scandent, round: branches many, bent variously, some of them very long: the stem is more or less rooting, cloven; at top pale green, pubescent and viscid; the wood spongy. Leaves close, alternate, frondose: petioles purplish-green, re-

[g] Swartz.

curved

curved a little, ſemicylindric, pubeſcent, and viſcid, concave above with the middle line eminent: ſurface green above, paler beneath, much longer than the petioles, ſpreading very much and recurved, obovate-lanceolate, quite entire, acuminate, viſcid and pubeſcent on both ſides, a little ſhining, flattiſh, fleſhy: nerves ſeveral, the middle one thicker and uniting with the petiole: they are produced and fall every year. Flowers fragrant, nodding, ſolitary, or ſometimes but ſeldom two or three together. Peduncles pale green, terminating the branchlets; thick, four or five times in length, obconical, jointed at the inſertion, very minutely viſcid-pubeſcent. Receptacle pale green, uniting with the peduncle, than which it is ſhorter and thicker, indiſtinctly angular, very minutely viſcid-pubeſcent. Calyx pale purpliſh green, inſerted into the margin of the receptacle, three inches long or more, erect, tubular, five-cornered with the ſide a little concave, in the time of flowering ſhortly and unequally cloven at two or three of the angles, afterwards as the fruit ſwells frequently more deeply to the very baſe: ſegments erect, half-lanceolate, quite entire, a little acuminate; minutely viſcid-pubeſcent eſpecially within; on the outſide ſomewhat ſhining: permanent. Corolla inſerted into the margin of the receptacle, ſeven or eight inches long: tube pale yellow green, a little ſhorter than the calyx, declining towards the lower ſide of it, ſcarcely three lines in diameter at bottom, widening gradually above, five-cornered, depreſſed a little on the outſide where the filaments are inſerted: limb or border for the moſt part whitiſh, much longer than the tube; funnel-form below, but quickly ſwelling out very much, ſo that the opening of the throat is about two inches in diameter; then being curved back, it is four inches and a half over at the upper opening, and is ſhortly five-cleft; the undivided part is indiſtinctly ten-cornered, five of the corners being continued from the lower ones of the tube and coloured on the inſide with a duſky-purple fillet, the remaining five ſpringing from the inſertion of the filaments, much more ſlender and having a very indiſtinct fillet or none at all: the ſegments are of a bright purpliſh colour on the outſide with the interſtices minutely ſuborbicular at the baſe, and very finely ciliate; the outmoſt ſemiorbicular, repand, flat; the three inner larger, widening on one ſide, gaſh-crenate and curled; the inner one very large, ſemiorbicular, the whole of it very elegantly curled and notchletted: it is ſmooth on the outſide at bottom and the reſt is even: it is coriaceous and deciduous. Filaments very pale yellowiſh green with a duſky purple baſe, inſerted into the mouth of the tube, decurrent, about half the length of the border, curved in, approximating, awl-ſhaped, ſmooth. Anthers very pale yellowiſh green with the ſides purple, inſerted at the baſe and there ſhortly cloven, erect, a little lunulate, four-cornered, with a ſhort dagger-point, two-celled; valves four, the two anterior ones a little narrower and ſtraighter; they open laterally, and after flowering become of a duſky purple, a little leſs, unequally ovate, very much compreſſed: the pollen is of a very pale yellow colour. Style purpliſh at the tip, round and ſmooth. Stigma pale green, compreſſed, pubeſcent, finely channelled. Fruit of a very pale yellowiſh green, ſuperior to the diſk of the receptacle, pyramidal, ſmooth and even, from an inch and half to two inches in length, ovate, four-celled almoſt to the top, and then two-celled, two of the partitions gradually failing; there are two central receptacles, on long ſtipes, deeply two-lobed, variouſly repand-ſinuous. The ſeeds are ſeſſile on all ſides about theſe, ferruginous, kidney-form, dicotyledonous[h].

The above may ſerve as an example of very minute and accurate deſcription.—This plant was introduced here by Mr. Maſſon in 1781, and flowers in march[i].

SOLANDRA. See *Hibiſcus*, *Lagunæa*, *Triguera*.

SOLANIFOLIA. See *Circæa*.

SOLANI FRUCTU. See *Rauwolfia*.

[h] Linn. tranſ. 6. [i] Hort. kew.

SOLANO CONGENER. See *Paris*, and *Trillium*.

SOLANOIDES. See *Rivina*.]

SOLANUM (*of Pliny, &c. Derivation uncertain. Some derive it from* Sol, *the ſun; others ſay it is q.* Sulanum, *from* Sus, *being ſuppoſed to be ſerviceable in diſorders of ſwine: both conjectures are improbable.*)

Lin. gen. n. 251. *Reich. a.* 268. *Schreb. n.* 337. *Tournef. t.* 62. *Juſſ.* 126. *Gærtn. t.* 131. Melongena. *Tournef. t.* 65. Lycoperſicon. *Tournef. t.* 63.

Claſſ. 5. 1. Pentandria Monogynia.

Nat. order of *Luridæ*. *Solaneæ*, Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* one-leafed, half-five-cleft, erect, acute, permanent.

COR. one-petalled, wheel-ſhaped: *tube* very ſhort: *border* large, half-five-cleft, from reflex flat, plaited.

STAM. *Filaments* five, awl-ſhaped, very ſmall. *Anthers* oblong, converging, ſubcoaleſcent, opening at the top by two pores.

PIST. *Germ* roundiſh. *Style* filiform, longer than the ſtamens. *Stigma* blunt.

PER. *Berry* roundiſh, ſmooth, dotted at the top, two-celled; with a convex fleſhy *receptacle* on each ſide.

SEEDS very many, roundiſh, neſtling.

ESSENTIAL CHARACTER.

Cor. wheel-ſhaped. *Anthers* ſubcoaleſcent, opening at top by a double pore. *Berry* two-celled.

SPECIES.

1. *Unarmed.*

[1. Solanum laurifolium. *Bay-leaved Nightſhade.*
Lin. ſyſt. 223. *Willd.* 1. 1025. *ſuppl.* 148.
Stem unarmed arboreous, leaves petioled ovate-oblong tomentoſe beneath, panicle terminating dichotomous divaricating.]

2. Solanum verbaſcifolium. *Mullein-leaved Nightſhade.*
Lin. ſpec. 263. *ſyſt.* 223. *Reich.* 1. 510. *Willd. phyt.* 1. *p.* 5. *n.* 17. *Jacqu. hort.* 1. *p.* 5. *t.* 13. *Pluk. phyt. t.* 316. *f.* 1. *Laur. cochinch.* 128. *ed. Willd.* 159.
S. bahamenſe. *Mill. dict. n.* 24.
S. arboreſcens verbaſci folio. *Plum. ſpec.* 4.
Stem unarmed ſhrubby, leaves ovate tomentoſe quite entire, corymbs bifid terminating.

[3. Solanum auriculatum. *Ear-leaved Nightſhade.*
Lin. ſpec. ed. Willd. 1. 1025. *Ait. kew.* 1. 246. *Vahl ſymb.* 3. 38. *L'Herit. ſolan. t.* 1.
S. mauritianum. *Scop. inſubr.* 3. 16. *t.* 8.
Stem unarmed ſhrubby, leaves ovate acuminate tomentoſe quite entire, ſtipules cordate, corymbs bifid terminating.

4. Solanum pubeſcens. *Pubeſcent Nightſhade.*
Lin. ſpec. ed. Willd. 1. 1026. *Willd. phytog.* 1. 5. *n.* 18. *t.* 3.
Stem unarmed tomentoſe ſhrubby, leaves ovate decreaſing at the baſe quite entire pubeſcent, racemes ſubumbelled axillary.

5. Solanum bombenſe. *Tierra Bomba Nightſhade.*
Lin. ſpec. ed. Willd. 1. 1026. *Jacqu. amer.* 49.
Stem unarmed fruteſcent, leaves oval attenuated to both ends quite entire, racemes cymed.]

6. Solanum Pſeudo-Capſicum. *Shrubby Nightſhade* or *Winter Cherry.*
Lin. ſpec. 263. *Reich.* 1. 510. *Willd.* 1. 1026. *hort. cliff.* 61. *upſ.* 48. *Kniph. cent.* 6. *n.* 87.
S. fruticoſum bacciferum. *Baub. pin.* 166. *Raii hiſt.* 673.
S. frut. americanum dictum Amomum Plinii. *Park. theat.* 353. *f.* 1. *parad.* 431. *t.* 429. *f.* 7.
Amomum Plinii. *Ger.* 289. *emac.* 361.
Pſeudocapſicum. *Dod. pempt.* 718.
Stem unarmed ſhrubby, leaves lanceolate repand, umbels ſeſſile.

[7. Solanum microcarpum. *Small-fruited Nightſhade.*
Lin. ſpec. ed. Willd. 1. 1026. *Vahl ſymb.* 2. 40.
S. diphyllum. *Forſk. deſcr.* 63. *n.* 134.
Stem unarmed ſhrubby, leaves ovate-lanceolate, umbels lateral peduncled.

8. Solanum terminale. *End-flowering Nightſhade.*
Lin. ſpec. ed. Willd. 1. 1027. *Vahl ſymb.* 2. 40. *Forſk. deſcr.* 45.
Unarmed fruteſcent, leaves lanceolate-ovate meſtly quite entire hairy, umbels terminating.

9. Solanum

9. Solanum pauciflorum. *Few-flowered Nightſhade.*
Lin. ſpec. ed. Willd. 1. 1027. *Vahl ecl.* 1. 20.
Leaves ovate quite entire, branches and calyxes ten-toothed tomentoſe, peduncles axillary in pairs one-flowered.

10. Solanum diphyllum. *Two-leaved Nightſhade.*
Lin. ſpec. 264. *Reich.* 1. 511. *Willd.* 1. 1027. *vir. cliff.* 15. *hort. cliff.* 61. *Pluk. phyt. t.* 111. *f.* 4. *Jacqu. collect.* 2. 331. *ic. rar. t.* 322.
Stem unarmed ſhrubby, leaves in pairs, one ſmaller than the other, flowers in cymes.

11. Solanum fugax. *Fugacious Nightſhade.*
Lin. ſpec. ed. Willd. 1. 1027. *Jacqu. collect.* 4. 123. *ic. rar. t.* 324.
Stem unarmed ſhrubby dichotomous divaricating, leaves lanceolate quite entire ſmooth, peduncles ſolitary axillary one-flowered, calyx ten-toothed.

12. Solanum geminatum. *Two-flowered Nightſhade.*
Lin. ſpec. ed. Willd. 1. 1027. *Vahl ecl.* 1. 21.
Leaves ovate quite entire, calyxes ten-toothed ſmooth, peduncles axillary in pairs one-flowered, ſtem ſcandent.

13. Solanum retroſractum. *Broken Nightſhade.*
Lin. ſpec. ed. Willd. 1. 1028. *Vahl ecl.* 1. 21.
Leaves ovate ſmooth, branches axillary retroſracted, umbels axillary and terminating ſeſſile, calyxes truncate.

14. Solanum ſtellatum. *Starry Nightſhade.*
Lin. ſpec. ed. Willd. 1. 1028. *Jacqu. collect.* 3. 254. *ic. rar. t.* 325.
Stem unarmed ſhrubby ſcandent flexuoſe, leaves ovate ſmooth acuminate, peduncles ſubgeminate one-flowered axillary, calyxes unequally toothed.

15. Solanum Dulcamara. *Woody Nightſhade* or *Bitter-ſweet.*
Lin. ſpec. 264. *ſyſt.* 223. *Reich.* 1. 511. *Willd.* 1. 1028. *hort. cliff.* 60. *fl. ſuec. n.* 201. *mat. med.* 66. *Woodv. med. bot.* 97. *t.* 33. *Hudſ. angl.* 93. *Wither. arr. ed.* 3. 253. *Smith brit.* 256. *engl. bot. t.* 565. *Curt. lond.* 1. *t.* 14. *abr. t.* 19. *Relh. cant. ed.* 2. *n.* 202. *Sibth. oxon. n.* 243. *Fl. dan. t.* 607. *Gunn. norv. n.* 23. *Hoffm. germ.* 78. *Roth. germ.* 1. 95. 2. 245. *Pollich pal. n.* 228. *Krock. ſileſ. n.* 345. *Hall. helv. n.* 575. *Scop. carn. n.* 257. *Villars dauph.* 2. 494. *Allion. pedem. n.* 461. *Gmel. ſib.* 4. 94. *Deſfont. atlant.* 193. *Duham. arb.* 2. *t.* 72. *Blackw. t.* 34. *Ludw. eſt. t.* 58. *Bulliard herb. t.* 23. *Berg. phyt.* 1. *t.* 113. *Plenck, ic.* 119.
S. ſcandens. *Neck. gallob.* 119.
S. ſc. f. Dulcamara. *Bauh. pin.* 167. *Tournef. inſt.* 149. *Garid.* 445.
S. lignoſum f. Dulcamara. *Park. theat.* 349. *t.* 350. *Raii hiſt.* 672. *ſyn.* 265.
Amara dulcis. *Ger.* 279. *emac.* 350. *Lob. obſ.* 136. 4. *ic.* 266. *Tabern. ic.* 893.
Dulcis amara. *Trag.* 816.—flore cæruleo & albo. *Beſl. eyſt. æſt.* 2. 16. *f.* 2, 3.
Vitis ſylveſtris. *Camer. epit.* 986. *Matth.* 1282.
Glycipicros ſ. Dulcamara. *Bauh. hiſt.* 2. 109. 2.
La Morelle grimpante. *Regnault hot. ic.*
β. Dulcamara flore albo. *Park. theat.* 349. 2. *Ger.* 279.
γ. S. lignoſum, ſ. Dulcamara marina. *Raii ſyn.* 265.
δ. S. dulcamarum africanum, foliis craſſis hirſutis. *Dill. elth.* 365. *t.* 273. *f.* 252.
S. africanum. *Mill. dict. n.* 26.
Stem unarmed frutescent flexuoſe, upper leaves haſtate, racemes cymed.

[16. Solanum triquetrum. *Triangular-ſtalked Nightſhade.*
Lin. ſpec. ed. Willd. 1. 1029. *Cavan. ic.* 3. 30. *t.* 259.
Stem unarmed frutescent three-ſided, leaves cordate acuminate ſmooth, umbels oppoſite to the leaves ſubpeduncled.

17. Solanum ſcandens. *Scandent Nightſhade.*
Lin. ſyſt. 224. *ed. Willd.* 1. 1029. *ſuppl.* 147.
Unarmed, ſtem twining, leaves cordate ovate hanging down very ſoft beneath, peduncles terminating.

18. Solanum lyratum. *Lyrate-leaved Nightſhade.*
Lin. ſyſt. 224. *ed. Willd.* 1. 1029. *Thunb. jap.* 92.
Unarmed herbaceous erect, leaves lyrate-haſtate tomentoſe.

19. Solanum Tegore. *Guiana Nightſhade.*
Lin. ſpec. ed. Willd. 1. 1030. *Aubl. guian.* 1. 212. *t.* 84.

Stem unarmed ſhrubby very hirſute, leaves pinnatifid, the lower pinnatifid-ſinuate, the upper cordate, racemes ſimple axillary.

20. Solanum quercifolium. *Oak-leaved Nightſhade.*
Lin. ſpec. 264. *ſyſt.* 223. *Reich.* 1. 511. *Willd.* 1. 1030.
Stem unarmed ſubherbaceous angular flexuoſe rugged, leaves pinnatifid, racemes cymed.

21. Solanum laciniatum. *Cut-leaved Nightſhade.*
Lin. ſpec. ed. Willd. 1. 1030. *Ait. kew.* 1. 247. *Curt. magaz. t.* 349.
S. aviculare. *Forſt. prodr. n.* 107. *eſcul. u.* 12.
Stem ſhrubby unarmed very ſmooth, leaves pinnatifid, ſegments lanceolate acute, panicles axillary by twos or threes.

22. Solanum radicans. *Rooting Nightſhade.*
Lin. ſpec. 264. *Reich.* 1. 512. *Willd.* 1. 1031. *Dec.* 1. *t.* 10.
Stem unarmed herbaceous even roundiſh proſtrate rooting, leaves pinnatifid, racemes cymed.

23. Solanum havanenſe. *Havannah Nightſhade.*
Lin. ſyſt. 223. *Reich.* 1. 512. *Willd.* 1. 1031. *mant.* 47. *Jacqu. amer.* 49. *t.* 35. *pict.* 29. *t.* 48. *Swartz obſ.* 82.
Stem unarmed frutescent, leaves oblong-lanceolate quite entire ſhining, racemes axillary.

24. Solanum triſte. *Dull Nightſhade.*
Lin. ſyſt. 223. *ſpec. ed. Willd.* 1. 1031. *Jacqu. amer.* 50. *t.* 40. *f.* 2. *pict.* 30. *t.* 49. *Vahl ſymb.* 3. 38.
Stem unarmed frutescent, leaves lanceolate-oblong ſubrepand ſmooth, racemes ſubcymed.

25. Solanum recemoſum. *Waved-leaved Nightſhade.*
Lin. ſyſt. 223. *Reich.* 1. 512. *Willd.* 1. 1031. *mant.* 47. *Jacqu. amer.* 50. *t.* 36. *pict.* 30. *t.* 50.
Stem unarmed frutescent, leaves lanceolate repand waved, racemes long ſtraight.

26. Solanum corymboſum. *Ovate-leaved Nightſhade.*
Lin. ſpec. ed. Willd. 1. 1031. *L'Herit. ſolan. t.* 3. *Jacqu. collect.* 1. 78. *ic. rar. t.* 49. *Ait. kew.* 1. 248. *Retz. obſ.* 5. 22.
Stem unarmed ſuffruticoſe, leaves ovate-lanceolate entire acuminate at the baſe, flowers corymbed.

27. Solanum quadrangulare. *Square-ſtalked Nightſhade.*
Lin. ſyſt. 224. *Willd.* 1. 1032. *ſuppl.* 147. *Thunb. prodr.* 36.
Stem unarmed frutescent four-cornered, leaves ovate entire and angular, flowers panicled.

28. Solanum repandum. *Repand-leaved Nightſhade.*
Lin. ſpec. ed. Willd. 1. 1032. *Forſt. prodr. n.* 105.
Stem unarmed ſubherbaceous flexuoſe even, leaves ovate repand tomentoſe, peduncles axillary cymed.]

29. Solanum bonarienſe. *Tree Nightſhade.*
Lin. ſpec. 264. *ſyſt.* 223. *Reich.* 1. 512. *Willd.* 1. 1032. *mant.* 205. *Dill. elth.* 364. *t.* 272. *f.* 351.
Stem almoſt unarmed ſhrubby, leaves ovate-oblong ſinuate-repand rugged.

30. Solanum macrocarpon. *Smooth fleſhy-leaved Nightſhade.*
Lin. ſyſt. 223. *Reich.* 1. 513. *Willd.* 1. 1032. *mant.* 205. *Mill. fig.* 196. *t.* 294. *Plum. ſpec.* 4. *ic.* 224. *f.* 2.
Stem unarmed ſuffruticoſe, leaves wedged repand ſmooth.

31 Solanum tuberoſum. *Tuberous-rooted Nightſhade,* or *common Potato.*
Lin. ſpec. 265. *Reich.* 1. 513. *Willd.* 1. 1033. *vir. cliff.* 15. *hort. cliff.* 60. *upſ.* 48. *Knipb. cent.* 6. *n.* 88. *Knorr. del.* 2. *t.* S. 9, 10. *Berg. phyt. t.* 231. *Plenck, ic.* 121. *Blackw. t.* 523. & 587. *Fl. ruſſ. t.* 139.
S. tuberoſum eſculentum. *Bauh. pin.* 167. *phytop.* 301. *prodr. t.* 89. *Matth. ed.* 1. 758. *Raii hiſt.* 675. *Mor. hiſt. ſ.* 13. *t.* 1. *f.* 19. *Tournef. inſt.* 149.
Lycoperſicon tuberoſum. *Mill. dict. n.* 7.
Battata virginiana. *Ger.* 781. *emac.* 927. *Park. parad.* 516. *t.* 517. *f.* 3.
Papas americanum. *Bauh. hiſt.* 3. 621.
P. peruanorum. *Beſl. eyſt. aut.* 3. 1. *f.* 1.

Arachidna Theoph. forte, Papas Peruanorum. *Cluſ. hiſt.* 2. 79.

Le Pomme de terre. *Regnault bot. ic.*

Stem unarmed herbaceous, leaves pinnate quite entire, peduncles ſubdivided.

32. Solanum pimpinellifolium. *Burnet-leaved Nightſhade. Lin. ſpec.* 265. *Reich.* 1. 513. *Willd.* 1. 1033. *amoen.* 4. 268.

Lycopersicon pimpinellifolium. *Mill. dict. n.* 4.

Stem unarmed herbaceous, leaves pinnate quite entire, racemes ſimple.

33. Solanum Lycopersicum. *Love-Apple*, or *Tomato. Lin. ſpec.* 265. *ſyſt.* 224. *Reich.* 1. 513. *Willd.* 1. 1033. *vir. cliff.* 15. *hort. cliff.* 60. *upſ.* 49. *Lour. cochinch.* 130. *ed. Willd.* 161. *Lamarck illuſtr. n.* 2330. *t.* 115. *f.* 2. *Knipb. cent.* 4. *n.* 82. *Plenck, ic. t.* 122.

S. pomiferum fructu rotundo ſtriato molli. *Bauh. pin.* 167. *Raii hiſt.* 675. *Mor. hiſt. f.* 13. *t.* 1. *f.* 7.

Lycopersicon Galeni. *Tournef. inſt.* 150. *t.* 63. *Mill. dict. n.* 1.

L. eſculentum. *Mill. dict. n.* 2.

L. 2. 3. *Brown. jam.* 175.

Pomum amoris. *Camer. epit.* 821. *Rumph. amb.* 5. 416. *t.* 154. *f.* 1. *Blackw. t.* 133.

P. amoris majus fructu rubro & luteo. *Park. parad.* 379. *t.* 381. *f.* 3. *Beſl. eyſt. aut.* 1. 2. *f.* 1.

Poma amoris. *Ger.* 275. *emac.* 346.

Aurea Mala. *Dod. pempt.* 458. 1.

Mala aurea odore fœtido, quibuſdam Lycopersicon. *Bauh. hiſt.* 3. 620.

La Pomme d'amour. *Regnault bot. ic.*

β. Solanum racemoſum ceraſorum forma. *Bauh. pin.* 167. *prodr.* 90. *Jacqu. hort.* 1. 4. *t.* 11.

Pomum amoris minus ſ. Mala Ethiopica parva. *Park. parad.* 379.

Stem unarmed herbaceous, leaves pinnate gaſhed, racemes two-parted leafleſs, fruits ſmooth.

[34. Solanum Pſeudo-Lycopersicum. *Falſe Tomato. Lin. ſyſt.* 224. *Willd.* 1. 1034. *Jacqu. hort.* 1. *t.* 11.

Stem unarmed herbaceous, leaves pinnate gaſhed, racemes ſimple, fruits ſubvilloſe.]

35. Solanum peruvianum. *Peruvian Nightſhade. Lin. ſpec.* 265. *Reich.* 1. 514. *Willd.* 1. 1034. *Jacqu. collect.* 2. 284. *ic. rar. t.* 327. *Lour. cochinch.* 131. *ed. Willd.* 162.

Lycopersicon peruvianum. *Mill. dict. n.* 5.

L. pimpinellæ folio. *Feuill. peruv.* 3. 37. *t.* 25.

Stem unarmed herbaceous, leaves pinnate gaſhed tomentoſe, racemes two-parted leafy, berries ſomewhat hairy.

[36. Solanum montanum. *Mountain Nightſhade. Lin. ſpec.* 266. *Reich.* 1. 514. *Willd.* 1. 1034.

S. tuberoſum minus, atriplicis folio, vulgo Papa montana. *Feuill. peruv.* 3. *t.* 46.

Stem unarmed herbaceous, leaves ſubcordate repand.

37. Solanum rubrum. *Red Nightſhade. Lin. ſyſt.* 224. *Reich.* 1. 514. *Willd.* 1. 1034.

Nelen tsjunda. *Hort. malab.* 145. *t.* 73.

Stem unarmed ſubperennial, leaves in pairs ovate quite entire, peduncles ſubumbelled.

38. Solanum nodiflorum. *Knot-flowered Nightſhade. Lin. ſpec. ed. Willd.* 1. 1035. *Jacqu. collect.* 2. 288. *ic. rar. t.* 326.

Stem unarmed ſhrubby, leaves ſmooth ovate acuminate at both ends, umbels peduncled extrafoliaceous.]

39. Solanum nigrum. *Common* or *Garden Nightſhade. Lin. ſpec.* 266. *ſyſt.* 224. *Reich.* 1. 514. *Willd.* 1. 1035. *vir. cliff.* 15. *hort. cliff.* 60. *upſ.* 48. *fl. ſuec. n.* 200. *mat. med.* 66. *Woodv. med. bot. ſuppl. p.* 37. *t.* 226. *Gærtn. fruct.* 2. 239. *Huds. angl.* 92. *Wither. arr. ed.* 3. 254. *Smith brit.* 256. *engl. bot. t.* 566. *Curt. lond.* 2. *t.* 14. *Relh. cant. ed.* 2. *n.* 203. *Sibth. oxon. n.* 244. *Fl. dan. t.* 460. *Hall. helv. n.* 576. *Hoffm. germ.* 79. *Roth. germ.* 1. 95. 2. 244. *Pollich pal. n.* 229. *Krock. ſilef. n.* 346. *Neck. gallob.* 118. *Scop. carn. n.* 258. *Villars dauph.* 2. 494. *Allion. pedem. n.* 462. *Desfont. atlant.* 194.

Gran. virg. 24. *Bullard herb. t.* 67. *Berg. phyt.* 1. 111. *Plenck, ic.* 120.

α. Solanum vulgatum. *Common Nightſhade.*

S. officinarum. *Bauh. pin.* 166. *Tournef. inſt.* 148.

S. vulgare. *Park. theat.* 346. 1. *Raii hiſt.* 672. *ſyn.* 265.—ſ. offic. *Mor. hiſt. ſ.* 13. *t.* 1. *f.* 1.

S. hortenſe. *Fuchſ. hiſt.* 686. *Trag.* 303. *Camer. epit.* 812. *Matth.* 1069. *Dod. pempt.* 454. 1. *Lob. obſ.* 133. 2. *ic.* 262. *Ger.* 268. 1. *emac.* 339. 1. *Blackw. t.* 107.

S. hortenſe ſ. vulgare. *Bauh. hiſt.* 3. 608.

S. ſativum. *Tabern. ic.*

β. S. patulum. *Spreading Nightſhade.*

S. procerius patulum, vulgaris fructu. *Dill. eltb.* 367. *t.* 275. *f.* 355.

S. braſilienſe Aguara-quiya dictum. *Raii hiſt.* 672.

Branches round ſmooth, leaves quite entire ſmooth.

γ. S. villoſum. *Yellow-berried Nightſhade. Mill. dict. n.* 2. *Hoffm. germ.* 79.

S. annuum hirſutius baccis luteis. *Dill. eltb.* 366. *t.* 274. *f.* 353. *Mor. hiſt.* 3. 520. *n.* 3.

S. lanuginoſum hortenſi ſ. vulgari ſimile. *Raii hiſt.* 672.

S. ægyptiacum. *Forſk. deſcr.* 46. *Vahl ſymb.* 2. 40.

Branches round villoſe, leaves angular ſubvilloſe.

δ. S. guineenſe. *Large black-berried Nightſhade. Mill. dict. n.* 7.

S. guineenſe, fructu magno inſtar ceraſi. *Dill. eltb.* 366. *t.* 274. *f.* 354.

Branches angular toothed, leaves quite entire toothed.

ε. S. virginicum. *Small black-berried Nightſhade. Swartz obſ.* 83. *Brown. jam.* 174. 6.

S. fœbrum. *Mill. dict. n.* 6. & ſorte, americanum, *n.* 5.

S. nigrum vulgari ſimile, caulibus exaſperatis. *Dill. eltb.* 368. *t.* 275. *f.* 256.

Branches angular toothed, leaves repand ſmooth.

ζ. S. judaicum.

Branches with prickles bent in and repand naked leaves.

η. S. rubrum. *Red-berried Nightſhade. Mill. dict. n.* 4.

S. americanum vulgari ſimile, acinis rubris. *Raud.*

Stem unarmed herbaceous ſmooth, leaves oblong-ovate acuminate toothed ſmooth, umbels nodding. Ait. kew. 1. 249.

ϑ. S. hirſutum. *Hairy Nightſhade. Vahl ſymb.* 2. 40. *Forſk. deſcr.* 46. *n.* 51.—memphiticum.

Branches round, leaves quite entire hirſute.

Stem unarmed herbaceous, leaves ovate, tooth-angular, racemes diſtich nodding.

40. Solanum æthiopicum. *Ethiopian Nightſhade. Lin. ſpec.* 265. *ſyſt.* 224. *Reich.* 1. 515. *Willd.* 1. 1036. *amoen.* 4. 307. *Jacqu. hort.* 1. 4. *t.* 12. *Lour. cochinch.* 130. *ed. Willd.* 160. *Thunb. jap.* 92.

S. pomiferum, fructu rotundo ſtriato duro. *Bauh. pin.* 167. *Bauh. hiſt.* 3. 620. *Raii hiſt.* 673. *Tournef. inſt.* 150. *Pluk. phyt. t.* 226. *f.* 4.

S. pomiferum herbariorum. *Lob. ic.* 264. *Park. theat.* 352. 1.

Lycopersicum æthiopicum. *Mill. dict. n.* 3.

Mala æthiopica. *Ger.* 276. *emac.* 347. *Park. theat.* 352. *n.* 3. *t.* 353. *f.* 3.

Stem unarmed herbaceous, leaves ovate repand-angular, peduncles fertile one-flowered drooping.

41. Solanum Melongena. *Large-fruited Nightſhade* or *Egg Plant.*

Lin. ſpec. 266. *ſyſt.* 224. *Reich.* 1. 515. *Willd.* 1. 1036. *Lour. cochinch.* 130. *ed. Willd.* 161. *Desfont. atlant.* 195. *Plenck, ic. t.* 123.

α. S. pomiferum fructu oblongo. *Bauh. pin.* 167. *Pluk. phyt. t.* 226. *f.* 2. *Raii hiſt.* 673.

Melongena ovata. *Mill. dict. n.* 1.

M. fructu oblongo violaceo, albo, luteo & ſuaverubente. *Tournef. inſt.* 151.

Mala inſana. *Trag.* 894. *Fuchſ. hiſt.* 533. *Dod. pempt.* 458. *Ger.* 274. *emac.* 345.—ſyriaca. *Park. theat.* 352. *n.* 2. *t.* 353. *f.* 2.

β. Melongena teres. *Taper-fruited Melongena. Mill. dict. n.* 2.

M. fructu tereti violaceo. *Tournef. inſt.* 151.

7. Melongena incurva. *Crooked-fruited Melongena.*
Mill. dict. n. 3.
M. fructu incurvo. *Tournef. inst.* 152.
Solanum pomiferum fructu incurvo. *Baub. pin.* 167. *Baub. hist.* 3. 619. *Raii hist.* 674.
Stem unarmed herbaceous, leaves ovate tomentose, pedunckles pendulous incrassated, calyxes unarmed.

42. Solanum subinerme. *Spear-leaved Nightshade.*
Lin. spec. ed. Willd. 1. 1037. *Jacqu. amer.* 50. *t.* 40. *f.* 3. *Swartz prodr.* 47. *descr.* 1. 453. *Ait. kew.* 1. 250.
S. laurifolium. *Mill. dict. n.* 20. sec. Swartz.
S. frutescens americanum non spinosum lauri folio, flore racemoso cæruleo. *Houst.*
Stem almost unarmed shrubby, leaves lanceolate-elliptic quite entire smooth above tomentose beneath, cymes mealy.

[43. Solanum longiflorum. *Long-flowered Nightshade.*
Lin. spec. ed. Willd. 1. 1037. *Vahl ecl.* 1. 20.
Unarmed, leaves elliptic entire attenuated subtomentose beneath, racemes lateral, corollas five-parted.

44. Solanum muricatum. *Warted Nightshade.*
Lin. spec. ed. Willd. 1. 1037. *Ait. kew.* 1. 250. *L'Herit. solan. t.* 6.
Melongena laurifolia, fructu turbinato variegato. *Feuill. it.* 2. 735. *t.* 26.
Stem almost unarmed suffruticose rooting, shoots warted, leaves oblong-lanceolate entire pubescent.
2. *Prickly.*

45. Solanum insanum. *Round-fruited prickly Nightshade.*
Lin. syst. 224. *Reich.* 1. 516. *Willd.* 1. 1037. *mant.* 46. *Gron. orient.* 62. *Swartz obs.* 83.
S. spinosum fructu rotundo. *Baub. pin.* 167. *Raii hist.* 674. *n.* 9.
S. pomiferum, magno fructu ex albo & atropurpureo nitente foliis & calyce spinosis. *Pluk. phyt. t.* 226. *f.* 3.
Trongum hortense. *Rumph. amb.* 5. 238. *t.* 85.
Stem prickly herbaceous, leaves ovate tomentose, pedunckles pendulous incrassated, calyxes prickly.

46. Solanum torvum.
Lin. spec. ed. Willd. 1. 1038. *Swartz prodr.* 47. *descr.* 1. 456. *Pluk. phyt. t.* 225. *f.* 6?
S. indicum. *Lin. spec. ed.* 1. 187.
Stem prickly shrubby, prickles crooked, leaves subcordate ovate sinuate tomentose, rachis prickly, calyxes unarmed.

47. Solanum volubile. *Twining Nightshade.*
Lin. spec. ed. Willd. 1. 1038. *Swartz descr.* 458.
S. scandens. *Swartz prodr.* 47.
S. scabrum. *Vahl ecl.* 1. 22.
Stem prickly shrubby scandent, leaves angular, petiole, rachis and calyx prickly.

48. Solanum ferox. *Malabar Nightshade.*
Lin. spec. 267. *Reich.* 1. 516. *Willd.* 1. 1039.
Stem prickly herbaceous, leaves cordate angular tomentose prickly, berries rough-haired covered with the calyx.]

49. Solanum campechiense. *Yellow-spined Nightshade.*
Lin. spec. 267. *Syst.* 225. *Reich.* 1. 516. *Willd.* 1. 1059. *mant.* 340. *vir. cliff.* 15. *hort. cliff.* 61. *upsal.* 49.
S. acanthifolium. *Mill. dict. n.* 14.
S. campechiense, calycibus echinatis. *Dill. elth.* 361. *t.* 268. *f.* 347.
S. americanum spinosum herbaceum, acanthi folio, flore amplo cæruleo. *Houst. Mss.*
Stem shrubby prickly rough-haired, leaves cordate-oblong five-lobed toothed, calyxes very prickly.

[50. Solanum fuscatum. *Purple-spined Nightshade.*
Lin. spec. 268. *Reich.* 1. 517. 22. β. *Willd.* 1. 1039. *Jacqu. collect.* 1. 51. *ic. rar. t.* 42.
S. americanum caule & pedunculo nigro foliis acanthi spinosis. *Boerh. lugdb.* 2. 68.
Stem herbaceous prickly, leaves cordate-ovate sinuate-lobed obtuse with the lobes somewhat angular, the upper prickles coloured.]

51. Solanum mammosum.
Lin. spec. 267. *Reich.* 1. 517. *Willd.* 1. 1040. *vir. cliff.* 15. *hort. cliff.* 61. *upsal.* 49. *Pluk. phyt. t.* 226. *f.* 1. *Merian surin. t.* 27. *Laur. cochinch.* 131. *ed. Willd.* 162.
Stem prickly herbaceous, leaves cordate angular-lobed, villose and prickly on both sides.

[52. Solanum hirtum. *Rough-haired Nightingale.*
Lin. spec. ed. Willd. 1. 1040. *Vahl symb.* 2. 40.
Shrubby prickly, leaves cordate-angular tomentose prickly, peduncles lateral aggregate with the calyxes very hirsute.

53. Solanum paniculatum. *Panicled Nightshade.*
Lin. spec. 267. *Reich.* 1. 517. *Willd.* 1. 1040.
Jurepeba. *Pis. bras.* 181.
Stem and petioles prickly, leaves sinuate-angular smooth above, flowers panicled.

54. Solanum aculeatissimum. *Prickly Nightshade.*
Lin. spec. ed. Willd. 1. 1040. *Jacqu. collect.* 1. 100. *ic. rar. t.* 41.
Stem shrubby very prickly, leaves cordate five-lobed and sinuate somewhat hairy, calyxes somewhat prickly.]

55. Solanum virginianum. *Virginian Nightshade.*
Lin. spec. 267. *Syst.* 225. *Reich.* 1. 518. *Willd.* 1. 1041. *Dill. elth.* 360. *t.* 267. *f.* 346. *Pluk. phyt. t.* 62. *f.* 3. *Mor. hist.* 3. 521. *n.* 14.
Planta spinosissima virginiana boraginis flore. *Raii hist.* 674. & 1876.
S. pomiferum frutescens africanum spinosum, &c. *Raii hist.* 1799.
Stem erect prickly, leaves pinnatifid prickly all over, segments sinuate obtuse ciliate at the edge, calyxes prickly.

[56. Solanum Jacquini. *Jacquin's Nightshade.*
Lin. spec. ed. Willd. 1. 1041.
S. virginianum. *Jacqu. collect.* 2. 285. *ic. rar. t.* 332.
Stem decumbent diffused prickly, leaves pinnatifid prickly all over, segments sinuate obtuse naked at the edge, calyxes prickly.

57. Solanum xanthocarpum. *Yellow-fruited Nightshade.*
Lin. spec. ed. Willd. 1. 1041. *Schrad. & Wendl. sert. hannov.* 1. 8. *t.* 2.
Stem decumbent diffused prickly, leaves pinnatifid prickly stellate-pubescent, segments sinuate acute naked at the edge, calyxes prickly.

58. Solanum coagulans.
Lin. spec. ed. Willd. 1. 1042. *Vahl symb.* 2. 41. *Forsk. descr.* 47.
Stem prickly shrubby, leaves oblong repand-sinuate tomentose prickly, lobes rounded entire.]

59. Solanum jamaicense. *Jamaica Nightshade.*
Lin. spec. ed. Willd. 1. 1042. *Swartz descr.* 1. 454. *Mill. dict. n.* 17?
Stem prickly shrubby, leaves wedged wider in the middle obtuse-angled tomentose on both sides, rachises and calyxes prickly, prickles bent back.

60. Solanum indicum. *Indian Nightshade.*
Lin. spec. 268. *Syst.* 225. *Reich.* 1. 518. *Willd.* 1. 1042. *hort. cliff.* 61. *fl. zeyl. n.* 94. *Burm. zeyl. t.* 102. *Laur. cochinch.* 131. *ed. Willd.* 162. *Gærtn. fruct.* 2. 240. *Pluk. phyt. t.* 225. *f.* 6.
S. ind. spinosum, flore boraginis. *Dill. elth.* 362. *t.* 270. *f.* 349.
Stem prickly shrubby, leaves wedge-shaped angular subvilloſe quite entire, prickles straight.

[61. Solanum carolinense. *Carolina Nightshade.*
Lin. spec. 268. *Syst.* 225. *Reich.* 1. 518. *Willd.* 1. 1043. *vir. cliff.* 15. *hort. cliff.* 61. *Jacqu. collect.* 2. 287. *ic. rar. t.* 331.
S. carol. spinosum, boraginis floribus spicatis. *Dill. elth.* 362. *t.* 269. *f.* 348.
Stem prickly annual, leaves hastate-angular, prickles straight, racemes loose.

62. Solanum sinuatum. *Sinuate-leaved Nightshade.*
Lin. spec. ed. Willd. 1. 1043.
Stem shrubby round prickly, leaves bipinnatifid-sinuate villose prickly on both sides, calyxes villose prickly.]

63. Solanum sodomeum. *Black-spined Nightshade.*
Lin. spec. 268. *Syst.* 225. *Reich.* 1. 519. *Willd.* 1. 1043. *vir. cliff.* 15. *hort. cliff.* 61. *upsal.* 49. *fl. zeyl. n.* 75. *Thunb. prodr.* 37. *Knipb. cent.* 4. *n.* 83. *Herm. lugdb.* 573. *t.* 575. *Pluk. phyt. t.* 316. *f.* 4. *Mor. hist.* 3. 521. *f.* 13. *t.* 1. *f.* 15.
Stem prickly shrubby round, leaves pinnatifid-sinuate sparsedly prickly naked, calyxes prickly.

[64. Solanum capense. *Cape Nightshade.*
Lin. syst. 226. *Willd.* 1. 1044. *suppl.* 147. *Thunb. prodr.* 37.
Stem prickly shrubby round, leaves sinuate-pinnatifid prickly naked; segments alternate entire obtuse.

65. Solanum marginatum. *White Nightſhade.*
Lin. ſyſt. 226. *Willd.* 1. 1044. *ſuppl.* 147. *Murr. in comm. gott.* 1783. *p.* 11. *t.* 4. *Jacqu. collect.* 1. 50. *ic. rar.* 1. *t.* 45.
Prickly, leaves cordate repand with a white edge.

66. Solanum ſtramoniifolium. *Broad-leaved Nightſhade.*
Lin. ſpec. ed. Willd. 1. 1044. *Jacqu. miſc.* 2. 298. *ic. rar.* 1. *t.* 44. *Ait. kew.* 1. 252.
Stem prickly-ſhrubby, leaves cordate angular-lobed entire almoſt unarmed ſomewhat tomentoſe beneath.

67. Solanum Veſpertilio. *Canary Nightſhade.*
Lin. ſpec. ed. Willd. 1. 1045. *Ait. kew.* 1. 252. *L'Herit. ſolan.*
Stem prickly ſhrubby, leaves cordate entire, corollas ſomewhat irregular, lower anther more produced.

68. Solanum ſanctum. *Paleſtine Nightſhade.*
Lin. ſpec. 269. *ſyſt.* 225. *Reich.* 1. 519. *Willd.* 1. 1045. *Vahl ſymb.* 2. 41. *Pluk. phyt. t.* 316. *f.* 2.
S. incanum. *Forſk. deſcr.* 46.
Stem prickly ſhrubby, prickles tomentoſe and leaves obliquely ovate repand.

69. Solanum hybridum. *Mule Nightſhade.*
Lin. ſyſt. 225. *Willd.* 1. 1045. *Jacqu. hort.* 2. *t.* 113.
Stem prickly ſhrubby, leaves ovate almoſt unarmed acute repand, when young having a violet-coloured meal on the back and at the edge.]

70. Solanum tomentoſum. *Woolly Nightſhade.*
Lin. ſpec. 269. *ſyſt.* 226. *Reich.* 1. 519. *Willd.* 1. 1045. *hort. cliff.* 61.
S. africanum ſpinoſum, folio caneſcente undulato. *Triumf. prael.* 46. *t.* 6. *Raii ſuppl.* 355.
S. foliis & caule ſpinoſis. *Morif. hiſt.* 310.
S. ſpinoſum maxime tomentoſum. *Bocc. ſic.* 8. *t.* 5.
[β. Solanum coccineum. *Scarlet woolly Nightſhade.*
Lin. ſyſt. 225. *Willd.* 1. 1046. β. *Jacqu. miſc.* 2. 329. *ic. rar.* 1. *t.* 43.
Stem prickly ſhrubby, prickles aceroſe, leaves cordate unarmed ſubrepand, when young having a purple meal on them.

71. Solanum polygamum. *Polygamous Nightſhade.*
Lin. ſpec. ed. Willd. 1. 1046. *Vahl ſymb.* 3. 39. *t.* 55.
Stem, petioles and leaves prickly, leaves ovate oblong moſtly entire ſomewhat rugged above, tomentoſe beneath.]

72. Solanum bahamenſe. *Bahama Nightſhade.*
Lin. ſpec. 270. *Reich.* 1. 520. *Willd.* 1. 1046. *hort. cliff.* 61. *Dill. eltb.* 363. *t.* 271. *f.* 350. *Sloan. jam.* 1. 38. *t.* 11. *f.* 3.
S. fruticoſum. *Mill. dict. n.* 18.
Stem prickly ſhrubby, leaves lanceolate repand obtuſe bent back at the edge, racemes ſimple.

73. Solanum obſcurum. *Obſcure Nightſhade.*
Lin. ſpec. ed. Willd. 1. 1046. *Vahl ſymb.* 2. 41.
Leaves elliptic-lanceolate flat villoſe beneath, racemes lateral, ſtem and petioles prickly.

74. Solanum giganteum. *Tall Nightſhade.*
Lin. ſpec. ed. Willd. 1. 1046. *Jacqu. collect.* 4. 125.
S. niveum. *Vahl ſymb.* 2. 42. *Thunb. prodr.* 46.
Stem prickly ſhrubby, prickles tomentoſe, leaves lanceolate acute unarmed ſmooth above, tomentoſe and hoary beneath, racemes dichotomous cymed terminating.

75. Solanum flexuoſum. *Waving-branched Nightſhade.*
Lin. ſpec. ed. Willd. 1. 1047. *Vahl ecl.* 1. 22.
Leaves geminate elliptic-lanceolate ſomewhat rugged entire, underneath with the petioles prickly, flowers four-ſtamened.

76. Solanum lanceæfolium. *Lance-leaved Nightſhade.*
Lin. ſpec. ed. Willd. 1. 1047. *Jacqu. collect.* 2. 286. *ic. rar. t.* 329.
Stem ſhrubby ſcandent prickly, leaves geminate oblong attenuated to both ends ſomewhat rugged prickly beneath, flowers five-ſtamened.

77. Solanum lanceolatum. *Lanceolate Nightſhade.*
Lin. ſpec. ed. Willd. 1. 1047. *Cavan. ic.* 3. 23. *t.* 245.
Stem ſhrubby tomentoſe prickly, leaves narrow-lanceolate quite entire tomentoſe beneath unarmed, panicle terminating.

78. Solanum cleagnifolium.
Lin. ſpec. ed. Willd. 1. 1048. *Cavan. ic.* 3. 22. *t.* 243.
Stem ſhrubby petioles and leaves lanceolate obtuſe tomentoſe beneath ſubaculeate, racemes lateral.

79. Solanum polyacanthos.
Lin. ſpec. ed. Willd. 1. 1048. *Vahl ecl.* 1. 24. *Lamarck encycl.* 2. 23. *Plum. ic.* 218. *t.* 224. *f.* 1.
S. parviflorum. *Cavan. ic.* 3. 19. *t.* 236.
Very prickly, leaves linear-lanceolate ſubrepand ſubſeſſile obtuſe, peduncles axillary one-flowered, prickles like needles.]

80. Solanum igneum. *Red-ſpined Nightſhade.*
Lin. ſpec. 270. *ſyſt.* 226. *Reich.* 1. 520. *Willd.* 1. 1048. *Jacqu. hort.* 1. 5. *t.* 14. *Pluk. phyt. t.* 225. *f.* 5.
β. S. igneum parviſolium. *Vahl ecl.* 1. 23.
Stem prickly ſhrubby, leaves lanceolate acuminate rolled back at the baſe on both ſides, racemes ſimple.

81. Solanum Milleri. *Miller's Nightſhade.*
Lin. ſpec. ed. Willd. 1. 1049. *Jacqu. collect.* 4. 209. *ic. rar.* 2. *t.* 330.
S. trilobatum floribus parvis. *Lin. ſpec.* 270.
S. Schiru-Schuna. *Mill. dict. n.* 32.
Stem ſhrubby prickly, leaves ſmooth pinnatifid with about five lobes quite entire prickly, peduncles one-flowered ſubgeminate.

[82. Solanum trilobatum. *Three-lobed Nightſhade.*
Lin. ſpec. 270. *ſyſt.* 226. *Reich.* 1. 520. *Willd.* 1. 1049. *Burm. ind.* 57. *t.* 22. *f.* 2. *Pluk. phyt. t.* 316. *f.* 5.
Stem prickly ſhrubby, leaves wedgeform-angular ſubtrilobate obtuſe ſmooth, flowers racemed.

3. *Thorny.*

83. Solanum lycioides.
Lin. ſyſt. 226. *Reich.* 1. 521. *Willd.* 1. 1050. *mant.* 46. *Jacqu. collect.* 1. 96. *ic. rar. t.* 46.
Stem ſhrubby thorny, leaves elliptic.

Species from Loureiro.

84. Solanum biflorum. *Two-flowered Nightſhade.*
Lour. cochinch. 129. *ed. Willd.* 159.
Stem unarmed ſhrubby, leaves ovate villoſe, peduncles in pairs.

85. Solanum album. *White Nightſhade.*
Lour. cochinch. 129. *ed. Willd.* 159.
Trongum agreſte album. *Rumph. amb. l.* 8. *c.* 48. *p.* 241.
Stem unarmed ſuffruticoſe, branches proſtrate, leaves oblong angular, peduncles many-flowered.

86. Solanum dichotomum.
Lour. cochinch. 129. *ed. Willd.* 160.
Stem unarmed ſuffruticoſe, leaves cordate-lanceolate, peduncles dichotomous.

87. Solanum procumbens.
Lour. cochinch. 132. *ed. Willd.* 163.
Stem prickly ſuffruticoſe procumbent flowers heaped terminating.]

Houſtoun's ſpecies from Miller.

88. Solanum anguſtifolium. *Narrow-leaved Nightſhade.*
Mill. dict. n. 15.
S. americanum ſpinoſiſſimum herbaceum anguriæ folio, flore luteo. *Houſt.*
Stem prickly ſhrubby, leaves pinnate-laciniate tomentoſe, prickly on both ſides, peduncles axillary two-flowered.

89. Solanum quercifolium. *Oak-leaved Nightſhade.*
Mill. dict. n. 16.
S. amer. frutеſcens & ſpinoſum, quercus folio, baccis rubris. *Houſt. Mſs.*
Stem prickly ſhrubby, leaves oblong ſinuate-pinnate prickly, umbels ſeſſile.

90. Solanum ſcandens. *Twining Nightſhade.*
Mill. dict. n. 19.
S. amer. ſcandens & frutеſcens flore magno cæruleo fructu rubro. *Houſt. Mſs.*
Stem unarmed frutеſcent flexuoſe, leaves ovate tomentoſe beneath, flowers ſolitary axillary.

91. Solanum Houſtoni. *Houſtoun's Nightſhade.*
S. carolinienſe. *Mill. dict. n.* 21.
S. amer. frutеſcens & ſpinoſum, foliis infra tomentoſis, flore magno cæruleo. *Houſt. Mſs.*
Stem prickly ſhrubby, leaves ovate ſinuate-toothed tomentoſe beneath, prickles every way ſtraight, umbels ſeſſile terminating.

92. Solanum umbellatum.
Mill. dict. n. 27.
S. amer. frutescens non spinosum, foliis oblongis subtus incanis, floribus umbellatis. *Houst.*
Stem frutescent unarmed, leaves lanceolate quite entire hairy underneath, umbels erect terminating.

93. Solanum racemosum.
Mill. dict. n. 28.
S. amer. fruticosum glabrum, foliis subrotundis subtus incanis, floribus racemosis. *Houst. Mss.*
Stem unarmed shrubby, leaves ovate quite entire tomentose underneath, umbels erect terminating, calyxes obtuse lanuginous.

DESCRIPTIONS, *&c.*

[1. This is an unarmed tree. Leaves a span long, quite entire, brown. Panicle solitary, dichotomous, composed of one-ranked racemes. Berries black.—Native of South America, in large woods [k].

2. This is an unarmed tree, above the height of a man, with a trunk as thick as the human arm. The ends of the branches, the leaves, peduncles and calyxes are covered with a thick nap. Peduncles terminating, erect, always bifid, with the branches again bifid. Flowers white, inodorous [l].

Native of America, and, according to Loureiro, of Cochinchina. Jacquin found it in the mountain woods of Martinico, and says that it flowers there in november.]

According to Miller, it was sent by Catesby from the Bahama islands, but he confounds it with the *bahamense* of Dillenius, which is a prickly species. See n. 72. But his description belongs to this species. It rises with a smooth shrubby stalk six or eight feet high, covered with a brown bark, and divides into many branches, which have spear-shaped leaves three inches and a half long, and an inch and half broad; they have a few sinuated indentures on their edges, and end in acute points; they are smooth, and of a light-green colour. The flowers are produced in small umbels from the side of the stalks, standing erect; they are pretty large, white, and the petal is cut into five star-pointed segments.

[3. This is very like the preceding, but has the leaves very long-pointed, and differs in the stipules, the colour of the flower, and in having a shorter petiole [m].—Vahl says, that it differs only in having a pair of axillary leaflets.

Native of the islands of Madagascar, Mauritius and Bourbon. Introduced in 1773 by Monf. Richard. It flowers here in april [n].

4. This also resembles the second species, but differs in having the leaves pubescent decreasing at the base and smaller; the flowers raceme-umbelled; the racemes opposite to the leaves; the flower larger and purple.—Native of the East Indies [o].

5. This is a small upright tree about twelve feet high. The leaves when it is young are often a foot long. Flowers small, white, in racemes only half the length of the leaves.

Found by Jacquin in coppices of the island of Tierra Bomba near Carthagena in America [p].]

6. This rises with a strong woody stalk four or five feet high, and divides into many slender stiff branches, having spear-shaped leaves turning backward. The flowers are white, and grow in small umbels, or singly on the side of the branches, to which they sit close; they appear from june to september, and are succeeded by berries as large as small cherries, which ripen in winter. There are two varieties, one with red, and the other with a yellowish fruit. It is a native of the island of Madeira.

[Gerarde says, we have this rare and pleasant plant, called Tree Nightshade, in our gardens, rather for pleasure than profit, or any good quality as yet known. It is kept in pots and tubs in houses during the extremity of winter, and is set abroad in march or april. Parkinson says, that many gentlewomen call the fruit Winter Cherries; and this name has superseded the other.

7. Branches tomentose at the end. Leaves three or four inches long, an inch and half wide at the base, smooth, not at all repand, when young somewhat tomentose. Umbels many-flowered. Peduncle very short: pedicels an inch long. Corolla white, hairy on the outside. Anthers saffron-coloured. Berries smooth, red, a little larger than a pepper-corn.—It differs from the preceding in having broad quite entire leaves, the umbels peduncled, and the fruit only one third of the size. It may however be only a variety.—Native of Egypt.

8. Stems decumbent, branched. Branches round, warted, villose at top. Leaves petioled, two inches long, acute at both ends, simply veined, villose, especially underneath, waved and somewhat toothletted about the edge, ciliate: leaves on the branchlets oblong and more hairy. Peduncle terminating, erect, three inches long: umbels in threes, peduncled, alternate, having from seven to nine flowers: pedicels unequal, filiform, scurfy and villose, as are also the peduncles, calyxes and corollas. Calyx five-toothed: segments equal, lanceolate, obtuse, smooth within.—Native of Arabia Felix [q].

9. Branches herbaceous, round, villose below, above axillary, as are also the branchlets, tomentose with a ferruginous-yellowish nap. Leaves very remote, two or three inches in length, two together on the branchlets, one several times smaller than the other, oblong or ovate, little attenuated, acute, those which are more advanced smooth above, and without veins, but paler beneath and veined; the younger ones have a ferruginous nap on them. Petioles half an inch long, ferruginous-tomentose. Peduncles axillary, two together, one a quarter of an inch long flowering first, the other shorter. Flowers drooping, ferruginous-tomentose. Calyx bell-shaped, short, truncate, ten-toothed: teeth linear, little shorter than the calyx itself. Corolla smooth, length of the peduncle.—Native of the island of Martinique [r].

10. This is an evergreen stinking shrub two or three feet high, with a trunk the size of a finger, woody round and blackish, and brown branches: the whole unarmed and smooth. Branches and leaves mostly stretched out horizontally. Most of the leaves two together, on short petioles, by the side of each other; one lanceolate, bluntish, entire, from two to four inches long, the other about an inch, obovate, very blunt, sometimes emarginate. Common peduncles very short, lateral, many-flowered, forming a sort of cyme; the proper peduncles pendulous at the back of the leaves. Flowers small, with a five-toothed calyx: corolla white, deeply five-parted; segments lanceolate, acute. Berry globular, smooth, succulent, orange-coloured, the size of a Chich-Pea. Seeds whitish-yellow. It flowers the whole summer, and the seeds ripen in winter [s].

Native of the West Indies. Cultivated by Mr. Miller in 1759 [t].

11. This also is a shrub, the height of a man and much branched. Trunk the size of a finger, round, having a blackish dotted bark. Branches mostly dichotomous, divaricating very much, the younger smooth, the older roughened. Leaves lanceolate, on very short petioles, alternate at the joints, quite entire, appearing smooth to the naked eye, but indistinctly villose when examined by a magnifier, two inches long. Peduncles from the forking of the branchlets or opposite to a leaf, solitary, one-flowered pendulous, slender, an inch long. Calyx small, bell-shaped, truncate, ten-streaked. Corolla wide, wheel-shaped, spreading very much, with a yellow five-rayed star, the acute points of which stretch out beyond the border. The flowers open about five o'clock in the morning and close in a short time, remaining so for a few days and then falling off. Anthers yellow. Style longer than the stamens, awl-shaped, thick, white. Stigma yellow. Native of the Caracas [u].

12. This is an unarmed shrub, with round smooth branches, appearing slightly mealy at top when examined

[k] Linn. suppl. [l] Jacquin. [m] Willdenow.
[n] Hort. kew. [o] Willdenow. [p] Jacquin.
[q] Vahl, symb. [r] Vahl, ecl. [s] Jacquin.
[t] Hort. kew. [u] Jacquin.

with a magnifier. Leaves alternate, two inches long, attenuated, acute, ſmooth on both ſides, obſcurely veined, on ſmooth petioles half an inch in length. Peduncles firſt four, then two, growing out farther along with the branchlet, filiform, one flowering firſt, the length of the petiole, the other ſhorter. Calyx ſmooth, ſubcampanulate, three times ſhorter than the corolla, ten-toothed: teeth linear-ſubulate, equal. Corolla ſmooth. This and the next ſpecies approach to S. fugax.—Native of Cayenne, where it was found by von Rohr.

13. Stem ſeeming to be twining, ſhrubby, unarmed. Branches round, ſmooth, flexuoſe, even: branchlets axillary, alternate, bent back as if broken, rigid, bearing leaves and flowers at the top, ſometimes forked. Leaves alternate, attenuated, quite entire, ſimply and obſcurely veined, an inch and half long, often two at the end of the branchlets, one ſmaller than the other. Petiole ſhorter by half than the branchlet. Peduncles filiform, an inch long or rather leſs, aggregate, axillary, four, at the ends of the branchlets five or ſix, one-flowered. Calyx truncate, entire, ſmooth. Corolla five-cleft, three times as long as the calyx: ſegments ovate.—Allied to S. geminatum, but differing in having ſtouter branchlets bent back as if broken, more peduncles, toothleſs calyxes, and ſmaller flowers. Native of South America [x].

14. This is a ſhrub higher than a man, evergreen, weak, ſcandent, ſmooth and unarmed. Stems ſeveral, the thickneſs of a reed or of a finger, brown, ſpringing from a brown root as big as the fiſt. Branches numerous, round, divaricating. Leaves alternate, lanceolate or ovate-lanceolate, acuminate, quite entire, on ſhort petioles, bright green, from two to four inches long. Peduncles one-flowered, axillary, moſtly two together, ſometimes three or only one, ſlender. Flower elegant but without ſcent. Calyx ſmall, obtuſe, and cut into many unequal parts. Corolla large, ſpreading very much, thin, rounded, blue with a five-rayed ſtar, green and protuberant beneath ſo as to be like a calyx and exterior corolla; its acute points ſtretch beyond the border. Anthers yellow. Style green. Stigma capitate, bifid. Berry globular, the ſize of a pea [y].

According to Willdenow, it ſeems to differ from the preceding, to which it is allied, in the ſize of the flower, and in the calyx. In his ſpecimen the peduncles are in twos, threes and fours, always axillary, without any terminating ones, and the calyx is four, five or ſix-toothed, with the teeth unequal.

15. Root perennial, woody, according to Dr. Beddoes, ſmelling like the Potato. Stem ſhrubby, roundiſh, branched, twiſted and climbing to the height of ſeveral feet. Leaves alternate, petioled, ovate-lanceolate, quite entire, ſmooth, ſoft, veiny; the lower cordate, the upper more or leſs haſtate. Flowers in racemes or cyme-ſhaped panicles, but not properly in cymes, oppoſite to a leaf or terminating, nodding, very elegant, purple with two green dots at the baſe of each ſegment, and the ſegments reflexed. Anthers large, yellow or lemon-coloured and connate. Berries elliptic, ſcarlet, very juicy, bitter and poiſonous [z]. Seeds flat, ſomewhat kidney-ſhaped, of a yellowiſh colour. The ſtem is thinly ſet with ſmall pointed tubercles. The younger branches are often purple. The proper peduncles are bulbous at the baſe, or grow out of a kind of ſocket. The calyx is purpliſh, with blunt ſegments. The mouth of the corolla is dark and ſhining, and the ſegments are lanceolate. The filaments are very ſhort and of a dark purple colour. The anthers have two holes at the top of each, out of which the pollen is diſcharged [a]. At the firſt opening of the flower they are readily ſeparable, but afterwards growing drier, they will ſooner tear than be diſjointed [b].

Native of Europe, Africa and Siberia, in moiſt hedges, ſhady places and the ſides of ditches; flowering in june and july. The berries are ripe in ſeptember and october.

The roots and ſtalks of Woody Nightſhade, upon being chewed, firſt cauſe a ſenſation of bitterneſs, which is ſoon followed by a conſiderable degree of ſweetneſs; whence this plant obtained the names of Dulcamara and Bitterſweet. The berries excite vomiting and purging [c]. Floyer ſays that thirty of them killed a dog in leſs than three hours, remaining undigeſted in his ſtomach. As they are common in hedges, and may be miſtaken by children for red currants, this circumſtance is the more worthy of notice. In ſuch a caſe it is adviſeable to pour down as much warm water as poſſible, to dilute the poiſon and provoke vomiting, till farther aſſiſtance can be had.

The old botaniſts recommend this plant as a medicine in many diſeaſes. Ray informs us, that the inhabitants of Weſtphalia, make uſe of a decoction of the whole plant as their common drink, with ſucceſs againſt the ſcurvy [d]. Boerhaave ſays, it is a medicine far ſuperior to China and Sarſaparilla, as a ſweetener and reſtorative: and Linneus, that an infuſion of the young twigs is an admirable medicine in acute rheumatiſms, inflammations, fevers, and ſuppreſſion of the lochia. Dr. Hallenberg adviſes it in iſchiatic and rheumatic pains, jaundice, ſcurvy, and lues venerea. They direct a pint of boiling water to be poured upon two drams of the ſtalks ſliced and dried; after ſtanding half an hour, it muſt be boiled ten or fifteen minutes. The doſe is two tea cups full or more morning and evening [e]. Haller obſerves that the Dulcamara partakes of the milder qualities of common or garden Nightſhade, joined to a reſolvent and ſaponaceous quality. Murray and Bergius regard it as promoting all the ſecretions. The latter confines its uſe to rheumatiſm and retention of the menſes and lochia. But according to other good authorities, it has been applied with advantage in ſome obſtinate cutaneous affections.—Dr. Cullen ſays, we have employed only the ſlender twigs, but ſome parcels of theſe were very mild and inert, others conſiderably acrid. In the latter ſtate we have employed a decoction of them in the cure of rheumatiſm, ſometimes with advantage, but at other times without any effect. Though the Dulcamara be inſerted in the catalogue of diuretics, it has never appeared to us as powerful in this way; for in all the trials made here, it has hardly ever been obſerved to be in any meaſure diuretic. The twigs ſhould be gathered either in ſpring or autumn, but will be found moſt powerful in the latter ſeaſon. If uſed dry, a ſomewhat larger doſe muſt be taken. This plant is generally given in decoction or infuſion; and to prevent its exciting vomit, it ſhould be diluted with milk; ſmall doſes alſo are recommended at the beginning, for large ones have been found to produce convulſions, delirium, and palſy of the tongue [f]. Mr. Saunders, author of an elegant introduction to Botany, publiſhed in 1792, has, in the courſe of an extenſive country practice, uſed the Dulcamara with great ſucceſs, and without the inconveniences juſt mentioned [g].

β. It is ſometimes found with fleſh-coloured and with white flowers.] Miller ſays, the leaves of this are woolly, and that the difference is conſtant.

[γ. On the ſea coaſt it has the leaves hairy, according to Hudſon. Ray ſays, that Dr. Brown, fellow of Magdalen College, Oxford, a very ſkilful botaniſt, confirmed to him that this plant differed from the common Woody Nightſhade in its whole habit.—Lhwyd found it near Uyſui river in Caernarvonſhire; but it is on the ſouthern coaſts of our iſland in many places [h].

δ. Willdenow affirms, that Dillenius's African Sol. Dulcamara is without doubt a diſtinct ſpecies. The flowers are larger, opening only about noon, of a paler colour, the ſegments leſs acuminate and not reflexed; the branches end in many peduncles, dichotomouſly divided and ſubdivided; towards the top they are angular and rough, below they are round, hairy and leſs rough. Leaves on the flowering-branches ſmaller, pointed at both ends and entire; on the barren branches bigger, and wider at the baſe, the lower ones entire

[x] Vahl, ecl. [y] Jacquin. [z] Smith. [a] Curtis. [b] Withering. [c] Woodville. [d] Curtis. [e] Withering. [f] Woodville. [g] Engl. bot. [h] Ray ſyn.

and roundiſh, the upper angular, not unlike thoſe of Ivy: both alternate, frequent, thick, rigid, ſet all over with abundance of hairs, ſo ſhort as to be felt rather than ſeen, green on both ſides, here and there tinged with duſky purple; veins few ſpringing obliquely from the midrib. None of the leaves appear to be haſtate, by the figure.

Native of the Cape of Good Hope. It was ſent from Holland to Sherard's garden at Eltham, where it was cultivated about 1726 [1].]

Mr. Miller remarks that the leaves are ſhorter, thicker and more indented.

Beſides theſe varieties, there is one with variegated leaves, which is preſerved by thoſe who are curious in collecting ſtriped-leaved plants.

[16. Stem ſpread on the ground, branched, four feet long, moſtly tender and ſmooth, as is the whole plant. Leaves alternate; the lower ovate-acuminate; the upper cordate-lanceolate; commonly hanging down: petioles ſeveral times ſhorter than the leaves. Flowers hanging down in umbels, on a very ſhort bifid peduncle: the pedicels half an inch in length. Corolla white, very deeply divided into five linear curled ſegments. Berries globular, the ſize of a pea, pendulous. It flowers in the royal garden at Madrid in ſeptember [a]. Willdenow remarks, that the umbel is very ſhortly peduncled and four-flowered.

17. Stem herbaceous, round, twining. Leaves alternate, petioled, ovate or cordate, remote. Raceme terminating, compoſed of three or four ſimple ones. Calyx ſcarcely divided. Corolla wheel-ſhaped, with the petals lanceolate and recurved. Anthers erect, perforated at the top. Berry globular, the ſize of a Cherry, with a ſhort calyx, contracted and gibbous under the fruit with five ſwellings.—Native of Surinam, where it was found by Dahlberg [b].

18. The whole plant is cloſely and darkly tomentoſe. Stem round, little flexuoſe, with a few alternate branches. Leaves ſcattered, ovate, the lower ones lyrate-pinnatifid, the upper haſtate, an inch long, the lateral ſegments almoſt oppoſite, four ſeldom more, entire, the end one larger, acuminate, entire. Petiole a little ſhorter than the leaf. Flowers axillary towards the top, and terminating, in a ſubdichotomous panicle. Pedicels and calyx ſmooth. Anthers yellow, perforated.

Native of Japan near Nagaſaki; flowering in ſeptember and october [c].

19. This is a plant five or ſix feet high, with a woody round ſtem, having trichotomous branches, and forming a thick buſh. Leaves alternate, the lower ones very large and wide, divided into ſeveral broad acute lobes; the largeſt are fifteen inches long and ten wide; they are green and ſoft: petiole cylindric, two inches long. Leaves on the branches cordate, ending in a point, downy like the others: the largeſt of theſe are ſeven inches long and three inches wide: petiole an inch in length or a little more. Flowers between the forks of two branches, very ſmall, many together on a common villoſe peduncle; pedicels very ſhort. Corolla deeply divided into five narrow ſharp ſegments. Berries globular, yellowiſh, almoſt the ſize of a walnut. Seeds flatted and rounded. All parts of the plant exhale a very diſagreeable odour.

Native of Guiana, by the banks of the river Sinemari; flowering and fruiting in october. Called Tegoré by the Galibis [d].

20. This is ſiſter to S. Dulcamara. Stems angular, erect, rugged. Leaves oblong, decurrent into the petiole, veined, ſmooth, rugged beneath, pinnatifid. Peduncles branched. Corollas violet-coloured, blunter than in Dulcamara, with two greeniſh ſpots at the baſe of each lobe. Anthers yellow, ſhorter than the ſtyle. Berries ovate [e]. It reſembles S. radicans (n. 22.) but differs in having the leaves rugged, the ſtem erect, the flowers panicle-corymbed and much larger [f].

Native of Peru. Introduced in 1787, by Monſ. Vare. It flowers in july [g].

21. Leaves ſmooth almoſt as in Lactuca perennis. Flowers violet-coloured, the ſame ſize as in Geranium pratenſe, with the ſegments of the corolla emarginate. Anthers ſeparate, not cohering as in moſt of the ſpecies. Berries yellowiſh-green, the ſize of a ſmall Plum [h].

Native of New Zealand, where it was found by Sir Joſeph Banks, and was introduced in 1772. It flowers in july and auguſt [i].

Mr. Curtis, who cultivated and figured it, obſerves that it is a plant of ſome beauty, and remarkable for receding from the common character of the genus, in having the anthers widely ſeparate from each other: alſo that the pulp of the berries is ſweet, taſting in a ſmall degree like a Fig.

S. aviculare of Forſter is ſuppoſed to be the ſame with this. He deſcribes the berries as ſulvous, the ſize of a large Plum, acid with little ſweetneſs and ſomewhat mawkiſh. The natives of New Zealand devour them greedily; birds are very fond of them; and the Europeans did not entirely diſdain them.—The ſtem is upright, branched, and a yard high: the branches herbaceous, ſmooth, roundiſh, nearly the ſize of a finger, and ſhort. Leaves alternate, ſinuate-pinnatifid, a foot long, compoſed of three pairs of oppoſite, ſmooth, entire ſegments, of a deep green colour. Petioles ſemicylindrical, ſmooth, ſpreading, ſcattered. Corymbs terminating, two or three, few-flowered. Peduncle roundiſh, upright; pedicels ſix or ſeven, ſcattered, one-flowered, round, ſmooth, ſpreading, proportional in height, jointed as it were into the peduncle. Flowers an inch in diameter, purple with yellow anthers [k]. Forſter does not notice the ſeparation of the anthers, but ſays that they converge into a tube.

22. This plant agrees with S. quercifolium in many circumſtances, but differs in the following.—The ſtem is diffuſed, rooting and ſmooth; the leaves are ſmooth; the leaflets five and ovate; the racemes ſimple and few-flowered; the flowers ſmaller, white purpliſh beneath and not ſpotted; the berries globular, twin, yellow.—Native of Peru [l]. Introduced in 1771, by Monſ. Richard. It flowers in july and auguſt [m].

23. Stem ſhrubby, three or four feet high, with upright, round, ſmooth branches. Leaves alternate, petioled, oblong, wedged at the baſe, with a ſhort blunt tip, entire, nerved, ſmooth on both ſides, pale beneath, thicker. Racemes terminating, ſolitary, containing from four to ſeven flowers. Peduncles one-flowered, ſhort. Calyx parted half way; ſegments oblong, permanent, white at the edge. Corolla biggiſh, blue; the border half-five-cleft and ſpreading, the ſegments wide and plaited. Filaments very ſhort. Anthers converging, yellow, having two pores at the top [n].

According to Jacquin, it is an upright ſhrub, five feet high, with few branches. Peduncles two or three-flowered, lateral, few. Flowers handſome, but without ſcent, almoſt an inch in diameter, ſpreading very much, having ſcarcely any tube, the border divided into very ſhort wide ſegments, emarginate with a point. Anthers thick, blunt at each end, not contiguous. Berry ovate, ſhining bright, deep blue, containing a little watery juice but hardly any pulp. Seeds kidney-form, compreſſed, faſtened to a fleſhy-pulpy receptacle, which grows on each ſide along the middle of the partition. In habit and fructification it is between Solanum and Capſicum.

Found at the Havanna by Jacquin, flowering in january; and by Swartz in Jamaica, flowering in june. He ſays that Jacquin's figure is not a very good one.

24. This is an upright ſhrub, eight feet high and not handſome. Leaves acute, dark green, petioled, alternate, ſeven or eight inches long. Racemes lateral, thick, an inch and half long, ſimple or bifid, warted with the falling off of the pedicels that firſt come out. Flowers ſmall, white, forming a ſort of cyme. Berries globular, of a dirty yellow colour [o].

Vahl ſays that the branches are round and ſmooth;

[1] Dill. elth. [2] Cavanilles. [3] Linn. ſuppl. [4] Thunberg. [5] Aublet. [6] Linn. ſpec. [7] Willdenow. [8] Hort. kew. [9] Willdenow. [10] Hort. kew. [11] Forſt. eſcul. [12] Linn. dec. [13] Hort. kew. [14] Swartz. [15] Jacquin.

the

the leaves elliptic-lanceolate, nerved and veined, running a little down the petiole, entire or obſcurely repand. Peduncles lateral, an inch long, many-flowered. Calyx ſhort and ſmooth, with rounded ſegments. Diviſions of the corolla lanceolate.—Native of Martinique.

25. This is a branching upright ſhrub, four feet high. Leaves ſhining, petioled, alternate. Racemes ſimple, lateral, erect, the length of the leaves; the pedicels erect in the flower, pendulous in the fruit. Flowers without ſcent. Corolla ſnow-white, cut very deeply into lanceolate-oblong ſegments. Berries red, the ſize of a ſmall pea [a].

Linneus remarks, that it reſembles S. bahamenſe very much.—Native of the Weſt Indies. Introduced in 1781 by Mr. Francis Maſſon [b].

26. Stems ſeveral, the thickneſs of a reed or more, round, woody and perennial at bottom, herbaceous and annual above, branched, erect or weak and decumbent, having the habit of S. Dulcamara. Leaves ſmooth, acute, alternate, fetid. Racemes oppoſite to the leaf, ſlender, bifid, trifid or quadrifid, many-flowered, ſhorter than the leaves. Flowers ſmall. Corolla blue: ſegments both of that and the calyx bluntiſh. Berry orange-coloured, the ſize of a ſmall pea. Seeds few, pale [c].

Native of Peru. Introduced in 1786, by Monſ. Thouin. It flowers in july [d].

According to Retzius, the ſtem is two feet high, ſuffruteſcent, weak, angular, naked, becoming ſhrubby in the ſtove. Leaves ſcattered, ovate, naked, moſtly entire but ſometimes three-lobed; in the ſtove lanceolate. Cymes from the upper axils, ſhort, formed of ſimple and compound racemes. Flowers ſmall, purple. Berries ſmall, black.

27. This differs principally in having a four-cornered hirſute ſtem. The leaves are often decurrent and thus the corners of the ſtem are curled. It varies with lanceolate entire leaves.—Native of the Cape of Good Hope [e].

28. Native of the Marcheſas and Society Iſles [f].

29. Stem ſhrubby, a fathom high and more, almoſt unarmed, having only a few prickles on the ſtem when it is tender, flexuoſe, brown. Leaves deltoid, ſubrepand, lanceolate, wide, naked, rugged. Peduncles lateral, ſubquinqueflo, ſubumbelled. Flowers white, large, nodding, tomentoſe on the outſide. Anthers yellow. Berries of the ſame ſize as thoſe of Sorbus aucuparia or Mountain Aſh [g].]

Stem woody, ten or twelve feet high, covered with a purpliſh bark almoſt ſmooth. At the top it divides into ſeveral branches which grow erect. Leaves wedge-ſhaped, ſinuated. Flowers in large umbels at the end of the branches, large and white; the petal is angular, but not divided at the brim. Berries ſmall, yellow when ripe.

[Native of Buenos Ayres. Cultivated in 1727, by James Sherard, M. D.[h] It was raiſed in the Eltham garden from berries on a dried ſpecimen ſent from Buenos Ayres, and flowered the year above mentioned, in ſeptember, the year following it flowered ſooner, and the third year in june [i].

30. Stem ſtiff, a foot high, the thickneſs of a finger, perennial, even. Branches annual, erect. Leaves oleraceous, large, obtuſe. Flowers large, blue, bell-ſhaped, erect, on ſhort peduncles, many of them barren. Berries the ſize of an apple, globular, yellow, ſubſeſſile [k].

Stem taper and ſmooth, of a deep green colour when young, but afterwards the lower part becomes woody, and has a brown bark. It riſes from two to three feet high, and ſends out branches irregularly on every ſide. Leaves oblong-ovate, ſmooth, four or five inches long, and three inches broad in the middle, irregularly ſinuate, ending obtuſely, of a deep-green colour, on ſhort foot-ſtalks, placed without order on the branches. Peduncles axillary, ſhort, having frequently two ſmall leaves below the flowers, which are generally cluſtered together at the top, ſitting cloſe to the foot-ſtalks. Flowers large, of a fine blue colour, ſpreading almoſt flat, and having five corners. Anthers oblong, orange-coloured. Fruit roundiſh, ſmooth, almoſt as large as a walnut, of a deep-green colour, changing when ripe to a pale yellow. It begins to flower in june, and there is a ſucceſſion of them till winter [l].—Native of Peru. Cultivated in 1759, by Mr. Miller [m].

31. The Potato is well known for its tuberous root. Stem from two to three feet in height, ſucculent, ſomewhat angular, ſtriated, ſlightly hairy, frequently ſpotted with red, branched; the branches long and weak. Leaves interruptedly pinnate, having three or four pairs of leaflets, with ſmaller ones between, and one at the end larger than the reſt; the leaflets are ſomewhat hairy, and dark green on the upper ſurface. The flowers are either white or tinged with purple; or, as old Gerarde deſcribes them, of a light purple, ſtriped down the middle of every fold or welt with a light ſhow of yellowneſs. The fruit is a round berry, the ſize of a ſmall plum, green at firſt, but black when ripe, and containing many ſmall flat roundiſh white ſeeds.

The Potato, now ſo generally cultivated in Europe, appeared at the end of the 16th century, as a curioſity in botanic gardens. Gerarde (in 1597) informs us, that he received roots of it from Virginia, otherwiſe called Norembega, which grew and proſpered in his garden, as in their own native country. He calls it Potato of America or Virginia, to diſtinguiſh it from the Spaniſh Potato (Convolvulus Batatas), which was then much better known, and called excluſively Potatoes, Potatus, or Potades, from the Spaniſh name Battata [n].

Though it be pretty clear that the Potato came to us from Virginia, yet it does not follow that it is originally indigenous of that country; but it is more probable that it is a native of Peru, whence the Spaniards might have it immediately. Pet. Cieca, Gomara and Acoſta inform us, that in the neighbourhood of Quito there is a plant with tuberous roots, called Papas, of which the inhabitants make a ſort of bread, and that they alſo eat them both boiled, and roaſted in the embers. Theſe are ſuppoſed to be, not the Spaniſh, but our common Potato: as alſo thoſe which the Virginians call Openanck or Openawk.

The Potato which was ſo common in Italy in and before the 16th century was doubtleſs the Spaniſh or Convolvulus Batatas; for it is ſaid to have been eaten as commonly with mutton as Turneps or Parſneps, and even to have been uſed for feeding hogs. If this had been our common Potato, how, as Cluſius remarks, could the knowledge of this root have been ſo late in coming to us; and how could they have been ignorant of it at Padua, till he ſent it to them from Frankfort.

Cluſius himſelf owed his firſt acquaintance with the Potato to Philip de Sivry, Lord of Walhain, &c. in Flanders, who ſent him two roots, with the fruit, to Vienna, in the beginning of the year 1588, and the year following, a drawing of a branch with the flower. De Sivry had it the year before from a friend of the Pope's Legate in Flanders, under the name of Tartufoli, by which appellation the Italians diſtinguiſh all roots that are tuberous like Truffles. James Garet, junior, alſo ſent Cluſius a drawing of the whole plant, but the figure which this celebrated botaniſt gives in his Rariorum Plantarum Hiſtoria (1631), is from a living plant in his own poſſeſſion [o].

Caſpar Bauhin (in prodr.) relates, that he had a coloured drawing of the plant from Scholtz, in 1590, under the name of Pappas Hiſpanorum. Not finding any deſcription of it, he deſcribed and figured it in his Phytopinax and in his edition of Matthiolus. He alſo ſent the figure to Cluſius, who however does not mention having received it from Caſpar Bauhin. This celebrated author ſays that the Solanum tube-

[a] Jacquin. [b] Hort. kew. [c] Jacquin. [d] Hort. kew. [e] Linn. ſuppl. [f] Forſter. [g] Linn. mant. [h] Hort. kew. [i] Dill. elth. [k] Linn. want. [l] Mill. fig. [m] Hort. kew. [n] Flora ruſtica [o] Cluſ. hiſt.

roſum

roſum eſculentum came from Virginia into England, and thence into France and other countries [p].

Liſter, in his journey to Paris (10th Dec. 1698) informs us, that the Potato was then ſcarcely to be found in the French markets, which was ſo great a relief to the people of England: but that there was ſtore of Jeruſalem Artichokes [q]: which root ſeems to have been almoſt as commonly cultivated in England at the end of the 16th and the beginning of the 17th century, as the Virginian, Potato has been in the 18th.

It was cultivated in France about the year 1742: but in 1749 it was treated with great contempt both in the country and at Paris, and left wholly to the lower people. Afterwards however it became quite the faſhion for a time, and then fell again into diſrepute. In 1771 Monſ. Faiguet preſented to the Academy of Sciences a loaf of bread made of Wheat, Rie and Potatoes in equal quantities. In 1778, Monſ. Parmentier made bread of Potatoes only. In 1781, biſcuit was made of them by Monſ. Parmentier the younger [r].

The Potato made its fortune in Germany much ſooner. For Cluſius ſays, in the year 1601; "ea pleriſque Germaniæ hortis ſatis vulgaria dudum facta." Bread is ſaid to have been made with it there ſo early as 1731. I ſaw it extenſively cultivated in the open fields of Suabia in 1780.

In Italy the Potato has never been much eſteemed; nay the prejudice againſt it was ſo great, that when a ſhip-load of the roots was ſent from England ſome years ſince to Naples, to relieve the inhabitants in a famine, it is ſaid that the people choſe rather to ſtarve than to purchaſe them. They have however ſince grown wiſer, at leaſt in the northern parts of that country.

The Potato was certainly introduced into Ireland and England towards the end of the 16th or at the beginning of the 17th century, and was cultivated to conſiderable extent by the middle of the 17th. Sir Lucius Obrien aſſured Mr. Arthur Young, that there was no doubt of its having been in Ireland long before the time of Sir Walter Ralegh: and it is even ſaid, that venerable Bede, or ſome other old writer, gives a deſcription of the food of the common Iriſh in ſuch terms as are applicable to nothing but Potatoes. Some attribute their introduction to Sir Francis Drake, who died the 28th of January, 1590, aged fifty; others to Captain John Hawkins, ſo early as 1565, from Santa Fe [s]. There ſeems to be little or no authority for the above aſſertions; and as to the laſt, the Potatoes of Hawkins were certainly Convolvulus Batatas or Spaniſh Potatoes, as may be ſeen from Hawkins's own account of them in Hakluyt [t].

Mr. Miller ſays the Potato was firſt introduced from America about the year 1623. I am at a loſs to conceive why he has aſſigned ſo late a period to its introduction, when it is plain that it was cultivated by Gerarde in 1597. Dr. Campbell (polit. ſurv. 2. 95.) ſays, it appears that it was brought into Ireland about the year 1610.

The moſt probable account ſeems to be, that the celebrated and much to be lamented Sir Walter Ralegh firſt introduced this very uſeful root into Ireland on his return from Virginia in 1584. In Gough's edition of Camden's Britannia, it is expreſsly affirmed, that Sir Walter planted them at Youghall in the county of Cork [u]; where he had an eſtate. In Holt's characters of the Kings and Queens of England, is an apocryphal account of Sir Walter's miſtaking the fruit for the part that was to be eaten, and deſpairing of his acquiſition upon finding that to be unpalatable; but that he afterwards diſcovered the root to be grateful and nouriſhing, on ordering the ground to be turned over. We have alſo the old ſtory ſo often told of other vegetables, that they came into Lancaſhire, by the accidental ſhipwreck of a veſſel.

Nearly the ſame account is given by Profeſſor Matthias Chriſtian Sprengel, in his book on the origin of the Negro Slave Trade [x].

There is an evident incongruity in theſe two accounts, that the Potato was firſt imported into Ireland by Hawkins in 1565, and planted there by Sir Walter Ralegh. And we know that Hawkins's Potatoes were not the Solanum, but the Convolvulus Batatas, a totally different plant, as was mentioned above.

Better authority than theſe may be derived from the minutes of the Royal Society of Dec. 13, 1693, where it is ſaid:—"the Preſident (Sir Robert Southwell) related that Potatoes were brought into Ireland by his grandfather, who had them from Sir Walter Ralegh, after his return from Virginia:" this was in the year 1584; and that great man was beheaded in 1618.

It is generally agreed that the Potato quickly paſſed over from Ireland into Lancaſhire, where it has been cultivated ever ſince with extraordinary diligence, and improvement, both as to the time of coming to market, and the ſuperior excellence of new varieties raiſed from ſeed.—It is ſaid to have been forty years before it was much planted about London, and then it was conſidered merely as a rarity [y].

Parkinſon, in 1629, ſays that Potatoes of Virginia, are dreſſed in the ſame ways as the Spaniſh kind: that is, being roaſted under the embers, peeled and ſliced, they were put into ſack with a little ſugar; or they were baked with marrow, ſugar, ſpice, &c. in pies; or they were preſerved and candied by the comfit-makers; and thus dreſſed were eſteemed almoſt as delicate as the former [z]. This author mentions three ſorts of Potatoes, as well known among us, the Spaniſh, the Virginian, which ſome fooliſhly call the Apples of youth, and the Canadian, which ſome ignorant and idle head has called Artichokes of Jeruſalem. Much of the hiſtory and qualities of the firſt has been attributed to the ſecond.

Muffet, in 1655, ſays that Potado roots are now ſo common and known amongſt us, that even the huſbandman buys them to pleaſe his wife [a].

Soon after this the importance of this root was ſo well underſtood, that at a meeting of the Royal Society, march 18th, 1662-3, a letter was read from Mr. Buckland, a Somerſetſhire gentleman, recommending the planting Potatoes in all parts of the kingdom, to prevent famine. This was referred to a Committee, and in conſequence of their report Mr. Buckland had the thanks of the Society; ſuch members as had lands were entreated to plant them, and Mr. Evelyn was deſired to mention the propoſal at the cloſe of his Sylva [b].

I do not find that this truly patriotic gentleman complied with this deſire, or that he has mentioned the Potato, except in the Appendix to his Acetaria: where he ſays that the ſmall green fruit, being pickled, is an agreeable Sallet. But the root being roaſted under the embers, or otherwiſe, opened with a knife, the pulp is buttered in the ſkin, and ſeaſoned with a little ſalt and pepper. Some eat them with ſugar together in the ſkin, which has a pleaſant crimpneſs. They are alſo ſtewed and baked in pies, &c.

Worlidge, in 1687, ſays, that Potatoes are very uſual in foreign parts, and are planted in ſeveral places of this country to a very good advantage. He adds, I do not hear that it hath been as yet eſſayed, whether they may not be propagated in great quantities for food for ſwine or other cattle.

Potatoes, ſays Houghton, were firſt brought out of Virginia by Sir Walter Ralegh, and he ſtopping at Ireland, ſome were planted there, and thrived very well and to good purpoſe; for in their ſucceeding wars, when all the corn was deſtroyed, this ſupported them. From thence they were brought to Lancaſhire, where (in 1699) they are very numerous, and

[p] Bauh. prodr. [q] P. 149. [r] Vie privée des Français.
[s] Holt's characters of the Kings of England, vol. 3. Gentl. mag. for 1789, p. 437.
[t] Vol. 3. p. 567.
[u] Ibid. See Smith's ancient and preſent ſtate of Cork.
[x] Halle. 8vo. in German. Tranſlated in Cambridge Chron. for june 23d, 1787. Campb. polit. ſurvey, 1. 240.
[y] Campb. polit. ſurv. 2. 95. [z] Parad. 518.
[a] Health's Improvement, by Thomas Muffett, 1655.
[b] Birch's hiſt. of the Roy. Soc. 1. 207, 213. Camp. polit. ſurvey. 2. 95.

now they begin to ſpread all the kingdom over. They are a pleaſant food boiled or roaſted, and eaten with butter and ſugar[a].]

Mr. Miller's account is, that this plant has been much propagated in England within thirty or forty years paſt, although it was introduced from America about the year 1623, yet it was but little cultivated in England till of late; theſe roots being deſpiſed by the rich, and deemed only proper food for the meaner ſort of perſons; however they are now generally eſteemed by moſt people, and the quantity cultivated near London exceeds, I believe, that of any other part of Europe.

[This was written in 1759, which carries the culture of the Potato to any extent, as far back as about the year 1720. But it ſeems more probable, as well as more conſonant to the accounts we have in various authors, that this uſeful root, like Turneps and Clover, was diffuſed gradually in Great Britain, after its firſt introduction from Ireland into Lancaſhire; though it muſt be confeſſed that notwithſtanding what Muffet ſays of its being common in 1655, it does not ſeem to have made much progreſs during the Commonwealth, when Clover, Turneps, &c. were ſo forcibly recommended by the writers on huſbandry. Neither Bligh nor Markham made mention of it; and Hartlib, in the Appendix to his Compleat Huſbandman, (1659) Alphabet of Interrogatories relating more particularly to Ireland, has only theſe words—"Potatoes. Where "any ſtore ſowen, when brought over firſt; and by "whom; what uſes made of them, what time to be "taken up, and how to be preſerved?"

Mr. Ray, in 1686, ſays no more of the Potato, than that the roots are dreſſed in the ſame manner as Spaniſh Potatoes.

Sharrock, in 1672, enumerates Potatoes among thoſe plants that may be propagated by offsets.

It is apparent that this uſeful root had little reſpect paid it in the 17th century: for Mr. Evelyn, in his Kalendarium Hortenſe, under February, ſays, "Plant "Potatoes in your worſt ground:" and under novem- "ber—take up your Potatoes for winter ſpending, "there will enough remain for a ſtock, though never "ſo exactly gathered[b]."

Edward Liſle, Eſq. whoſe obſervations on huſbandry were made in 1694 to the time of his death in 1722, has made no mention of the Potato. And Mortimer, in 1708, only inſerts it in his Monthly Kalendar, to be ſown in february; and ſays the root is very near the nature of the Jeruſalem Artichoak, but not ſo good or wholeſome, and that it may prove good food for ſwine[c].

Bradley, in 1720, ſpeaks of Potatoes as roots of leſs note than Horſe-Radiſh, Radiſh, Scorzonera, Beets and Skirret; but as they are not without their admirers, he will not paſs by the method of their culture in ſilence[d].

London and Wiſe, in the Complete Gard'ner, publiſhed in 1719, do not ſo much as mention the Potato[e].

All this ſerves to ſhow, that it was not attended to as it deſerved till the 18th century was conſiderably advanced. I can well remember, that about the middle of the century, it was wholly unknown as an eſculent root in many parts of the country, that even in and about London it did not generally make its appearance at table, and that it was not uſed at all by the common people or in feeding of cattle.

John Billingſley, Eſq. the reporter for Somerſetſhire under the Board of Agriculture, publiſhed in 1798, ſays that "thirty or forty years ago, it was an "extraordinary thing to ſee an acre of Potatoes in one "ſpot, and in one man's poſſeſſion; whereas there "are now many pariſhes in that county which can "produce fifty acres. Nay that the writer of the "report has grown thirty or forty acres for ſeveral "years ſucceſſively, and once had upwards of a hun- "dred acres in one year."

[a] Collections, 2. 468. [b] Edit. 9. 1699.
[c] Edit. 2. p. 470 and 615.
[d] New Improvements, part 3. p. 132. ed. 3. [e] Edit. 7.

The Suffolk reporter, Arthur Young, Eſq. Secretary to the Board (1797) informs us that "this root has not been cultivated in that county till within a few years; that he has had it on a large ſcale, and Mr. Mure, of Saxham, on a larger; that in general Potatoes are not much attended to, but that they increaſe and promiſe to be much better eſtabliſhed; that the Rev. Mr. Neſfield, of Wickhambrook, has earneſtly preſſed the culture of it on his pariſhioners for near forty years, with little effect till lately."

In the North Riding of Yorkſhire, ſays Mr. Tuke, the reporter for that diſtrict (1800). "Potatoes firſt became an object of field huſbandry here not more than forty years ſince; before which time they were little known beyond the garden of the gentleman; within that period they have got univerſal poſſeſſion, from the table of the rich to the daily board of every cottage; with all the lower orders, they conſtitute the moſt eſſential article of their ſuſtenance; and at this time there is not probably one article, the produce of the country, that could not with leſs inconvenience be ſpared than the Potato, ſo univerſal is its uſe, ſo cheap and nutritious the food that it affords."

We may therefore ſafely affirm that it was not till ſome time after the middle of the 18th century, that the Potato came to be generally uſed as an eſculent root through the greater part of England.

In the year 1796, it was found by inquiries made in each pariſh, that about ſeventeen hundred acres were cultivated for the ſupply of the London markets, chiefly in Barking, Little Ilford, Eaſtham, Leyton and Weſtham, in the county of Eſſex. In the laſt pariſh alone five hundred acres were cropped with them[h]. Beſides theſe, large quantities are imported into London from Hull and other places.

As the 18th century advanced to a cloſe, the uſe of the Potato became general among all ranks of people; and two ſcarce years (1795 and 1799) have rendered its utility ſo conſpicuous, that it is now cultivated by farmers and cottagers in moſt parts of the kingdom.

Dr. Chriſtopher Merrett, whoſe work was publiſhed in 1667, ſays that Potatoes were then planted in many fields in Wales[i]. He does not inform us in what parts of the principality. In the agricultural reports for North Wales (1794), I find that in Flintſhire Potatoes are planted, where the ſoil admits, as a preparation for Wheat; that in Angleſey they are imported from Ireland; that in Caernarvonſhire they are cultivated on a ſmall ſcale; and in Merionethſhire, leſs than they ought to be, though Mr. Corbet has raiſed immenſe crops there, worth twenty pounds an acre. In Cardiganſhire alone, of all the counties in the principality, it is ſaid that they are univerſally cultivated; making, with Barley bread, the chief ſuſtenance of the poor. A few years ago a large portion of what were uſed, was annually imported from Liverpool. Of late the quantity has been inconſiderable; and thoſe imported are brought chiefly for change of ſeed.

The Potato, ſays Dr. Anderſon, from Ireland paſſed over to Scotland; and the man has not been dead many years who firſt introduced the culture into the the peninſula of Cantire. He lived near Cambleton. From him the city of Glaſgow obtained a regular ſupply for many years, and from him alſo the natives of the Weſtern Highland and Iſles obtained the firſt plants, from which have been derived thoſe abundant ſupplies on which the people there now principally ſubſiſt. Being once known at Glaſgow, the culture ſoon ſpread abroad; but ſo lately were they introduced as a field crop in the eaſt of Scotland, that I myſelf remember the firſt field that was planted with Potatoes in that neighbourhood, which was only five miles from Edinburgh[k].

If we may judge from the late agricultural ſurveys, the culture of this root, on a large ſcale, has made a rapid progreſs. Dr. Smith, the reporter for the county of Argyll relates, that Potatoes have been long and

[h] Lyſons, env. of London, 4. 575.
[i] Pinax rerum naturalium Britannicarum.
[k] Recreations in Agriculture, &c. by James Anderſon, LL.D. vol. 2. p. 382.—1800.

much

much cultivated there; moſt of the inhabitants living chiefly upon them for more than three fourths of the year. Dr. Thomſon, in his view of the agriculture of the county of Fife informs us, that about ſixty years ago, the Potato was chiefly to be ſeen in gardens; few were planted in the fields. It is only within the laſt twenty or thirty years that its value has been well underſtood, and the cultivation of it has become general. Potatoes were firſt cultivated in the fields of Mid-Lothian about the year 1744; they had not been long introduced, even into gardens, before that time. They are now (1795) in every farm; but few are raiſed for ſale above ſix miles from Edinburgh, or other towns; the expenſe attending their carriage being too great to admit of bringing them from a farther diſtance. There may be from twelve hundred to fifteen hundred acres cultivated.

The culture of Potatoes is carried to a great extent in the county of Perth, eſpecially in the Highlands.

Potatoes, ſays the Rev. Dr. Robert Douglas in his general view of Roxburgh and Selkirk (1798), about forty years ago, were not raiſed in the fields, except on narrow beds, in deep marſhy ſpots. And a gentleman, now dead, remembered, that ſome years before 1745, he was admitted as a great favour into a garden to ſee Potatoes growing.

So little was the attention paid to the improvement of this plant, that Mr. Miller, in his laſt folio edition of his Dictionary in 1768, and his laſt quarto edition of 1771, makes no mention of any varieties, except thoſe which occur in all the old authors: namely, one with a red root, and another with a white root.

To enumerate all the varieties which have been raiſed from ſeed, would be uſeleſs, becauſe they are continually paſſing away, and giving place to others that have more favour, if not more merit, for a time. But the following are known at preſent in different parts of the country.

Apple; one of the Kidney ſort. Ireland and the Iſle of Man.

Black or Blackmoor. Fit for cattle and the table. A late ſort, and keeps well till auguſt. It affords more ſtarch than ſome others, and is of greater ſpecific gravity. The outer coat is ſooty, but when rubbed it appears of a dark or bright purple. It will grow in a heavy moiſt ſoil.

Brown, Early.

Champion. For cattle and the table. In 1784 it was preferred in Eſſex, becauſe it did not curl. Comes early. Called alſo Globe-white.

Cluſter or conglomerate, called alſo Suffolk or Howard: called Hog Potato in *Kent*. Red and ſtreaked with red within. Taſte ſaccharine.

Cluſter, White. Yellowiſh within, white on the outſide. Conglomerate like the red.

Commonwife. Iriſh.

Copperplate: hardy and ſtrong. Iſle of Man.

Cornwallis. Suffolk.

Crones. Iriſh.

Cumberland Early. Large, prolific, well flavoured; ripens early enough to admit of another crop.

Dun, Golden and Long, Iriſh.

Dutch upright.

Goldendabs. Yellow and kidney-like, ſomewhat bell-ſhaped.

Golden-dun. See Dun.

Goldfinders. Yellow within, kidney-like, with a ſcurfy rind, not unlike the old Ruſſet. A good ſort, cultivated in the midland counties.

Goldentags.

Henley, Early. Round, not deeply indented at the eyes, dirty white, ſkin ſmooth and fine but not ſilky, ſeldom exceeding a large hen's egg in ſize.

Horſe-legs. Somerſetſhire.

Hog. See Surinam.

Iriſh Blue.

Kentiſh. Seedling. Very large and white [1]. Other varieties raiſed from ſeed have the names of the perſons who firſt raiſed them. As Bayley's ſeedling; middle-ſized, white and mealy; exceeding well-flavoured.

Kidney. There is a great variety of Kidnies, both white and red: as the Lincolnſhire. Red-noſe, large and ſmall; neglected in Eſſex ſo long ſince as 1784, on account of its being ſubject to the curl [m]. True. White. Flat White, called by ſome the true Spaniſh. Superfine White; ſaid to be the earlieſt Potato in Lancaſhire, where they ſometimes raiſe four crops in a year of this variety on the ſame ground. For other Kidnies ſee White and Red, and Manley.

Killamancas: in Lothian.

Magpye.

Manley, White. Large, white, mealy and well-taſted.

Ox-noble; for cattle. Large, prolific, apt to be hollow. Called in ſome places white Surinam, and confounded with the White Cluſter, from which however it differs. See Surinam.

Peach.

Pheaſant-eye.

Pink-eye or Redſtreak, hardy and ſtrong; late and beſt for eating in the ſpring; in uſe till the beginning of july. Pink-noſe the ſame probably with Red-noſe Kidney.

Pomgranate. Dark purple. Hard, ſolid and heavy. Keeps well, and is good for cattle. Probably the ſame with the Black.

Quakerwife. Iriſh.

Red. Blood Red. Iriſh Red, or painted Lord: late, plentiful. Old winter Red: peculiarly good in ſpring, when others have loſt their flavour; it never has the curl. Rough Red. Purple. Red French; Iriſh. Red-ſnout or Red-nob; large, prolific and well-flavoured; but becomes ſtrong-taſted in ſpring [n]. For other varieties ſee Kidney.

Royal. See Cumberland early.

Ruſſet, white and red: for winter uſe.

Scotch, white and gray.

Silverſkin.

Spaniſh. See Kidney.

Surinam or Hog Potato, called in ſome places the cluſter, and confounded with the true Cluſter. Very prolific and adapted to the uſe of ſtock. White and Red. The White of ſome places ſeems to be the ſame with the Ox-noble. The Cluſter, Ox-noble and Surinam are all called Hog Potatoes in different counties, and are uſed indifferently for feeding cattle and hogs. Cow Potato of Staffordſhire the ſame with the Red Surinam.

Tartar. Pale red ſtreaked with white, eſpecially at the top end; round and hollow-eyed.

Tawny.

White. Ayleſbury, called alſo Winter white and white bloſſom; good for the table, larger and producing a more bulky crop than the Champion. Engliſh White; Iriſh. French White; Iriſh. Lady White. Long White. Manley White. Munſter White; Iriſh. Oblong flat White. Round White. Rough White. Scotch White. See Cluſter, Kidney, Manley, Ox-noble, and Surinam.

Yam. A coarſe Potato, raiſed principally for horſes, prolific and growing on indifferent land [o]. It is a bad name becauſe it makes a confuſion with the Weſt Indian Yam properly ſo called. Dioſcorea ſativa.

Several of the above varieties are probably the ſame under different names: and ſome which are different have the ſame name in different diſtricts. Such as they are they form a liſt of the Potatoes now or lately in cultivation. The deſire of improvement and the thirſt for gain are daily prompting men to raiſe new varieties, eſpecially about Mancheſter and Liverpool; and if old varieties be wearing out, it is the more neceſſary to raiſe new ones from ſeed.

This Virginian Potato, when firſt known in Europe, was endued with all the fancied properties of the

[1] Kent's view of Norfolk, app. 195. 8vo. edit. Bath papers, 4. 298.

[m] Marſhall's midl. 1. 248. [n] Idem. [o] Agric. view of Roxb.

Spaniſh;

Spaniſh; but on the contrary was reprobated by ſome as cauſing the leproſy. The preſent age is contented to reſpect this root as a wholeſome and nutritious food. The farinaceous varieties make a good ſtarch, and bread either mixed with wheat flour or even alone. But all the varieties are beſt eaten plain boiled or baked, whether applied to our own uſe or that of our domeſtic animals.

32. Habit, ſtature, &c. of S. Lycoperſicum. Fruit like that of its variety β. But it differs altogether from S. Lycoperſicum in having the ſtem ſmooth without any hairs ſcattered over that or the peduncles, the leaves ſmooth entire cordate not at all gaſhed or toothed as in that. However as it agrees upon the whole in ſtructure, it may perhaps come from that. The ſtructure of the peduncles is the ſame as in tuberoſum, Lycoperſicum and peruvianum, with the pedicels alſo jointed, and the raceme naked, as in the two former, not leafy as in the laſt[r].—Native of Peru.]

Mr. Miller ſays it is ſomewhat like the Lycoperſicum, but that the leaves have ſome ſmaller leaflets between the large ones, and have not that rank diſagreeable odour which the other has; that the leaflets are ſhorter, broader, and not cut, having only ſome obtuſe indentures towards the baſe; that the fruit is not ſo large, but round and ſmooth, and late before it ripens.

33. This is an annual plant, with an herbaceous, branching, hairy ſtalk, riſing to the height of ſix or eight feet, if ſupported, otherwiſe the branches will fall to the ground. Leaves pinnate, of a very rank diſagreeable odour, compoſed of four or five pairs of leaflets terminated by an odd one, cut on their edges, and ending in acute points. Flowers axillary on pretty long peduncles, each ſuſtaining ſeveral yellow flowers, forming a ſingle long bunch.

[The fruit is ſmooth, but varies in form, ſize and colour; which has given occaſion to Miller to make two ſpecies.] The one commonly cultivated in the South of Europe to put into ſoups and ſauces, to which it imparts an agreeable acid flavour. The fruit in this is very large, compreſſed both at top and bottom, and deeply furrowed all over the ſides, red or yellow.

β. The other round, about the ſize of a large Cherry, either yellow or red. [Loureiro deſcribes the berry in Cochinchina as white, middle-ſized, roundiſh, three-lobed and ſmooth.

Native of South America. Cultivated in 1596 by Gerarde. It flowers from july to ſeptember[s,] or till ſtopped by the froſt, and the fruit ripens from the end of july, till autumnal froſts come on.

[34. Leaflets wrinkled, hairy, toothed and gaſhed, unequal[t]. Berry not grooved, leſs than in the preceding, yellow[t].—Native of St. Helena. Annual.

35. Root perennial; ſtem ſcarcely or very little ſhrubby above the root. Leaves hoary, pinnate without any ſmall leaflets between the larger ones. Racemes two-parted with an ovate leaflet to each pedicel. Corollas bright yellow, much bigger than in S. Lycoperſicum[t].—Native of Peru.

According to Loureiro it is wild in the gardens of Cochinchina; the flowers are of a gold colour, and the berry is ſaffron-coloured, hairy, ſmall, roundiſh, compreſſed, three-celled, many-ſeeded and eſculent.]

Miller ſays it is annual, and has a very branching herbaceous ſtalk, ſpreading out into many diviſions, and not ſo hairy as S. Lycoperſicum; the leaves have a greater number of leaflets, which are much ſhorter and more indented on their edges, where they are a little waved, and are downy. The flowers ſtand upon very long peduncles, which branch out and ſupport a great number of flowers at the top; the ſtyle is longer than in the other ſpecies, and remains on the top of the fruit, which is late in ripening. The ſeeds of this and of n. 32. were ſent from Peru by Monſ. Joſ. de Juſſieu to the royal garden at Paris; and were imparted to Miller by his brother Dr. Bernard de Juſſieu.

[r] Linn. amoen. [s] Hort. kew. [t] Jacquin.
[u] Willdenow. [t] Linn. ſpec.

36. Native of Peru.

37. Native of the iſland of St. Helena.

38. This is an unarmed upright ſhrub, ten feet high, ſmooth, weak; branches round, ſubdichotomous, erect, knobbed at the diviſions. Leaves alternate, petioled, ovate, acute, quite entire, thin, green on both ſides, veined, decurrent more or leſs along the petiole, the longeſt half a foot in length. Common peduncles filiform, an inch and half long, patulous, round, green, umbelled, lateral from the knots of the branches below the leaves. Proper pedicels about ſix, one-flowered, filiform, a third of an inch in length. Flowers ſmall. Calyx minute, green; leaflets oblong, obtuſe, flat. Petal white; yellow at the baſe, deeply five-cleft, ſegments lanceolate, acute, ſpreading very much. Berry globular, the ſize of a ſmall pea, dark-coloured, ſmooth and ſhining. Seeds whitiſh. It is called Bret by the Malays, who cultivate it as a pot-herb[u].—Native of the iſland of Mauritius.

39. Root annual, much branched. Stem branched, ſpreading, leafy, angular, ſometimes winged, and often of a woody hardneſs, ſurviving the winter in our mildeſt ſeaſons as in hot climates. Leaves alternate, petioled, ovate, repand, lengthened out at the baſe, ſomewhat downy. Umbels lateral, from the interſtices of the ſtem between the leaves, nodding, downy, bearing a few white flowers, ſmelling like muſk. Berries globular, black when ripe; ſometimes yellow[x.] Miller ſays there are two varieties of the common Nightſhade growing naturally in England. The moſt common, an upright branching plant, with oval acute-pointed ſmooth leaves, and black berries: the other, a low branching plant with indented leaves, and greeniſh-yellow berries. [The latter has laciniated leaves, according to Gærtner; who deſcribes the berry as globular, ſubvilloſe, yellowiſh, ſubdiaphanous, two-celled, having a membranaceous partition, connate with the receptacle, which is fleſhy and ſolid, growing cloſe to the middle of the partition. Seeds about twenty-five in each cell, ovate-acuminate, beaked, compreſſed, girt with a membranaceous rim, and wrapped up in a ſoft yelloviſh tranſparent pulp.

This ſpecies is common in Europe, Africa and America, both in cultivated and waſte ground, eſpecially on dunghills; flowering from june to ſeptember. It varies in ſize, as well as in the hairineſs of its leaves; but may be known at firſt ſight, when in perfection, by the bunches of flowers or fruits hanging from the ſpaces between the joints of the ſtem and branches[y].

There is little doubt of the herb and berries being both poiſonous, though ſome perſons have eaten them without any bad effects following.

The whole herb is fetid, narcotic, and promotes perſpiration and urine. From one to three grains of the dried leaves infuſed in boiling water, and taken at bed-time, occaſions a copious perſpiration, increaſes the ſecretion by the kidnies, and generally purges more or leſs the following day. Theſe properties, judiciouſly applied, render it capable of doing eſſential ſervice in ſeveral diſeaſes, as inveterate ulcers, ſcrophula, &c. and even in dropſies; as may be ſeen in Mr. Gataker's treatiſe on the Solanum publiſhed in 1757. Too large a quantity occaſions violent ſickneſs, with head-ach, giddineſs, drowſineſs, and other dangerous ſymptoms. In ſhort, its effects on the nervous ſyſtem are ſo uncertain, and ſometimes ſo conſiderable, that it muſt ever be adminiſtered with the greateſt caution. Mr. Bromfield, an eminent ſurgeon, ſo far from approving of the Solanum, declares that the caſes in which he tried it were much aggravated by it: and his opinion has prevailed ſo far, that it ſeems now to be little uſed. This is perhaps to be lamented, ſince it might probably be of ſervice in diſeaſes, where the medical practitioner could otherwiſe do little more than ſympathize with his diſtreſſed patients.

The leaves, applied externally, abate inflammation and aſſuage pain. With the Arabians it is a common application to burns and ulcers; and if it be

[x] Jacqu. collect. [y] Smith.
[y] Engl. bot. & Curt. lond.

the Στρυχνος κνηπιος of Dioſcorides, it was uſed anciently as a diſcutient and anodyne in various affections of the ſkin, tumefactions of the glands, ulcers, and diſorders of the eyes. As a ridiculous application of this plant it may be mentioned, that an ointment made of the leaves with hog's lard was uſed by Solano de Luque, a famous Spaniſh phyſician, about two centuries ſince, in the cure of conſumptions. The patient was to be buried for ſome time up to the chin in the earth, and afterwards rubbed with this ointment[a].—The genuine properties of this plant, Solanum Dulcamara or woody Nightſhade, and Atropa Belladonna or deadly Nightſhade, ſeem to be nearly the ſame.

Beſides the varieties of the common Nightſhade already mentioned there are others ſo conſiderable as to have induced Mr. Miller to make ſeveral diſtinct ſpecies; and Dr. Withering, to ſuſpect that Linneus had confounded different ſpecies under the name of Solanum nigrum, till he was convinced of the contrary by the judicious remarks of the Abbé Correa de Serra. In Portugal and other warm climates the ſtem is woody, and the plant is biennial if not perennial.]

Mr. Miller is of opinion that our common Nightſhade, although it is now become a very troubleſome weed in many gardens near London, yet is not a native of this country, but was brought originally from America, whence the greater part of the ſpecies have been introduced into Europe.

[Dillenius has deſcribed and figured ſeveral varieties: as

β. Which is three cubits and more in height, with a ſtout ſtem as thick as the human thumb at bottom, green, round and ſmooth, ſtriated and as it were angular, branching from a foot or two feet from the bottom to the top, and theſe ſubdividing. Leaves ſmooth, entire, like thoſe of the Guinea variety, only in that the ſtem-leaves are much larger. It is an annual plant, although ſo ſtout and lofty. It is diſtinguiſhed from the common ſort by the branches ſpreading, and extending themſelves very wide. It ſeems to be the Aguara-quiya of Marcgraaf.

γ. The whole plant is covered with ſoft hairs, the ends of the branches eſpecially are lanuginoſe with long hairs, through which the purple colour of the branches ſhines; nay the flowers themſelves are woolly on the outſide and at the edges. The plant is larger and ſtouter, and the flowers are ſomewhat bigger than in the common ſort. The ſtems are ſometimes upright, but are commonly lower with the branches reclining. Berries duſky green, when ripe ſaffron-coloured, not round but oblong. The leaves are duſky green above, but paler beneath. Bobart and Ray had it from Morgan. The native place was unknown to them. If it be the ſame with the ægyptiacum of Forſkahl, it is indigenous of Egypt.]

Mr. Miller has two ſpecies which ſeem to be the ſame with this variety. S. villoſum, n. 2.—S. offic. acinis puniceis. *Baub. pin.* 166. and ſecondly, S. luteum, n. 3.—S. offic. acinis luteis. *Baub. pin.* 166.—The former riſes with an erect branching ſtalk three feet high. Leaves oval, angular, indented and ſmooth. Flowers white. Berries yellow. Seeds from Barbadoes.—The latter riſes with hairy branching ſtalks two feet and a half high. Leaves woolly, oval, ſpear-ſhaped, acute-pointed, indented on the edges. Flowers like thoſe of the preceding. Berries of the ſame ſize and ſhape, but of a red colour. Seeds from America.

δ. This riſes with a ſtrong thick herbaceous angular ſtalk two feet and a half high, dividing into ſhort thick branches. Leaves oblong, oval, ſmooth, near five inches long, and three and a half broad, having a few indentures, and ſtanding upon pretty long foot-ſtalks. Flowers larger than in the common ſort. Berries the ſize of the common black Cherry.—— Native of Guinea.

[Dillenius remarks, that there are blunt ſpines here and there at the angles of the ſtem, which is upright and not branched; that the leaves reſemble thoſe of Atropa Belladonna, and are ſmooth except that they have a few ſlender hairs on the upper ſurface, deep green above, paler beneath; thoſe on the middle of the ſtem much bigger than the branch-leaves. Flowers ſmall, white or ſometimes ſlightly tinged with violet, greeniſh at the claws. Anthers duſky or browniſh. Berries globular, almoſt as large as black Cherries, but more depreſſed, green at firſt, but black and ſhining when ripe. Seeds whitiſh, compreſſed, lying in a violet-coloured pulp. It is an annual plant.

ε. This differs from variety β. in not riſing ſo high, and in being leſs branched and ſpreading; the upper leaves are ſinuated, the middle and lower laciniated, and not unfrequently divided as in Lycopus or water Horehound; the flowers are ſomewhat bigger, and more of a violet colour; the ſtems are more angular, and roughened or ſpiny at the angles. The leaves are deep green, and the lower ones not unlike thoſe of Stramonium or Thorn-apple. The flowers become paler and at length white. The berries are round, at firſt green, but black when ripe. It is an annual plant, native of Virginia[b].

Swartz remarks that the prickles at the angles are very ſmall and recurved. According to him it is the ſixth Solanum or branched Caleloo of Browne, who ſays that it is very common in the low lands of Jamaica, ſeldom riſing more than two or three feet from the root; that it has none of the viroſe ſmell and narcotic quality of the European Nightſhade, and is daily uſed for food, being found a pleaſant and wholeſome green; that the only difference between the two plants is the length of the common foot-ſtalks, and the length and ſmoothneſs of the branches, except that the European ſeems to grow more twiggy and luxuriant.]

Miller ſays, the ſtalks riſe three feet high, and divide into ſpreading branches; they are angular, furrowed, and have a few ſhort ſpines; the leaves are oval and entire, ſix inches long and five broad, dark green and on long foot-ſtalks; flowers ſmall, white; berries ſmall and black.

The americanum, n. 5. is probably not different from this: the ſtalks are angular, upwards of three feet high, and divide into a few ſlender ſpreading branches; leaves oval, acute-pointed, ſmooth, deep green, having a few indentures on their edges; flowers few in each umbel, ſmall, white on the inſide, and purpliſh without; berries ſmall and black.

[ζ. This is ſuppoſed to be a mere variety of the preceding.]

ζ. This has taller and ſmoother ſtalks than the preceding; leaves dark-green, ſmooth, oval, acute-pointed, angularly indented on the edges; flowers in nodding lateral umbels; berries ſmooth and red. The ſeeds came from the Weſt Indies.

[θ. Fruit black. Native of Egypt[b].

Linneus regards theſe varieties as hybridous offſprings or mules; Willdenow thinks that they may be diſtinct ſpecies, ſince they are not altered by culture.

40. Root annual. Stem ſtiffiſh. Leaves like thoſe of S. bonarienſe (n. 29.), a hand in length, blunt. Fruit red, large, depreſſed, ſo deeply furrowed as to be in a manner cut into lobes, hard[c].

Branches diffuſed. Leaves ovate-oblong, ſinuate-repand. Flowers ſolitary, violet. Calyx and corolla ſix-cleft. Stamens ſix. Berry ſpheroidal, ſix-lobed, large, ſmooth, white or purple[d]. Jacquin obſerved prickles on the ſtem, ribs of the leaves, and calyxes.]

Stem erect, a foot and half high, dividing into ſeveral branches. Leaves oval, angular, from three to four inches long, and almoſt three inches broad in the middle, placed alternately on pretty long foot-ſtalks, which have one or two ſhort ſpines upon them, as there is alſo upon the midrib of the leaves. The flowers come out ſingly upon peduncles from the ſide of the branches; they are white, and are ſucceeded by red ſtriated fruit, firmer than thoſe of the other ſorts, and about the ſize of cherries.

[a] Withering, Engl. bot. Curtis, Woodville.

[b] Dill. elth. [b] Forſk. [c] Linn. ſpec. [d] Loureiro.

[Native of China, Cochinchina and Japan, where it is cultivated for the table.—It was cultivated here before 1597 by Gerarde[a]: who ſays the ſeeds were brought unto us out of Spain, and that his plants periſhed at the firſt approach of winter. He, with other old authors, derived its original from Ethiopia, and Linnæus continued the miſtake in his trivial name.

41. Stem annual, thick, twiſted, two feet high, with the branches reclining. Leaves ovate, ſinuate, large, few, ſcattered, on thick petioles. Flowers pale violet; peduncles axillary, thickened, bent down, one-flowered, moſt commonly ſolitary, but not unfrequently two or three together. Berry large, ſhining, two-celled, many-ſeeded, eſculent. Varieties of it are, 1. With an oblong violet-coloured fruit. 2. With an oblong white large fruit. 3. With a globular violet-coloured fruit. 4. With a globular white or variegated fruit[b].]

Mr. Miller has four ſpecies of Melongena, the three firſt of which are unarmed, and differ in the ſhape of the fruit; the fourth is prickly.

They are all annual plants, with an herbaceous ſtem, becoming a little woody, riſing near three feet high, and ſending out many ſide branches. Leaves in the firſt and ſecond oblong-ovate, ſeven or eight inches long and four broad, woolly, ſlightly ſinuated but not indented on their borders, ſtanding without order upon very thick foot-ſtalks: in the third the leaves are more deeply ſinuated. The flowers come out ſingly from the ſide of the branches. The calyx is armed with ſtrong prickles on the outſide. Corolla blue. In the firſt the fruit is ovate, about the ſize of a ſwan's egg, of a dark purple on one ſide, and white on the other: ſometimes it is white, whence this ſpecies is called the Egg-plant; or yellow, or pale red. In the ſecond, the fruit is commonly eight or nine inches long, taper and ſtraight; purpliſh or white. In the third, it is oblong and incurved, yellowiſh, and largeſt at the end. The fourth differs greatly from the others; the ſtalk and leaves being armed with very ſtrong thorns; the leaves larger, and deeply jagged on their ſides; the flowers larger, and of a deeper blue colour; the fruit long, taper and white. The ſeeds were ſent from India.

The fruit of the firſt of theſe is commonly eaten by the inhabitants of Aſia, Africa and America. It is cultivated in the gardens of Spain by the title of *Barenkzena*; the Turks, who alſo eat it, call it *Badinjan*, the Italians *Melanzana* (Mala inſana), and the inhabitants of the Britiſh iſlands in the Weſt Indies, *Brown John* or *Brown Jolly*.

[But the Brown Jolly or Bolangena of Jamaica, is, according to Browne, a rough prickly ſort. The plant, he ſays, lives ſome years, and ſeldom riſes above three or four feet in height. It was firſt introduced by the Jews, and bears a number of large berries, which being ſliced, pickled for a few hours, and then boiled to tenderneſs, are uſed inſtead of greens.

In the Eaſt Indies, the fruit is broiled, and being peppered and ſalted, is reckoned very delicious. But it is remarked by Dr. Ruſſel, that though Melongena is cultivated in the Levant for eating, it is the inſanum which they grow in the Eaſt Indies for that purpoſe.

Loureiro however inſiſts, that the inſanum of Linneus is not ſpecifically diſtinct from Melongena; having obſerved prickles on the latter from the ſame ſeed with the ſmooth ones, and in the ſame garden. The plants appear to be moſtly unarmed, but ſome are prickly, either on the calyx, the leaves, ſtem or branches. Rumphius had made the ſame obſervation before.

The Egg-plant is a native of Aſia, Africa and America, where the climate is warm enough. It was cultivated before 1597 by Gerarde[c]: under the name of Mala inſana, mad or raging Apples. It muſt be ſown in April, ſays he, in a bed of horſe-dung, as Muſkemelons are. It grows in Egypt almoſt every where; and bore fruit of the bigneſs of a gooſe egg one extraordinary temperate year, in the garden of a worſhipful merchant, Mr. Harvy, in Lime-ſtreet.

[a] Hort. kew. [b] Loureiro. [c] Hort. kew.

42. This is a ſhrub from four to ſix feet high, with a round branching ſmoothiſh ſtem, covered with a mealy down, eſpecially the branches. Leaves petioled, alternate, ovate or oblong, acuminate at both ends, three or four inches long, ſmooth above, more or leſs tomentoſe beneath. Racemes an inch long, lateral, many-flowered: peduncles cluſtered, cymed, one-flowered. Flowers biggiſh, blue: ſegments of the calyx blunt; of the corolla ſpreading and lanceolate. Berries globular[d].]

Stem ſhrubby, ſmooth, ſix or ſeven feet high, ſending out woody branches on every ſide, which have a ſmooth brown bark. Leaves ovate, acute-pointed, entire, woolly on their under ſide, four inches long, and two inches and a half broad. Flowers collected into umbels which ſtand erect, and come out from the ſide or at the end of the branches: they are of a light blue colour, and are ſucceeded by round berries, the ſize of ſmall black cherries, which are yellow when ripe.

[Native of the Weſt Indies. Diſcovered by Houſtoun at Campeachy, and by Jacquin at Carthagena.—Introduced in 1778 by Mr. Gilbert Alexander[e]: but cultivated by Miller before 1733.

43. This is a ſhrub, with round branches, ſmooth below, but of a dirty aſh-colour above with minute ſtellate villoſe hairs. Leaves alternate, remote, three or four inches long, obtuſe and almoſt equal at the baſe, attenuated at the tip, ſomewhat rugged on the upper ſurface with ſtellate hairs viſible only with a magnifier; the older leaves almoſt ſmooth, obſcurely veined: underneath more villoſe with a dirty nap, eſpecially the younger ones. Petioles half an inch long, hoary. Peduncles lateral towards the top, the firſt ſhort and recurved, then gradually longer and ſtraighter. Pedicels alternate, eight to ten, half an inch long. Calyx tomentoſe-hoary; with five awl-ſhaped teeth, four times as ſhort as the corolla; which is almoſt an inch wide, and deeply five-cleft: ſegments linear-lanceolate, attenuated, obtuſe, tomentoſe without, ſmooth within.—Found at Cayenne by von Rohr[f].

Vahl ſeems to think this ſcarcely different from the preceding, yet it appears to be diſtinct in the inflorescence, calyx and corolla[g].

44. Native of Peru. Introduced in 1785, by Monſ. Thouin[h].

45. Annual. Very nearly allied to S. Melongena. Stem ſcarcely branched, with a ſtellate nap on it. Leaves ſubſinuate. Peduncles ſolitary, one-flowered, pendulous, thickened. Fruit large.—It differs from that in having prickles ſcattered over the ſtem, a few ſtraight prickles on both ſides of the leaves, and the calyx very prickly[i]. Notwithſtanding theſe differences, Loureiro thinks they are the ſame ſpecies. See n. 41.

This is the ſort which is cultivated in the Eaſt Indies for eating. One much-eſteemed variety in ſome provinces is called *Mandia*. The flower is ſmall, of a duſky purple colour: the fruit is yellow, roundiſh, the ſize of an Orange; the leaves and calyx prickly.

It has been introduced into the Weſt Indies for culinary purpoſes, ſays Swartz. The peduncles are ſhort, one-flowered, prickly, incraſſated: the corollas blue, large, and nodding; the fruit the ſize of a gooſe's egg, ovate, very ſmooth, yellow white or blue. It varies in the gardens, with an unarmed ſtem, and rugged-hirſute leaves hoary with meal behind.

46. This is a ſhrub, a fathom in height, with round tomentoſe prickly branches. Prickles awl-ſhaped, wider at the baſe, a little bent back, and as it were tomentoſe. Leaves alternate, often two from one point, cordate-ovate, acute, ſinuate-angular, with the ſinuſes angular and the lobes ſharpiſh, tomentoſe with very ſhort ſtellate green hairs, and beneath with longer whitiſh ones, prickly along the rachis. Prickles ſcattered, diſtant, from a wider baſe, compreſſed, awl-ſhaped. Petioles round, tomentoſe, defended beneath with ſtraight ſcattered prickles. Racemes lateral, compound, panicle-form, peduncled, with the flowers

[d] Swartz. [e] Hort. kew. [f] Vahl.
[g] Willdenow. [h] Hort. kew. [i] Linn. mant.

pedicelled,

pedicelled, cymed. Peduncles and pedicels round, unarmed, tomentoſe. Calyx bell-ſhaped, unarmed, ſubvilloſe, ſcarcely three lines in length; ſegments ovate, acuminate. Corolla white; border an inch in diameter. It varies with unarmed leaves, the petioles only having here and there prickles on them. It reſembles S. indicum very much; but differs in having the leaves quite unarmed above, and the rachis only prickly underneath; the racemes more branching; and the calyxes unarmed.

Native of Jamaica, Hiſpaniola, and the Bermuda iſlands, in hedges.

47. Stem ſhrubby, climbing, branched, round, prickly. Leaves three or four inches or a ſpan long, lanceolate-ovate, toothletted at the edge, rough above, beneath hiſpid with ferruginous hairs, nerved not rigid. Petioles flatted a little, prickly backwards, as is alſo the midrib: prickles ſmall, recurved. Racemes lateral, alternate with the petioles, ſhorter than the leaves, ſimple, many-flowered, looſe: pedicels half an inch long, alternate, approximating, one-flowered. Calyx five-cornered, five-toothed, ferruginous-pubeſcent, prickly, reflexed. Corolla larger, blue; ſegments long, tomentoſe beneath. Filaments ſcarcely any: anthers length of the corolla, erect, contiguous, thicker below, alternating at top, perforated by two pores. Berry placed on the permanent calyx, umbilicate [a].

Vahl conjectures that his *ſcabrum* is allied to this; and Willdenow unites them with a mark of doubt.—Vahl thus deſcribes his *ſcabrum*. It is a ſhrub, with round flexuoſe branches, ſomewhat rugged with obſcure ſtellate hairs, armed with recurved compreſſed yellow ſmooth ſhort prickles. Leaves three together on the ſame ſide of the branch, one four or five inches long, the ſecond three inches, and the third ſometimes ſcarcely an inch in length; the larger two inches wide, elliptic, acute at the baſe, bluntiſh at the tip, ſubſinuate with two or three angles on each ſide, ſtellate-hairy and rugged on both ſurfaces, paler beneath on account of the ſtars of hairs being cloſer; the midrib prickly on both ſides: ſmall prickles on the face of the branches. Rudiment of a branchlet in the axils, with leaves tomentoſe of a dirty yellow colour. Petiole half an inch or an inch long, prickly. Racemes lateral, ſolitary, two inches long, when the lower flowers are paſt, bent back. Pedicels half an inch long, filiform, ſometimes armed with a needle-like prickle, when fruit-bearing curved upwards, covered with ſtellate hairs, as are alſo the peduncle and calyxes. Calyx ſhort, prickly; prickles frequent, needle-like: ſegments lanceolate, acuminate. Segments of the corolla linear, tomentoſe-hoary on the outſide. Berries ſmall, ſmooth.

Found in the woods of Hiſpaniola by Swartz; and in the Weſt Indies by von Rohr.

48. Stature of S. Melongena. Leaves wide, petioled, having upright prickles on the veins, villoſe above, tomentoſe beneath. Petioles, peduncles and calyxes prickly. Peduncles axillary, ſimple, ſhort. Calyxes bell-ſhaped, tomentoſe, armed with ſtout prickles, covering the whole berry. Berries very rough-haired.—Native of Malabar [b].

49. This reſembles the *virginianum* (n. 55.) in its leaves and manner of growth, but the whole plant is hairy, the flowers paler and a little ſmaller, the fruit bigger and not variegated, but white when ripe. It grows from a foot to two feet in height, with the branches ſcattered on every ſide, from round angular, duſky purple towards the ſun, armed with frequent browniſh or whitiſh prickles. Leaves large, variouſly laciniated, covered all over with ſoft hairs, whitiſh green underneath with more prickles, which are whitiſh or yellowiſh. Two or three flowers come out together on a common peduncle, each on a ſlender pedicel, of a middling ſize, pale purple, in a very prickly calyx. Berries large, at firſt green, then white and ſhining. Some of the flowers are male, others female; the latter appear firſt, and have more prickly calyxes; both are on the ſame common peduncle, and have all the parts; but in the former the ſtyle and germ are abortive, and in the latter, the anthers have no pollen. It is not unuſual with ſome of the other ſpecies to have barren flowers. The whole plant is prickly, and beſides this, the branches, petioles and peduncles are covered with a thick nap. It is an annual plant; and roſe from ſeed ſent by Houſtoun from Campeachy [c].

According to Swartz, this is the *acanthifolium* of Miller, who ſays that] it was diſcovered by Houſtoun at La Vera Cruz in New Spain, whence he ſent the ſeeds to England, which ſucceeded in the Chelſea garden.—It riſes with a prickly herbaceous ſtalk near two feet high, dividing into two or three branches, cloſely armed with ſlender yellow ſpines of unequal lengths. Leaves ſix inches long, and three inches and a half broad, bright green and deeply ſinuated; the veins armed with yellow erect ſpines on both ſides. Flowers very large, of a fine blue colour. Berries round, as large as common cherries, marbled with white and green. Calyx armed with ſpines like a hedgehog. It flowers in july and auguſt, and the fruit ripens late in the autumn.

50. Annual. Branches variouſly ſpiny, browniſh on the ſide next the ſun. Leaves repand, ſinuate, obtuſe, green on both ſides, with ſpines on the upper ſurface of a bright purple colour, frequently girt with a pale band. The peduncles have ſtouter ſpines on them. Flowers violet-coloured [d].

This is wrongly united with the preceding in Syſtema Vegetabilium and Mantiſſa. The deſcription of S. campechienſe in the Mantiſſa belongs to this ſpecies [e]: it is as follows.

Stem a foot high, becoming ſhrubby, round, hairy, prickly, annual as well as the root; prickles ſtraight, ſpreading, ſcattered, purple; hairs ſpreading, of the ſame length with the prickles. Leaves petioled, cordate, laterally five-lobed to the middle, the leaves obtuſe, the ſinuſes blunter, elevated, ſpreading: the larger veins on both ſides have a few ſtraight prickles on them: the midrib is white or purple. Petioles the length of the leaves, prickly and hairy, purple on their upper ſide, and having raiſed dots ſcattered over them. Peduncles lateral, prickly, two together, the one having one flower only, the other commonly four flowers. Corollas white or blue. Filaments the length of the anthers, white. Anthers yellow, with a paler yellow beak. In the flowers that firſt come out the calyx is more prickly, and the anthers have no pollen. Native of America.]

51. This riſes with a prickly herbaceous ſtalk three or four feet high; the ſpines are ſtrong and crooked; the leaves are large, angular, woolly, and armed with the like ſpines; the flowers are produced in bunches from the ſide of the ſtalks; they are of a pale blue colour, and are ſucceeded by yellow fruit, the ſhape and ſize of a Catharine Pear inverted. The plant is annual here. It grows common in all the Weſt-India iſlands, where it is called Batchelor's Pear. See Dillen. elth. 363.

[Linneus ſays Virginia and Barbadoes, and remarks that the leaves are equal in length and breadth, and bluntiſh.

According to Loureiro, it is wild in Cochinchina. He deſcribes the ſtem as annual, hard, thick, five feet high, erect, prickly, tomentoſe, branched; the leaves as very large, roundiſh, angular-lobed, often cordate, prickly on both ſides, cinereous-villoſe, ſcattered; the flowers as white, on lateral many-flowered peduncles; the calyx as very hairy but without prickles; the berry as middle-ſized, round, yellow, hiſpid. It cannot well be the ſame with Miller's.

52. Stem ſhrubby, tomentoſe above, prickly: prickles ſtraight, ſmall, needle-like, ſcattered. Leaves blunt, with one or three unequal blunt angles on each ſide, tomentoſe on both ſurfaces, ſoft, whiter beneath: prickles ſcattered on the nerves both above and below, half an inch in length, ſtouter than on the ſtem, ſmooth, ſtraight. Petioles an inch long, prickly. Peduncles above, leafy, ſeveral, aggregate, half an inch long, one-flowered, very hirſute. Segments of the calyx ovate, acute, very hirſute on the outſide; as is

[a] Swartz. [b] Linn. ſpec. [c] Dillenius. [d] Linn. ſpec. [e] Willdenow.

alſo

alſo the corolla, but that is ſmooth within; it is twice as long as the calyx, and three of the ſegments are a little longer than the other two.—Found by von Rohr on the iſland of Trinidad [t].

53. Stem and petioles white-tomentoſe, with few ſtraight naked prickles. Leaves tomentoſe, wide, cordate, deeply angular, ſharpiſh, unarmed, ſmooth above. Panicle terminating, compound, tomentoſe, unarmed, as is alſo the calyx.—Native of Braſil [u].

54. Allied to S. campechienſe, but the leaves are covered with thin ſhining hairs preſſed cloſe, the lobes of the ſegments have more rarely one or two large teeth, the calyxes have the prickles thinly diſperſed, and the corolla is of a different figure.—Native of America [x].

55. This differs from S. ſodomeum in having angular branches, but it is alſo annual. Spines copious, ſnow-white. Fruits ſmall, variegated with green and white [y].]

Annual, ſhrubby, prickly, about three feet high, ſending out a few ſlender branches. Flowers large, blue, with prickly calyxes. Berries almoſt the ſize of black Cherries.

[According to Dillenius, it is a foot and half or two feet in height, with a ſtem as thick as a ſwan's quill, of a duſky red colour, bending down at the joints, and extending its branches ſideways; the leaves are on long prickly petioles, in ſhape they are like thoſe of Acanthus, but ſmaller, bright and deep green, ſmooth and ſomewhat ſhining on both ſides, marked with white veins, and having long white prickles on the nerves, and along the edges on the larger leaves. Flowers ſix or ſeven in a ſort of ſhort ſpike, ſtained with violet. Filaments very ſhort: anthers more ſeparate than in moſt of the ſpecies. Calyxes very prickly. Berries of an oblong ſpheroidal form.

Native of America. Cultivated in 1656 by Tradeſcant, in whoſe garden Ray ſaw it.

56. Sufficiently diſtinct from the preceding, in having ſmooth leaves, not ciliate or prickly at the edge, and the ſtem decumbent not erect. It varies with the ſegments of the leaves ſcarcely ſinuate.—Native of the Eaſt Indies. Annual.

57. This is very like the preceding, but yet is different: the prickles on the ſtem are fewer, the leaves and flowers larger, the ſegments of the leaves more acute, and the leaves and younger branches are covered with ſtellate hairs.—Native of the Cape of Good Hope. Annual [z].

58. Stem tomentoſe, hoary, as is the whole plant: prickles ſcattered, needle-like, yellow, ſmooth, ſtraight. Leaves remote, two inches long, blunt, ſhorter on one ſide of the baſe, having three or four wide rounded quite entire lobes on each ſide; they are veinleſs on the upper ſurface, and for the moſt part unarmed; ſimply veined beneath, with needle-like prickles on the midrib, ſeldom on the veins. Petiole an inch and half long, with prickles ſcattered all over it. Racemes commonly oppoſite to the leaves, almoſt upright, eight-flowered. Peduncle rigid, an inch and half long: pedicels half an inch in length, reflexed, unarmed, as is alſo the peduncle. Calyx tomentoſe, very prickly, permanent: the prickles on it are ſtouter than on the reſt of the plant. Berries globular, the ſize of a hazel nut.—Native of Arabia Felix [a].

59. Stem a fathom in height, branched, prickly: branches flexuoſe, round, tomentoſe, prickly. Leaves in pairs, alternate, on very ſhort petioles, wedged at the baſe, widening towards the upper part, angular (but the angles ſo blunt as to be ſometimes obliterated) ſharp at the top, entire at the edge, ſcarcely repand, nerved, tomentoſe and ſomewhat rugged on both ſides, whiter beneath, and the midrib or rachis there prickly. Prickles ſtout, ſhort, reflexed, pale. Racemes lateral, much ſhorter than the leaves, ſimple, many-flowered: flowers pedicelled, ſubcymed; pedicels length of the raceme, crowded in two rows, filiform, one-flowered, looſe, tomentoſe, prickly. Calyx minute, prickly. Corolla ſmall, pale blue or white; with the ſegments reflexed and tomentoſe without. Berry roundiſh, firſt green veined with black, but wholly black when ripe, ſmooth, having a dot at the top, ſize of a red Currant.

It differs from S. indicum in having the leaves more tomentoſe, and angular without ſinuſes; the pedicels numerous, the flowers ſmall, and eſpecially the prickles ſubrecurved. It very much reſembles S. tomentoſum, but the leaves in that are cordate, and the prickles ſtraight.—Native of Jamaica and Hiſpaniola, in waſte places [b].]

Miller has a ſpecies under this name; but it is doubtful whether it be the ſame. He ſays it riſes with a ſhrubby woolly ſtalk five or ſix feet high, armed with ſhort recurved thorns, and garniſhed with oval woolly leaves ſix inches long and four broad, angularly ſinuate, and having a very few ſhort crooked ſpines upon the midrib on the under ſide. The flowers are in ſmall umbels ſitting cloſe to the ſide of the branches; they are ſmall and yellow, and are ſucceeded by ſmall round berries of a ſaffron colour when ripe.

60. Stem ſhrubby, two or three feet high, ſending out ſeveral woody branches, armed with ſhort, ſtrong, yelloviſh ſpines; leaves an inch and half long, and an inch broad, woolly on both ſides, and angularly indented, armed with ſpines on both ſides along the midrib. The flowers come out in longiſh bunches from the ſide of the ſtalks, they are blue and like thoſe of S. ſodomæum. Berries round, of a gold colour, as large as cherries.

[Height a cubit or a cubit and half. Stem the thickneſs of a finger, with an aſh-coloured bark, and browniſh, ſhorter and fewer ſpines than on the leaves; on which they are more frequent along the midrib and principal veins, eſpecially on the upper ſurface, they are alſo of a pale green colour. The leaves are ſinuate, like the next ſpecies, but more deeply, they are wider alſo and blunter: the younger ones are tomentoſe and ſomewhat hoary, but afterwards become green, only paler underneath, thick, and covered cloſely with hairs which are ſo ſhort and thin that they are detected rather by the touch than the ſight. Flowers five or ſix on a long common peduncle, like thoſe of the next ſpecies, but of a deeper colour, and not ſo frequent on a ſpike of the ſame length; they are bigger than thoſe of Borago, curled towards the edges, of a purpliſh blue colour; calyx hirſute, with narrow reflexed ſegments. Peduncles ſometimes with, and ſometimes without ſpines. Fruit pear-ſhaped; the ſeeds being ſent from Barbadoes under the name of Batchelor's Pear [c].

If ſo, Miller's mammoſum is probably this ſpecies.

Gærtner deſcribes the berry as a little larger than that of Aſparagus, of a colour from orange tending to red: the cuticle papery but hardiſh: the pulp watery. Receptacle oblong, flattiſh, growing every where to the partition. Seeds about twenty, compreſſed, ovate-kidneyform, pale.

Loureiro alſo ſays that the berry is ſmall, roundiſh and ſaffron-coloured. Dillenius therefore is probably miſtaken as to the fruit. Perhaps he was miſled by Robert's figure, which was not drawn for this ſpecies.

Native of the Eaſt and Weſt Indies, and of Cochinchina.

61. Stem in a manner ſhrubby, but yet annual. Leaves rugged, ſcarcely tomentoſe, entire at the baſe, ſinuate with ſharpiſh angles, and ſpines on the midrib, not at the ſides. Racemes longer than the leaves, looſe, ſimple [d]. Berries round, the ſize of a large pea, yellow when ripe [e].

Native of Carolina. This and the preceding were cultivated by James Sherard, M. D. in 1732. They flower in july [f].

62. Stem erect, ſhrubby, villoſe, covered with very numerous awl-ſhaped prickles. The thicker prickles white, the more ſlender brown. Leaves bipinnatifid or double-ſinuate, with the lobes blunt and quite entire, villoſe, armed with prickles on both ſides. Petiole

[t] Vahl. [u] Linn. ſpec. [x] Willdenow. [y] Linn. ſyſt. [z] Willdenow. [a] Vahl.

[b] Swartz. [c] Dillenius. [d] Linn. ſpec. [e] Dillenius. [f] Hort. kew.

villoſe, prickly. Cyme extraſoliaceous, few-flowered. Peduncles very villoſe, prickly. Calyx villoſe, prickly, bell-ſhaped, covering the berry. Corolla yellow. Anthers diſtant. Berry the ſize of a Cherry, villoſe and armed with prickles. It differs from S. Sodomeum, in having villoſe bipinnatifid leaves, yellow corollas, and berries covered by the calyx [z].]

63. This has a ſtrong thick ſhrubby ſtalk, which riſes from two to three feet high, ſending out many ſhort thick branches, cloſely armed with ſhort ſtrong yellow ſpines on every ſide; the leaves are about four inches long and two broad; they are cut almoſt to their midrib in obtuſe ſegments, which are oppoſite, regular, and formed like winged leaves; theſe ſegments have ſeveral obtuſe indentures on their edges; they are of a dark green colour, and armed with the ſame ſort of ſpines as thoſe on the ſtalks, on both ſides. The flowers come out in ſmall bunches on the ſide of the branches, they are blue, and larger than in the *tomentoſum* (n. 70.) appear in june and july, and are ſucceeded by round yellow berries, as large as Walnuts. It grows naturally at the Cape of Good Hope.

[It is remarked in Syſtema Vegetabilium that the leaves are naked on both ſides.—It was cultivated in 1731, by Mr. Miller [a].

64. This plant is rough with abundance of prickles. Native of the Cape of Good Hope, where it was found by Thunberg.

65. Stem ſhrubby, white tomentoſe, with ſlender ſtraight ſcattered prickles. Leaves cordate, repand, green above, with a wide white margin, white-tomentoſe beneath, with ſtraight prickles on both ſides. Flowers racemed, bell-ſhaped, plaited, tomentoſe, white, like thoſe of S. tuberoſum, or the common Potato. Calyxes unarmed; when fruit-bearing prickly. Native of Abyſſinia [b]: of Africa, found by James Bruce, Eſq. and introduced in 1775. It flowers moſt part of the ſummer [b].

66. Trunk arboreous, ſix feet high, the thickneſs of the thumb, round, aſh-coloured, rough to the touch by inviſible tubercles. Prickles very abundant on both ſurfaces of the leaves, petioles, ſtem and branches; on the ſtem moſtly recurved, the reſt ſtraight. Leaves wide and large, with the petiole a foot long, cordate, alternate, lobed, acute, villoſe and ſoft on both ſides; the lobes ſublanceolate and acute; the petioles round, rough and villoſe. Common peduncles ſhort, on the ſtem and branches ſpreading horizontally: many pedicels ſpringing from them circularly. Theſe and the calyxes are ſomewhat villoſe and unarmed. Segments of the calyx very ſmall and roundiſh. Corolla pale purple or whitiſh; ſegments lanceolate, long and ſpreading very much. Germ roundiſh, very hirſute [c].

Jacquin ſays that this plant came up from ſeed ſent from the Eaſt Indies, about the year 1776:—but it is a native of the Weſt Indies; and was introduced here in 1778, by Meſſ. Kennedy and Lee: it flowers from june to ſeptember [m].

67. Native of the Canary iſlands, where it was found by Mr. Francis Maſſon. It was introduced in 1779; and flowers here in march and april [e].

68. Stem tomentoſe, aſh-coloured, with thick ſtraight ſhort yellowiſh prickles, tomentoſe except at the end. Leaves ovate, ſhorter on one ſide of the baſe, tomentoſe, thick, blunt; the young ones pinnately ſinuate, whitiſh at the edge, having three prickles on the rib. Petioles prickly underneath. Peduncles from the ſide of the ſtem: the primary pedicel with the calyx ſpiny, the reſt male and unarmed. Corolla like that of Borage, purpliſh-blue.—Native of Paleſtine [o].

69. This is ſhrubby, two feet high, and branched. Trunk round, the thickneſs of a finger, ſmooth, woody and aſh-coloured at bottom, the reſt green. Branches ſpreading very much, the upper part covered with a meally nap. Leaves ovate, acute, tomentoſe on both ſides, repand-angular or more entire, pale-green, waved, petioled, commonly more produced on one ſide of the baſe, when young having a violet-coloured meal on the edge and at the back. Peduncles tomentoſe, duſky-violet, racemed, a few others umbelled, and very few one-flowered. Calyx tomentoſe. Corolla wrinkled, pale-blue, with a wide border divided to the middle into five, ſix or ten parts. Some flowers, as in many ſpecies of Solanum, are abortive. Fruit roundiſh, depreſſed, ſhining, indiſtinctly unequally or ſcarcely at all grooved, unarmed, pendulous, orange-coloured with a thick coriaceous rind, moſtly without ſeed. Prickles ſmooth, ſtout, ſtraight or recurved on the ſtem and branches, but few; fewer or none on the midrib and principal veins; very rare on the calyxes, racemes and petioles [p].——Native of Guinea.]

70. Stem ſhrubby, two feet high, dividing into ſeveral woody branches, armed with ſharp thorns. Leaves ovate, woolly, having angular indentures on their edges; they are an inch and half long, and more than an inch broad. The flowers are produced in ſmall looſe axillary bunches; they are blue and large, appear in june and july, and are ſucceeded by round berries as large as common Cherries, of a gold colour, but turning black when ripe.

[Stem and whole plant tomentoſe, with very narrow naked prickles. Leaves green on both ſides, cordate, obtuſe, repand, commonly ſpiny along the midrib only: the young ones come out with a violet-coloured meal on the edge compoſed of ſtellate hairs. Berries fulvous, the ſize of a Gooſeberry [q].

β. Trunk two feet high, the thickneſs of the little finger, without hairs, but having a few ſhort prickles on it. Branches ſpreading, round, armed with ſtraight awl-ſhaped browniſh prickles. Leaves wide-ovate, ſubtomentoſe on both ſides, dirty green, blunt, repand, alternate, petioled; the midrib on both ſides and the petiole thinly ſet with prickles. Racemes oppoſite to a leaf, ſhort, almoſt unarmed, tomentoſe, ſimple. Calyx ſmall, tomentoſe, almoſt unarmed, deeply cut into five ovate and very ſpreading ſegments. Corolla deeply five-cleft, ſeveral times longer than the calyx, white or pale purple; ſegments ovate-lanceolate, acute. Berry the ſize of a Pea, red turning to a dirty orange-colour. Seeds pale with ſome yellowneſs [r]. It came to Jacquin from the Paris garden, under the name of S. coccineum. But it differs only in having whitiſh flowers, and a ſmaller fruit of a ſcarlet colour; for the leaves are not at all different. In the common *tomentoſum* there are ſometimes prickles and ſometimes none, and they are either very tomentoſe or have only a thin nap over them [r]. It is a native of the Cape of Good Hope, and was cultivated in 1731, by Mr. Miller [r].

71. Stem ſhrubby; branches round, below ſmooth with an aſh-coloured bark, above tomentoſe and yellow, as are alſo the branchlets. Leaves petioled, two or three inches long, having ſometimes a ſinus or two, but moſtly entire, veined on the upper ſurface, marked with lines along the nerves, rugged with minute ſtellate hairs: beneath nerved, tomentoſe with a yellowiſh nap, acute or obtuſe, ſubcordate at the baſe with a ſmall ſinus, and often ſhorter on one ſide of it. Spines on the branches, petioles, and frequently on the upper ſurface of the leaves, ſcattered, ſtraight, a quarter of an inch long, ſmooth, ſhining, yellow. Racemes lateral, peduncled, few-flowered, with a yellow nap on them, ſometimes bifid. Calyx ſhort. Corollas tomentoſe on the outſide, a little longer than the calyx, with ovate ſegments. There are often only four ſtamens; and ſome of the flowers are male.—Native of the iſland of Santa Cruz. Weſt [s].]

72. This riſes with ſhrubby ſtalks three or four feet high, dividing into ſeveral irregular branches, which have a gray bark, and are armed on every ſide with ſlender erect ſpines of a gray colour. Leaves an inch and half long, and half an inch broad, ſmooth, and a little indented or waved on their edges. Flowers in long bunches from the ſide of the ſtalks, upon long

z Willdenow. a Hort. kew. b Linn. ſuppl.
c Hort. kew. d Jacqu. miſc. e Hort. kew.
m Idem. o Linn. ſpec.
p Jacquin. q Linn. ſpec. r Jacquin. s Willdenow.
t Hort. kew. u Vahl.

peduncles, of a fine blue colour. Berries saffron-coloured, the size of peas.

[Cultivated in the Eltham garden, from seeds sent from the isle of Providence, one of the Bahama's [a]. It is also a native of Jamaica.

73. Shrubby. Branches purple, smooth at bottom, tomentose at top, prickly: prickles reflexed, yellow, smooth few. Leaves two inches long or more, acute at both ends, entire, a little shorter at the base on one side, flat at the edge, quite entire, having a few small stellate hairs on the upper surface, slightly tomentose underneath, having sometimes a small prickle or two, but for the most part unarmed. Petiole an inch long, tomentose, prickly: prickles awl-shaped, straight, fewer. Racemes above leafy, short, nodding, tomentose. Corollas villose on the outside: segments linear. Found by von Rohr in Cayenne [b].

74. This is a tree fifteen feet high, with the trunk as thick as the human arm or thicker, round, upright, ash-coloured, with short stout prickles, which are tomentose and spring from a wide base. Branches the same, but the younger tomentose and hoary. Leaves scattered, unarmed, lanceolate, acute, quite entire, wrinkled, smooth above, tomentose and hoary beneath, half a foot long, on tomentose unarmed petioles an inch in length. Racemes terminating, with the branches lengthened out beyond them, round, all unarmed together with the flowers, tomentose, mostly twice dichotomous, three inches long. Pedicels many, directed one way, pendulous during flowering, but upright and an inch long when in fruit. Calyx small, bell-shaped, tomentose, hoary, five-toothed. Corolla violet-purple, spreading very much: segments oblong, acute, flat. Filaments very short. Berry roundish, shining, the size of a pea, red. Seeds roundish, compressed, whitish, several [c].

Vahl remarks that his *niveum* is allied to Swartz's *S. fubinerme*, but is of a different country, and has very prickly branches, with the leaves snow-white underneath. Native of the Cape of Good Hope.

75. This is a shrub, with round flexuose branches, having two warts at intervals, below unarmed and smooth, above somewhat villose, hoary, with a few small prickles. Leaves in pairs, one from five to seven inches in length, the other smaller by half, sharp at both ends, a little narrower on one side of the base, somewhat rugged on both surfaces with indistinct stellate hairs, somewhat shining and unarmed on the upper, paler on the under surface with prickles along the midrib: prickles mostly near each other in pairs, but sometimes solitary and distant, small, yellow, smooth, recurved. Petioles an inch long, one a little shorter than the other, having a few villose hairs scattered over them, and frequent prickles underneath. Peduncles lateral, filiform, half an inch long, ash-coloured. Pedicels umbelled (probably becoming racemed,) a little longer than the peduncle, unarmed. Calyx also unarmed, mealy and somewhat villose, ash-coloured, with awl-shaped segments. Corolla deeply four-cleft, with linear, somewhat villose segments. Filaments four. Anthers linear, almost the length of the corolla.—It is very nearly allied to S. obscurum, which has also geminate leaves; but differs in having the branches more rigid and flexuose, the leaves larger and more attenuated, the prickles more frequent on the petioles, and four stamens. Nor is it very different from S. lanceæfolium, but it seems to be different in having flexuose branches, more sparingly prickled, and four stamens.

Native of Cayenne, where it was found by von Rohr [d].

76. Stem round, upright, woody, with a dusky cinereous bark, weak at top, ten feet high, branched, green and shining above. Branches the same, weak and hanging down unless supported. Prickles on the stem and branches very numerous, short, recurved, from a wide compressed base awl-shaped, pungent, orange-coloured at the tip. Leaves in pairs, lanceolate, acute at both ends, quite entire, shining on both sides, but a little rugged to the touch on account of some white stellate sessile hairs, visible only with a magnifier: these are found also on the stem and branches. The leaves are dark green and unarmed on the upper surface, paler green on the under and prickly along the midrib only, from four to eight inches in length. Petioles about an inch and half long and prickly. Racemes lateral, sharp, unarmed. Calyx short and green, deeply cut; segments lanceolate-acuminate patulous. Petals white and deeply cut into lanceolate acute segments [e].

Native of South America.—Willdenow suggests that it is perhaps a variety of the preceding.

77. Stem branched, covered with scattered prickles. Leaves three inches long, brown above, tomentose and unarmed beneath. Flowers blue, large. Peduncles and calyxes unarmed.—Native of Mexico.

78. Stem and petioles tomentose; midrib of the leaves beset all over with very short capillaceous prickles. Leaves very like those of Eleagnus angustifolius.—Native of South America [f].

79. Stem shrubby, round, the thickness of a pigeon's quill, villose-subtomentose with yellow stellate hairs; branches and midrib of the leaves on both sides, having abundance of smooth, straight prickles, a quarter of an inch in length, yellow with a brown tip. Leaves an inch and half long, narrow, equal at the base, subrepand or entire, having small stellate villose hairs on both sides, somewhat rugged, green. Peduncles solitary, very short. Calyx stellate-villose, unarmed. Segments of the corolla linear, villose on the outside. Stamens a little shorter than the petals. Berries globular, smooth, shining, the size of a Coriander seed [g].—Native of the island of Dominica.

80. This resembles S. Bahamense very much, but the flowers are white, not violet; the leaves are acuminate, not bluntish; the spines are stouter, more abundant, and of a fiery red colour [h].]

Stem three feet high, dividing at the top into several branches, which are closely armed with straight gold-coloured spines on every side. Leaves from two to three inches long, and three quarters of an inch broad, having a few angular indentures, and their midrib armed with a row of the like spines as those upon the stalks, and standing erect. Flowers in long bunches from the side of the stalks, white and succeeded by red berries almost as large as the small black Cherry.

[Native of South America. Cultivated in 1714, by the Dutchess of Beaufort. It flowers from march to november [i].

β. This is a small shrub. Stem round, scarcely the thickness of a pigeon's quill, smooth. Branches alternate, spreading, rod-like, stellate-villose at top. Prickles scattered over the stem, branches, and midrib of the leaves on both sides, near half an inch in length, a little wider at the base, round, rigid, purple, shining. Leaves on short petioles, an inch or an inch and half long, quite entire, at the base a little revolute and narrower, bluntish, appearing to have villose stellate hairs on both sides when examined by a magnifier, rugged, veinless: above green, when full grown almost naked, marked with lines along the nerves, which stand out underneath, and there the leaves are paler, the hairs being closer; the tender leaves are subtomentose. Racemes lateral and terminating, simple. Peduncle filiform, loose, two inches long or a little more. Pedicels remote, scarcely an inch long, thickened upwards; when bearing fruit reflexed. Segments of the corolla narrow, villose on the outside. Berries smooth, even, shining, the size of a Coriander seed.—It is very nearly allied to S. igneum, and differs from it chiefly in the stem and branches being more tender; the leaves several times smaller and less attenuated; and the prickles twice or thrice as long.—Sent from the island of Santa Cruz by West [k].

81. Distinct from the next species by its pinnatifid leaves, much smaller white flowers, and other marks. It seems to be allied to S. capense, and yet to be different [l].

[a] Dill. elth. [b] Jacqu. collect. [c] Vahl. [d] Vahl. ecl. [e] Willdenow. [f] Linn. spec. [g] Hort. kew. [h] Vahl. ecl. [i] Willdenow.

This, which is the *trilobatum* of Linneus's ſpecies, is named by Jacquin *Solanum* Milleri, being ſuppoſed to be his *S. Scbia-Sebuna* (n. 32.) Miller deſcribes it thus.] It is an annual plant, riſing with a prickly ſtalk near two feet high, ſending out a few branches without order. Leaves oblong, indented like winged leaves. Flowers in long bunches from the ſide of the ſtalks; they are ſmall, white, and ſucceeded by red berries the ſize of ſmall Cherries, which ripen in the autumn. He ſays it grows naturally on the coaſt of Malabar: [but according to others it is a native of the Cape of Good Hope, and perennial.

82. Stem ſuffrutеſcent, high, narrow. Leaves ſmall, ſmooth, obtuſe, three or five-lobed, and ſometimes but ſeldom lobed at the baſe. The ſtem, petioles, leaves and peduncles have reflexed prickles. Peduncles one-flowered. Calyxes very ſmall, ſometimes with prickles and ſometimes without. Style aſcending. Flowers large, violet-coloured. Berries ſmall, like thoſe of Elder [h].

Linneus ſuſpected that this and the preceding were two different ſpecies, though he did not ſeparate them; but the leaves are never pinnatifid, the flowers are in racemes, four times as large and more, and of a violet colour [i]. Willdenow having ſeen only the Eaſt-Indian plant, which is very well figured by Burmann, does not undertake to determine whether the Jamaica plant be the ſame. If it be, this ſpecies is native both of the Eaſt and Weſt Indies.

83. This is a ſhrub with the appearance of Lycium. Stem unarmed, but all the branches end in a ſpine. Leaves ſmall, lanceolate-ovate or broad-lanceolate, leſs acute, even on both ſides, petioled. Corollas wheel-ſhaped, ſlightly five-cleft. The calyx has five acuminate teeth. Anthers ſhorter than the corolla, yellow, erect, gaping at the top. Stigma aſcending. Flowers lateral, ſolitary. Suppoſed to be a native of Peru [k].

84. Stem three feet high, with diffuſed branches. Leaves ſharpiſh, quite entire, villoſe on both ſides alternate. Flowers white, lateral; peduncles in pairs with one flower on each. Calyx ten-cleft, with awl-ſhaped ſegments. Berry ſmall, roundiſh, red.—Native of China and Cochinchina.

85. Branches long and twiſted. Leaves ſcattered, petioled. Flowers lateral, white. Berries middle-ſized, globular, green ſpotted with white, eſculent. The root is accounted good in the tooth-ach.—Native of Amboyna and Cochinchina.

86. Stem hairy, diffuſed, branched. Leaves alternate, quite entire, tomentoſe, petioled. Flowers lateral, on dichotomous peduncles. Berries ſmall, globular, red.—Native of China, about Canton.

87. Stem long, cloſely ſet with prickles, branched. Leaves ovate, five-lobed, villoſe on both ſides, with ſhort, curved, very ſharp prickles ſcattered over them. Flowers pale violet, ſmall, peduncled. Calyx four-cleft. Corolla wheel-ſhaped, four-parted. Berry very ſmall, round, deep red, ſhining, many-ſeeded.—Native of Cochinchina [l].]

88. Stems ſhrubby, trailing, two feet long, armed with long yellow ſpines, and covered with a gray bark. Leaves near four inches long, and almoſt two broad, very finely cut in form of winged leaves almoſt to their midrib; they are woolly, and armed along the veins with long ſlender yellowiſh ſpines on both ſides. Peduncles axillary, two or three inches long, each for the moſt part ſuſtaining two large yellow flowers, in very prickly calyxes; ſucceeded by ſmall round berries, the ſize of gray peas, and marbled green and white.—Diſcovered by Houſtoun at La Vera Cruz in New Spain.

89. Stem ſhrubby, five or ſix feet high, armed with ſhort recurved ſpines, and covered with a ſmooth browniſh bark. Leaves oblong, ſix inches in length, and two and a half in breadth, regularly ſinuated on both edges in form of winged leaves; theſe riſe by two or three from the ſame point, and ſtand erect; they are armed with a few ſhort ſpines along the midrib on both ſides. The flowers come out in ſmall looſe bunches from the ſide of the branches, to which they ſit cloſe; they are ſmall and white; the berries are about the ſize of thoſe of Juniper, and when ripe are red. This alſo was found by Houſtoun at La Vera Cruz.

90. Stalk ſhrubby, climbing, ten or twelve feet high, covered with a ſmooth brown bark, and dividing into ſeveral branches. Leaves ovate, woolly on their under ſide, but of a dark green on their upper; they are two inches long, and an inch and half broad. The flowers come out ſingly from the axils; they are large, of a fine blue colour, not divided into ſegments, but have five angles, each ending in a point. Berries round, about the ſize of gray peas, and red when ripe. Diſcovered by Houſtoun at La Vera Cruz.

91. Stalk ſhrubby, four feet high, having a white downy bark, and armed on every ſide with ſtraight brown ſpines. Leaves three inches aſunder, ovate with ſinuate indentures, two inches long, and an inch and quarter broad, woolly on their under ſide, on prickly foot-ſtalks; midrib armed with two or three ſmall ſpines, ſometimes on both ſides; all erect. Flowers in a ſeſſile umbel at the end of the branches; large, of a fine blue colour, in woolly calyxes. Berries round, the ſize of large peas, round when ripe. Diſcovered by Houſtoun at La Vera Cruz.

92. Stalk woody, ten or twelve feet high, ſending out many branches, which have a light gray bark, and are ſmooth. Leaves five inches long, and an inch and half broad in the middle, drawing to a point at both ends; of a deep green colour on their upper ſide, but hoary on their under. The flowers are produced in large umbels at the end of the branches; they are ſmall, ſtar-pointed, and white; their anthers, which fill up the mouth of the tube, are purple. Berries the ſize of middling peas, yellow when ripe. Diſcovered by Houſtoun at Campeachy.

93. Stalk ſhrubby, covered with a light-brown bark, and dividing into ſeveral irregular woody branches. Leaves ovate, four inches long, two and a half broad, ſmooth, dark-green on their upper ſide, but woolly on their under. Flowers in large erect umbels at the end of the branches; pretty large, and white. Berries round, the ſize of ſmall Cherries, ſitting in the blunt woolly calyx, and turning yellow when ripe.—Diſcovered at Carthagena in New Spain by Houſtoun.

PROPAGATION AND CULTURE.

2, 29, 55, 61, 63, 70, 81, and the ſpecies from the Cape of Good Hope, require an open airy glaſs-caſe or warm greenhouſe in winter, but in ſummer may be placed abroad in a ſheltered ſituation.

2 and 29, may be increaſed by cuttings planted in a ſhady border, during any of the ſummer months; when rooted, take them up, plant them in pots, and place the pots in the ſhade, till they have taken new root.

55, 61, 63, 70, 81. Sow the ſeeds on a hotbed, managing them as directed for the more tender ſorts; with this difference, that they may be much ſooner expoſed to the air, and ſhould not be brought up ſo tenderly. They are preſerved for their odd appearance; and their fruits being ripe in winter, afford a variety then in the greenhouſe; and their leaves and flowers being remarkable in their colour, ſhape, &c. they deſerve a place in every good collection of plants.

6. Sow the ſeeds in a pot of rich earth in the ſpring, place it in a moderate hotbed, and water the earth frequently. When the plants are come up, plant them in another moderate hot-bed, covered with rich earth about ſix inches thick, at ſix inches diſtance every way; arch the bed over with hoops, cover it occaſionally with mats, to ſhade the young plants from ſun and cold, and water them frequently.

When the plants have acquired ſtrength, and the ſeaſon becomes favourable, inure them by degrees to the open air, and expoſe them fully to it in june, when they ſhould be taken up, with a ball of earth to the root of each plant, and placed ſeparately in pots filled with rich earth in a ſhady ſituation, and frequently watered until they have taken new root; after which

remove

[h] Linn. ſpec. [i] Willdenow, Loureiro. [k] Linn. mant.

remove them to a more open expoſure among other exotic plants, giving them plenty of water in dry weather.

In the winter remove them into the greenhouſe, placing them in the coldeſt part where they may have as much free air as poſſible in mild weather, for they require only to be ſheltered from ſevere froſt, and are ſo hardy as many times to endure the cold of our ordinary winters abroad.

Shift the plants annually about the end of April, paring the roots round, cutting off all the mouldy fibres next the pot, and filling up the pots with freſh rich earth, to ſtrengthen the flowers, and cauſe plenty of fruit, which being of the ſhape and ſize of Cherries, are commonly called Winter Cherries by the gardeners.

15. The varieties of the Woody Nightſhade may be eaſily propagated by laying down the branches, or by planting cuttings in the ſpring upon a moiſt ſoil, where they will ſoon take root, and may afterwards be tranſplanted where they are to remain.

The African variety, which is probably a diſtinct ſpecies, muſt be preſerved in the greenhouſe in winter, and treated like n. 6.

31. The POTATO,

Is generally propagated by its roots, which multiply greatly if planted in a proper ſoil. The common way is, either to plant the ſmall roots or offsets entire, or to cut the larger roots into pieces, preſerving a bud or eye to each; but neither of theſe methods is what I would recommend, for when the ſmaller offsets are planted, they generally produce a greater number of roots, but theſe are always ſmall; and the cuttings of the larger roots are apt to rot, eſpecially if wet weather happens ſoon after they are planted; therefore what I would recommend is, to make choice of the faireſt roots for this purpoſe, and to allow them a larger ſpace of ground, both between the rows, as alſo in the rows, plant from plant; by which method I have obſerved, the roots have been in general large the following autumn.

The ſoil in which this plant thrives beſt, is a light ſandy loam, not too dry or over moiſt; this ground ſhould be well ploughed two or three times, in order to break and divide the parts; and the deeper it is plough'd, the better the roots will thrive. In the ſpring, juſt before the laſt ploughing, there ſhould be a good quantity of rotten dung ſpread on the ground, which ſhould be ploughed into the ground the beginning of march, if the ſeaſon proves mild, otherwiſe it had better be deferred till the middle or latter end of that month; for if it ſhould prove hard froſt after the roots are planted, they may be greatly injured, if not deſtroyed thereby: but the ſooner they are planted in the ſpring, after the danger of froſt is over, the better it will be, eſpecially in dry land. In the laſt ploughing, the ground ſhould be laid even, and then the furrows ſhould be drawn at three feet diſtance from each other, about ſeven or eight inches deep. In the bottom of this furrow the roots ſhould be laid at about one foot and a half aſunder; then the furrow ſhould be filled with the earth which came out, and the ſame continued through the whole field or parcel of land, intended to be planted.

After all is finiſhed, the land may remain in the ſame ſtate till near the time when the ſhoots are expected to appear above ground, when the ground ſhould be well harrowed over both ways, which will break the clods, and make the ſurface very ſmooth; and by doing of it ſo late, it will deſtroy the young weeds, which, by this time, will begin to make their appearance; and this will ſave the expenſe of the firſt hoeing, and will alſo ſtir the upper ſurface of the ground, which, if much wet has fallen after the planting, is often bound into a hard cruſt, and will retard the appearance of the ſhoots.

As I have allotted the rows of Potatoes at three feet diſtance, it was in order to introduce the hoe-plough between them, which will greatly improve theſe roots; for by twice ſtirring and breaking the ground between theſe plants, it will not only deſtroy the weeds, but alſo looſen the ground, whereby every ſhower of rain will penetrate to the roots, and greatly improve their growth; but theſe operations ſhould be performed early in the ſeaſon, before the ſtems or branches of the plants begin to fall and trail upon the ground, becauſe after that, it will be impoſſible to do it without injuring the ſhoots.

If theſe ploughings are carefully performed between the rows, and the ground between the plants in the rows hand-hoed, it will prevent the growth of weeds, till the haulm of the plants cover the ground; ſo that afterward there will be little danger of weeds growing ſo as to injure the crop; but as the plough can only go between the rows, it will be neceſſary to make uſe of a hoe to ſtir the ground, and deſtroy the weeds in the rows; and if this is carefully performed in dry weather, after the two ploughings, it will be ſufficient to keep the ground clean until the Potatoes are fit to take up.

In places where dung is ſcarce, many perſons ſcatter it only in the furrows, where the roots are planted; but this is a very poor method, becauſe when the Potatoes begin to puſh out their roots, they are ſoon extended beyond the width of theſe furrows, and the new roots are commonly formed at a diſtance from the old, ſo will be out of the reach of this dung, and conſequently will receive little benefit from it. And as moſt of the farmers cover to have a crop of Wheat after the Potatoes are taken off the ground, ſo the land will not be ſo thoroughly dreſſed in every part, nor ſo proper for this crop, as when the dung is equally ſpread, and ploughed in all over the land, nor will the crop of Potatoes be ſo good. I have always obſerved, where this method of planting the Potatoes has been practiſed, the land has produced a fine crop of Wheat afterward, and there has ſcarce one ſhoot of the Potatoe appeared among the Wheat the following ſeaſon, which I attribute to the farmers planting only the largeſt roots; for when they have forked them out of the ground the following autumn, there have been ſix, eight, or ten large roots produced from each, and often many more, and ſcarce any very ſmall roots among them; whereas, in ſuch places where the ſmall roots have been planted, there has been a vaſt number of very ſmall roots produced; many of which were ſo ſmall as not to be diſcovered when the roots were taken up, ſo have grown the following ſeaſon, and have greatly injured whatever crop was on the ground.

The haulm of theſe Potatoes is generally killed by the firſt froſt in the autumn, when the roots ſhould be taken up ſoon after, and may be laid up in ſand in any ſheltered place, where they may be kept dry, and ſecure from froſt. Indeed the people who cultivate theſe roots near London, do not wait for the decaying of the haulm, but begin to take up part of them as ſoon as their roots are grown to a proper ſize for the market, and ſo keep taking up from time to time, as they have vent for them. There are others likewiſe, who do not take them up ſo ſoon as the haulm decays, but let them remain much longer in the ground; in which there is no hurt done, provided they are taken up before hard froſt ſets in, which would deſtroy them, unleſs where the ground is wanted for other crops; in which caſe, the ſooner they are taken up the better, after the haulm is decayed. When theſe roots are laid up, they ſhould have a good quantity of ſand or dry earth laid between them, to prevent their heating; nor ſhould they be laid in too large heaps, for the ſame reaſon.

The kitchen-gardeners and farmers who live in the neighbourhood of Manchester, cultivate great quantities of this root, as the inhabitants of that populous town conſume abundance of them, and are much fonder of them than of any other eſculent plants; which has occaſioned an emulation among the cultivators, of endeavouring to outvie each other, in getting the roots of a proper ſize for the table early in the ſeaſon: in order to obtain this, they have made choice of thoſe roots which produced the firſt flowers, and have left them to ripen their ſeeds, which they have ſowed with great care; and the plants ſo raiſed, have generally been forwarder than the other; and by frequently re-

preating of this, they have ſo much improved the forwarding of the roots, as to have them fit for uſe in two months after planting; ſo that great improvements may be made by this practice, of many eſculent plants, by perſons who are curious and careful in trying the experiments.

[SOIL.

That a dry ſoil is much to be preferred for Potatoes, ſeems well aſcertained. Where ground is not naturally ſo, attention ſhould be had by all poſſible means to lay it dry. In wet ſpots this root is always watery, inferior both in quantity and quality. It is certainly improper for very ſtrong land, and will not grow to any purpoſe on a deep blue clay. In a heavy moiſt ſoil, the Black Potato, if any, ought to be planted: and the Howard has been found to proſper on a wet hungry gravel. Loams are preferable for this crop, but there is a difference of opinion upon the quality of this ſoil beſt adapted to it. Some recommend a rich loam; whilſt others ſay that very rich loams may indeed produce great crops and large roots, but that they are always inferior in flavour and mealineſs to thoſe which are raiſed on lighter ſoils. The ſoil about Ilford in Eſſex however, on which the beſt crops are grown, is a ſtrongiſh loam, not quite approaching to clay.

The ſoil which I (ſays Dr. Hunter) would prefer above all others, for this plant, is the ſame which Columella recommends for vines. Neither too ſtiff and untractable, nor too light and crumbling, yet rather of the crumbling kind; neither too poor nor too rich, yet inclining to richneſs; neither too flat nor too hilly, but rather gently riſing; neither quite dry, nor yet ſurcharged with moiſture. With ſuch a ſoil, and proper management, a noble return may be expected; and the nearer any ſoil approaches to this, the more ſuitable it will be to the cultivation of the Potato. But even from ſoils, not bleſſed with all theſe deſirable qualities, very beneficial crops may be obtained, if a little more labour and pains are beſtowed upon the neceſſary operations [m].

It is pretty generally known that an old graſs ley, lay or layer is an excellent preparation for Potatoes, without dung. In Ireland it is a very general method of breaking up old graſs land, to let it at very high rents to the labouring people to plant Potatoes on. They either plough or dig it; the produce is largeſt with the latter operation; but whether ſo much larger as to balance the difference of expenſe may be doubted. If there be no dung, the land muſt be good or the lay old. After all, many do not eſteem this ſo good a way as on ſtubble. In Lancaſhire, a ſward or freſh lay is reckoned moſt deſirable. Old lay near Frodſham in Cheſhire is let to labourers at the rate of 16l. an acre, and no manure allowed. At Knutsford in that county, old graſs dug produced five hundred buſhels an acre.

Many parts of Waſte lands, Commons and Heaths may be broke up with advantage for this purpoſe, either by ploughing directly, or by paring and burning.

Moſſes, Bogs and Moor-lands are well adapted to the culture of Potatoes, when properly drained; their parts being eaſily ſeparable, and the roots finding plenty of room to extend, and ſwell to their full ſize. In Ireland very conſiderable improvements have been made in this way, and it has been found that no ſoil produces a larger quantity of Potatoes than black moſs, or peat mixed with earth, that very great crops are gained from bogs well drained, that they eſcape the froſt, when they are killed in the highlands, and that theſe lands make excellent meadows. In Scotland alſo and the north of England, the Potato culture for improving moſſy ſoil is generally acknowledged to be of great advantage, and to be the beſt means of bringing ſuch waſte lands into culture. The crops in many inſtances have been ſaid to be even larger and more productive than in lower and more cultivated diſtricts [n].

On Woodlands grubbed, no other crop ſeems better adapted than Potatoes, to bring the land into order, for culture of any ſort [o]: the ſoil being ſufficiently broken by the planting and taking up, and rendered perfectly clean by repeated hoeings.

In young Plantations of trees, the intervals cannot be put to a better uſe than to plant them with Potatoes, the ſeaſon after the young trees are put into the ground. In Shropſhire, Lord Clive allows the neighbouring cottagers to plant them; and if it be new ground, no manure is put in for the firſt two years. The culture is of great uſe to the young trees, but the Potatoes are not continued above three years. Mr. Coke alſo, of Holkham in Norfolk, permits the labourers to plant Potatoes in his young plantations, and finds the cultivation beneficial to his trees. In all caſes where the benefit to the planter and to the poor ſeems to be ſo reciprocal, as in this practice, it is much to be wiſhed that the ſame ſyſtem may be adopted [p].

Almoſt every farmer may procure this advantage for himſelf or his labourers, by planting or permitting to be planted Potatoes, in the corners of arable incloſures, where the plough cannot reach, on balks, headlands and other vacant patches of ground; which, when freſh, will bring a tolerable crop, without manure; the land, after the Potatoes are off, is ready for any other crop; and the labourers can plant and clean them in the mornings and evenings.—Or the farmer may make the crop the joint property of himſelf and his workmen; he finding land, manure and ſets, and they the labour: the produce to be equally divided [q].

MANURING.

The richer the land, the more abundant will be the crop, provided the ſoil be proper for it. Good freſh land may do without manure, but let not the farmer truſt too much to the ſtrength of his ſoil, to the excluſion of manure. Dung is the moſt uſed for Potatoes, and is in general the beſt manure they can have. Horſe-dung well rotted is by many reputed the beſt; next to that hog-dung; and after that night-ſoil and other ſorts of animal dung. In Eſſex from fifteen to twenty loads of rotten dung, are laid upon an acre, juſt before planting. Some good judges direct not leſs than twenty loads, of thirty buſhels each, well rotted [r]. In Cheſhire they lay from twenty to forty tons upon a ſtatute acre. In Weſtmoreland, one hundred loads on a cuſtomary acre of 6760 ſquare yards [s]. Mr. Dann prefers long dung, twenty-two loads to the acre [t]. In Lancaſhire long dung from the yard is uſed; but dung from great towns is ſuppoſed to produce moſt effect [u].

Limeſtone gravel is the general manure in many parts of Ireland. From three to four hundred one-horſe cart-loads are laid on an acre. They ſpread it on the fallow, after the firſt ploughing. The expenſe is about 1l. 11s. 6d. and it will laſt from fifteen to twenty years [x].

Lime is ſometimes uſed, but in general it is condemned as a manure for Potatoes. It has had however a good effect, mixed with peaty earth, at a much cheaper rate than dung [y]. In Dumfrieſſhire liming is reputed eſſential to prevent the rot, from which they had ſuffered greatly before they adopted this practice, but never ſince [z]. And freſh lime ſown over the ſurface two days after planting is a preſervative from the grub [a]. Lime, marl, ſoaper's aſhes and rags are affirmed by ſome to do little good, and in ſome inſtances to do harm, by making the roots ſcabby [b]. If lime be applied to the Potato crop, it ought to be laid on the ſurface, and wrought there by the hoeing, or laid on the land with the preceding crop; becauſe if it be much about the roots, although it may not hurt the flavour, it generally frets the ſkin [c].

On many parts of the coaſt and in the Iſle of Man they uſe Sea-weed or Sea-ware, (called in the Weſt Ore-weed,) and ſea-ſand, with or without dung. In

[m] Eſſays, 2. p. 302.
[n] Young's Iriſh tour. Agric. Reports, and Report of the Committee of the Board of Agriculture, p. 7.
[o] Young's ann. 10. 324. [p] Report Committee, p. 10.
[q] Marſhall's Midl. Counties, 92 & 133. [r] Bath 6. 346.
[s] Reports. [t] Tranſ. arts. 10. 77. [u] Lancaſhire report.
[x] Young's tour, paſſim. [y] Tranſ. Arts. 19. 183. [z] Reports.
[a] Young's ann. 1. 398. [b] Somerſ. report and Bath papers.
[c] Perth report. 175.

ſome parts of Scotland they affirm, that with this manuring, the roots are inclined to be tough and watery.

Coal-aſhes and the ſweepings of ſtreets may be uſeful in heavy ſoils. Some perſons are ſaid to have had good crops by uſing ſaw-duſt, fern or leaves of trees, and furze, or green broom chopped ſmall, for manure. The refuſe of peat-ſtacks, peat-aſhes and wood-aſhes, ſoot and bones are affirmed to be excellent; alſo the rubbiſh of mud-walls or cob. Gypſum or plaſter or alabaſter, was uſed by Mr. Weſton of Leiceſter.

Green crops, of Vetches, Clover, &c. covered in by planting, form a good manure for Potatoes.

In the courſe of Mr. Young's experiments on manure for Potatoes, it appeared that Urine yielded the moſt abundant crop. Upon which he remarks, that dunghills ought to be managed in ſuch a manner as to ſave, if poſſible, every drop of it [r].

When dung is uſed as a manure for Potatoes, the mode of application is different. Some lay it only in the places where the ſets are put, others all along the furrows, others again ſpread it equally over the land: ſome place the ſets over the dung, and others under it. The former is the better mode; and where plenty of dung can be procured or afforded, it is far preferable to ſpread it equally, for the ſake of the enſuing crop.

Tillage.

1. *On Lazy Beds.*

In this method of tillage, the land is laid out in beds with the ſpade, five, ſix, eight or ten feet wide, having trenches between them from two to three feet and a half and even four feet in width, ſometimes eighteen or twenty inches in depth. When theſe trenches are marked off with a line and ſpade, the dung is laid on the bed, and then the ſets in rows acroſs the bed, at ſuch diſtances as to allow room for a hoe. The firſt ſpit from the trench is laid on the Potatoes, with the graſſy ſide downwards, if the land be new; a ſecond ſpit of mould is taken and ſpread over to fill up the openings. When the young ſhoots appear, another ſprinkling of earth is given from the trenches; and the hoe ſucceeds when it is neceſſary [s].

This practice, which is general in Ireland, eſpecially among the cottars, may be adopted with propriety upon bogs, moſſes and moors partially or wholly drained, and upon ſuch rough ſoils as are difficult to plough. A good method with ſuch lands, is to pare and burn the ſurface, and to add lime to the aſhes. Strike the land into ſtraight beds ſix feet wide, with intervals of two feet, or two feet and a half. Lay the ſets twelve inches ſquare on the beds, and cover them two or three inches deep with ſpades from the intervals; when the plants appear, cover them again in the ſame manner, one and a half or two inches more. Keep them clean by one hand-hoeing and ſucceſſive weeding. They may be taken up with the plough by ſplitting the beds, and filling the former intervals; converting the open furrows left in the middle of the former beds into drains, deep enough to leave the land dry in winter.

Near Dublin, they make the beds ſeven feet broad; the trenches three feet and a half wide, and from eighteen to twenty inches deep, to bring up ſome limeſtone gravel; they always lay on 320 one-horſe loads of dung, ſix to a ton [t].

In ſome parts of Scotland and the Weſtern Iſlands this method has been adopted. Alſo in the Iſle of Man, on coarſe ſoils: the beds from ſix to ten feet wide; the trenches from two to three feet; the manure ſpread on the ſurface of the beds; the cuttings placed at ten inches aſunder, on the dung, and covered with the earth out of the trenches; when the plants appear, they give a ſecond covering of finer mould; the two together four inches deep: after this they hoe and weed [u].

In England, the lazy-bed method has not been received, except in a few diſtricts. It is practiſed however in Cheſhire: they plough the land before Chriſtmas; in april they plough it acroſs and harrow it, then plough it deeply into beds five feet wide: at the end of april or the beginning of may, the ſets are dibbled in eight or ten inches aſunder. In three weeks, or as ſoon as the buds appear, trenches are dug between the beds, and the plants covered with two inches of ſoil, ſpread equally: they are then hoed and weeded; and the crop is dug out [x]. By this method the Frodſham plants are allowed to produce the greateſt quantity in the kingdom [y]. Mr. Billingſley, on comparative experience, prefers this method to drilling. He makes his beds five feet wide, the alleys or intervals three feet, the ſets are placed a foot apart, covered not more than three inches with earth [z]. Mr. Parkinſon, of Doncaſter, produced from lazy-beds 2904 pecks, and by common digging only 1210: ſuperiority of the former 1694 pecks [a]. Mr. Macro on the contrary, an experienced farmer in Suffolk, found that ſets planted in the Iriſh faſhion yielded the leaſt, though planted the thickeſt of any. In ſubſequent experiments therefore he dropped this method, finding it to be far the moſt expenſive, and to leave the land very uneven [b]: nor will it ever probably be generally adopted in England [c].

Dr. Hunter has given ſome experiments recommending one, two, three or more ſets to be planted in ſmall hillocks, after the manner of Hops, at four feet ſquare. On the 14th of april he cut a large white Potato into ſeventeen ſets, which were planted in as many hillocks. The plants were earthed up, and on the 14th of october the crop was taken up. The produce was ten pecks of ſizeable Potatoes. Three or four ſets were put into other hillocks, but did not produce a greater crop than the others [d].

2. *By Drilling.*

The method of drilling by the plough in large concerns, and by the hoe in ſmall ones, appears to be much the cheapeſt, and in general is the beſt. It is uſually practiſed in England by thoſe who plant Potatoes on a great ſcale.

Soils liable to be wet during the winter ſhould be ploughed in autumn, ſo as to lie dry. In the ſpring plough and harrow flat. In march, april or may, according to the ſeaſon, and the nature of the land, draw furrows three feet aſunder, lay dung in them, not leſs than twenty tons to the acre; on this drop the ſets nine inches aſunder. If the land be ſtiff, cover the dung and ſets by drawing the earth over them with hand-hoes, adding more afterwards with the plough; if it be light and friable, they may be covered with the plough. Keep the intervals clean by ploughing or horſe-hoeing, for ſix or eight weeks after the Potatoes appear, afterwards by hand-hoeing: hand-hoe the rows when young, and afterwards weed them. Take up the crop by opening the rows with a plough, harrowing and picking more than once. In gardens and ſmall concerns, it may be taken up with the ſpade or the three-pronged fork.

Lands prepared and dunged for Wheat that could not be ſown, or where the plant has been deſtroyed or too much damaged to ſtand, are ready without farther manuring to receive Potatoes in this mode of culture: for which the above general directions may ſuffice.

It may be however a ſatisfaction to ſome perſons to be acquainted with the particular practice of eminent agriculturiſts, which they may adapt to their own peculiar circumſtances. Several of them therefore are here inſerted.

Mr. Young's directions in his Iriſh tour are as follow. Suppoſe the land to be a ſtubble. Spread the dung or compoſt equally over the whole, in quantity not leſs than ſixty cubical yards to a plantation acre. If the land be quite dry lay it flat, if inclinable to wetneſs arch it gently; in this firſt ploughing, which ſhould be given at the end of february or the beginning of march, the Potatoes are to be planted. Women are

[r] Annals, 9. 654.
[s] Young's Iriſh tour, 1. p. 7.
[t] Perth report, 172.
[u] Reports.
[x] Cheſter report, 20.
[y] Young's ann. 21. p. 5, 6.
[z] Lancaſter report, 28.
[a] Bath papers, vol. 6.
[b] Report Comm. Agr. p. 24.
[c] Young's ann. 7. 505, 506.
[d] See Hunter's Eſſays, p. 304.
[e] Idem, p. 337: ſee Bath papers, 3. 373.

to lay the ſets in every other furrow, at the diſtance of twelve inches cloſe to the unploughed land, that the horſes may tread the leſs on them. There ſhould be women enough to plant one furrow whilſt the ploughman is turning another; the furrows ſhould not be more than five inches deep, nor broader than nine inches, becauſe when the Potatoes come up they ſhould be in rows eighteen inches aſunder. The furrows ſhould alſo be ſtraight, that the rows may be ſo for horſe-hoeing. Having finiſhed the field, harrow it well to lay the ſurface ſmooth and break all the clods, and if the weather be quite dry any time in a fortnight after planting, run a light roller over it followed by a light harrow. About a fortnight before the Potatoes appear, go over the whole ſurface of the field with a ſhim, the cutting edge of which is two feet long, going not more than two inches deep; this looſens the ſurface mould, and cuts off the young weeds that may be juſt coming up. When the Potatoes are three inches high, horſe-hoe them with a ſhim that cuts twelve inches wide, and goes three inches deep, and immediately after hand-hoe the rows, cutting the ſurface well between plant and plant, and alſo the ſpace miſſed by the ſhim. Repeat both theſe operations when the plants are ſix or ſeven inches high; and in about three weeks after give a hand hoeing, directing the men gently to earth up the plants, but not to lay the mould higher to their ſtems than three inches. After this nothing more remains to be done than ſending women in to draw out any weeds that may appear by hand *.

Theſe directions ſuppoſe the ſoil to be light and dry: Potatoes never anſwering, in Mr. Young's opinion, on clays or ſtrong wet ſoils. Wheat is intended to follow the Potatoes; then Turneps; next Barley; then Clover, and laſtly Wheat again, to be followed by Potatoes.

The following is the mode adopted by Thomas King, Eſq. of Kingſton in the county of Wicklow, for ſeveral years, in the culture of Potatoes.

The land for drill Potatoes ſhould be dry, and cleared of all impediments to the plough. The beſt preparatory crop, if the land be in graſs, is that of lay-oats. In ploughing the ground, lay the ſod all one way, with a turn-wreſt plough, rather deeper than the ſtaple ſoil, and harrow in the Oats immediately. As ſoon after theſe are off as convenient, plough the ſtubble well and deeply; if with the Kentiſh turn-wreſt plough, ſo much the better. Early in the enſuing ſpring, harrow well in dry weather, and then croſs-plough: previous to planting, harrow well again, and lay the ground as flat as poſſible.

If the land inclines one way much more than another, run the drills up and down hill, that they may be effectually moulded on both ſides by the hoe-plough; but if the ground be flat, or not much inclining, run the drills north and ſouth. The drills ſhould be three feet aſunder. Having determined that ſide of the field where it is intended to begin, meaſure nine yards from the line of the firſt intended drill, and on the ninth yard let a row of car-loads of dung be laid from one end to the other, allowing a ſufficient headland at each end for the plough and horſes to turn upon: which headlands, after the horſe-hoeing is finiſhed, may be ſown with Turneps, or any other crop ſuitable to the ſeaſon. When the firſt load of dung is laid down, let the next horſe be drawn up, until his head reaches the former load, and in like manner to the end of the row: ſuch a row is a good dreſſing for the Potatoes, and a ſucceeding crop of Wheat. It is ſuppoſed that two Iriſh car-loads contain little more than an Engliſh one-horſe cart-load.

When the dung is all out, and ſets prepared, ſix men and as many boys ſhould be placed along the drill, at equal diſtances. The drills may be made by a good ſwing-plough going and returning in the ſame furrow, in a line perfectly ſtraight, and as deep as the ſoil will permit, obſerving always, that if the ground hangs one way, the laſt ſtroke in opening the drill ſhould throw the mould out from the higheſt ſide of the land; which clears the drill much better than when the laſt ſtroke throws the mould againſt the drill, and much depends upon the drill being very clean. As the plough paſſes the firſt boy in completing the drill, he ſhould begin dropping ſets, not farther than five inches aſunder, the Potatoes having ſufficient room to ſpread ſideways. As the ſets are dropped, each man covers his portion with dung from the firſt row. If after the firſt drill is made, the driver walks in, making the ſecond drill quite cloſe to the firſt, and keeps his horſes cloſe up to his ſhoulder, the drills will be exactly three feet aſunder: but if the ploughman and driver be not expert, then it will be neceſſary to ſet up marks at due diſtances. By the time the firſt drill is planted and dunged, the plough will have opened another, which is to be planted and dunged as the former; and by the time the plough comes to the ninth drill, the firſt row of dung, will or ought to be exhauſted.

It is not neceſſary to cover the drills until the planting is finiſhed. A light harrow, ſomewhat railed by being buſhed, ſo as to prevent the harrow-pins from reaching the dung, which it would otherwiſe drag out of the drills, drawn acroſs, will effectually cover them: much better indeed than the uſual method of covering with the plough, and then harrowing to level: or the drills may be covered by a board edgeways, four inches deep, and four feet long, with a handle like that of a rake. Covering with the plough leaves the land uneven; the Potatoes in conſequence come not up in regular rows, which is a great inconvenience in horſe-hoeing.

When the plants are up ſo as diſtinctly to ſee the entire drill, the mould ſhould be turned from the plants by a light ſowing-plough; at firſt from one ſide of the drill only; and in three or four days, when that mould is returned, then from the other ſide. The plough ſhould be run up as cloſe to the plants as poſſible. If both ſides were ſtripped at the ſame time, and unfavourable weather ſhould happen, the plants would be materially injured.

Previous to the ſecond horſe-hoeing, which ought to be done in about a week from the former, the Cultivator, Nidget or Shim ſhould be run between the drills, to cut all the weeds in the intervals, and to raiſe mould for the next horſe-hoeing. If any weeds ſhould appear in the row, they ſhould be picked out by hand.

The horſe-hoeing, by which the mould is thrown up to the plants, ſhould be performed at leaſt four times, each time going and returning in the ſame interval; that is, once from and three times to the plants; but the oftener they are horſe-hoed the better, unleſs the planting be very late; then horſe-hoeing keeps the Potatoes too long in a growing ſtate, and there is not time for them to ripen fully.

A plough with a double mould board ſhould be uſed for finiſhing; it ſhould be very narrow in the ſole, the mould boards high, and at the upper part as wide behind as the interval, ſo as to preſs the mould home to the ſtems on both ſides at the ſame time. The intervals, when finiſhed, ſhould reſemble a celery-bed; deep at leaſt as the ſtaple mould, and neatly cleaned up on both ſides.

The whole expenſe of an acre thus planted is under five guineas; whereas in the common ridge way it amounts to fourteen pounds. The land is more improved by a drill crop with one hundred loads of dung, than by four hundred in the ridge way. Three drills are equal in produce to the beſt ridge, and generally much better.

The principal improvements of the above culture are, the aſcertaining the proper quantity and due diſtance of the dung:—drawing out the dung before any drills are made: ſuffering nothing to touch the drills when opened until they are planted and dunged; and then covering them again by croſs-harrowing.

In Lancaſhire, a ſward or freſh lay is preferred, but not always to be obtained. Good crops have been frequently raiſed from lands exhauſted. The ground being previouſly cleaned by ploughings, and planted in april, if the ground can be got into condition, in drills,

* Vol. 1. p. 399.

drills, about three feet diſtant, and from nine to twelve inches aſunder in the rows, the ſets are placed immediately upon long dung from the yard, &c.; but dung from great towns produces a wonderful effect upon lands not accuſtomed to that article.

The crops are kept clean from weeds by the plough, firſt by turning a furrow, left for that purpoſe, towards the young plants, as ſoon as they appear, and afterwards by turning the ſame furrow back from each ſide of the drill. Sometimes the crop, if very foul, is harrowed with a ſmall triangular harrow, running through each drill. After the weeds have been ſo expoſed, the furrow is turned back again, and ſometimes the ſame plough, or a double-wriſted one, runs up each drill once more; beſides the deſtruction of weeds, the ſoil, by thoſe operations, is looſened, and expoſed to the ſun and air, by which the crop is greatly improved [s].

In Kent, the dung is ploughed in, and then furrows are made twenty inches apart, in which pieces of Potatoes are dropped, fourteen inches aſunder, by hand, and then covered by ſplitting the furrows, or ſometimes with a planting-hoe. Or they are dibbled in, and the pieces dropped in every other furrow after the plough, whilſt turning in the dung.

In Northumberland the drills are from thirty-two to forty inches diſtant; and the ſets are placed twelve inches aſunder; the dung is laid upon them, and the ſoil is turned upon the whole, by the plough ſplitting the one-bout ridges. The crop is kept clean by hand-hoeing, and ploughing between the drills. As the ſtems advance, they are earthed up by a common or double mould-board plough [t].

In Lincolnſhire, Mr. Cartwright ploughs before Chriſtmas, again in march, and in april: the land being properly cleaned, about the middle of april, the dung (twelve three-horſe loads to an acre) is carted out; as ſoon as this is ſpread on three acres, three ploughs begin; and the length of the furrows being divided into ſixteen equal parts, one woman being ſtationed in each diviſion; and a man being fixed to every four women, he rakes the dung on to the Potatoes, after the women have laid the ſets in the furrows, a little on one ſide, to be out of the tread of the horſes. After planting, they are rolled down with a light roller. When they come up, harrow them lengthwiſe with light harrows. In three or four weeks horſe-hoe them; and when the weeds are dead, repeat it: then hand-hoe the rows. In a week or thereabouts, earth up with double mould-boards: and repeat this in two or three weeks after. Laſtly, in auguſt hand-weed them [u].

In the North Riding of Yorkſhire Potatoes are generally cultivated as a fallow crop; of courſe the land is winter-ploughed, and made clean from weeds, as early in the ſpring as the ſeaſon will admit. The ſets are placed at ten inches diſtance in the furrows, the land having been ſet out in one-bout ridges with the plough. The manure (from ten to twenty cart-loads on an acre) being either ſet in heaps in the field, whence women and children take it in baſkets and lay it in the furrows over the ſets; or ſpread over the ridges, when it is pulled into the furrows with a moulding rake or hoes. They are then covered with earth by the plough dividing the ridge, and making a freſh one over the Potatoes. As ſoon as the plants make their appearance, the ridges are harrowed down, and remain in that ſtate about a week; they are then earthed up, and in a week or two as much of the earth from the ſides of them is ploughed down, as can be done, without leaving the roots too bare; after this, the tops of the ridges are carefully hand-hoed, and the earth which was ploughed from the ridges is again ploughed to them: if afterwards weeds ſhould grow, they are again hand-hoed or weeded, after which the earth is drawn up to the top of the ridges. The ſtems having by this time got to a conſiderable ſize, ſoon overcome all weeds, and conſequently require no farther attention till the time of taking up [w].

In the county of Argyll in Scotland, Potatoes are commonly planted on poor ground, after a crop of Oats. The ground is ploughed in winter and early in ſpring, and again a ſhort time before it is planted. It is alſo twice harrowed in the intervals. The drills are from thirty to thirty-ſix inches aſunder; the dung is laid in the furrows between them, generally over, but ſometimes under the ſets, which are placed from ſix to eight inches diſtant. The drills are then ſplit to either ſide, and the new drills formed over the Potatoes where the furrows were before. In about three weeks, the ground is harrowed acroſs the drills, and after the plants are come up, the earth is taken from them with the plough; ſoon after, it is put to them again; and after this they are twice hoed, earthing up the ſoil about the plants as much as may be, and going over it with the hand-hoe, to deſtroy the weeds which the plough may have left.

Some lay on the dung before the firſt, and ſome before the ſecond ploughing. In this way it is more intimately mixed with the ſoil, and will be of more ſervice to the ſucceeding crop, than when laid in one place at the bottom of the drill, where much of its ſubſtance muſt ſink down beyond the reach of the plough. When the dung is mixed with the earth, the Potatoes are drier; but they grow larger when all the dung is cloſe to them. But the addition to quantity will not compenſate for the defect in quality.

In any part of a field that inclines to wet, it is better to dibble in the ſets into about half the depth of the drill, than to lay them in the bottom, where they will be apt to periſh. Perhaps they are in general buried too deep, which makes them long in coming up, and later in ripening [x].

In the county of Fife, Potatoes being uſually cultivated as a cleanſing crop, they are introduced after white crops, as Wheat or Oats. The ground is commonly ploughed at the beginning of winter, and as completely looſened and pulverized as poſſible, by repeated ploughings. Thoſe who take land from the farmers ſeldom make the drills above eighteen or twenty inches aſunder, from an apprehenſion that wider drills will leſſen the quantity of the produce. But farmers, who do not labour under that prejudice, generally make the rows three feet, or at leaſt two feet and a half diſtant, and place the ſets from eight to ten inches aſunder in the row. By this method, whilſt an equally large crop is produced, an opportunity is afforded for repeated horſe-hoeings, which in cleaning foul land are more effectual than all the dreſſing that can be given merely with the hand-hoe. In ſome caſes the land is laid into three-feet ridges, and the dung ſpread along the furrows. The ſets are then dropped on the dung at proper diſtances. To lay the ſets in the furrow before the dung is ſpread, is a good method, and ſometimes practiſed. The ſets are covered either by ploughing the whole intermediate ridges at once, or by a ſingle furrow from each ſide, leaving the reſt untouched till ten days or a fortnight after.

Sometimes before planting the ground is harrowed, and the dung ſpread over the whole ſurface as evenly as poſſible. On each ſide of the ridge, beginning at one ſide of the field, a furrow is opened, and the ſets dropped along it: they are then covered with the plough; and after that, the plough goes twice or thrice round the ridge, before planting again, ſo as to bring the rows to their proper diſtance. And thus they proceed with every ridge, till the whole be completed. But it may happen, that if the hands employed in planting are too few, the plough muſt ſtand ſtill for ſome time; or if they are ſufficiently numerous to keep the plough conſtantly at work, then they muſt ſtand idle all the time the plough is employed in tilling the ſpaces between the rows. To ſave time and labour therefore, the planting ſhould be carried on upon two ridges at the ſame time; ſo that when the planters are at work on the one ridge, the plough may be employed on the other. And thus the farmer is not under the neceſſity of having more hands than can be kept conſtantly at work.

[s] Report, p. 57. [t] Reports. [u] Report, p. 142. [w] Report, 149, 151, 152. [x] Report, p. 88.

The ground is harrowed, when the Potatoes begin to appear, or a little before, to deſtroy the ſeed weeds. As ſoon as the rows can be diſtinctly obſerved, the earth is tilled away from the Potatoes; the plough, in this operation, being brought as near the plants as poſſible, conſiſtently with their ſafety. This contributes not only to deſtroy weeds, but to looſen the ground about the plants. The hand-hoe is employed to ſtir the ground, and deſtroy the weeds between the plants. If the land be ſtiff, and bound together with root-weeds, ſuch as couch-graſs, &c., theſe are torn up with the three-pronged hoe. In about ten days after, and when the weather is dry, the earth is laid back to the plants with the double mould-board drill plough. The number and ſeaſon of ſubſequent ploughings depend upon the ſtate of the land and the weather: but the laſt ploughing is generally done with the broad ſharp ſhare, and pretty deep. After which the mould may be drawn cloſe to the ſtems with light broad-teethed iron rakes, eighteen inches long in the head. Inſtruments of this kind will perform the work more expeditiouſly, and perhaps more completely, than hand-hoes [x].

In Mid-Lothian the ground is previouſly well pulverized by frequent tillage; and it is always the drieſt ſoil that is choſen, without regard to the preceding crop. The mode of culture is uniformly in drills, from eighteen inches to four feet diſtant from one another; and from nine inches to twelve, plant from plant. The dung is, in ſome caſes, ſpread over the whole field; in others, it is confined to the rows: ſometimes it is applied to the preceding crop, which is thought to make the beſt eating Potatoes, although rather leſs in quantity [y].

The Rev. Mr. Cloſe recommends the following culture, the reſult of various experiments made for five years ſucceſſively. The land being well pulverized by two or three good harrowings and ploughings, is then manured with fifteen or twenty cart-loads of dung to the acre, before it receives its laſt earth. Then it is thrown on to what the Suffolk farmers call the *trench balk*, which is narrow and deep ridge work, about fifteen inches from the centre of one ridge to the centre of the next. Women and children drop the ſets in the bottom of every furrow fifteen inches apart; men follow, and cover them with large hoes, a foot in width, pulling the mould down ſo as to bury the ſets five inches deep; they muſt receive two or three hand-hoeings, and be kept free from weeds; always obſerving to draw the earth as much as poſſible to the ſtems of the young plants. By this method, the ſets will be fifteen inches ſquare from each other.

If Potatoes be grown as a preparation for Wheat, the rows ſhould be two feet two inches from each other. Hand-hoe only the ſpace from plant to plant in each row: then turning a ſmall furrow from the inſide of each row by a common light plough; and afterwards with a double-breaſted plough with one horſe, ſplit the ridge formed by the firſt ploughing, thoroughly to clean the intervals. This work ſhould not be done too deep the firſt time, to avoid burying the tender plants; but the laſt earth ſhould be ploughed as deep as poſſible; and the cloſer the mould is thrown to the ſtems of the plants, the more advantageous it will prove. The land, by the ſummer ploughings, will be prepared to receive ſeed-wheat immediately, and almoſt enſure a plentiful crop [z].

Arthur Young, Eſq. planted four acres with Potatoes on a poor gravelly loam; an oat ſtubble on broad flat lands. Theſe were ploughed into the four feet ridge the beginning of november, and ſo left for winter. April the 14th following it was ploughed again reverſing the ridges, and immediately on this ploughing 283 loads of farm-yard compoſt were carted into the furrows; the ſets were planted in one row, twelve inches aſunder, along the middle of the dung, by women and children: a plough followed, which taking off a ſlice from the ſides of each ridge covered the Potatoes and the dung. There being much graſs and weeds in ſeveral parts of the field, the operation of reverſing the ridges was not completed then, that the ſun might have more power on the land, but the ſecond bout was done in a fortnight after, which left the ridges in their firſt form.

The 18th and 19th of june, the plants being about ſix inches high, a furrow was turned from the ſides of each ridge, leaving the plants upon a ſlip of a foot wide. This part of the horſe-hoeing ſyſtem appeared neceſſary before the hand-hoes went to work; for it turns every large knot of graſs and weeds from the plants into the middle of the intervals, where they are much more eaſily deſtroyed, and it leaves the plants far eaſier to hoe. Upon this they were hand-hoed; and on the firſt of july the intervals were harrowed flat with the horſe-hoe harrow, ſome parts of the field twice and thrice in a place, to tear the graſs in pieces, which it did ſo effectually, breaking the clods at the ſame time, that the ſun killed much of the rubbiſh. July the 5th they were hand-hoed a ſecond time; and as this was the laſt time, and every weed was therefore to be eradicated, it was done by the drag. As ſoon as the weeds of this hoeing were dead, the rows were earthed up with the double mould-board plough. Laſtly, on the 20th of auguſt and the following days they were hand-weeded.

Mr. Young finding from ſeveral ſmall experiments, that he had hitherto given his crops too much room to have a large produce, was led to try half an acre in another mode; the ſoil a good dry ſandy loam: the operations were moſt of them performed at the ſame time as thoſe deſcribed above. It was a barley ſtubble left through the winter, on which fifty loads of compoſt were ſpread over the whole ſurface; the plough then went in, and in reverſing the former flat lands, every other furrow was planted, the ſets at twelve inches aſunder; and as the plough carried nine inches, the Potatoes of courſe were in rows eighteen inches apart. Women laid, (not dropped,) the ſets cloſe to the unploughed ſide of the furrow, to eſcape as much as might be the horſes feet: as ſoon as planting was finiſhed, the land was harrowed twice, then rolled with a barley roller, and harrowed once again, leaving it in fine order. In about a fortnight or a little more, there was great appearance of ſeed-weeds coming up; as theſe threatened a heavy expenſe of hoeing, they were cut off with the horſe-hoeing ſhim. Nothing could anſwer better than this operation; care however ſhould be taken that the tool do not go ſo deep as to cut off any ſhoots that do not appear; nor ſhould it be done but in dry weather. It was then harrowed, and when the plants were three inches high the rows were hand-hoed: directly after the intervals were horſe-hoed with a ſhim, that cut only twelve inches wide. Both theſe operations were repeated once, and at the end of auguſt a hand-weeding being given, the crop carried a ſuperior appearance. The produce was 550 buſhels to the acre; whereas in the experiment above related it was only 390. The mode therefore here purſued of planting in cloſer rows is to be preferred, unleſs a field ſhould be exceedingly full of root-weeds, in which caſe wide intervals are uſeful for horſe-hoeing [a].

Mr. Young, in his latter experiments, carried on his dung, ſpread it, and ploughed it in early in november, being convinced by experience, that upon all ſoils, inclinable to wet, the manure ſhould be carted and ſpread either in the autumn or during a hard froſt, leſt the ſeaſon ſhould be wet at planting time, and the ground therefore poached by the horſes.

Mr. Young's laſt experiment was on twelve acres and a half, a cold but friable loam upon a clay-marl bottom, making the field wet for want of draining, having borne a crop of Oats. In november he ſpread 298 loads of farm-yard compoſt over eight acres; the reſt not manured at all. The whole was ploughed immediately. The firſt of may it was ploughed clean, and harrowed after the ploughs: to try a new method of planting, in which the mould would fall in the lighteſt manner poſſible on the ſets, the land was ſtruck with the common plough into furrows two feet aſunder,

[x] Report, p. 182.
[y] Report, p. 107.
[z] Bath papers, 3. 104.
[a] Tranſ. Arts, 3. 49. &c.

and the ſets being dropped in theſe at twelve inches apart, were covered by running a pair of harrows up and down the furrows, and were then rolled and harrowed again. Nothing could work finer, drier, or in a manner more promiſing for a crop. One acre and a half was planted in this manner with the white cluſter Potato; two acres with the champion, a very fine table Potato that never curls, and the reſt of the field with the red cluſter. June the 2d, &c. the ſurface was cut with the great ſhim. It was the 16th before the rows were up plain enough to horſe-hoe; they were ſhimmed, and on the 19th harrowed acroſs, without damaging them. The 24th they were hand-hoed the firſt time. July 21ſt they were hand-hoed again, and ſhimmed a ſecond time. The ſeaſon had been for ſome time exceedingly wet, ſo that the weeds grew apace. The crop was hand-hoed again in auguſt, and earthed with the double mould board plough. The White cluſter did not produce nearly equal to the Red; and the dunged part of the field, yielded double the crop of red cluſter, to that which was not dunged [a].

It is well known that good crops of Potatoes can be obtained on graſs lands, but ſome rabbet-warrens and waſtes may alſo be broken up for this purpoſe with ſucceſs. We have an inſtance of this near Crawley in Suſſex, where part of a rabbet-warren was incloſed, denſhired, and one crop of Oats taken from it; but the crop was ſo indifferent, that the land was again thrown open to the warren for two years. In october, 1796, it was again incloſed and ploughed up. It lay fallow till the middle of march, 1797; it was then harrowed, and in a few days afterwards croſs-ploughed. It remained in that ſtate till the firſt week in april, when it was again harrowed, and in a few days after ploughed a third time; in about ten days more it was harrowed a third time, and laid up in ridges for the reception of dung. Twelve cart-loads of indifferent ſold-yard dung were then laid upon it; and before the 25th of april twenty buſhels to the acre of a mixed kind of Potatoes were planted upon it. In june the land was once hoed, and the Potatoes earthed up. The produce, taken up in october, was rather more than 250 buſhels to the acre, and it was applied to feeding and fatting cattle: 280 buſhels being reſerved for ſets, to plant on fourteen acres of warren land, without dung [b]. No account of this ſecond experiment having appeared, perhaps it did not ſucceed to Mr. Seaton's wiſhes.

One of the eaſieſt ways of bringing waſte lands into culture, is by planting them with Potatoes, eſpecially where it is not thought expedient to pare and burn. Cottagers and labourers might aſſiſt in this improvement, under proper regulations; for no great quantity of manure would be required at firſt breaking up, and they might collect fern and weeds, which mixed with their aſhes and offal, and ſome of the beſt mould or rotted turf, would make a good compoſt, to put in the drills or holes which are to receive the ſets. But perhaps ſuch lands may be better ſet by the following mode of

3. *Dibbling.*

This is practiſed on a large ſcale about Ilford and other places in Eſſex. The preparation here is an autumnal ploughing, dunging in the ſpring about fourteen loads an acre, ſpread on the field juſt before the ſecond ploughing, on which they plant. Immediately after the plough, a man dibbles acroſs the land, followed by a woman who drops the ſets; the rows fourteen inches by fourteen or fifteen, and ſome twelve ſquare. They are hand hoed twice. They mow Clover and plough it up in july to plant immediately. Some perſons have taken two crops on the ſame land in a year; putting one in as ſoon as the other is taken up. They alſo plough and plant land, cleared of winter tares for ſoiling, and often get good crops from ſuch late planting. Some farmers have tried putting them in with a plough, and taking them up in the ſame manner, but from experience are convinced that the other method is much ſuperior [c].

Towards the weſtern parts of Cornwall, about Penzance, &c. they produce two crops of Potatoes in a year. They plant the kidney about Chriſtmas, or a few weeks ſooner, which they draw in may, and then, in the ſame ground, plant the apple Potato. But this mode of forcing crops is not to be generally recommended. By the common mode of planting at the end of april and beginning of may, after paring and burning, 450 to 600 Wincheſter buſhels are no uncommon produce. The ſoil and climate of this part of the kingdom are adapted to this plant, the ſummers being always moiſt, and the ground warm and dry. The weſtern iſles of Scotland are fully as moiſt, if not more ſo than Cornwall, or the weſtern parts of Ireland. The iſles of Canna, Tiree, &c. have moſt excellent crops of Potatoes, with the ſame kind of dreſſing as is uſed in Cornwall, that is, ſea-ſand, ore-weed and dung. Theſe iſlands are however comparatively much colder than Cornwall, and yet their produce, in the article of Potatoes, is greatly ſuperior to the inland parts of Scotland in the ſame latitude. The produce of Potatoes, in the weſt of Ireland, is alſo known to be extremely abundant.

In the iſles of the Hebrides mentioned above, the ſoil is dry and porous, containing a great mixture of ſea or ſhell ſand, and is much of the ſame nature as the ſoil about Penzance and other parts of the weſt of Cornwall. All this proves the propriety of cultivating Potatoes where the ſoil is dry and the climate moiſt [d].

In the Midland counties, the practice in planting Potatoes, runs much upon dibbling. Contrary to the practices of moſt other diſtricts, ſays Mr. Marſhal, they almoſt invariably ſucceed turf. The plough is ſeldom if ever uſed. The ſoil is broken up with the ſpade: ſometimes in two ſhallow ſpits, throwing the ſward, and the dung, if any be uſed, to the bottom; covering them, in the gardener's manner, with the under ſpit: but generally in one full ſpit, merely inverting the ſward, fitting the ſpits to each other, and leaving a ſmooth even ſurface of clear free ſoil. On this the plants are dibbled very thick, about the middle of april: they are hoed once, twice, or as often as circumſtances may require; the crop moſtly being managed in a gardenly manner.

Potatoes are ſometimes grown two years together on the ſame land; and in this caſe it is ſaid to have been found, that dibbling in the ſets, on the ſtale ſurface, as left, on taking up the firſt crop, or only levelled with the harrow, without any previous ploughing or digging, is the moſt eligible way of putting in the ſecond crop [e].

Dr. Wilkinſon, of Enfield, on ſoil generally rejected as improper for Potatoes, being a pebbly loam, produced 400 buſhels to the acre by dibbling. On a clover-ley, he had twelve loads of dung, ſpread immediately from the fold-yard on each acre. The ſets were put in with a dibble, on one ploughing: the rows eight inches aſunder, and the ſets ſix inches apart in the rows. The planting was done between the 5th and 22d of may. The field was hoed twice before the plants had riſen to any ſize above ground. This checked the growth of the weeds, and was the only hoeing that could be given, on account of the ſmall intervals between the ſets. The field was ſoon entirely covered with the ſtems, which ſmothered great part of the weeds, though the wet ſeaſon which followed occaſioned them to ſpring uncommonly thick [f].

Dibbling may very properly be practiſed on graſs land, on a clover-ley, on waſtes and moors, on lands and very light dry loams in general; but on lands inclined to be ſtiff and to retain wet, or in wet ſeaſons, it is a very bad method. The hole made with a dibbler or ſetting-ſtick, eſpecially if it be ſhod with iron, hardens and glazes the earth round it, leaves a hole at the bottom, which if rain enſue ſoon after may probably be filled with water, whilſt the ſides are ſo hardened that the tender fibres of the roots will not eaſily ſtrike into them. Whereas in drawing a drill, the earth is left in a fine pulverized ſtate, and the ſet is afterwards lightly covered with ſimilar earth,

[a] Tranſ. arts. 4. 95. [b] Ibid. 17. 160. [c] Young's ann. 2. 98. [d] Fraſer in Young's ann. 23. p. 61. [e] Vol. [illegible]. 249. [f] Young's ann. 20. 437.

and conſequently the roots have fine ſoil to ſtrike into [k].

4. *By the Hoe.*

At Sandy in Bedfordſhire, a pariſh of farming gardeners, they plant Potatoes in a ſingular way. They dig or hoe holes, and dropping a ſet in each, cover them by the earth of the next row of holes: they riſe about one foot ſquare [l].

In the North Riding of Yorkſhire, though the practice of covering them with the plough is very common; yet the ridges are ſometimes hoed down upon the ſets by hand [m]. This is commonly done in other places, for ſmall and garden crops, when not ſet with a dibbler.

Of all the above methods drilling is in general the beſt, and that by lazy-beds the worſt, at leaſt where the ſub-ſoil or under-ſtratum of earth is not good. The Sandy method is very ſlovenly; all the others may in particular circumſtances have the preference. But when the ground is not of any great extent, trenching, though the moſt expenſive, is far preferable to the reſt, and will often more than repay the additional expenſe [n]. This is commonly practiſed in kitchen gardens.

PLANTING.

The method of planting Potatoes, depends upon the mode of tillage that has been previouſly adopted, and has already been deſcribed, as to its general proceſs. The ſets may be put in too deep, and if they are out of all influence of ſun and air, will be apt to fail, and their quality at beſt will be inferior: they ought not however to be expoſed ſo as to have any part above ground. They ſhould not be deeper than four inches or four inches and a half in any ſoil; but in a dry warm one they need not be put in ſo ſhallow as in that which is ſtiffer and more retentive of wet [o]. Three inches is thought by many to be fully ſufficient, and if rains ſhould waſh the earth from them, it will afterwards be hoed up to the ſtems in courſe. The rooks ſhould be well looked after, for they will frequently find out the ſets, and make great depredation on the crop [p]. Field mice alſo ſometimes do much damage. Though earthing up be a very uſeful proceſs, yet that may be carried too far, if the ſets ſhould thus be buried too deep [q].

The cheapeſt and moſt expeditious method of planting, is by two ploughs following each other, the horſes not going in the furrow, and waiting at the ends till the ſets are dropped in. Four women and four children are ſufficient to drop after the two ploughs, which, as they return, of courſe cover the ſets, and leave a freſh furrow open for the next row. By this method two acres and a half may be planted in a day at the expenſe of 11s. 6d. an acre. A proper opportunity, after planting, ſhould be taken, to draw a harrow over the ground [r].

If the ground be moiſt, ſtrong or heavy, it ſhould be thrown into ridges of four or five feet each, and the ſets planted on the top of the ridges. The depth of the furrows alſo ſhould in this caſe not be more than three or four inches at the moſt; but in a very light dry ſoil, they may be five inches deep [s].

Early Potatoes, in Lancaſhire are generally planted in beds, in rows about eight inches diſtant, and the ſets four or five inches ſeparate, becauſe early Potatoes, being of a leſs ſize, require a ſmaller ſpace; but the advanced price theſe early crops obtain at market, render them a profitable article to the cultivator; who, beſides his profit from the Potatoes, has his ground prepared for another crop the ſame ſeaſon. This is ſometimes Turneps ſucceeded by Wheat. Or early Potatoes for ſets are planted; which, being got up in november, are immediately cut up into ſets, and preſerved in oat-ſhells (vulgarly called meal-ſhudes) or ſawduſt; where they remain till march, when they are planted, after having had one ſpit taken off, and planted with another, of a length ſufficient to appear above ground in the ſpace of a week [t].

But the moſt approved method is, to cut the ſets, and put them on a room-floor, where a ſtrong current of air can be introduced at pleaſure, the ſets laid thinner, namely about two lays in depth, and covered with the like materials, about two inches thick: this ſcreens them from winter froſts, and keeps them moderately warm, cauſing them to vegetate; but at the ſame time admits air to ſtrengthen them and harden their ſhoots; the doors and windows ſhould be opened in mild weather; they ſhould be frequently examined, and when the ſhoots are ſprung an inch and half or two inches, one half of their covering ſhould be carefully removed with a wooden rake or with the hands, taking care not to diſturb or break the ſhoots. Light is requiſite as well as air, to ſtrengthen the ſhoots; on which account a greenhouſe has the advantage of a room, but a room anſwers very well with a good window or two in it, and if to the ſun ſtill better. In this manner they remain till the planting ſeaſon, having all the air poſſible given them, when it can be done with ſafety from froſt. By this method the ſhoots at the top become green, leaves ſpring out, and they are moderately hardy. They are then planted in rows by a ſetting ſtick, the holes being carefully raked up; and thus they are enabled to bear a little froſt without injury. The earlieſt Potato is the ſuperfine white Kidney, from which four crops have been raiſed on the ſame ground; having ſets from the repoſitory ready to put in as ſoon as the others are taken up. A fifth crop is ſometimes raiſed on the ſame land the ſame year, of tranſplanted winter Lettuce. The firſt crop muſt have a covering in froſty nights [u].

In Cheſhire they alſo practiſe raiſing early Potatoes and having two crops; keeping ſets of the earlieſt ſorts in a warm place, where they may ſprout at leaſt three inches by the beginning of march, covering them with ſtraw or ruſhes in froſty nights. They plant them carefully with the ſprouts on, in drills, on a light ſoil, the end of the ſprout being juſt under the ſurface. Theſe yield a crop in the middle of may [x]. The ſame practice is followed in Cornwall, and ſometimes in the neighbourhood of London. But no good farmer, will take two ſucceſſive crops of Potatoes off the ſame ground in one ſeaſon.

Sets.

Mr. Miller is decidedly for planting large Potatoes entire; but he has had few followers. There is no doubt but that a good crop of fine roots may be obtained this way, in good ground, if ſufficient room be given them: but a much greater quantity will be produced from large pieces judiciouſly cut. Mr. Billingſley, the agricultural reporter for Somerſetſhire, affirms that whole Potatoes have been tried, and found not to anſwer. He recommends, as many others do, and ſeemingly with good reaſon, large cuttings from the biggeſt and fineſt Potatoes.

Robert Beatſon, Eſq. of Kilrie in Fifeſhire, took one of the largeſt Potatoes he could get, and planted it whole in his garden without dung, the produce was ſeventy-two bulbs, above twenty nearly as large as the original; the remainder of different ſizes, gradually decreaſing to about the ſize of a Walnut. Next ſeaſon he planted the whole of the produce alſo uncut, ſetting the largeſt in the front row, the next largeſt in the ſecond, and ſo on. He found not only that the ſtems of the largeſt bulbs were by far the ſtrongeſt, but that their produce alſo was much the greateſt; none of them producing bulbs larger than their reſpective original. Whether the Potato would have produced more if it had been cut into ſets, this experiment does not attempt to aſcertain, but Mr. Beatſon obſerves, that unleſs it would have produced a great deal more when cut, the advantages are in favour of ſetting them whole, by ſaving much labour, and occupying a leſs ſpace of ground. The largeſt Potatoes being often found neareſt the ſurface, he propoſes a quere, whether if theſe were taken away with-

[k] Report comm. agr. p. 27.
[l] Report, 152. note.
[m] Bath papers, 1. 27.
[n] See Hunter's Eſſays, 305.
[o] Dann in Tranſ. arts, 10. 78.
[p] Hunter's Eſſays, 311.
[q] Young's ann. 18. 225.
[r] Hunter's Eſſays, 303.
[s] Idem, 6. 347.
[t] Report, p. 61.
[u] Ibid. p. 18.

out injuring the ſtems, five or ſix weeks before the time of raiſing the whole crop, the ſmaller ones would not grow to a much larger ſize? Since theſe experiments, Mr. Beatſon has always planted his Potatoes whole [r].

The Rev. Mr. Higſon, vicar of Bath Eaſton, planted, on the ſame day, and in the ſame ground, whole Potatoes in ranks, at the diſtance of three feet ſquare, and cuts of the ſame kind at eighteen inches ſquare. The four years following he planted whole Potatoes at the diſtance of two feet and a half ſquare, and cuts at eighteen inches. The whole ſets were earthed up three or four times, that is, as long as the haulm would ſtand, and a few ranks of the cuts were earthed up alſo. The whole ſets always produced a greater crop than the cuts, in proportion to the quantity of ground; and the Potatoes were larger and fairer. There was little or no difference in the produce of the cuts, whether the ranks be earthed up or not [s].

The experiments of Mr. Joſeph Wimpey turn out clearly in favour of cuts. He ſelected the largeſt and fineſt Potatoes, one half of which he planted whole, the other half was cut into pieces of a moderate ſize. The acreable produce was rather in favour of the latter; but then it is alſo to be conſidered that theſe alſo will plant nearly four times the ground that the whole ſets do, which is a conſideration in planting on a large ſcale, or when Potatoes are dear, as they often are in the ſpring [t].

Dr. Anderſon's experiments tend to prove that the produce depends greatly upon the ſize of the ſets. By varying the weight of them from two ounces downwards, he found that the produce from the ſame number of ſets of the largeſt was ten times the amount in weight of that from the ſmalleſt ſets. The latter indeed may be planted cloſer, and therefore the difference will not be ſo great: but then it is more difficult and expenſive to cultivate a field where the plants are cloſe, and the bulbs being much ſmaller, are leſs valuable weight for weight. There can be no doubt but that the ſame ground, with the ſame manure and culture, will yield a crop of at leaſt double the amount, with ſets not under two ounces, that it will with very ſmall ones. Dr. Anderſon therefore condemns the uſe of thin ſlices from the ſurface; and ſtill more the practice of planting ſhoots without any part of the bulb [u].

Experience proves, ſays Mr. King, that the beſt cuttings or ſets is to be had from the largeſt Potatoes. Small ones have nearly as many eyes as large ones of the ſame ſort. But a good ſet, part of a large Potato, all other things equal, will produce a ſtronger and better plant than part of a ſmall Potato. Each eye ſhould be cut out by two cuts of a ſharp knife: which leaves the ſets ſtronger than is generally done by the common way of cutting, or rather ſlicing off the ſet with one cut of the knife; and many more ſets will be obtained. If the Potatoes be large, there will ſtill remain, after the ſets are taken out, ten or twelve ſtones weight out of twenty; which may be profitably uſed for pigs, cows or horſes. No part ſhould be cut, which has not a very apparent eye in it; nor is the ſtalk end proper for ſets [x]: or indeed either end, called by ſome the noſe and tail.

It has been remarked by ſome farmers, that there are two kinds of eyes in every Potato, the one proliſic, the other not; the former ſunk deep in the bulb, and producing a ſtrong vigorous ſhoot; the latter not ſinking ſo deep, and always having a little ſwelling in the middle, from which a few weak ſhoots ſpring forth, that even in favourable circumſtances yield but a ſcanty crop in compariſon with the former. This remark yet requires to be aſcertained by experiment [y].

Mr. Billingſley recommends the uſe of large ſets, picking out the fineſt Potatoes for this purpoſe, and ſlicing them in half from the crown to the root. His trials have all led him to prefer ſuch ſets to whole ones [z]: but his method of ſlicing them is thought by ſome to be the worſt method of any.

The ſets ſhould lie ſome time before they are planted, otherwiſe they will be apt to rot. But if they be thrown into a heap, they will heat, by which if they are not deſtroyed they will be weakened, and, in the opinion of ſome, produce the curl and a poor crop.

Mr. Hollins adviſes, that in cutting Potatoes for ſets, care ſhould be taken not to cut them entirely through, but when the knife has penetrated about half way, the other half ſhould be broken off. This operation will ſhow whether the Potato has proper vegetative power or not; if the knife enters eaſily, and the Potato breaks off ſoft, then it is fit for a ſet; but if the knife enters with ſome difficulty, and the Potato breaks off harſh and rough, though it may not appear to want ſap, it will remain whole in the ground, or produce curled leaves [a].

Mr. William Payne thinks the common mode of cutting for ſets, a moſt improvident and thoughtleſs waſte. Inſtead of cutting away the whole, no more than is neceſſary for extracting the eye needs to be taken; and thus the conſumption for ſets will be comparatively trifling: for out of three or four ſacks of Potatoes, the eyes judiciouſly cut, generally amounting to leſs than two buſhels, would be quite ſufficient for planting an acre, and would of courſe leave the reſt of the root for uſe. Mr. Payne has proved this mode for many years, with as good crops as others [b]. It was not uncommonly practiſed in the late years of ſcarcity; and the eyes were taken out with a little iron ſcoop, ſuch as cooks uſe for taking out ſmall pieces of carrot and turnep for their haricoes. But this mode being inconſiſtent with the reſult of Dr. Anderſon's experiments, comparative trials ſhould be made, before we can come to a ſatisfactory deciſion.

Potatoes may be raiſed from the parings, cut thick, as Turneps generally are for the table; and thus about two thirds of the ſubſtance may be left for eating. Mr. John Wagſtaffe, of Norwich, planted, about eighteen inches aſunder, ten whole Potatoes, about the ſize of turkey eggs; and at an equal diſtance, parings of about fourteen, from ſomewhat larger roots. The produce was, from the ten whole Potatoes 29lb. 4 oz.: and from the parings 29lb. 12 oz. Two of the largeſt, weighing together 31 oz. aroſe from the parings: the two largeſt from the whole ones weighed 25 oz.[c]

Potatoes may alſo be raiſed from the ſhoots, which are commonly produced in the ſpring, fall off in moving or cutting, and are commonly thrown away. The Rev. Dr. Maunſell has given the following directions for their culture.—In the month of march open the heaps of Potatoes, and if the ſhoots be ſufficiently ſtrong, that is, about ſix inches long and in a healthy vivid ſtate, let them be carefully picked off, and given to children of about ten years old to plant in drills, ſeven or eight inches aſunder, with the root downward; put a ſmall quantity of dung upon each ſhoot, and then cover them lightly with earth, to keep out any ſlight froſt; when the ſhoots throw out their leaves, and are about four inches above ground, give them a covering, leaving about two inches of the green ſtock above ground, and as they proceed in growth, let them be covered as before, till the earth between the ridges raiſes the drill at leaſt twelve or fourteen inches high. If there be occaſion to open the heaps before the time of planting, the ſhoots, taken off with care, laid in ſmall bundles, and covered with earth, will remain in a vegetative ſtate for a month. The Potato in the mean while is left entire for the ſuſtenance of man or cattle [d].

Six acres and thirteen rods of land were thus planted at Petworth in Suſſex with good ſucceſs. Drills were drawn, and children dropped the ſhoots horizontally into the drills, ſo as to touch each other at both ends; a man then covered them with a hoe. The ſhoots were from one foot to a foot and half in length.

[r] Report Comm. Agr. app. n. 10. p. 165.
[s] Bath papers, 1. 28.
[t] Idem, 5. 230. & 6. 206.
[u] Idem, 4. p. 2, &c. and Report Comm. agr. app. n. 5. p. 112.
[x] Idem, app. n. 3. p. 92.
[y] Idem, app. n. 11. p. 168.
[z] Bath papers, 6. 346.
[a] Young's ann. n. 197. p. 76.
[b] Tranſ. Arts, 11. 76.
[c] Tranſ. Arts, 7. 98.
[d] Young's ann. n. 222. p. 650.

The

The plants ſhot up from every joint, ſo that ten or more ſprang from one ſhoot, but the longeſt ſucceeded the beſt. They were earthed up three times in the courſe of the ſummer. The weeds, which were numerous, were pulled up and laid between the rows, and where moſt weeds were laid the plants were ſtrongeſt, and the produce greateſt, owing to the putrefaction of the vegetables, which afforded nouriſhment to the plants, and kept them moiſt. A buſhel of ſhoots having been thrown into a hole filled with dead leaves and the mowings of turf, two months after were found to be alive and in a forward ſtate of vegetation: this fortunate accident gave occaſion to preſerve the ſhoots afterwards, by putting them into a hole, and covering them with mould [g].

Mr. Lockett, of Donnington near Newbury, put three Potatoes, on the 17th of December, into a ſmall caſk, placed in a cellar: the 10th of march he took off fifteen ſhoots from them, and ſet them with a dibbler, about one foot ſquare: the 16th of april he took twenty-one ſhoots more from the ſame Potatoes, and planted them as before: on the 22d of may he again took twenty-five ſhoots, and planted them alſo: he then waſhed and boiled the three Potatoes, which proved very good to eat. From theſe ſixty-one ſhoots he had as many Potatoes as weighed 92 lb. though the rooks did him much damage.

After a mild winter, about the month of may, he goes over the fields where Potatoes had been planted the preceding year, and pulls up from among the corn all the ſhoots produced by the Potatoes which had eſcaped the diggers; and theſe ſhoots he plants in the ſame manner as directed above [h].

On the 18th of may, 1772, Mr. Ellery near Manchester, tranſplanted a number of ſprouts into an Onion bed that had failed, about a foot and half aſunder. In october they were taken up, and for ſize, quantity and quality, exceeded all he ever had in the common way.

On the 2d of january in the ſame year, Mr. Kirk, of Wilderſpool, near Manchester, having made a hot-bed for Potatoes, about forty of the ſets being left were hung up in a kitchen, and there remained unnoticed till about the 25th of april; when obſerving the baſket, and perceiving ſomething green on the edge of it, he took it down, and found that the Potatoes had ſprouted half a yard in length, and that many very ſmall bulbs were formed on the fibrous roots which had grown out. He planted them in his garden, in a rich ſandy ſoil without manure; putting the roots into the ground three inches deep, and laying down the ſtems horizontally, covering them with two inches of ſoil, and leaving the tops uncovered. He found that theſe produced larger Potatoes than the roots in the hot-bed. He took them all up, and picked off the large bulbs, which amounted to from four to twelve on each root; and then he ſet the roots again on the ſame ground. This he has ſucceſsfully practiſed for many years, ſometimes even twice, and has had a third crop at michaelmas. When this method is tried, the roots muſt be watered on the evenings of hot days.

In january the year following he made a ſecond trial with a larger quantity; by placing many Potatoes of early ſorts on a thick layer of gravelly ſoil cloſe to each other, over an oven, ſlated over, but open to the ſouth-weſt, and covering them two inches deep with the ſame earth. At the end of april he took them up, and found the ſtems a foot long or more. He was very careful both in taking them up and planting them, not to injure the delicate fibres. He manured them, but in all other reſpects treated them in the manner above deſcribed, many of the fibrous roots having then Potatoes formed upon them, nearly as large as walnuts. By one ſharp night's uncommon froſt, they were nearly deſtroyed. However freſh ſtems grew up in a few days, and he gathered from them on the 3d of june, finer Potatoes than were ſold at that time in Manchester from 1s. to 1s. 6d. the lb. being the produce of hot-beds.

[g] Young's ann. 28. 324. [h] Tranſ. Arts, 13. 207.

After taking off the larger Potatoes, he planted the roots for a ſecond crop, and in ſeptember obtained a very large produce. He weighed the increaſe of many ſeparate roots, from 4 lb. 8 oz. to 14 lb. 12 oz. the Potatoes being the largeſt of the forward ſorts he ever ſaw [i].

Quantity.

The quantity of Potato ſets required to plant an acre has not been well aſcertained: it muſt depend much on the ſize of the cuttings, and the diſtance at which they are planted. On a compariſon between whole Potatoes and cuttings, Mr. Joſeph Wimpey aſcertained that thirty-ſeven buſhels and a half of the former, and twenty buſhels and a half of the latter, were required to plant an acre. In different diſtricts of England I find the quantity varying from fifteen to thirty buſhels.

In the North Riding of Yorkſhire	15	buſhels
In Suffolk - -	15 or 16	——
In Durham - - -	16	——
In Suſſex - - -	18	——
In the Iſle of Man -	18 to 20	——
Dr. Wilkinſon at Enfield	20	——
In Eſſex - - - -	24	——
In Kent - -	18 to 30	——
In Lincolnſhire - -	30	——
In Wiltſhire - -	4½ to 6	ſacks
In Somerſetſhire -	5 to 8	—— } 240 lb.
In Nottinghamſhire - -	7	—— } each.
Mr. Billingſley - - -	8	—— }

The ſacks are probably three buſhels each.

In Scotland they reckon chiefly by bolls. In Roxburgh and Tweedale they plant two bolls. In Argyll, two bolls, making ten barrels. In Fife, three bolls to a Scotch acre. In Galloway, 11 cwt.

In Ireland, they reckon by barrels, which meaſure differs in different diſtricts: and accordingly the quantity directed for ſetting an Iriſh acre varies from four to nine barrels. I find the following:—4 barrels each 6 cwt.—4 barrels each 64 ſtones.—4 barrels, each 5½ cwt.—6 barrels, of 48 ſtone—8 barrels of 20 ſtones.—9 barrels.—14 barrels, each 20 ſtones.—12 pecks, each 56 lb.—10 buſhels of 3 cwt. each.—30 to 40 buſhels.

To form ſome judgment of the above quantities, it is neceſſary to remark, that an

Iriſh plantation acre and an half equal 2 acres Engliſh.
Cunningham acre to the Engliſh nearly as 15 to 13.
Corniſh acre equal 1¼ ſtatute acre *Engliſh*.
Iriſh Barrel equals 4 buſhels Engliſh or 32 ſtones.
—— —— near Dublin, equal 20 ſtones or 280 lb. or 4 Engliſh buſhels.
—— —— at Weſtport, 12 cwt. or 16½ pecks.
—— —— at Ballyſhannon, 10 peck, each 5ſt. 4lb.—In the country they give 6 ſtones.
Briſtol Barrel, contains 4 buſhels heaped, weighing 22 ſtones; or 6 buſhels ſtrike meaſure, weighing 15 ſtones each.
Scotch Boll equals 16 pecks, each weighing 24 lb. avoirdupois, or 384 lb.
—— —— Teviot, equals 30 ſtones, or 420 lb.
—— —— Fife, 24 Dutch ſtones. The barley firlot uſed for meaſuring, half heaped or as many as can be laid on with a ſhovel.
—— —— Roxburgh, $\frac{21}{256}$ larger than the ſtandard: equal 7 buſhels, 3 pecks, 11 pints and a fraction Engliſh ſtandard meaſure.
Engliſh Buſhel, heaped, weighs from 70 to 75 lb. In Lancaſhire, 90 lb.
—— Sack or Bag, holds 3 buſhels heaped, weighing 240 lb.

Diſtances.

The beſt diſtance at which the rows of Potatoes may be placed has by no means been aſcertained, and practical men have differed much on the ſubject: it muſt after all be governed in ſome degree by circumſtances, ſuch as the quality of the ſoil, the quantity of manure laid on, the ſort of Potato intended to be cultivated, the method of management, whether by the horſe-hoe or by common hoeing, &c. We find

[i] Hunter's Eſſays, 408, 412.

directions given for diſtances of rows, varying from eight inches to ſix feet: thirty inches is very commonly preſcribed, and is much practiſed both in our northern counties and in Scotland. For horſe-hoeing three and even four feet are good diſtances. Mr. Mayo, of Battel in Suſſex, prefers three feet to four; Mr. Haſſel on the contrary thinks four feet better than three. Circumſtances may induce a preference to four feet, but three is ſufficient for the horſe-hoe to work in, and is adopted by the beſt practitioners. Mr. Young commenced with wider intervals; but had greater crops when he adopted ſuch as were narrower. Dr. Anderſon has very well remarked, that ſome Potatoes ſend their bulbs downwards to a conſiderable depth, whilſt others puſh them upwards ſo as to be in danger of coming above ground: ſome again puſh out their fibres very far, and produce bulbs only at a diſtance from the ſtem, whilſt others produce the whole in a cloſe cluſter at the bottom of the ſtem [k]. It is evident that theſe different varieties require a different ſoil, culture and management, and that it would be abſurd to plant the third and fourth at the ſame diſtances.

The following are the intervals between the rows of Potato ſets adopted in ſeveral diſtricts and by different practitioners:

8 inches; and 6 inches from ſet to ſet: by Dr. Wilkinſon, of Enfield.
12 inches; in the Iſle of Wight.
12 to 15 inches; in Suffolk.
15 inches; with ſets 9 inches aſunder: Sunderland.
18 inches to 4 feet; ſets 9 to 12 inches aſunder: in Mid Lothian.
18 or 20 inches, with ſets 12 inches aſunder: or, 30 inches, or 3 feet; with ſets 8 or 10 inches aſunder. County of Fife. The narrow intervals by labourers; the wide by farmers.
20 inches, and 10 in the rows. Kent.
24 inches. Suffolk.
24 to 30 inches, and 10 or 12 inches in the rows. Weſt Lothian.
24 to 36 inches; 12 inches in the rows, Durham: 10 inches, Iſle of Man: 8 inches, Selkirkſhire.
30 to 33. Clydeſdale.
32 to 40; 12 inches in the rows. Northumberland.
3 feet; Lancaſhire, Berwickſhire, Dumbartonſhire; 9 or 12 inches in the rows: Lancaſhire.
3 to 4 feet. Elgin.
4 feet. Wiltſhire and Ayrſhire: 6 inches in the rows, in Wilts.
5 or 6 feet. Herefordſhire.
Every third furrow; and 4 inches aſunder in the rows. Nottinghamſhire.
One bout ridges; and 10 inches aſunder in the rows. North Riding of Yorkſhire.

Theſe diſtances are moſtly taken from the Agricultural Reports, and doubtleſs vary occaſionally in the ſame county or diſtrict, in the practice of perſons more or leſs enlightened.

Times.

The practice under this head varies extremely, from the middle of march to the beginning or even middle of june. April however is the moſt uſual month for planting the common ſorts of Potatoes for the general crop; and that is the prime ſeaſon for it in Lancaſhire. In order to have them come early, they are planted in march, january, and even october. But theſe are in hot-beds. Early planting may ſucceed when the ſpring froſts do not happen to be ſevere; but that being ſeldom the caſe, it is hardly prudent to riſk very early planting for the main crop. Froſts however often happen in may, and ſometimes in june, which injure the crop more or leſs; but theſe ſeldom deſtroy it, and cannot be avoided. In the ſeaſon for planting, the ſort of Potato, the ſoil and ſituation, and the quantity and quality of manure are to be conſidered.

In Lancaſhire, april is the prime ſeaſon for producing a crop of good Potatoes for the table, becauſe this vegetable requires a certain portion of time, to acquire that degree of maturity, which renders it peculiarly mellow and farinaceous; yet it is frequently planted as late as may or even june, and yet produces abundant crops, but not of the ſame matured quality, as thoſe planted at a more early ſeaſon.

The apprehenſion of froſts ſometimes operates againſt planting at an early ſeaſon; yet good planters riſque the chance of froſts in order to obtain ſuperior quality [l].

The following times, among many others, have been regiſtered:

March to the firſt week in may. Kent.
March, at the end, or beginning of april. Ireland: but
April, the middle, to the middle of may is moſt common; and more are planted after the firſt of may than before it.
April, the firſt or ſecond week; found to be moſt advantageous, by the Rev. Mr. Cloſe, of Trimley in Suffolk.
April, the two laſt weeks. Roxburgh.
April or beginning of may. Perth.
April, the end, or beginning of may. Middleſex and Cheſhire. Argyll.
April, the middle, to the middle of may, ſometimes beginning of june. Fife and Clydeſdale.
April, the end, and all may. North Riding of Yorkſhire.
April and may. Somerſetſhire.
April to june the firſt. Mid-Lothian.
May, the beginning: the beſt time on a large ſcale. *Bath papers*, 2. 357.
May the 22d planting at Sandy in Bedfordſhire.
May to the end; though the ſooner they are planted the better.
June the beginning; (*Bath papers*, 2. 356.) and middle. Suffolk. (*Young's annals, vol.* 23. *p.* 32.)

For early Potatoes, they plant ſometimes in october; and if any ſevere froſt ſhould come without ſnow, they are covered with peas-haulm, bean-ſtalks, ſtraw, or other light covering. The crop is dug up in april or may; and another immediately put in, which is taken up in october [m].

For Potatoes raiſed in hot-beds, the ſets are put in about Chriſtmas, or in january. Theſe come to market in april, may and june.

PRODUCE.

The general produce that may be expected from an Engliſh ſtatute acre, in a ſoil adapted to Potatoes, and properly managed, is from 300 to 400 buſhels. Some perſons have produced more under peculiar circumſtances; as far as 700, and even 1080 buſhels; but no prudent man will reckon upon ſuch extraordinary crops. No ſatisfactory average can be drawn, unleſs crops were ſelected and claſſed, according to ſoil, management, &c. I find averages regiſtered from 240 to 480 buſhels. Mr. Young ſtruck an average of eleven years experiments on the Cluſter Potato, of 332 buſhels on an acre. From forty caſes ſelected from the Agricultural Reports, Young's Annals, the Bath Papers, &c. I found an average of 384½ buſhels. And ſelecting inſtances from the Report of the Committee of Agriculture, twenty in a claſs, I obtained the four following reſults—361. 365. 290. 400. which, taken together, give an average of 354 buſhels. Theſe three averages again give a general average of 357 buſhels nearly.

Mr. Henry Harper, of Bank-Hall in Kirkdale, Lancaſhire, gets 240 buſhels of Scotch and Pink-eye Potatoes on a ſtatute acre of old arable; and 320 buſhels of the Ox-noble or Cluſter: the buſhel weighing 90 lb. On freſh land, from which a crop of Oats was taken, he had 320 buſhels of the former, and 480 of the latter [n].

Mr. Lodge, of Great Blakenham in Suffolk, has from 360 to 525 buſhels (weighing 66 lb. each) of Ox-nobles, on an acre [o].

In the Lancaſhire Report it is ſaid, that the produce of a ſtatute acre, on a medium, is from 200 to 300 buſhels, but then the buſhel weighs 90 lb.

[k] Comm. Agr. app. p. 112.

[l] Report, 58.
[m] Bath papers, 1. 29.
[n] Tranſ. Arts, 16. 199.
[o] Young's annals, 11. 198. p. 200.

The average crop in Lincolnſhire is ſaid to be 480 buſhels, each weighing 80 lb. and yet 330 buſhels of Ox-nobles on an acre is called an extraordinary crop; and 70 ſacks or 210 buſhels, a middling one. On warp land they get 100 ſacks or 300 buſhels; and in Axholm, on new land, 80 ſacks or 240 buſhels on an acre [p].

In the Midland, according to Mr. Marſhall, 300 to 400 buſhels is reckoned a fair good crop; but he has no reaſon to doubt of 600 buſhels an acre having been produced in two or three inſtances.

Mr. Bucke, of Worlington in Suffolk grew 432 buſhels to the acre of the Dutch upright and Pinknoſe ſorts; and the year following 628 buſhels of Champions [q].

In the North Riding of Yorkſhire, from 200 to 300 buſhels an acre, of the table ſorts, are eſteemed a good crop: thoſe cultivated for cattle, will generally produce more by 50 or 100 buſhels on an acre [r].

The Rev. H. J. Cloſe, of Trimley in Suffolk, ſays that on land well managed, the ſets 15 ſquare inches from each other, 15 buſhels to the acre; the produce, on a good mixed loamy ſoil, will amount to 300 buſhels [s].

Sir Thomas Beevor had 346 buſhels to the acre of the White Champion; 648 of a ſort from Mancheſter; and after the rate of 1080, of a new ſort from Liverpool, lately raiſed from ſeed [t].

From 8 to 15 tons is reckoned a crop in Eſſex; 10 tons, 126 lb. to the hundred has been a crop aſcertained there. Twenty-five tons or 275 ſacks of the Red Cluſter have been obtained, but that was in an old hop-yard, well dunged [u].

In Scotland from 30 to 40 bolls is a common crop. Thirty is in ſome parts accounted a large average: in others 40, on a Scotch acre. In Fife they have from 50 to 70; but the average is ſuppoſed to be 40 bolls. In Clydeſdale upwards of 24 tons have been taken on an acre; but the produce is frequently below half that quantity [x]. In Perth, Sir William Stirling, of Ardoch has often raiſed 40 bolls on an acre of light moor [y]. In Roxburghſhire the average return is from 36 to 40 bolls on an acre: and their boll is ſomewhat larger than the ſtandard boll of Scotland.

In Ireland they expect 300, or from 300 to 400 buſhels. They commonly reckon by barrels; which, in general, contain 4 buſhels. In different parts of Young's Iriſh tour we have from 28 to 120 barrels aſſigned as the produce of an acre: 100 to 120 barrels is ſaid to be a middling produce; and we have two averages of 64 and 82. The following crops, among others, are regiſtered.

80	Barrels	at	32 ſtones.
60	——	—	20 ſt.
40	——	—	64 ſt.
60	——	—	21 ſt.
50	——	—	5½ cwt.
26	——	—	10 cwt.
50	——	—	48 ſt.
50	——	—	18 ſt.
40	to 80	—	20 ſt.
108	——	—	252 lb.
100	——	—	20 ſt.
120	——	—	20 ſtones; of the Cluſter.
28	——	—	16 pecks; 60lb. to the p[k].
80	to 100		Briſtol barrels.
144	to 249		pecks, of 56 lb.

It ſhould be recollected that the Iriſh acre is bigger than the Engliſh.

The produce of a ſingle Potato is very great, if all the advantages of garden culture be given it. One Cluſter Potato cut into 24 pieces produced 165 lb. One Howard Potato cut into 4 ſets, yielded 90 bulbs, meaſuring 2 pecks, and weighing 31 lb. [z] One Potato from Quebec produced 132 bulbs, weighing 39 lb.

A large Potato cut into 9 pieces, planted in a garden with dung, by earthing up and laying the ſhoots, produced 575 ſizeable bulbs, which weighed 8 ſt. 8 lb. And a large white Potato, cut into 17 ſets, and planted in hillocks, at 4 feet diſtance, produced 10 pecks of ſizeable Potatoes.

Single Potatoes are alſo ſometimes of an extraordinary ſize and weight. One of the variety called the Golden Dab, meaſured 9½ inches long, 8 inches broad, and 2 feet in circumference: the weight was 8½ lb. averdupoiſe. Another weighed a pound heavier [a]. Sir William Fordyce ſent a Potato weighing 8 lb. 6 oz. to the emperor Joſeph.

An eſtimate of the produce that may be expected from an acre of Potatoes is imperfect, unleſs we take into conſideration the expenſe of growing them, and the value when grown, either as an article for the market, or for home conſumption.

The expenſes vary much with circumſtances, but with good management ought not to exceed 10l. Three hundred buſhels at 1s. 3d. which may be conſidered as a middle crop, and a middle ſelling price, is 18l. 15s.; even at 1s. it is 15l.: conſequently here is a profit of from 5l. to 8l. 15s. on an acre.

In Eſſex the expenſes run very high, even to 15l. 11s. or upwards of 30s. a ton, ſuppoſing the crop to be 10 tons; if they are ſold at 40s. the ton, which is the loweſt price at the London market, this leaves a profit of near 5l. But the price is frequently double [b].

The Rev. Mr. Cloſe's account of his crop is more advantageous:

Expenſes	-	-	7	0 8
Sold 20 ſacks (3 buſh.)	at 7s. 6d.		7	10 0
20 ——	at 9s.		9	0 0
24 ——	at 5s.		6	0 0
			22	10 0
	Profit	-	15	9 4 [c]

Mr. Wimpey ſtates the produce, expenſe and profit of two ſtatute acres thus:

Produce 750 buſhels, deducting 75 buſhels for tithe paid in kind, leaves 675, at 1s. the buſhel -	-	33	15 0
Expenſes - - -		13	7 3
Profit on 2 acres -		20	7 9
Profit on 1 acre -		10	3 10½ [d]

Mr. W. Pitt, of Pendeford.

Produce 300 buſhels (80 lb. each) at 1s. - - - -		15	0 0
Expenſes - - - -		9	3 6
Profit -		5	16 6

Prime coſt 7d. ½ the buſhel.

Again:

Produce 225 buſhels, at 1s. -		11	5 0
Expenſes - - - -		6	11 9
Profit -		4	13 3

Prime coſt 7d.

The Rev. Mr. Abdy, on an acre of Woodland ſtubbed up.

Produce 563 buſhels, at 1s -		28	3 0
Expenſes - - - -		16	13 6
Profit -		11	9 6

Again, on half an acre near his houſe.

Produce 320 buſhels, at 1s. -		16	0 0
Expenſes - - - -		6	19 8
Profit on half an acre -		9	0 4

[p] Report, p. 143, 145, 146.
[q] Young's ann. 5. 252.
[r] Report, 153.
[s] Bath papers, 3. 105.
[t] Id. ib. p. 282.
[u] Young's ann. 5. 451.
[x] Report, 87.
[y] Idem, 174.
[z] Young in Tranſ. Arts, 3. 31.
[a] Hunter's Eſſays, 337.
[b] Young's ann. 2. 100.
[c] Idem, 1. 399.
[d] Bath papers, 5. 30.

Mr. Billingſley, average of 16 experiments.			
Produce 70 ſacks or 210 buſhels -	10	10	0
Expenſes - - - -	9	9	3
Profit on an acre -	0	0	9
Mr. William Dann, of Gillingham in Kent.			
Produce, to the acre 386 buſh. at 1s.	19	6	0
Expenſes - - - -	8	15	9
Profit -	10	10	3[e]

There is a fair profit on all the above crops except Mr. Billingſley's. Therefore either his land was improper, or the lazy-bed method, which he prefers, a bad one.

The following table of produce, expenſe, and profit, is taken from Young's Iriſh tour.

	Produce.			Expenſe.			Profit.		
60 barrels at 5s. -	15	0	0	15	0	0	0	0	0
320 buſhels at 1s. -	16	0	0	7	7	0	8	13	0
300 —— — -	15	0	0	8	5	6	6	14	6
32 barrels at 8s. -	12	16	0	7	15	5	4	18	7
60 ——— 7s. 6d. -	22	10	0	13	0	4	9	9	8
350 pecks at 6d. -	8	15	0	6	17	0	1	18	0
20 barr. or 12 tons, at 12s. - -	12	0	0	5	13	0	6	7	0
70 barrels at 3s. -	10	10	0	6	4	0	4	6	0
100 Briſtol barrels, weight 22 ſton. at 4s. - -	20	0	0	14	16	10	4	16	10
100 barrels at 3s. 4d.	16	13	4	11	5	2	5	8	2
120 —— at 3s. -	18	0	0	10	11	8	7	8	4
60 —— at 4s. 4d.	13	0	0	5	0	7	6	19	5
480 buſhels at 8d. -	16	0	0	9	8	8	6	11	4

They ſell commonly from 1s. to 1s. 8d. the hundred weight; and from 3s. 6d. to 8s. the barrel. The latter is a common price, and ſometimes it riſes as high as 12s.—One ſhilling and 1s. 6d. are common prices in England; ſometimes it falls as low as 8d. and in ſome parts is as high as 2s. or more. When Potatoes are cultivated in large quantities, they have frequently no ſale adequate to the expenſe, unleſs near a great town or in a very populous neighbourhood; they muſt then be applied to feeding ſtock, which ſeldom pays more than 8d., 10d. or 1s. a buſhel, and ſometimes nothing: but it is a good preparatory crop, and raiſes a great quantity of manure.

Taking Up.

Potatoes are raiſed or taken up in october, when the ſtalks are withered, either with the plough or the three-pronged fork. In large concerns they commonly uſe the common or double mould board plough without the coulter to ſplit the furrows, women and children following to gather them. In this method many of the roots will be left in the ground, unleſs a pair of harrows with long tines are drawn over, or men break the ground with forks after the plough, for the pickers; and there is danger of the plough not going deep enough to avoid cutting the roots, eſpecially in thoſe ſorts which ſtrike down. To leſſen the expenſe of this operation Mr. Young invented an iron ploughing harrow, to fix in the holes of his ſhim beam, with two, three or four teeth (according to the tenacity or friability of the land) ſtanding obliquely, ſo that the horſe walking in the path of the furrow, the teeth might be in the direction of the land turned over by the plough. But the labour to keep it in that direction being found on trial too great, he added a ſemicircular iron to ſlide againſt the land ſide of the furrow at the bottom. This harrow, with one man and one horſe, without any boy to lead, lays all the Potatoes bare, and does the work of ten or fifteen men. Firſt the plough goes, then the boys pick all the roots that appear; the harrow follows, and the boys pick again. By this tool, the expenſe of taking up was reduced more than one half[f].

In gardens and in ſmall concerns the three-pronged or broad three-tined fork is more commonly uſed. This mode is alſo followed in Eſſex, at the price of three guineas an acre: and in the Midland diſtrict, where they pay from 1d. to 2d. a buſhel; and in many parts of Scotland.

The ſpade is much uſed in Ireland, and in ſome parts of England, where the lazy-bed method is adopted.

The time of taking up is from the end of ſeptember to the middle of november. In Ireland they are ſometimes even later than this. But the decay of the haulm or ſtalks is the beſt direction, for if taken up ſooner, they will not keep well, and after this there is no addition to the growth of the roots; but as ſome decay later than others, it is abſurd to preſcribe any particular week for the operation; only they ſhould be taken up before ſevere froſts ſet in, and if poſſible in dry weather. In Scotland it is neceſſary to attend to this circumſtance of froſt, but in the ſouthern and weſtern parts of England the autumnal froſts are rarely ſo ſevere as to freeze the roots in the ground, unleſs they are near the ſurface. If there ſhould not be leiſure to get up the whole of the crop, and froſt is expected, it may not be amiſs to leave the whole of the haulm over that part, inſtead of carting it to the fold-yard.

If many ſmall bulbs ſhould be left in the ground, as is ſometimes the caſe, they will be detrimental to the ſucceeding crop. The ground therefore ſhould be harrowed, and ſwine turned in to eat them up, or if Wheat is to be ſown immediately, the land ſhould have a clean ploughing or harrowing, by which few roots will eſcape, and the field is in the moſt perfect condition for the ſucceeding crop.

Preservation.

The common method of preſerving Potatoes through the winter is in heaps or pits, on dry ground, with a bed of ſtraw at the bottom, covered with ſtraw ſix or eight inches thick, and over that a cover of earth a foot thick, of that which is thrown out of the pit, or taken from a trench dug round the heap; well clapped down with a ſpade, and ſometimes a row of turf over all. If put up dry and in good condition, not in quantities too great, they may thus be preſerved through the moſt ſevere winter without injury; but they will ſhrink in meaſure about one ſack in twenty. The drier the ground, the deeper may be the trench; but if it be at all wet, either the heap ſhould be above ground, or a drain ſhould be made from it. If poſſible, the pit ſhould be on a declivity. Attention muſt be had that rats and other vermin do not burrow into the heaps or pits. If the Potatoes are not dry, they ſhould be carted to a barn or ſhed, where they ſhould be turned over, and the ſmall ones, with ſuch as are cut or otherwiſe injured, picked out, before they are pitted. It is not a bad precaution, to keep open holes through the mould to the ſtraw for ſome time, for the heaps will ferment more or leſs, according to their ſize and moiſture: when the fermentation has ceaſed, the holes ſhould be cloſed, to keep out froſt and wet. If the Potatoes are to be kept long, the heaps or pits ſhould be the leſs.

In Lincolnſhire and the northern counties theſe preſerving pits are called *Pyes*. In the Midland counties this method of laying them up is called *Camping*. They judiciouſly make their *camps* or pits ſhallow; not deep as ſome, or on the ſurface as others; the uſual depth is a foot. The pit ſhould be three, or at moſt four feet wide; and the length proportioned to the quantity: if this be very great, ſeveral ſhort ones are better than one very long. The Potatoes, on a bed of dry ſtraw, are ridged up, and then covered with long wheat ſtraw, laid evenly, like thatch; over this the mould out of the trench is ſpread, and the ſurface made firm and ſmooth with the back of the ſpade. A coat of coal aſhes is ſometimes ſpread over the mould, as a farther guard againſt froſt. Theſe camps are tapped at the end; ſome battins or a quantity of looſe ſtraw, being thruſt cloſe into the opened end, as a bung or ſafeguard[g].

[e] Young's Annals.

[f] Tranſ. arts, 4. 72.

[g] Marſhall's Midl. 1. 250.

Mr. Marſhall, in his Economy of Yorkſhire (2. 63.) ſuggeſts, as an eligible receptacle for Potatoes, a long arched vault, running endway into the ſide of a hill, or the ſide of a pit or other hollow, with a door at the end, level with the ground below; with a road over the top; and with one or more ſhooting holes, ſimilar to thoſe of coal-vaults under the ſtreets of towns.

General Murray, in Suſſex, dug holes in the ſide of a hill, ſix yards wide, and ten deep. He carted from the field and unloaded at top. He took them out at the end at bottom, which opened to the ſlope of the hill, where a wall was built with a door. When full, a ſtack of ſtubble or ſtraw was built over the hole, wide and large enough for ſecurity againſt all froſts. The effluvia of the roots riſing through the ſtubble, does not occaſion their rotting from heat [k].

In ſome places Potatoes are houſed in winter. In Canada, ſays Mr. Tooſey, we have admirable root-houſes to preſerve them in perfect ſoundneſs from october to june [l]: but he does not deſcribe them. In Scotland, they are very commonly preſerved in the houſe, where being liable to injury by heating or freezing, they ſhould be put in perfectly dry, and the walls muſt be lined with ſtraw or dry fern, and they ſhould be covered with ſtraw, mats, or ſacks, in froſty weather. If they cannot, on account of the ſeaſon, be houſed perfectly dry, it will be neceſſary to turn them over during the winter, and to pick out ſuch as are unſound. For this purpoſe there muſt be ſome ſpare room in the root houſe; which may be had by keeping a ſpace open in front, into which the Potatoes may be removed for ſorting. And if the repoſitory be divided into binns, the different kinds may be placed ſeparate, and the heaps will not be ſo large as to ferment readily [m]. I find a large three-ſtall ſtable, built of brick and well ceiled, to anſwer the purpoſe of ſuch a root-houſe very well. When they are kept in a common room, barn or outhouſe, dry ſand, ſaw-duſt or ſtraw is laid on the floor, the ſides are well ſtuffed with ſtraw, and they are covered with that or the chaff of oats: but in ſuch places they will freeze in very ſevere winters. In order to have them good till june, or till the ſeaſon for new Potatoes return, after being houſed dry, and kept ſo during winter, they muſt be laid on a clean cool floor in the ſpring, and frequently turned, to prevent their ſprouting. Near Liſmore in Waterford, they are kept on hurdles, raiſed high enough for the mould to fall off in turning them, which is often done. Moiſt warm places will not do. Cellars therefore are improper: a large wine vault has been tried, but found to be too warm, and they ſprouted.

Where land cannot be got in order for early planting, the Potatoes are cut up into ſets in november, and put on a room floor where a ſtrong current of air can be introduced at pleaſure, and covered with oat-ſhells or ſaw-duſt about two inches thick; this protects them from froſt, and by keeping them warm cauſes them to vegetate; the doors and windows are opened in mild weather; and when the ſhoots are ſprung an inch and half or two inches they remove one half of the covering with a wooden rake, or with the hands, taking care not to diſturb or break the ſhoots [n].

Disease and Cure.

The Potato is ſubject to a diſeaſe commonly called the Curl; and in ſome diſtricts, when it is thus infected, they ſay it is frizzled, or roſe-headed. Theſe names are given it from the obvious appearance of the leaves in this diſeaſe; but the deſtructive effect of it is upon the bulbs of the root, which become worſe and ſmaller in proportion to its influence.

A variety of cauſes is aſſigned for this diſeaſe, which was unknown till within forty years. Theſe are: 1. Diſtempered or vitiated ſets. 2. Forcing the plants from which the ſets are taken, by too much freſh dung, and earthing them up too deep, on land too rich, and in a ſouthern aſpect, and chooſing ſets from bulbs rendered large by this management. 3. Planting the ſame ſorts too long on the ſame land. 4. Taking the ſets from ſuch bulbs as have been heated or froſted in the heaps. 5. The firſt ſhoots being broken off before planting, by which means the ſets are weakened. 6. Planting too near the ſurface, and in old worn-out ground. 7. Planting indiſcriminately ſets of new ſorts raiſed from the ſeed. 8. Inſects attacking the ſets, or roots, or young ſhoots. 9. Unfavourable ſoils and ſeaſons.

One or more of the above cauſes may operate in producing this diſeaſe; and any or all of them in different circumſtances. He muſt be a careleſs cultivator indeed who will plant diſtempered or vitiated ſets; and he merits a bad crop, who ſells or eats all his beſt Potatoes, and plants the worſt. Yet Mr. Billingſley, a great farmer, and grower of this vegetable, planted whole Potatoes, large cuttings, ſmall cuttings, nay the mere eye only, but never could ſee any difference in reſpect to the curl. If the Potato was diſpoſed to be curled, it proved almoſt equally ſo in all methods; on the other hand, he never knew a true Dumfries Potato come curled the firſt year; perhaps the ſecond year a few would be curled; but beware of the third; for be aſſured, let the ſoil or manure be ever ſo good, almoſt all will be curled the third year, if planted in the ſame ſoil and neighbourhood [o].

Dr. Anderſon remarks very properly, that ſome Potatoes affected with the curl, produce ſmaller bulbs than ſound ones; ſhould one man ſelect from the heap all the ſmall ones to plant, he would probably have moſt of the curled ones, and very few of the ſound: and ſhould another pick out from the ſame heap only the largeſt bulbs, he would perhaps have ſcarcely one curled plant [p].

Forcing Potatoes, by ſetting them late, in a rich ſoil, well manured, having a ſouthern aſpect, eſpecially if the ſummer be hot and dry; or covered with green fern or other litter before the plants appear, is found by a ſeries of experiments to produce the curl. The ſet will be exhauſted in feeding the plant; but ſhould the weather become moiſt and warm towards the end of ſummer, the plants, eſpecially if they ſhould be earthed, may then produce a plentiful crop of large Potatoes, which will be fit for eating, but being produced from the ſtalk, after the ſet was exhauſted, will be defective in vegetative power, and the plants from them will be curled. If they were covered, the rain rots the fern or litter, and enables it to penetrate as a manure to the roots: thus the plants are forced to a ſecond growth, and the ſets from theſe bulbs will produce curled plants. Large crops may be raiſed by earthing and manuring; but theſe are not fit for planting. A portion of ground ſhould therefore be allotted for raiſing ſets [q].

Planting repeatedly on the ſame land or the ſame ſort on ſimilar ſoils, is very unadviſeable, and contrary to general practice with other crops. Potatoes have been grown for ſeveral years together on the ſame ſpot in rich land with high manuring; and labourers frequently do this in their confined gardens. But unleſs the ſort be changed it is found frequently to produce the curl; and on a large ſcale they are ſeldom planted two years together on the ſame land.

Whether the curl be occaſioned, as ſome pretend, by being froſt-bitten before or after planting; or, as others, by being heated in the heaps; or not: no prudent man will uſe ſuch for ſets in planting. For they muſt be weakened, and produce an inferior crop, if not the curl.

If the Potatoes intended for ſets have been ſuffered to exhauſt themſelves by ſprouting, they are unfit for the purpoſe; for whatever tends to weaken the ſet, will operate to the diminution of the crop, and probably bring on the curl.

If Potatoes be planted too near the ſurface, or where the ſtaple is very ſhallow, they will be liable to froſt, and conſequently to curl, if that produces it. They will alſo want proper nouriſhment, and therefore be weak; now weakneſs, from whatever cauſe, probably

[k] Young's ann. 11. 284. & 29. 45.
[l] Idem. 17. 285.
[m] Fife report, p. 188.
[n] Young's ann. n. 209. p. 82.
[o] Bath papers, 6. 345.
[p] Idem, 4. 90.
[q] Tranſ. Arts, 8. 21, &c. 9. 56, &c. 11. 78.

produces diſeaſe. Old worn-out land muſt needs be improper for the ſame reaſon: but who in his ſenſes would expect a ſound or efficient crop from ſuch land?

For a long time after the introduction of the Potato, men were contented with the common ſorts then in uſe; but afterwards ſome aimed at raiſing new ſorts from the fruit. This has been thought by ſome to have occaſioned the curl in the firſt inſtance. It is aſſerted, that when the Potato is raiſed from the ſeed, about one plant in thirty will be curled, and if propagated, will retain this quality [7]. Others alledge, that plants lately obtained from ſeed, are free from the curl: but Dr. Anderſon aſſures us, from his own obſervation, that a large field, planted with Potatoes the third year from ſeed, had more than half the plants curled; while another field near it, planted with ſets, never as far as we know, produced from ſeed in this country, had ſcarcely one curled plant in the whole. The Dr. informs us, that the curl was not known in Scotland till a very few years ago; when, there is great reaſon to believe, it was introduced by means of ſeed Potatoes imported from the ſouth: and that it is now much leſs frequent in the northern and remote parts, than in the ſouthern and more commercial diſtricts [8].—By ſeed-Potatoes, the Dr. probably means, thoſe which are uſed for ſets, which is the vulgar acceptation: but this is ſo ſtrange a perverſion of language, that I have invariably uſed the word *ſets* for the cuttings or pieces of the root which are ſet or planted, and confined the word *ſeed* to its proper ſignification, of the rudiment of the new vegetable contained in the fruit, which in the Potato is a berry, and not an apple, as it is commonly denominated.

Dr. Anderſon will not allow ſome of the cauſes aſſigned above to have operated in producing the curl. For inſtance, it has been ſuppoſed, ſays he, that nature, ſated as it were by having long produced this plant in a climate not deemed congenial to it, had become ſo far exhauſted, as to occaſion this diſeaſe. But if ſo, the more northern parts of this iſland, where the climate is the moſt unfavourable, ſhould have been ſooneſt affected by it. It has been farther ſuppoſed, that if the bulbs be froſt-bitten before they are houſed, this diſeaſe is produced from them; but the curl is leaſt known in thoſe diſtricts where the Potatoes are moſt liable to this accident. It has been ſaid, that Potatoes which were taken up before they attained perfect maturity, infallibly become affected with this diſeaſe; but in ſome cold moſſy ſoils, and expoſed ſituations, where the Potatoes muſt often be taken up whilſt they are yet in a ſtate of vigorous vegetation, this diſeaſe is ſcarcely known.

Upon the whole the Dr. conjectures that the diſeaſe depends entirely on the nature of the ſet, and that the curl, like ſome hereditary diſeaſes among animals, if once introduced, vitiates the prolific ſtamina, and is perpetuated as long as the infected breed continues to produce others [9].

There is no doubt but that in ſome ſoils, particularly in freſh land, the bulbs of Potatoes are attacked by inſects, which by affecting the ſtalk, will produce the curl in the leaves. Charles Mordaunt, Eſq. looking over a field ſet with whole Potatoes, obſerved a plant with two ſtems, the one curled, the other perfect; on taking up the root, he found a hole at that end where the curled ſtem grew, from which an inſect of the millepedes kind, about an inch long, eſcaped. The gardener took up ſeveral more plants; and every curled plant had the hole, or neſt, or the inſect itſelf: ſeveral ſucceſſive examinations confirmed the matter. The inſect does not attack the cluſter, late or autumn Potatoes: but the early ſummer ones remain ſubject to its depredations [1].

On a dry ſoil, in a very dry ſeaſon, Potatoes are ſubject to the curl. On the contrary a very wet ſeaſon, in ſtrong retentive land, is very unfavourable to the growth of Potatoes, but I cannot ſay whether it occaſions the curl. Dr. Anderſon alledges that the ſoil or ſeaſon is not the occaſion of this diſeaſe: for ſeveral ridges in a field in his neighbourhood, planted with Potatoes obtained from one particular perſon were very much curled, whilſt the remainder of the field, planted with Potatoes of the ſame ſort, obtained from a different perſon, were not at all infeſted with the diſeaſe [2]. This proves that the ſoil and ſeaſon were not the occaſion of the curl in this caſe: but it does not follow, that they may not ſometimes operate as cauſes.

Mr. Marſhall adopts the idea that the old varieties, formerly in cultivation, dwindling in produce, till they were entirely worn out with diſeaſe, new varieties were introduced; and that the diſeaſe vaniſhed with the old ones. In confirmation of this, he obſerved in Rutlandſhire, in a large piece of Potatoes, two ſtripes, which were almoſt wholly curled, whilſt the reſt of the piece appeared to be free from the diſeaſe. Enquiring into the reaſon of this difference, he was told that the healthy plants were a new ſort called *Manleys*; and the diſeaſed ones red-noſed Kidneys, which was heretofore the prevailing ſort. The circumſtance of the old ſorts being now almoſt entirely cut off by the curl, renders it probable that the diſeaſe is incident to declining varieties of Potatoes, as the canker is to declining varieties of fruit [3].

Mr. William Pitt, of Pendeford in Staffordſhire is of the ſame opinion; that the curl is owing to a degeneracy in the ſet, or to the particular variety being worn out, by planting too long on the ſame ſort of land [4].

Not only copious dunging is thought by ſome to bring on the curl, but manuring well with lime, or aſhes either of coal or wood. On a deep loam limed, near three fourths of the crop were curled; whilſt a few drills adjoining, not limed, and planted with the ſame ſort of Potato, were entirely free from the diſtemper. The experiment was repeated the year after with the ſame reſult. The curl has been ſince obſerved to prevail moſt in the diſtricts where much lime or aſh-manure is uſed [5]. A moderate quantity however of lime made into a compoſt with earth has no bad effect, and will be of uſe in deſtroying the wire-worm and other inſects that attack the ſets.

The method of cure is pointed out by the cauſes of the diſeaſe. If it be owing to the ſoil, that ſhould be improved by ſufficient manuring and good management; or, if wholly unfit for Potatoes, ſhould be given up. If the diſorder be occaſioned by any defect or weakneſs in the ſets, ariſing from their having been heated, or frozen, or over-forced, or exhauſted by ſhooting, or from whatever other cauſe; care ſhould be taken to procure proper ſets, and to change the ſorts occaſionally. If the land be rich and warm, the crop ſhould not be over-earthed; if it be dry, poor and ſhallow, it ſhould be well earthed up. For the roots ſhould neither be parched with the ſun, nor too far removed from its influence. If very rich dung, by forcing them too much, brings on the curl; ſpread it over the field, and plough it in, rather than put it immediately over or under the ſets in the furrows, eſpecially as the latter mode is apt to make the Potatoes ſcabby. In a proper ſoil, with good management, planting in the beſt ſeaſon, and due attention to procure good ſorts in a ſound healthy condition; changing the land, or bringing this in with other crops in a regular rotation; changing alſo the ſorts which are intended for ſets, or planting ſome by themſelves for that purpoſe: the crop will not be infeſted in general with the curl; or if a few of the plants ſhould be curled, they muſt be carefully pulled out.

Great attention is paid in Lancaſhire to changing their ſets, in order to prevent the curl. If any of their favourite ſorts are infeſted with it, they ſend them to the moſs or moor-lands to be cured. It is held as a general opinion in Scotland and the northern counties that moſs or peat-earth prevents the curl.

Inſects are not very deſtructive enemies to this crop. A moderate dreſſing of lime is the beſt ſecurity againſt them. A copious manuring with freſh rank dung encourages them.

[7] Young's Annals, 31. 417.
[8] Idem, Ib.
[9] Bath papers, 4. 86.
[1] Young's Ann. 14. 448.
[2] Bath papers, 4. 87.
[3] Midland Counties, 1. 247.
[4] Tranſ. Arts, 8. 31.
[5] Report Comm. agr. 38.

Very unfavourable ſoils had better be given up. Bad ſeaſons cannot be wholly guarded againſt, but damage ariſing from them may be moderated by attention and good management.

In the North Riding of Yorkſhire, in the dales of the Moorlands, they make uſe of ſets of their own growth, only endeavouring to plant them on a ſoil as different from that on which they grew, as they can; by this means they in a great meaſure avoid the curl: but in the lower parts, the ſets of the kinds for the table are procured either from the Moorlands or from Scotland, and it is found neceſſary to renew them every year, or at leaſt every ſecond year; for in the third they will be very generally curled. No other prevention is known there for this diſeaſe or degeneracy, than renewing the ſets, and changing the ſoil. The Ox-noble, Champions and red kinds are not liable to this diſorder [s]. We ſhall ſee hereafter, whether theſe and other varieties now ſaid not to curl, degenerate as well as many of the reſt.

In the Weſt Riding they procure their ſets of the red-noſe Kidney from the neighbourhood of Berwick: and until they adopted this plan of changing, they were much troubled with the curl [t].

In Argyleſhire, they attribute their not having the curl, to their changing the ſets very often, and planting much of them in new moſſy ground. This ſhould be a ſtrong motive to the culture of ſuch waſte lands [u].

Raising From Seed.

In Lancaſhire they have a great variety of early Potatoes; and great attention is paid to raiſing thoſe of the beſt qualities from the ſeeds of the berries, or as they call the fruit, the apples or orabs. It is well known that this is the only way of obtaining new varieties; ſome of which will be better, and others worſe than the parent plant. The former will of courſe be propagated, and the latter thrown away: thus real improvements will be made; and if it ſhould be found that old varieties degenerate in time, as is the caſe in many vegetables that are raiſed any way but by ſeed, it will be neceſſary to have recourſe to this method, now little followed, of raiſing Potatoes from ſeed.

Dr. Hunter's method of raiſing ſeedling Potatoes is as follows. Hang a bunch of the berries in a warm room during the winter, and in february ſeparate the ſeeds from the pulp, by waſhing the berries in water, and preſſing them with the fingers. Then dry the ſeeds upon paper. In april ſow theſe ſeeds in drills, in a bed well dug, and manured with rotten dung. When the plants are about an inch high draw a little earth up to them with a hoe, in order to lengthen their main roots. When they are about three inches high, dig them up with a ſpade, and ſeparate them careſully for planting out, in a piece of freſh ground well trenched, ſixteen inches apart. As they advance in growth earth them up once or twice, to lengthen the main root, and encourage the ſhoots under ground. By this management, the bulbs, in the courſe of one ſeaſon, will arrive at the ſize of hen's eggs, and the haulm will be as vigorous as if ſets had been planted. But what proves the luxuriancy in the moſt convincing manner is, that flowers and fruit are produced.

In Lancaſhire, they are always two, and ſometimes three years, in bringing their Potatoes raiſed from ſeed to full ſize. By tranſplanting them with wide diſtances, many of the bulbs will attain their full ſize in one ſeaſon.

Theſe ſeedlings produce bulbs of all the varieties, and ſometimes new ones. There does not ſeem to be any difference, whether the fruit be taken from a round or a kidney Potato. Seeds from a red Potato, that has flowered in the neighbourhood of a white one, will produce both red and white.

Potatoes, when propagated from ſets, after a number of years are found to decreaſe in bearing, and ſhould be brought back every fourteen years to their original. From a want of attention to this circumſtance, Potatoes are ſometimes ſo run out, as hardly to return treble produce. The farmer complains that his land is tired of them, but the true cauſe is the age of the ſets. The increaſe of Potatoes raiſed from ſeed is aſtoniſhing. They continue in vigour about fourteen years; after which the produce gradually declines [v].

Mr. Henry Dobby, of Yorkſhire, recommends the ſeeds to be ſown in the beginning of march or ſooner, on a hot-bed, in lines about nine inches aſunder, one-third of an inch deep, and very thin; to water between the lines frequently, and when the plants are riſen a little height, to introduce fine rich earth between the lines, to ſtrengthen them; to admit air frequently, and before they are tranſplanted to water them plentifully, to make them riſe with a large ball of earth to their roots; old rotten horſe-dung and yellow moſs are the beſt manures; plant them in trenches, like Celery, with a ſpace of four feet between the trenches, and twelve or fourteen inches between each plant; as they grow up draw the earth to the ſtalks, but do not cover the tops. When the ground is brought to a level, dig it, and earth up the plants till pretty deep trenches are formed between the lines. With this treatment they will produce the firſt ſeaſon from a pound to five pounds weight on a plant; and many conſiderably more than an hundred Potatoes each; the produce of which, for ten or twelve years after, will be prodigious [w].

Mr. Wimpey relates, that the firſt year he raiſed Potatoes from ſeed, he had ſome bulbs as large as a pullet's egg, but did not then remark any varieties. He preſerved the largeſt of theſe, and planted them in april following. In october they were careſully dug up, and were as large in general as thoſe produced from old bulbs: many from half a pound to a pound and upwards. Among them were five or ſix different varieties, totally different from the parent ſtocks: the colours ſmooth yelloviſh white, duſky brown, and reddiſh brown; the ſkin rough in ſome, ſmooth in others; ſome in diſtinct ſingle bulbs of a regular ſhape, others a congeries of bulbs from ſix to ten or twelve, connected by a kind of neck, compoſing a maſs, ſometimes nearly as big as a half-peck meaſure. One far exceeded all the reſt in beauty; many of theſe were as big as a gooſe's egg, having a fine clear ſmooth ſkin of a yelloviſh white colour, and finely pounced with ſmall crimſon ſpots; the complexion beautiful, and the ſubſtance admirably well taſted.

The bulbs from which the ſeeds of theſe varieties were obtained, were of very different ſorts: one, an oblong white Potato, many of which were gibbous at each end, connected by a part much ſmaller in the middle, a good family ſort. The other of a brownish red colour, finely marbled on the inſide with a crimſon purple; a very fine juicy Potato, much in uſe for feeding hogs [x].

Dr. Anderſon alſo on the 23d of april ſowed on a bed of good garden mould, ſome ſeed of Potatoes gathered the preceding autumn, and preſerved among dry ſtraw all the winter. The young plants appeared in ten days, and advanced vigorouſly during the ſummer, eſpecially where they were not too thick. On the 3d of november they were taken up; ſome were nearly as big as a pigeon's egg, and the reſt gradually decreaſed to the ſize of peas. If the ſeeds had been properly ſeparated, they might have been ſown more equally; and if the plants had been tranſplanted, the roots would have been larger.

On the 20th of april the year following, theſe ſmall Potatoes were planted in a bed of good garden mould, in rows one foot aſunder, and four inches apart: decreaſing the diſtances as the bulbs diminiſhed in ſize. The largeſt yielded a good crop, in which many of the bulbs were as big as a hen's egg: but thoſe produced from the ſmaller bulbs did not in general exceed the ſize of a horſe bean, and many were no bigger than ſmall peas. None of the plants flowered.

Theſe Potatoes were planted in april 1778, in rows a foot diſtant, and the largeſt a foot aſunder in the rows. The largeſt again produced the moſt luxuriant and weighty crop. Very few flowered, and none of

[s] Report, 150. [t] Ibid. 101. [u] Ibid. 88.

[v] Eſſays, exp. 14. p. 348. [w] Young's ann. 18. 445. Bath papers, 5. 35.

the bulbs were of ſuch a ſize as thoſe produced from ſets of very large Potatoes; or afforded nearly the ſame produce as was obtained from them, planted on the ſame ſoil, at eighteen inches apart[e].

After this, Dr. Anderſon ſowed the ſeeds of a Potato which he received from Ireland, of a dark dirty purple colour, and a round irregular ſhape. It was planted by itſelf, at as great a diſtance as could be conveniently from any other ſort, and all the varieties in the neighbourhood were of the white ſort. The variety of the produce was very great, and ſcarcely two plants were preciſely the ſame. The colours were dark purple, bright pink, dark pink, bright white, dun, yellow, black, dark greeniſh, ſpotted, &c. The ſhapes very various. The time of ripening from auguſt to octoher. The ſize from a hen's egg to a pea. The ſtems, leaves, manner of growth, produce, &c. very different[f].

Application *or* Consumption.

By Man.

The reputation of the Potato as a wholeſome and nutritious food for man, has now been well eſtabliſhed by an extenſive experience of many years. The prejudices of ſome botaniſts on account of its natural place among the Solanums, ſome of which are poiſonous, has long ago ſubſided: indeed much attention was never paid to it. In Burgundy, it is ſaid, the culture and uſe of Potatoes in food were interdicted, as a miſchievous root. Among other effects, it was accuſed of occaſioning leproſy and dyſentery. There is not the ſmalleſt foundation for this: the roots however, expoſed to the ſun and weather, whilſt growing, acquire a green colour, a bitter taſte, and a narcotic quality[g]; the fruit alſo has proved noxious to ſome perſons, though not to others. A family having been accuſtomed to eat tarts made of this fruit, a ſtranger on putting the firſt bit into his mouth, clapped his hand to his throat, and declared he was choaked; he therefore eat no more, and the diſagreeable ſenſation went off as ſuddenly as it came. The family, notwithſtanding this, went on eating the tarts, without perceiving any thing in the leaſt degree offenſive: but ſoon after, one of the maid ſervants was affected in the ſame manner. Are not theſe two inſtances, aſks my friend, ſufficient to prove, that ſomewhat deleterious, though in a lower degree, reſides in this ſpecies, as well as in ſome of its brethren; and to confirm the propriety of Linneus's inſerting it in the genus Solanum[h]? At the ſame time, theſe inſtances are no proof of the inſalubrity of the root, properly cultivated; ſince it has now conſtituted the chief article of food to vaſt numbers of people, during a century.

It appears from Dr. Pearſon's experiments, that one hundred parts of Potato-root, deprived of its ſkin or bran, conſiſt of ſixty-eight to ſeventy-two parts of water, and thirty-two to twenty-eight parts of meal. The meal conſiſts of three ſubſtances: 1. Starch or fecula, ſeventeen to fifteen. 2. Leafy or fibrous matter, nine to eight. 3. Extract or ſoluble mucilage, ſix to five parts. This mixture is in many reſpects ſimilar to that of the grain of wheat and maize. The eſſential difference between them is, that the two latter contain a glue of the ſame nature as animal matter, in place of the leafy or fibrous vegetable matter of the Potato: but the principal ingredient in point of quantity in all is ſtarch, and they all contain a ſoluble mucilage. The mean quantity of animal glue in wheat appears to be about one twelfth of the meal. To this is imputed the ſuperior quality of wheat-meal for bread. It is ſuppoſed to give tenacity and firmneſs, at the ſame time that it promotes the fermentation in making the bread, as well as gives it a taſte.

Ninety-eight or ninety-nine parts out of a hundred of Potato-meal are capable of being aſſimilated into animal matter.

There does not ſeem to be juſt ground for the opinion that the meal of Wheat affords much more nouriſhment than that of Potatoes; for if it is ſuppoſed to be ſo on account of the animal matter which Wheat contains, the proportion of that is too ſmall to occaſion any great difference[i].

To obtain the meal from Potatoes, they are well waſhed, and grated down to a pulp, by a grater, or in a hand-mill. The pulp is then put into a hair ſieve, and repeatedly mixed with cold water, till the ſtrainings are clear, and the fibrous part perfectly diveſted of the meal. The former may be ſet aſide for the uſe of hogs or cows, and the ſtrained liquor ſuffered to ſettle, after which the brown-coloured water is poured off, and freſh water repeatedly mixed with the ſediment, and poured off after it ſettles, till the water comes off perfectly clear. The ſediment is then dried in the ſun or in an oven, as ſoon as may be, to prevent its ſouring. When quite dry, and put in a bag, in any dry place, it will keep many years. The quantity of meal will depend on the kind of Potatoes; but in general one pound of meal may be got from ſeven or eight pounds of the root[k].

By this proceſs the meal is deprived of the greateſt part, or all, of one of the ingredients, namely the ſoluble mucilage, which by itſelf is undoubtedly nutritive, and may probably be rendered more nutritive by mixture with the other conſtituent parts of the root.

To prepare meal therefore of the beſt quality for bread, the roots may be cut into thin ſlices, and dried quickly in the air of a kiln of the temperature from 110 to 130 degrees.

For want of the glue in Potato-meal, it cannot be made into bread alone; but with three or even two parts of Wheat-meal, or of the root itſelf, well boiled, peeled and maſhed, excellent bread may be made, with yeaſt, in the common method[l].

Wheat-meal having more animal glue than is neceſſary for making it into bread, and Potato-meal having none, a mixture may improve both. Sea biſcuits made with Potato-meal will certainly keep better, and be leſs liable to breed inſects[m]: biſcuits made with equal quantities of this and Wheat-meal, cannot be diſtinguiſhed from thoſe which are made wholly of the latter. Equal quantities of Oat and Potato meal unleavened or with a little yeaſt, make a cake or flat bread, more pleaſant to the taſte than when made only of Oat meal[n].

Potato-meal does not occupy near the ſpace of an equal weight of Wheat-meal. It does not abſorb moiſture. Having none of the animal glue, it is not apt to ſpoil, or breed weevils and other inſects. It appears to be indeſtructible in any common ſituations or circumſtances; and therefore is proper to carry into warm climates, and for uſe on board ſhips[o].

There is no doubt but that Potato-meal may be uſed, not only for preparing common ſtarch, but other ſubſtances of the ſame kind, as Sago, Tapioca, Vermicelli, Macaroni, and Salep; that it may be put to all the uſes to which ground rice is applied; and that it may ſerve, either alone, or with a due proportion of wheat-meal, in various compoſitions of cookery, ſuch as puddings, biſcuits, paſtry, &c.

It is however moſt ready, profitable, and perhaps ſalutary, to uſe the root cooked by merely boiling or baking. This is obviouſly the ſimpleſt and cheapeſt preparation. The meal is thus taken into the ſtomach, more intimately mixed or diffuſed through two and a half or three times its weight of water, than in the caſe of artificial mixtures of the meal with water. Hence the eaſineſs of digeſtion, and lightneſs of this root above other farinaceous ſubſtances equally nutritive. Hence alſo, this root alone, or with a little meat or oil affords ſufficient nouriſhment to moſt perſons without diſordering the ſtomach by its bulk: contrary to what is experienced from Beet, Turnep, Onion, and other roots, which contain a much greater proportion of water than that of the Potato[p].

[e] Bath papers, 4. 62. [f] Idem, 5. 128.
[g] Report Comm. agr. app. n. 1. 76.
[h] M. S. information from the Rev. George Aſhby.
[i] Pearſon in Report Comm. agr. app. n. 2. 81.
[k] Argyll Report, 86. [l] Pearſon, idem. 84.
[m] Young's ann. 25. 556. [n] Idem. 24. 516.
[o] Idem. 24 & 25. [p] Pearſon, Rep. Comm. Agr. 85.

Though the boiling of Potatoes is now conſtantly practiſed in moſt houſes in England, yet in many parts it is little underſtood[1]. The Potatoes ſhould be ſorted, ſo as to be nearly of the ſame ſize; little more than water enough ſhould be put into the veſſel to keep them from burning, and if the roots be large, cold water ſhould be poured upon them once or twice; when they are ſufficiently done, pour off the water, and then evaporate the moiſture, by replacing the veſſel for a ſhort time over the fire. Some dreſs them in an iron pot, over a ſlow fire, without any water. Boiling by ſteam has been recommended as an improvement; but the water ſeems to carry off ſome matter, by detaining of which the flavour of the root is injured[2]. They are moſt agreeable and nouriſhing baked or roaſted.

The conſumption of this root in Ireland and Lancaſhire has long been very great, and is now become conſiderable in Scotland, and many parts of England. In the county of Fife 6000 acres are ſuppoſed to be annually planted with Potatoes; in Mid-Lothian from 1200 to 1500; in Roxburghſhire 1300 or 1400; in the Weſt Riding of Yorkſhire 1200; and about Frodſham in Cheſhire, 1300 acres[3].

In Ireland a barrel weighing 280 lb. or four Engliſh buſhels, will on an average laſt a family of ſix perſons ſix days; or a year's food amounts to ſixty barrels. Now the average produce of the whole kingdom being eighty-two barrels to an acre, plantation meaſure, one acre rather more than ſupports eight perſons the year through, which is five perſons to an Engliſh acre. To be fed on Wheat, thoſe eight perſons would require eight quarters, or two Iriſh acres, which in the preſent mode of culture, imply two more for fallow, or four in all[4].

Mr. Bartley, of Briſtol, calculates, that a ſack of Potatoes, weighing 224 lb, and containing one fourth part of farinaceous matter, is at leaſt equal in value, as an article of food in the family of a poor cottager, to a buſhel of the beſt Wheat: and that by a judicious attention to ſoil, ſituation, ſeaſon, &c. 120 ſacks of Potatoes may be more certainly raiſed upon an acre than twenty-five buſhels of Wheat. But that on ſtiff clays and wet heavy ſoils, not only light crops are to be expected, but a diminution of the farinaceous matter, and a degeneracy of the root[5].

According to Mr. Harris, a labourer with three or four children will uſe from twenty-five to thirty-five buſhels: ſuppoſe the average produce 180 buſhels to the acre, (of 90 lb. to the buſhel:) a ſixth part of an acre will ſuffice for ſuch a family[6].

Again, if an acre produce ten tons or 300 buſhels, there will be about twelve pounds a day, for the conſumption of each perſon in a family of five, and therefore the ſixth part of an acre will be ſufficient to afford them two pounds a day, the year through. But if they live on Potatoes only 250 days in the year, an acre will afford each perſon 1⅕ lb. daily, and therefore a ninth part of an acre will ſuffice for ſuch a family.

If every cottage therefore had an acre or even half an acre aſſigned to it for a garden, there would be ample room to furniſh the family with this nouriſhing root, together with a change of ground for other vegetables. But this would be to little purpoſe without manure; and that can hardly be procured in ſufficient quantity, without a cow, or at leaſt a pig. Where this cannot be done, gentlemen and farmers may give or let pieces of land in odd corners of incloſed fields, headlands, &c. to their labourers, and theſe will bear a tolerable crop for two or three years, with little or no manure. Or farmers may find land, ſets and manure, and divide the produce with his labourer, who is to perform all the work. Or a certain quantity of a fallow intended for Wheat, and well manured, may be ſet apart every year for this purpoſe, under certain conditions, advantageous to both parties.

In Ireland a family of five perſons will eat and waſte forty-two ſtones of Potatoes in a week; but then the cows, pigs, poultry, &c. all partake with them. This root is well known to be the general food of the lower people, for a great part of the year.

In Scotland, the uſe of Potatoes has very much increaſed. In the central highlands they are become the principal food of the common people; and before their introduction famines were frequent there. It would be difficult to ſay how much the introduction of Potatoes into the Hebrides has bettered the condition of the poorer inhabitants. In Eaſt Lothian they conſtitute nearly one-third of the food of the common people, from the firſt of auguſt to the end of may. In Perth they are ſaid to have done more to prevent emigration than any device whatever. In Banff, had they not been in general uſe in the year 1783, it is probable that many perſons would have periſhed for want of food[7].

In many parts of Wales, Potatoes and Barley bread form the chief ſuſtenance of the poor.

In England, it is no uncommon thing in Somerſetſhire, for families to live three quarters of a year on Potatoes; and the want of them would bring the whole family to the pariſh. In Lancaſhire and Cheſhire the uſe has been long general and extenſive[8]. It is very conſiderable in many other parts; and in the metropolis the conſumption is very great.

Yeaſt or Barm may thus be made from Potatoes. Boil ſome of the mealy ſort, (one pound for every quart of yeaſt to be made,) till they are quite ſoft: ſkin and maſh them very ſmooth: mix as much of the water in which they were boiled as will reduce them to the conſiſtency of common yeaſt, but not thicker. Add to every pound of Potatoes two ounces of coarſe ſugar or treacle; and when lukewarm, ſtir in, for every pound of Potatoes, two table ſpoonfuls of good new beer yeaſt. Keep it ſtirring and warm for twenty-four hours, or till it has done fermenting, when it will be fit for uſe; but if older, the better. It will keep in bottles three months[9].

An ardent Spirit may be obtained from Potatoes. Many years ago it was propoſed in Sweden to uſe them for this purpoſe to ſave corn; and it was found that an acre of land ſet with this root would yield a greater quantity of ſpirit than if it were ſown with Barley[10]. Hence the practice was taken up in ſome parts of Scotland. Different accounts are given of its quality there; owing probably to more or leſs ſkill and care in the proceſs. Dr. Anderſon obtained from *ſeventy-two* pounds of Potatoes an Engliſh gallon of pure ſpirit conſiderably above proof, and about one quart more below proof. He celebrates it as the fineſt and moſt agreeable vinous ſpirit he ever taſted: ſomewhat like very fine brandy, but more mild, with a peculiar coolneſs upon the palate, and, a flavour as if it had been impregnated with violets and raſpberries. The Potatoes were boiled to a pulp, bruiſed and paſſed through a ſieve with freſh water, to ſeparate the ſkins. The pulp was then gradually mixed with about twenty gallons of cold water. When this mixture was of a temperature fit for putting yeaſt to wort, yeaſt was put to it. In ten or twelve hours a fermentation began, and continued during ten or twelve hours; by ſtirring it briſkly this was renewed, and continued for a fortnight, at the end of which time it could not be renewed by agitation or otherwiſe, and was found upon trial to have acquired a kind of acid ſlightly vinous taſte fit for diſtillation. It was then diſtilled with due caution; care being taken to ſtir it till it began to boil, before the ſtill-head was applied; and the fire was made ſo ſtrong as to keep it boiling briſkly, till the whole came over, in order to prevent the thick matter from ſubſiding, and burning to the bottom, which would have given it a flavour like the fumes of burning tobacco. For want of ſkill or caution, ſpirit ſaid to be drawn from Potatoes has been found to be intolerably nauſeous: but Dr. Anderſon ſucceeded equally well a ſecond time. Another perſon however under his direction could not ſucceed in producing that

[1] Lancaſhire Report, 63, Perth Rep. 176. Bath papers, 3. 298.
[2] Reports.
[3] Young's Iriſh tour, 2. 120.
[4] Bath papers, 8. 344.
[5] Young's ann. n. 209. 84.
[6] Reports.
[7] Ibid.
[8] Report Argyll, 86. & Young's ann. 1. 285.
[9] Mem. Stockh. & Weſton's Tracts, 251.

peculiar raſpberry-flavour, though in other reſpects the reſult was the ſame [b].

If the produce of an acre be ten tons or 300 buſhels, it is obvious that full 300 gallons of ſpirit may be expected from it.

By Horſes.

Sir William Fordyce ſeems to have been the firſt perſon publicly known in England to apply this root to feeding horſes. He gave them boiled in the uſual manner, and each horſe had a quarter of a peck daily. The ſort was the Cluſter or Surinam Potato. The horſes did their work well on this allowance, with a trifling quantity of Oats now and then, during two months. If they were baked or roaſted on kilns, as they are in Northumberland, and mixed with ſome ground Oats, it would be a great ſaving in corn, and more hearty food. Mr. Kirby, of Ipſwich, gave them raw, but waſhed, to ſaddle horſes, each a peck a day, without any Oats. They did their work very well, and were in good order. At firſt they ſcoured, but it ſoon went off, and only kept their bodies gently open. Reckoning half a peck a day to be equal feeding, and the price of Oats ſixteen ſhillings a quarter, the value of the Potatoes will be one ſhilling a buſhel. Mr. Bywell gave half a peck a day with hay, but no Oats, to draught horſes, and never had them in ſo good condition: he recommends them as a remedy for ſwelled legs, and uſed them raw [c]. Mr. Young gave rather more than two pecks a day to each horſe; and found that they did not eat ſo much when given raw.

A gentleman in Lancaſhire fed forty horſes with Potatoes boiled in a baſket, half a buſhel to a buſhel of chaff, without any Oats. One woman waſhes and boils twenty-five buſhels in a day. The whole prime coſt of the Potatoes ready for the manger ſeven pence the buſhel [d].

Mr. Stewart fed two horſes a whole winter, that regularly ploughed an acre a day, on Potatoes and cut ſtraw, without hay or corn: the Potatoes were waſhed and boiled at the expenſe of three halfpence the buſhel: the two horſes ate nine buſhels a week, were in high order, and ſtood their work well [e].

Of all applications, in Mr. Young's opinion, none anſwer any thing like that of giving them, late in april and may to cart-horſes and working oxen: when hay is ſcarce and dear, it may thus be ſaved to very great advantage [f].

In confirmation of this, Mr. Culley remarks, that they have for ſeveral years practiſed giving their working horſes Potatoes in the ſpring, with the greateſt ſucceſs. They give corn at the ſame time, becauſe they work their horſes remarkably hard at that ſeaſon. They think that Potatoes with their corn and ſtraw, not only keeps them heartier, but prevents greaſe, foulneſs, &c. by keeping their bodies open [g].

Mr. Dann, of Gillingham in Kent, gave eighteen buſhels of Potatoes, with chaff and cut ſtraw, two buſhels of Beans, and two buſhels of Oats weekly to three teams of cart-horſes. The Potatoes ſaved four buſhels of Oats weekly; which aſcertains the value to be twelve ſhillings, or eight pence the buſhel. The teams were in as good, or perhaps better order, than when fed without Potatoes [h].

Mr. May, near Ipſwich in Suffolk, keeps nineteen horſes and four cows on a farm of ſix hundred acres, without a ſingle acre of meadow or artificial graſſes. His entire dependance, in winter and ſpring, is on Potatoes, chaff and ſtraw. He gives one buſhel a day, cut very ſmall; for if uncut or but groſsly, they will not eat a ſufficient quantity of dry meat with them. The ſort he uſes is the Ox-noble [i].

Mr. Crooke, of Tytherton in North Wiltſhire, fed nine horſes with ſteamed Potatoes at three halfpence the buſhel, with as much cut ſtraw as they would eat, but no oats, nor hay [k].

At Aveley in Eſſex 300 lb. ſufficient for a working horſe ſix days, which is 9000 lb. for half a year, being three-fifths of an acre's produce. Waſhing and ſteaming coſt two pence for each 100 lb. To every 300 lb. half a pint of ſalt, and a ſmall quantity of ſulphur were added. On a compariſon of wintering a team of five horſes thus, and with hay and oats, it was in favour of the former 12l. 17s. [l]

Mr. Young, in various experiments, aſcertained the value of the Cluſter ſort, for feeding horſes to be nine pence the buſhel. Others have found them to be worth a ſhilling, and Mr. Billingſley eſtimates them at eight pence for this purpoſe [m].

In many parts of Scotland they are given to horſes raw, but well waſhed, and are found to be excellent. In Annandale 10 lb. are ſuppoſed to be a moderate feed. In Eaſt Lothian horſes prefer Surinam Potatoes to corn, when accuſtomed to them; they are eſteemed excellent for foals and young horſes, keeping them open in body, and ſmooth in coat: 9 lb. are a ſufficient feed for a pair of horſes, with half the uſual allowance of oats. In Fife they give a peck a day to each horſe, and regard them as excellent for horſes. In Kintyre (Argyleſhire) their working horſes have generally one feed of Potatoes: from 15 to 18 lb. make a good and cheap meal for a horſe [n].

In Ireland, Mr. Longfield, of Caſtle Mary, cultivates the Cluſter Potato, which they call Bulls. Horſes are very fond of them; they do very well on them raw, but better when boiled [o].

Here is much in favour of Potatoes as food for horſes, and yet it is aſſerted, that in ſome parts of Scotland Surinam Potatoes otherwiſe called Yams have been diſcontinued, being found to produce gripes and colic. The Rev. Mr. Cloſe ſays, they have not anſwered with him ſo well for horſes and colts as he expected [p]. I have been told that a gentleman ruined a fine team of horſes, by feeding them on raw Potatoes.

By Cattle.

Experiments on giving Potatoes to milking cows turn out much in favour of this root. Dr. Wilkinſon, of Enfield Chace, gave them to a dairy of ten cows. At firſt not above half the cows took kindly to them; by degrees however they all became fond of this food, and at laſt, towards ſpring, as the fodder became dry, would ſcarcely taſte any hay, and were almoſt entirely kept on Potatoes, each cow conſuming about a buſhel every day. The milk being applied chiefly to ſuckling, the increaſe was not aſcertained, it was however evidently great. The butter was well-flavoured, and better than it had been the preceding winter. The cows were kept rather looſe in their bodies, but preſerved their health, and looked ſleek and thriving through the winter. But for the laſt fortnight, when they all began to reject hay, and lived almoſt entirely on Potatoes, the milk became too thin and watery to bring the calves on properly, and the butter became white and taſteleſs, without any firmneſs or adheſion [q].

Mr. Forby finds that Potatoes give a bad taſte to milk [r]. Mr. Cloſe fed his three cows, after Cabbages, with half a buſhel of Potatoes night and morning, and a ſmall quantity of hay, from the 10th of march to the 10th of may, without any diminution of their milk, but rather an increaſe of cream; the butter as ſweet as from the beſt graſs. All cattle may thus be fed to great advantage, at leaſt during the month of april, and the firſt fortnight in may, which practice would enable the farmer to clear his turnep or cabbage land, and to ſow his ſpring corn at an early and proper ſeaſon [s]. Charles Mordaunt, Eſq. gives one peck boiled night and morning to each cow [t]. Mr. Seaton, of Suſſex, gave at leaſt half a buſhel each to three milch cows from the firſt of november to the firſt of april, and fed three heifers in calf from the 13th of february to the 10th of april [u].

T. B. Bayley, Eſq. of Hope ſays, that his cattle

[a] Bath papers, 4. 43. [b] Young's ann. 1. 279, 283, 285. 402.
[c] Idem, 16. 356. [d] Idem, 20. 266. [e] 21. 52.
[f] Idem. ib. 226. [g] Idem. 22. 167. [h] Idem. 18. 314.
[i] Report Comm. agr. 61. [k] Vancouver's Eſſex.
[l] Tranſ. Arts. 4. 91. Young's ann. 1. 285, 16. 91. 22. 167.
[m] Reports. [n] Young's tour, 1. 416.
[o] Rep. Comm. agr. 62. Bath papers, 3. 108.
[p] Young's ann. 29. 459. [q] Idem, 19. 473.
[r] Idem, 1. 401. & Bath papers, 3. 107. [s] Idem, 7. 252.
[t] Tranſ. Arts, 17, 161.

eat the Howard or Bedfordſhire Potato boiled, with as much eagerneſs as the beſt ſorts, and came on as well with them; that for the milch cows he mixed malt-duſt with them, and found them much more profitable than either Turneps or Cabbages. Once, when his Potatoes grew low, he deſiſted from giving them to the milking cows; immediately, though fed with the beſt hay, they fell off much in their milk; he therefore began again, and in a week they yielded more butter by one third. Their value is ſuperior in this to Turneps or Cabbages, and there is no riſk of their giving a diſagreeable taſte either to butter or milk [x].

A large cow, tied up a month after calving, ate 2 cwt. and 18lb. of hay in one week, and the enſuing week four Wincheſter buſhels of Potatoes being given to her, the conſumption of hay was reduced to 3 qrs. and 20lb. It appears therefore that a ſack of Potatoes is equal to 1 cwt. of hay. The quantity of milk was increaſed by the Potatoes, but it was thinner in quality [y].

In the Lancaſhire Report, Mr. G. Green obſerves, that after many experiments he invariably found that the watery Potato, of which there are many varieties, has fallen far ſhort of the purpoſe intended: that he has ſeveral times, both through neceſſity and for the ſake of experiment, given the Ox-noble to milch cows, after the more farinaceous ſorts, as for inſtance the Pink-eye, when the decreaſe of both milk and butter has been evident in a very ſhort ſpace, and the beaſts themſelves ſeemed much diſſatisfied with the change.

In the Report for the county of Fife, Potatoes are ſaid to be exceedingly proper for milk cows, and by ſome are reckoned preferable to Turneps; as they produce an equal quantity of milk, and give no bad taſte either to milk or butter. But as cows are in danger of being worried or ſuffocated with Potatoes, it is adviſeable to cut or maſh them.

Sir Mordaunt Martin obſerves, that when he fed his cows with Potatoes, they were all ſo tender-footed, as to be hardly able to walk from the yard to an adjoining cloſe: this he attributes to their treading in the dung formed by the Potatoes; for they ſoon recovered when they ceaſed to eat them [z].

In Cheſhire they are found to be of too laxative a nature, without the addition of ſome other food.

In Dumbarton cows are fed with meſſes of boiled food, in which Potatoes are a principal ingredient, not boiled but bruiſed in a ſtone mortar.

In Mid Lothian the Surinam is chiefly given to milch cows; increaſing the produce without affecting the taſte of the milk. In Weſt Lothian theſe have killed many cattle by hoving. Mr. Hill, of Hertfordſhire, finds that milch cows yield abundance of milk with Potatoes, but not cream in proportion [a].

Some perſons have uſed the ſtalks of Potatoes, as a food for horſes and cattle: but if they are cut whilſt the roots are growing, the crop of roots will be leſſened; and if the cutting be delayed till the growth of the roots is completed, they will not be either ſucculent or nouriſhing. At beſt I believe they are but indifferent food [b].

Potatoes have been uſed by ſome for fatting cattle, in their opinion, with great ſucceſs: but others have diſputed the economy of it. Mr. Bywell of Yorkſhire fed oxen of ſeventy or eighty ſtone, with a buſhel a day, and ſome hay; and found them ſuperior to Turneps. Mr. Campbell found that large oxen may be as completely fattened on potatoes and hay, as on any other food. Mr. Arthur Young finiſhed fattening oxen with Potatoes, with the addition of ſome beanmeal from april 21ſt to may 27th, and they did perfectly well. Mr. Abdy of Eſſex fattened Welch runts on Potatoes, and a Scotch cow. Several perſons in Suſſex have uſed them for fattening oxen, and found them to anſwer, paying from 4d. to 9d. a buſhel [c]. Mr. Hunter of Hertfordſhire fed 103 oxen on Potatoes, and found they did well with hay, but not without [d].

Mr. Dann of Kent, after fattening many beaſts with this root, dropped the practice in 1794, finding that it did not anſwer. Mr. Arthur Young, in fattening eight bullocks, tried 212 buſhels of Cluſter Potatoes, with bean-meal and chaff, and found that they did not pay three halfpence a buſhel; that ſeventy buſhels more were given to loſs; and that in finiſhing twelve beaſts the year after, the reſult was loſs. Another time, he gave to ſix fattening beaſts, during three weeks, Potatoes, Beans, and Hay; the 126 buſhels of Potatoes paid only one penny the buſhel. Mr. Mure of Suffolk, fattening beaſts on a very large ſcale, with Potatoes, Beans, Chaff, and Hay; found that the Potatoes to the amount of many thouſand buſhels paid nothing. In one experiment they paid 6d. and in another 2d. halfpenny [e].

In Ireland, Mr. Jones had twelve ſtore bullocks on Potatoes; they liked them much, and eat three barrels a day. They weighed 5 cwt. each, and had they been kept long enough on the Potatoes would have been fattened [f]. Mr. Rowley has fattened worked oxen of five years old, in eight weeks on Potatoes parboiled, with hay [g]. Mr. O'Hara of Nymphsfield fatted many bullocks with them, and found that they did exceedingly well [h].

Mr. Cloſe of Suffolk allows his fattening cattle all the Potatoes they will eat: a beaſt of about 35 ſtone, will require a buſhel every day, but will fatten one third ſooner than on Turneps. He waſhes them clean, and does not give them until they are dry. He boils them only for bacon hogs and poultry; and prefers the Champion [i].

Mr. Turner, of the ſame county, finds that bullocks do exceedingly well on them: that four, of 35 ſtone each, will eat 16 ſacks a week, and 7 lb. of hay each every day: and that when they take to them kindly, nothing will bring on beaſts ſafter than Potatoes [k]. A gentleman from Lancaſhire fats many oxen on them boiled, and finds that they, and all other animals, do much better on them boiled than raw. On which Mr. Young remarks, that baking is ſaid to be ſtill better [l]: but he does not admit, that Potatoes applied in any way to this purpoſe will anſwer.

Mr. James Bucknell, of Knowſtone near Tiverton, Devon, found that this practice far exceeded what he expected. Cattle, when a little uſed to Potatoes, grow exceeding fond of them, but it is neceſſary to give them ſometimes oat-ſtraw and hay: the former is particularly uſeful, to prevent that laxative ſtate of body, which the cattle would otherwiſe be ſubject to, from the rich and nouriſhing quality of the Potatoes, if confined wholly to that ſort of food. Cattle thus fed were generally diſpoſed of to the butcher, and the beef was exceeding well taſted. The number he thus fed yearly was about fifty. He gave the Potatoes raw and unwaſhed [m].

John Hunter, Eſq. of Gubbins in Hertfordſhire, fattened 103 oxen principally with Potatoes, and 70 capital cattle the year after. They are wonderfully nutritive, but will not fatten an ox in any reaſonable time without hay [n].

William Barbor, Eſq. of Fremington near Barnſtable, Devon, fed 56 bullocks on twenty acres of Potatoes. The cattle were bought in very lean, and ſcoured for three weeks; after this ſtopped, they throve very well: this food had no ill effect on thoſe that were in a better ſtate. The beaſts are ſubject to ſwelling and being choaked: but the firſt is eaſily got rid of by driving them about the yard, and the ſecond may be prevented by thruſting down the Potato with a ſmooth ſtick, or a large ſtiff rope ſoft at one end. The 56 bullocks were bought in for 380l. 18s. and were ſold for 580l. 18s. Each bullock eat three pecks a day, which at the rate they then ſold for was 2s. 6d. a week. They were put to feeding on the 10th of december, and moſt of them were fit for the butcher by the 1ſt of march; but the number being too great for the conſumption of the

[x] Hunter's Eſſays. 325.
[y] Report Somerſ. 118.
[z] Norfolk Report, app. 196.
[a] Reports.
[b] See Bath papers, 4. 32. Young's ann. 6. 92.
[c] Young's Annals.
[d] Tranſ. Arts, 10. 98.
[e] Young's Annals.
[f] Young's Iriſh Tour, 1. 21.
[g] Idem, 23.
[h] Idem, 284.
[i] Bath papers, 3. 107.
[k] Young's ann. 1. 192.
[l] Idem, 16. 357.
[m] Tranſ. Arts, 9. 45.
[n] Idem, 10. 98.

country,

country, they were ſold as purchaſers offered, and were all gone by the 4th of may, except four, which were not ſold till the end of the month. They were all ſold to the butcher except three, which were diſpoſed of to a jobber, and moſt of them were killed immediately from the ſtalls. For the firſt week he gave them hay, but finding that too expenſive, he changed it for ſtraw, which he found to anſwer full as well [a].

By Sheep.

Sheep have not been ſo generally fed with Potatoes as bullocks. Mr. Fuller of Suſſex however has fattened many ſheep on them with great ſucceſs, and faſter than on corn or even oil-cakes; each ſheep eat a gallon every day, and ſome hay morning and evening. The Potatoes were ſliced, and put into troughs under a ſhed. The ſheep were of the South-Down breed; were taken into the yard about the middle of november, and were ready for the market at the end of february, or the firſt week in march [b].

General Murray, of the ſame county, fattened ſheep with them; 196 wethers eat very near 14 buſhels of Potatoes, and 1 cwt. of hay each day [c].

Monſ. Cretté de Palleul fattened ſixteen ſheep: four on Potatoes, four on Turneps, four on Beets, four on Corn. The four on Potatoes gained in four months 70 lb.—on Turneps, 67 lb. ¾—on Beets, 71 lb.—and on Corn, 92 lb. ½. They had ſome hay; and were all weighed alive [d].

George Ward, Eſq. of Bradfield houſe in Berkſhire, found that an acre of middling Turneps, and 100 buſhels of Potatoes, kept forty lambs the ſame time, namely twenty days. The ſcouring at the beginning was ſtopped by a little hay. When the Potatoes were finiſhed the lambs fell off [e].

Mr. Dann, of Gillingham in Kent, made a reſerve of Potatoes for ewes and lambs in the ſpring, that Turneps might not remain to exhauſt the land, to the injury of ſucceeding crops. From the 2d to the 14th of april inclusive 156 ewes, and 155 lambs, were kept in a meadow of five acres and three quarters, on Potatoes and Clover hay. They eat each 616 lb. of the former, and 279 lb. of the latter. This ſaved the Clover, of which there was then a very ſhort bite. Mr. Dann is of opinion, that if feeding with Potatoes were continued, till Lucerne and Clover could be mowed for the ſheep, it would be a great ſaving, as the produce will be conſiderably more when mown, than if they were fed [f].

William Barbor, Eſq. during winter, eſpecially in bad weather, to about ſix ſcore ewes gave ſometimes a bag of Potatoes, containing twelve pecks, Winchester meaſure, to every ſcore, in a day. They were carried out, and thrown abroad on the paſture. After having been uſed to them two or three days, they eat them with great eagerneſs [g].

Mr. Armſtrong, of King's county in Ireland, had eighty ſheep in the ſnow, which got to his Potatoes, and eat of them freely, upon which he picked forty of them, and put them to that food regularly: they fattened very quick, much ſooner than forty others at hay, and yielded him a great price [h].

The moſt unſucceſsful experiment I have met with on feeding ſheep with Potatoes, is Mr. Arthur Young's. November the 21ſt he found ſixteen of his wethers to weigh alive 1432 lb. He incloſed them on dry graſs, in a pen, which was moved occaſionally. January the 14th he weighed them again, and their weight was then only 1264 lb.; they had loſt therefore 168 lb. after having eaten ſixty buſhels of Potatoes. So he finiſhed an experiment ſo manifeſtly miſchievous, by putting the ſheep to Turneps. This was the Cluſter Potato [i]. Sheep will not always take to Potatoes at firſt, without ſlicing and mixing them with other food.

By Swine.

Potatoes have been applied with ſucceſs to feeding ſwine, and to fattening them, with the aſſiſtance of meal, peas, &c.

[a] Tranſ. Arts, 11. 91, 96.
[b] Young's ann. 12. 265.
[c] Idem, 11. 285.
[d] Idem, 14. 139.
[e] Idem, 11. 625.
[f] Tranſ. Arts, 10. 94.
[g] Idem, 11. 99.
[h] Young's Iriſh tour, 1. 22.
[i] Tranſ. Arts, 4. 81.

In Cumberland, thirty buſhels of Potatoes, and ten of Corn made into meal, are ſuppoſed to feed a ſow of eighteen or twenty ſtone weight, and leave a profit of 1l. 15s. The Potatoes are boiled, and the meal is mixed with them. Thus applied they are worth 4d. a buſhel.

Mr. Billingſley of Somerſetſhire found their value thus applied, did not exceed 10d. the buſhel of 80 lb. and that they may be grown for 6d.

In Staffordſhire, refuſe Potatoes are very generally applied to fatting hogs, which they will bring on faſt when boiled, and mixed with a little ground Barley; the tail or damaged Barley will anſwer the purpoſe.

The Reporter for the county of Fife, ſays that nothing is preferable to Potatoes for rearing or fattening hogs; and that he has ſeen ſome fed to a large ſize, and of excellent quality, who had nothing but Potatoes raw or boiled, except a little peas or oat-meal mixed with them a few days before killing [a].

Mr. Turner kept ſixty hogs a conſiderable time on the Red Cluſter Potato: but thinks that they grow tired of them, and do not come on faſt enough in fleſh; and that it is therefore more profitable to give them Beans occaſionally, or to let them have the run of a barn door. On this Mr. Young remarks, that from a conſiderable experience in keeping a large lean ſtock with the Red Cluſter, he has found that they may be depended on without other food; but that fattening even for roaſting pork is a different queſtion.

Sir William Fordyce fattened hogs with the Cluſter Potato, except the laſt ten days, when he gave them Peas; and did not find that the fat was loſt in boiling.

Mr. Cloſe (1784) for ſeveral years kept his hogs on his refuſe Potatoes; and finds pork fed with them remarkably ſweet, moiſt and delicate. Bacon hogs he keeps about a fortnight upon ground Peas mixed with the Potatoes boiled. If they be forwarded with Potatoes before they are confined, two buſhels of Pea-meal, and four buſhels of boiled Potatoes, well incorporated, will fat a hog of twelve ſtone, fit for hams or bacon [b].

Mr. Le Blanc applied 166 buſhels of Cluſter Potatoes to feeding fourteen hogs taken out of the ſtubbles above half fat: they had a buſhel raw, three times a day; no corn, but the ſhack of a farm-yard, in which three flails were going, with fifteen little pigs, which in return took a ſmall ſhare of their Potatoes. After having been thus fed above three weeks, and thriving very faſt, they were ſold to the butcher [c]. The ſame gentleman had afterwards thirteen ſows with their litters at once on Potatoes, and ſhould not have thought of keeping ſuch a ſtock, had it not been for this proviſion [d].

Mr. Pitt of Pendeford fattened large ſwine with Potatoes boiled, and thickened with bran and barley flour. On taking the Potatoes hot from the furnace, in maſhing they were mixed with the bran and barley-meal; 12 lb. ½ of the latter to one buſhel of Potatoes. Afterwards they had Peas [e].

Mr. Boys of Kent, found that ninety-ſix ſacks of Potatoes, given to fatten hogs, were 4l. 3s. 1d. worſe than nothing. Upon which Mr. Young remarks, that this experiment tends to confirm the opinion that Potatoes alone will not fat hogs; but does not by any means prove, that they may not be profitably uſed with corn, either raw or boiled [f].

Mr. Adams, of Cherington near Newport in Shropſhire, fatted eight pigs, by placing two troughs in the ſty, one filled with raw Potatoes, the other with Peas. They had no water, ſo that when the pigs were thirſty, they ate the Potatoes. They were fatted from ſixteen to twenty ſcore; and ate no more than thirty buſhels of Peas, and 200 buſhels of Potatoes [g].

Mr. Fawkener, of Petworth in Suſſex, having found that his hogs fell off their fleſh and did badly on raw Potatoes, was induced to ſteam them, which is ſuppoſed to be better than boiling; the water in which

[a] Reports.
[b] Young's ann. 1. 192. 280, 400.
[c] Idem, 3. 82.
[d] Idem, 5. 259.
[e] Idem, 6, 231. & 9. 210.
[f] Idem, 9. 98.
[g] Idem, 17. 587.

Potatoes are boiled being deleterious to hogs[g]. But does not boiling carry off this deleterious ſubſtance into the water better than ſteaming?

Mr. Billingſley found that the water in which Potatoes were boiled was injurious to hogs. He alſo plainly perceived, that they were better liked when ſlightly boiled, than when boiled to a pulp[h]. He gives a decided preference to large hogs; the ſmall growing pigs eating nearly as much food, without improving proportionably in ſize or fat. He found that many hogs at firſt ate the Potatoes with reluctance, particularly when raw, and that the quantity of food conſumed increaſed every week, till the animal became three parts fat; after which they ate little, and almoſt all they did eat turned to fat. He experienced a great amendment in the quality of the waſh, when a quantity of meal was mixed up a week or two before it was uſed, to ferment. Salt given with the Potatoes tempts the hogs to eat them very greedily. A little malted Barley, or Oats, mixed in their waſh would do good. It appears that no ſwine pay better for Potatoes than ſpayed ſows; for they get fat quicker and on leſs food than others. Grinding Potatoes in a mill inſtead of boiling did not anſwer; but they might perhaps if they had been mixed with meal, and fermented in a reſervoir. Upon theſe experiments of Mr. Billingſley's, made upon a very great ſcale, with an ample capital, and the utmoſt attention and care, Mr. Young remarks, that the profit is nothing, the loſs certain, and would have appeared ſtill greater, if intereſt on capital had been reckoned[i].

Sir Thomas Beevor gave them boiled to fattening ſwine, but did not find them anſwer alone; but mixed with an equal quantity of Barley or Buck meal, he has had them equally fat, and in as ſhort a time, as thoſe which were fed with either of the meals alone[k].

Mr. Charles Chaloner recommends baked Potatoes as an excellent food for hogs. The pork was equal to that from Barley and Beans. The Potatoes were done on a kiln, ſimilar to what is uſed by oat-meal ſhellers for drying their Oats. The difference in expenſe between boiling and baking is prodigious, both in labour and fuel. The action of the fire, by diſſipating the crude juices, reduces the Potatoes to a ſtate highly wholeſome and nutritious. Boiling does this in part, but not ſo effectually as baking or roaſting[l].

Mr. Robinſon, of Steeple Langford, Wilts, fed eight large hogs from the 27th of january to the 21ſt of april, when the laſt was killed, on boiled Potatoes only. The Potatoes, after being boiled, were drained in hampers, put into large buts, and rammed down hard with a beetle: from theſe tubs they were dug with a ſpade, and carried directly to the pig-ſty. The pigs always ate them with appetite, and throve upon them well, though not ſo rapidly as upon Pea and Barley meal. The bacon was as ſweet, firm, and as little waſteful as when hardened by corn[m].

Mr. Young aſcertained the value of the Cluſter Potato in feeding ſwine to be on an average 8d. farthing a buſhel. He boiled them, being firſt well waſhed, in a copper, maſhed them in a tub, when they were turned into a ciſtern, and incorporated with Barley meal, nine buſhels to ſeventy-five buſhels of Potatoes. The common ſtock do very well on them raw, and they may be thrown to them from the heap every day with little trouble. A large boar, three ſows, and eight ſtores had no other food from november to the end of june: two buſhels a day kept theſe hogs in high order. An acre therefore (or 360 buſhels) would maintain twelve middling hogs ſix months or 180 days. But Mr. Young is confident that two buſhels a day will maintain ſixteen hogs[n].

Mr. Kendal of Derbyſhire mixes two buſhels of Rye-meal with twenty of boiled Potatoes; with which he fattens brawns better than on corn alone. Mr. Wharton of Doncaſter mixes half a peck of Barley-meal with ſix buſhels of Potatoes boiled, with which he fattens porkers, and half fattens bacon hogs. Mr. Arbuthnot fattens porkers with Potatoes mixed with a little Barley-meal. Mr. Poole of Suſſex, boils one third Barley-meal, and two thirds Potatoes which beat Peas and Barley alone[o].

In Ireland, Mr. Clements at Killadown finds that hogs fat exceedingly well with boiled Potatoes, without any meal, both for porkers and bacon; giving them Oats for three weeks at laſt.

About Luttrelſtown they give their pigs the ſmall Potatoes boiled, and they fatten them to fine bacon; but they give ſome butter-milk, and a week or two before they are killed, ſome offal corn.

At Slaine they fat hogs with them boiled; at laſt mixing ſome Bran or Oats. A hog of two cwt. will fatten in two months on ſix barrels of Potatoes, and one barrel of Oats. Potato-fed pork reputed much firmer than that fed on Pollard. About Headfort all the hogs are fattened on Potatoes half boiled.

Mr. Cooper of Mercra has found that Potatoes raw will fatten hogs very well, but the fat will be flabby and greaſy; but if they be parboiled and well ſprinkled with ſalt, the fleſh will be firm and perfectly good[p].

By Dogs.

Potatoes boiled, maſhed, and mixed with meal, are an excellent food for dogs. Eight ounces of Potatoes with one ounce of meal are equal to four ounces of meal alone.

Suppoſe a dog to eat 5 lb. 4 oz. of meal in a week; with 10 lb. 8 oz. of Potatoes he will require only 1 lb. 5 oz. of meal: which will make a ſaving of almoſt one half.

By Poultry.

Conſiderable profit may be made by feeding geeſe, turkeys, and fowls of every ſort, with Potatoes boiled and mixed with meal as above. They will feed fatter, and in nearly half the time that they will with corn, or even meal by itſelf[q].

In Ireland they are very commonly applied to feeding poultry. They boil them to a maſh, and mix them with butter-milk. Much poultry is thus reared and fed in all the cabbins, in many parts of the country[r].

Sir William Fordyce fed his fowls entirely on Potatoes and Pollard, and found that they throve exceedingly on this food, and that it was a great ſaving in grain[s].

Upon the whole, Potatoes are a very valuable article for rearing and feeding ſtock of all kinds, when judiciouſly managed: and may always be thus turned to account, when raiſed in quantities too great to fetch a price at market, or in places too diſtant to pay the expenſe of carriage. The profits on feeding ſtock are ſeldom conſiderable, but when we reflect on their great importance in the ſpring, when Hay is dear, and Turneps fail, on the good ſtate in which Potatoes well managed leave the land for ſucceeding crops, and the great quantity of the beſt manure which is raiſed from them, we cannot but acknowledge that they are, upon the whole, beneficial to the farmer.

Effect upon Land.

It is much diſputed whether Potatoes exhauſt the ſoil or not. There can be no doubt that they do, under improper management; and that although ſome perſons have raiſed them four, and others even thirty-two years ſucceſſively on the ſame land, yet no prudent cultivator will continue them longer than two years together, except in highly manured ground, or in gardens and ſmall patches, where particular attention is beſtowed on them. On a large ſcale, they ſhould always come in regularly with other crops.

Many, ſays Mr. Billingſley, object to the cultivation of this root on a large ſcale, conſidering it in the light of a great exhauſter. If the produce of any crop, ſo productive as this is, be ſold from the farm without ſufficient return of manure, ſuch muſt be the effect; but if Potatoes are conſumed on the premiſes, the manure from the conſumption of one acre, will be ſufficient for two or three: and as the Potato crop ought always to be highly manured, no deficiency

[g] Young's ann. 20. 287 & 22. 42.
[h] Idem, 21. 42.
[i] Idem, 21. 1, &c. Bath papers, 6. 378.
[k] Bath papers, 3. 283.
[l] Hunter's Eſſays, 410.
[m] Young's ann. n. 216. p. 37.
[n] Tranſ. Arts, 44 to 90.
[o] Young's Eaſt tour, 4. 113.
[p] Young's Iriſh tour.
[q] Tranſ. Arts, 16. 207.
[r] Iriſh tour, 1. 7. 27.
[s] Young's ann. 1. 280, 283.

need be feared in the ſubſequent crops of grain, graſſes, &c. eſpecially if Wheat be baniſhed, and Barley or Oats ſubſtituted in its place [1].

Mr. Tuke, the agricultural reporter for the North Riding of Yorkſhire, has always found that the crop of corn ſucceeding Potatoes, and the ſeeds after the corn, have been equal to thoſe which ſucceeded a crop of Turneps. A well managed crop of Potatoes leaves the ſoil in a mellower and more fertile ſtate than any ſummer fallow, from the frequent ſtirrings for the deſtruction of weeds: the thick ſhade of the plants, which keeps a perpetual moiſture in the ſoil, and the decay of a large quantity of leaves and ſtalks, before and after the crop is taken up, all tend to enrich the ſoil. And do not all ſucculent plants derive a great proportion of their nouriſhment from the atmoſphere?

Mr. Young remarks, that even if the Potato ſhould be found to exhauſt conſiderably, as he ſuſpects it does, yet the friends of this culture ſhould not be alarmed at it; for though it is a deduction from its value, ſtill that value in its product is ſo very conſiderable, as to leave it one of the moſt beneficial plants that the farmer can put into his ground [2].

Potatoes are not regarded as an exhauſting crop in Eſſex, where they cultivate them on a very great ſcale. Mr. Turner of Stoke near Ipſwich aſſerts from the experience of ſeveral years, that they are by no means exhauſting, but on the contrary an ameliorating crop; and that his Barley after them had not a weed, and produced five quarters an acre. Mr. Bucke of Worlington in Suffolk judges, from his ſecond crop exceeding the firſt, with only a ſmall quantity of dung, that this crop is not very exhauſting. Mr. Lodge of Great Blakenham in Suffolk never found the idea that Potatoes are an exhauſting crop verified; is certain that no crop leaves the land ſo clean; and uſually ſows Barley after them with good ſucceſs [3].

In Durham they ſow Wheat after Potatoes, and have good clean crops. In Suſſex the Wheat following this root is reputed equal to that of a Clover lay, or clean fallow [4].

Mr. Groſett of Cornwall is ſure from experience that Potatoes do not exhauſt; but as ſoon as he perceives the bloom to be entirely gone; he gathers all the berries, and gives them to hogs, who devour them greedily [5].

Mr. Dann, who conſiders Potatoes as a more exhauſting crop than corn, allows that if cattle be fed with the produce, they would raiſe, with a moderate quantity of litter, dung ſufficient to manure nearly thrice the quantity of land the Potatoes grew on. This agrees nearly with Mr. Billingſley's opinion.

Notwithſtanding the general opinion is in favour of Potatoes, yet there are not wanting ſome who think that this culture muſt tend to impoveriſh every eſtate on which it is practiſed. Where this prevails reſtrictions and penalties are inſerted into leaſes, in ſome parts of the north of England. The opinions on this ſubject in Scotland are very various: indeed the accounts are very contradictory in moſt places. I ſhall not therefore enlarge upon them farther.

Mr. Marſhall ſettles the diſpute in this manner.—The Potato contains a great quantity of nouriſhment, and muſt therefore be a great exhauſter of the ſoil. It leaves it alſo in a ſingularly friable ſtate, cauſing an abundant produce of the crop that ſucceeds it. If therefore the huſbandman keeps cropping the land year after year with corn, and then, in its impoveriſhed ſtate lays it down to graſs, it is no wonder if it be unproductive. On the contrary, if after a crop of Potatoes well dunged for, only one or two crops of corn be taken, and the land laid down to graſs, whilſt yet in a ſtate of fertility, the Potato crop ſeems friendly to thoſe which ſucceed it.

The value of Potatoes as a fallow crop, and as an article of food for cattle compared with Turneps and Cabbages, may be conſidered thus. Potatoes are more nutritious, and ſeem to fat cattle quicker than either Turneps or Cabbages: being ſecured from the froſt, they are alſo a more certain article than the others, which occupy the ſoil in the ſpring, when it ſhould be prepared for the ſucceeding crop; whilſt Potatoes may be continued without inconveniency until the cattle be finiſhed, or the graſs has acquired its requiſite bite. Upon the whole, applying theſe to their proper ſoil: Cabbages are beſt for ſtrong tenacious land; Turneps for light ſhallow ſoils; and Potatoes for rich, deep, ſound, ſandy loams [6].

Crops following.

There is no doubt but the Potato crop is an excellent preparation for corn, provided the ground was well manured before, and duly hoed after the ſetting. The frequent ſtirring of the land by hoeing, and the complete opening of it by taking up the crop, muſt leave it in a looſe and friable ſtate, fit for the reception of ſeed. If the ſoil be a ſtrong loam or clay, Wheat may be ſown immediately with advantage; but on lighter loams, which are moſt proper for Potatoes, the land is commonly left in too looſe and friable a ſtate for Wheat, and on ſuch land it is generally more judicious to ſow Barley or Oats. Beſides, it frequently happens, eſpecially in cold expoſed ſituations, and in wet ſeaſons, that the Potato crop cannot be raiſed and got off the land before november, which protracts the ſowing of Wheat beyond the proper time.

Mr. Billingſley directs very judiciouſly. In a cold climate, and on a light ſoil, never ſow Wheat after Potatoes, but ridge up your land, and leave it for a ſpring crop; and perhaps on any ſoil it is good huſbandry ſo to do. As a trial, he ſowed half of fifty acres with Wheat in the beginning of november; the other half he ſowed with white Oats in april: the latter was uncommonly fine, and the Wheat very indifferent [7].

In Eſſex however, about Ilford, their autumnal crops of Potatoes are ſucceeded by Wheat, which is generally fine; and the ſummer ones by Turneps. They mow Clover, and plough it up the beginning of july, and plant immediately [8].

Mr. Pitt of Pendeford found his Wheat crop always equal to what might have been expected after any other preparation, but perhaps the Wheat ſtubble not ſo clean or kindly as after fallow Wheat [9].

Mr. Culley of Fenton in Northumberland, does not remember ever to have had a bad crop of Wheat after Potatoes, or indeed of any corn; and generally the grain good in quality [10].

Mr. Dann ſowed an acre and half with Wheat after Potatoes, in october, with only one ploughing and no freſh manure. The produce eight quarters and a half of clean corn. The land was full of Quick and other weeds, and was well cleaned by the Potato crop [11].

Mr. Hunter of Gubbins ſowed thirty-eight acres of Wheat after Potatoes, with the drill-plough, a buſhel and half of ſeed to the acre [12].

Mr. Barbor ſays his land after Potatoes was in excellent order for Wheat, and that he had a better crop than ever was ſeen in his neighbourhood [13].

Mr. Kingſton of Oak-hill near Barnet, ſays that his ground was in fine dry condition for dibbling in Wheat, which in january looked exceedingly healthy and fine, and took only a peck and half of ſeed to the acre [14].

Mr. Harper of Bank-Hall, in Kirkdale, Lancaſhire, ſays that if Potato land be laid dry, and remain ſo for the winter, it will be equal to Turnep land, for any ſpring crop that the land will bear: but that it is moſtly ſown with Wheat, let the ſeaſon turn out ever ſo bad; and by being ſown in bad condition, it commonly leaves the land foul. In this caſe Mr. Harper never ſows Wheat, but always finds his land in excellent order for an early ſpring crop [15].

At Slaine in Ireland Wheat is ſown after Potatoes, ſometimes Barley; the latter good, but the Wheat generally

[1] Somerſ. Report. p. 117.
[2] Young's annals.
[3] Tranſ. Arts, 4. 83.
[4] Reports.
[5] Rep. Comm. agr. 44.
[6] Yorkſhire, 2. 64 to 67.
[7] Bath papers, 6. 352, 360. Young's ann. 21. 19.
[8] Young's annals, 2. 99.
[9] Idem, 7. 39.
[10] Idem, 21. 227.
[11] Tranſ. Arts, 10. 59.
[12] Idem, 10. 100.
[13] Idem, 11. 92.
[14] Idem, 14. 142.
[15] Idem, 16. 210.

generally a bad crop and bad grain. Hence Mr. Young ſuppoſes the ſoil to be ſo light as to require adheſion to be given it.—About Furneſs they ſometimes ſow Wheat after Potatoes, and the crops are as great as after fallow; but the quality of the grain is inferior [l].

Mr. Young, in his directions for the management of land, recommends the following courſe of crops: 1. Potatoes. 2. Wheat. 3. Turneps. 4. Barley. 5. Clover. 6. Wheat. The ſeed wheat ready brined and limed to be in the field, and the ſeedſman with his baſket; as ſoon as the ploughman turns a furrow, the ſeedſman follows him cloſe, throwing the ſeed not into the furrow juſt opened, but on the land thrown over by the plough, the forkmen then divide themſelves at equal diſtances along it, and ſhaking the mould, which the ploughman turned over, with their forks, the boys pick up the Potatoes. The forkmen muſt leave the land regular without holes, for there is to be no other tillage for the Wheat [m].

For any ſoils, except ſtrong ones, another courſe is: 1. Potatoes. 2. Flax. 3. Clover. 4. Wheat. In this courſe, the land is left till ſpring; no water being ſuffered to ſtand on it in the winter. In the ſpring more or fewer ploughings to be applied, as will beſt inſure a fine friable ſurface to ſow the Flax in [n].

Mr. Young remarks, that the firſt of theſe courſes is upon the whole the moſt profitable that can be practiſed on all ſoils that will do for the two roots. Becauſe one third of the arable land is every year in Wheat. It contains ſpring corn, the ſtraw of which is neceſſary for cattle. The Turneps do for the ſheep, and the Clover will feed in ſummer the ſtock hogs, ſupported in winter by the Potatoes; with this great advantage that the two crops of Wheat are put in at ſcarce any expenſe, and that there is no other expenſe on the Potatoes than mere ſetting, ſince all the reſt is done in order to take up that crop [o].

He has truſted to Potato crops as a fallow, previous to laying down to meadow, which demands as clean a fallow as any object poſſibly can. The ſeeds were ſown with Barley [p].

Mr. Lodge of Great Blakenham in Suffolk, ſays he is certain no crop leaves the land ſo clean as Potatoes, and that he uſually ſows Barley after them with good ſucceſs. He intends trying the following courſe: viz. Potatoes in rows thirty to thirty-ſix inches apart; then winter Tares, with Barley or Rye, mown in june or the beginning of july for Hay; the land trench-ploughed for Turneps; the third year Barley with Clover; followed by Wheat. Thus every fifth year he purpoſes having a crop of Potatoes, upon which he ſhall beſtow all the dung he can muſter. He has tried Wheat after Potatoes, but not with ſuch good ſucceſs as Barley; believing that they leave his land too light and porous for Wheat [q].

Mr. Young remarks on Mr. Billingſley's reſult given above, that it unites entirely with his own experience, for that he never got a good crop of Wheat after Potatoes: and that it is owing to two circumſtances; firſt, the ſoil is too much pulverized; 2dly, the root exhauſts ſo much as not to leave nouriſhment ſufficient for Wheat [r].

Mr. Robinſon of Steeple-Langford, Wilts, has ſeveral times ſown, and often obſerved other people's Wheat after Potatoes, and there was invariably a thin crop of ſtraw, and a poor ſhrivelled grain: Barley and Oats are as invariably good [s].

Mr. Walker of Norfolk, upon a clean Turnep fallow, planted Potatoes under the plough in june, and harrowed in Turnep ſeed above them, timing it ſo that the Turneps and young Potato ſhoots ſhall come to the hoe at the ſame time. He feeds the Turneps off early in autumn, and then ploughs the land for Wheat; gathering the Potatoes at the ſame time. He has had a full crop of Turneps, and 120 buſhels of Potatoes on an acre [t].

Mr. Bell of Dumfrieſſhire drills Potatoes at four feet and a half; and the hoeing being over by the end of june, he drills Turneps in the intervals [u].

Mr. Hollins of Montgomeryſhire, after the rows of Potatoes were covered, with a ſtick ſet beans along the middle of the rows: both grew up together very well, and came to perfection, without injuring each other in the leaſt [w].]

Tomates.

32, 33, 34, 35, 36, 37, 38, 40. Theſe plants are all propagated by ſowing their ſeeds on a moderate hot-bed in march, and when the plants are come up two inches high, they ſhould be tranſplanted into another moderate hot-bed, at about four inches diſtance from each other, obſerving to ſhade them until they have taken root; after which they muſt have frequent waterings, and a large ſhare of freſh air; for if they are too much drawn while young, they ſeldom do well afterwards.

In may theſe plants ſhould be tranſplanted either into pots filled with rich light earth, or into borders near walls, pales, or Reed-hedges, to which their branches may be faſtened to ſupport them from trailing on the ground, which they otherwiſe will do, and then the fruit will not ripen; ſo that where theſe plants are cultivated for the ſake of their fruit, they ſhould be planted to a warm aſpect, and the branches regularly faſtened as they extend, that the fruit may have the advantage of the ſun's warmth to forward them, otherwiſe it will be late in the ſeaſon before they are ripe, and they are unfit for uſe before; but when the plants are brought forward in the ſpring, and thus regularly trained to the ſouth ſun, the fruit will ripen by the latter end of july, and there will be a ſucceſſion of it till the froſt kills the plants.

Some perſons cultivate theſe plants for ornament, but their leaves emit ſo offenſive an odour on being touched, as to render them very improper for the pleaſure-garden, and their branches extend ſo wide and irregular, as to render them very unſightly in ſuch places; for as their branches cannot be kept within bounds, eſpecially when they are planted in good ground, ſo they will appear very unſightly in ſuch places; therefore the borders in the kitchen-garden, where theſe plants are placed for their fruit, muſt not be too rich, for in a moderate ſoil they will not be ſo luxuriant and more fruitful.

The Italians and Spaniards eat the fruit of the Lycoperſicum (*n.* 33.) as we do Cucumbers, with pepper, oil, and ſalt; and ſome eat them ſtewed in ſauces, &c. and in ſoups they are now much uſed in England. This fruit gives an agreeable acid to the ſoup, though there are ſome perſons who think it not wholeſome, from the great moiſture and coldneſs, and that the nouriſhment it affords muſt be bad.

The other ſorts are never uſed either in the kitchen or for medicine, but the plants are preſerved for the ſake of variety, eſpecially by thoſe perſons who are lovers of botany. The 40th ſort is propagated by ſeeds, which ſhould be ſown upon a hot-bed in the ſpring, and the plants afterwards treated in the ſame manner as has been directed for the Capſicum, with which this plant will thrive and produce plenty of fruit annually.

39. Garden Nightſhade is a common weed on dunghills and in gardens. That and all the varieties are annual, and are propagated by ſowing their ſeeds in the ſpring, on a bed of rich earth, where the plants are deſigned to remain. When they come up, thin them to at leaſt two feet diſtance. In july and auguſt they will flower, and the ſeeds will ripen in autumn. A plant or two of the more tender varieties may be ſet in pots and trained to ſticks; to be removed into the greenhouſe in autumn. During the winter, when the fruit is ripe, they will make a pretty appearance.

41. 45. The different ſorts or varieties of Melongena or Egg Plant are propagated by ſeeds ſown upon a moderate hot-bed in march. When the plants come up, tranſplant them into another hot-bed about four inches aſunder, obſerving to water and ſhade them

[l] Iriſh Tour. 1. 27. & 2. 2.
[m] Idem, 2. 399.
[n] Idem, 2. 492.
[o] Tranſ. Arts, 3. 27.
[p] Id. ib. 94.
[q] Young's ann. n. 198. p. 201.
[r] Idem, 21. 19.
[s] Idem, n. 216. p. 40.
[t] Idem. 9. 431.
[u] Rep. Com. agr. 10.
[w] Tranſ. Arts, 11. 80.

until

until they have taken root; after which give them a great ſhare of air, when the weather is warm. Water them frequently, and when they fill the frame, which will be by the middle or end of may, tranſplant them into a rich ſpot of ground, at two feet diſtance, or into the borders of the pleaſure garden, preſerving a good ball of earth to the roots. Water them plentifully till they have taken root. About the middle of july the fruit will appear; and then, if the weather be dry, water the plants often, to increaſe the fruit in number and ſize: in auguſt it will ripen, in hot countries it is eſteemed a delicacy, but in England it is merely regarded as a curioſity.

42. 43. 44. 46. 47. 48. 49. 52. 53. 54. 59. 60. 63. 66. 67. 69. 70. 71. 72. 73. 75. 76. 77. 78. 79. 80. 81. 82. 83. 88. 89. 90. 91. 92. 93. All theſe being natives moſtly of the Weſt Indies, and ſome of the Eaſt Indies, muſt be raiſed from ſeeds on a hot-bed early in the ſpring. When the plants are fit to remove, put each in a ſeparate ſmall pot filled with freſh rich earth; plunge them in a moderate hot-bed of tanner's bark, and ſhade them from the ſun until they have taken new root; after which admit a large ſhare of freſh air to them in warm weather, and water them frequently. Towards the end of june harden them gradually; and ſoon after remove them into the ſtove, where they muſt have as much free air as poſſible in warm weather; but as the cold approaches in autumn, they muſt be carefully protected, and in winter they muſt be kept in a moderate temperature of warmth. Some of theſe will bear to be expoſed to the open air in the heat of ſummer, in a warm ſituation; but in general it is better to let them remain in the ſtove, with the glaſſes open in front; and every day, in warm weather, to admit as much air as poſſible at the top of the ſtove.

[SOLANUM. See *Atropa*, *Boerhaavia*, *Chenopodium*, *Datura*, *Halleria*, *Hyoſcyamus*, *Mirabilis*, *Paris*, *Phyſalis*, *Phytolacca*, *Rivina*, *Trillium*.]

SOLDANELLA. (A Soldo, nummo. *So named, from the roundneſs of the leaves, like a piece of money.*)

Lin. gen. n. 199. *Reich. n.* 212. *Schreb. n.* 260. *Tournef. t.* 16. *Juſſ.* 97.

Claſſ. 5. 1. Pentandria Monogynia.

Nat. order of *Preciæ*. *Lyſimachiæ*, Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* five-parted, ſtraight, permanent: *ſegments* lanceolate.

COR. one-petalled, bell-ſhaped, widening gradually, ſtraight: *mouth* torn into many clefts, acute.

STAM. *Filaments* five, awl-ſhaped. *Anthers* ſimple, ſagittate.

PIST. *Germ* roundiſh. *Style* filiform, length of the corolla, permanent. *Stigma* ſimple.

PER. *Capſule* oblong, round, obliquely ſtriated, one-celled, opening by a many-toothed top.

SEEDS numerous, acuminate, very ſmall. *Receptacle* columnar, free.

ESSENTIAL CHARACTER.

Cor. bell-ſhaped, lacero-multifid. *Capſ.* one-celled, many-toothed at the top.

SPECIES.

1. Soldanella alpina. *Alpine Soldanella.*

Lin. ſpec. 206. *ſyſt.* 194. *Reich.* 1. 414. *Willd.* 1. 808. *hort. cliff.* 49. *Hall. helv. n.* 634. *Scop. carn. n.* 210. *Jacqu. auſtr.* 1. 11. *t.* 13. *Schmidt bohem.* 1. 2. *n.* 147. *Villars dauph.* 2. 465. *Allion. pedem. n.* 323. *Sabb. hort.* 1. *t.* 16. *Curt. magaz.* 49. *Camer. epit.* 254. *Cluſ. pann.* 354.

S. alp. rotundifolia. *Baub. pin.* 295. *Mor. hiſt.* 2. 285. *ſ.* 3. *t.* 15. *f.* 8. *Scheuch. alp.* 1. 50. *Tournef. inſt.* 82.

S. alp. major. *Cluſ. hiſt.* 309. *Ger. emac.* 838. *f.* 2. *Park. theat.* 168. *f.* 3.

β. S. alp. minor. *Cluſ. hiſt.* 308. *Ger. emac.* 839. *f.* 3.

S. Cluſii. *Schmidt bohem.* 1. *n.* 148.

Lunaria alia minor cærulea. *Dalech. hiſt.* 1314.

DESCRIPTION, &c.

Root perennial, fibrous. Leaves almoſt kidney-ſhaped, about three quarters of an inch over each way, of a dark green colour, on long foot-ſtalks. Among theſe ariſes a naked flower-ſtalk or ſcape, about four inches long, ſuſtaining at the top two ſmall open bell-ſhaped flowers, with the brim cut into many fine ſegments like a fringe: the moſt frequent colour is blue, but it is ſometimes ſnow-white. It flowers in april, and the ſeeds ripen in july.

[The largeſt ſpecimen, ſays Scopoli, that I poſſeſs, has the leaf eleven lines long, and an inch broad, emarginate at the baſe, on a petiole near two inches in length. Scape a ſpan high, terminated by three flowers, the middle one longer. (Haller ſays, that the flowers are from one to three.) Corollas blue with ſome mixture of red, moderately nodding. Capſules erect, much reſembling thoſe of Ceraſtium arvenſe: (according to Haller, deep blue, like the flower.) Receptacle on a columnar peduncle a line in length. Seeds roundiſh, as many as ſixty.

Native of the Alps of Switzerland, Auſtria, Bohemia, Dauphiné, Piedmont. Cultivated in 1656, by Mr. John Tradeſcant[y].

Gerarde ſays it grows wild in North Wales, but it has not been found there ſince his time.

β. This has all the parts ſmaller; the petiole is ſhorter and more ſlender, and the leaves are not ſo much rounded, but gradually widen from the petiole[z].

Cluſius found this variety in 1578.]

PROPAGATION AND CULTURE.

Part the roots in ſeptember. If removed in ſpring, the plants never flower ſtrong; and if the ſeaſon ſhould prove dry, they will decay, unleſs they are conſtantly ſupplied with water. The ſeeds ſeldom grow unleſs they are ſowed ſoon after they are ripe; for which reaſon thoſe ſent from abroad ſeldom ſucceed.

This plant thrives beſt in a ſtrong cool loam, and muſt have a ſhady ſituation: expoſed to the ſun it will not live; nor will it thrive in a warm light ſoil. In dry weather it ſhould be frequently watered.

[The Soldanella requires, like moſt other alpine plants, ſhade and moiſture in the ſummer, and thrives beſt in a pot, ſet in a northern aſpect: in winter, it requires the ſhelter of a frame, in lieu of ſnow, its more natural covering[x].]

Seeds that ripen in England, may be ſown in a box or pot, ſoon after they are ripe, placed in the ſhade, and frequently watered in dry weather. The plants will ſometimes appear in autumn, but more frequently not till the following ſpring. When they come up, they muſt be duly watered in dry weather, and kept conſtantly in the ſhade. The following autumn, tranſplant them into a ſhady border ſix or eight inches aſunder; [or rather into ſmall pots.

SOLDANELLA. See *Convolvulus*.

SOLDIER-WOOD. See *Mimoſa purpurea*.]

SOLIDĀGO. (*From* ſolidare, *or* ſolidando vulnera, *from its ſuppoſed efficacy in healing wounds.*)

Lin. gen. n. 955. *Reich. n.* 1035. *Schreb. n.* 1292. *Vaill. act. gall.* 1720. *f.* 5, 46. 18. *Juſſ.* 181. *Gærtn. fruct. t.* 170. *Mill. fig. t.* 254. Virga aurea. *Tournef. t.* 275. *Vaill. act. gall.* 1720. Doria. *Dill. gen.* 8. *elth.* 104, 105.

Claſſ. 19. 2. Syngeneſia Polygamia Superflua.

Nat. order of *Compoſitæ Diſcoideæ*. *Corymbiferæ*, Juſſ.

GENERIC CHARACTER.

CAL. *Common* oblong, imbricate: *ſcales* oblong, narrow, acuminate, ſtraight, converging.

COR. *Compound* radiate. *Corollets hermaphrodite* tubular, very many, in the diſk:—*Female* ligulate, fewer than ten (commonly five) in the ray.

Proper of the Hermaphrodite funnel-form, with a five-cleft, patulous border:—*Female* ligulate, lanceolate, three-toothed.

STAM. in the Hermaphrodites: *Filaments* five, capillary, very ſhort. *Anthers* cylindrical, tubular.

PIST. in the Hermaphrodites: *Germ* oblong. *Style* filiform, length of the ſtamens. *Stigma* bifid, ſpreading.—In the Females: *Germ* oblong. *Style* filiform, length of the hermaphrodite. *Stigmas* two, revolute.

PER. none. *Calyx* ſcarcely changed.

[y] Hort. kew. [z] Cluſ. hiſt. [x] Curtis.

Seeds in the Hermaphrodites solitary, obovate-oblong. *Seed-Down* capillary:—in the Females very like the others.
Rec. flattish, naked.

ESSENTIAL CHARACTER.

Cal. scales imbricate, closed. *Corollets* of the ray about five. *Seed-down* simple. *Rec.* naked.

SPECIES.

1. With racemes directed one way.

1. Solidago canadensis. *Canadian Golden-rod.*
Ait. kew. 3. 210.
α. S. canadensis. *Lin spec.* 1233. *Reich.* 3. 814. *hort. cliff.* 409. *upf.* 259. *Gron. virg.* 97. *Kniph. cent.* 3. *n.* 87. *Pluk. phyt. t.* 263. *f.* 1. *Mor. hist.* 3. 125. *n.* 25.
Leaves almost naked, with very few serratures, racemes terminating elongated.
β. Solidago humilis. *Mill. dict. n.* 16.
Dwarf Canadian Golden-rod.
Leaves rugged with few serratures, racemes almost equal spreading very much.
γ. *Entire-leaved Canadian Golden-rod.*
Ait. kew. 3. 210.
Leaves villose underneath, the upper ones quite entire, racemes elongated spreading.
Stem villose erect, leaves lanceolate serrate triple-nerved rugged, racemes panicled directed one way recurved, ligules abbreviated.
2. Solidago procera. *Great Golden-rod.*
Ait. kew. 3. 211.
S. hirsutissima. *Mill. dict. n* 15.
Stem villose upright, leaves lanceolate serrate triple-nerved rugged villose underneath, racemes spike-shaped erect, before they open nodding, ligules abbreviated.
[3. Solidago serotina. *Upright smooth Golden-rod.*
Ait. kew. 3. 211.
Stem upright round even, leaves linear-lanceolate smooth rough at the edge serrate triple-nerved, racemes panicled directed one way.
4. Solidago gigantea. *Gigantic Golden-rod.*
Ait. kew. 3. 211.
Stem upright smooth, leaves lanceolate smooth serrate rugged at the edge, racemes panicled directed one way, peduncles rough-haired, ligules abbreviated.
5. Solidago reflexa. *Reflexed Golden-rod.*
Ait. kew. 3. 211.
Stem upright villose, leaves lanceolate subserrate triple-nerved rugged reflexed, racemes panicled directed mostly one way.]
6. Solidago lateriflora. *Lateral-flowered Golden-rod.*
Lin. spec. 1234. *Reich.* 3. 815. *Ait. kew.* 3. 211. *Mill. fig. t.* 254. *f.* 1?
α. *Lateral-flowered Golden-rod with red stalks, scarcely hairy.*
β. *Lateral-flowered Golden-rod with green stalks hairy.*
Stem upright somewhat hairy, leaves lanceolate subtriple-nerved smooth except at the edge, which is rugged, the lower ones subserrate, racemes panicled subrecurved directed one way.
[7. Solidago aspera. *Rough-leaved Golden-rod.*
Ait. kew. 3. 212.
Virga aurea americana foliis brevioribus serratis. *Dill. elth.* 411. *t.* 305. *f.* 392.
Stem upright round hairy, leaves ovate subelliptic very rugged wrinkled serrate nerveless, racemes panicled directed one way.]
8. Solidago altissima. *Tall Golden-rod.*
Lin. spec. 1233. *Reich.* 3. 815. *hort. upf.* 259. *Dill. elth.* 416. *t.* 308. *f.* 396.
α. S. altissima. *Mill. dict. n.* 8. *Mart. cent. t.* 14.
Stem five feet high hairy, serratures deep unequal, racemes divaricating.
β. Solidago pilosa. *Hairy Golden-rod.*
Mill. dict. n. 9.
Stem three feet high hirsute, serratures deep almost equal, racemes ascending. Ait. kew.
γ. Solidago recurvata. *Recurved Golden-rod.*
Mill. dict. n. 28.
Stem three feet high villose, serratures deep almost equal. Ait. kew.
δ. Solidago virginiana. *Virginian Golden-rod.*
Mill. dict. n. 11.
Stem five feet high extremely villose, serratures large, racemes scarcely diverging. Ait. kew.
1. Solidago rugosa. *Wrinkled leaved Golden-rod.*
Mill. dict. n. 25.
Stem three feet high somewhat villose, serratures small almost equal, racemes divaricating.
Stem upright rough-haired, leaves lanceolate very rugged wrinkled serrate nerveless, panicles directed one way.
[9. Solidago nemoralis. *Woolly-stalked Golden-rod.*
Ait. kew. 3. 213.
Stem upright tomentose, stem-leaves lanceolate hispid quite entire, root-leaves subcuneiform serrate, racemes panicled directed one way.
10. Solidago arguta. *Sharp-notched Golden-rod.*
Ait. kew. 3. 213.
Stem upright smooth, leaves smooth sharply and unequally serrate, stem leaves elliptic, root-leaves ovate-oblong, racemes panicled directed one way, ligules elongated.
11. Solidago juncea. *Rush-stalked Golden-rod.*
Ait. kew. 3. 213.
Stem upright smooth, leaves lanceolate smooth rugged at the edge, the lower ones serrate, racemes panicled directed one way.]
12. Solidago elliptica. *Oval-leaved Golden-rod.*
Ait. kew. 3. 214.
S. latifolia. *Mill. dict. n.* 14.
Stem upright smooth, leaves elliptic even, serrate, racemes panicled directed one way, ligules middling.
13. Solidago sempervirens. *Narrow-leaved evergreen Golden-rod.*
Lin. spec. 1232. *Reich.* 3. 814. *Ait. kew.* 3. 214. *Gron. virg.* 97.
S. glabra. *Mill. dict. n.* 22.
S. maxima. *Corn. canad.* 168. *Raii hist.* 279.
Virga aurea canadensis foliis carnosis non serratis angustioribus. *Mor. hist.* 3. 124. *n.* 14. *f.* 7. *t.* 23. *f.* 15.—fol. angustis levibus non serratis. *Raii hist.* 279.
Stem upright smooth, leaves linear-lanceolate somewhat fleshy even quite entire rugged at the edge, racemes panicled directed one way, peduncles hairy.
[14. Solidago odora. *Sweet-scented Golden-rod.*
Ait. kew. 3. 214.
Virga aurea americana Tarraconis facie et sapore, paniculâ speciosissimâ. *Pluk. alm.* 389. *t.* 116. *f.* 6.
Stem upright pubescent, leaves linear-lanceolate quite entire smooth rugged at the edge, racemes panicled directed one way.]

2. With upright racemes.

15. Solidago lanceolata. *Grass-leaved Golden-rod.*
Lin. syst. 763. *Reich.* 3. 816. *mant.* 114. *Ait. kew.* 3. 214.
S. noveboracensis. *Mill. dict. n.* 23.
Chrysocoma graminifolia. *Lin. spec.* 1178.
Stem smooth very much branched, leaves linear-lanceolate quite entire three-nerved smooth, corymbs terminating, ligules the height of the disk.
16. Solidago levigata. *Fleshy-leaved Golden-rod.*
Ait. kew. 3. 215.
S. carnosa. *Mill. dict. n.* 20. *fig. t.* 255.
Virga aurea canadensis foliis carnosis non serratis latioribus. *Mor. hist.* 3. 124. *n.* 15.
Stem upright even, leaves lanceolate fleshy quite entire even all over, racemes panicled upright, peduncles scaly villose, ligules elongated.
17. Solidago mexicana. *Mexican Golden-rod.*
Lin. spec. 1234. *Reich.* 3. 816. *hort. cliff.* 409. *Ait. kew.* 3. 215. *Gron. virg.* 122. *Kniph. cent.* 1. *n.* 82.
Virga aurea mexicana. *Bauh. pin.* 517. *Raii hist.* 278.
Stem oblique smooth, leaves lanceolate somewhat fleshy quite entire even all over, racemes panicled upright, peduncles scaly smooth, ligules elongated.
18. Solidago virgata. *Twiggy Golden-rod.*
Ait. kew. 3. 215.
S. integerrima. *Mill. dict. n.* 24.
Stem upright subpubescent, leaves linear-lanceolate membranaceous attenuated at the base smooth except at the edge which is rugged, the lowest subserrate, racemes upright, ligules elongated.

[19. Solidago ſtricta. *Willow-leaved Golden-rod.*
Ait. kew. 3. 216.
Stem upright ſmooth, ſtem-leaves lanceolate quite entire ſmooth rugged at the edge, root-leaves ſerrate, racemes panicled upright, peduncles ſmooth.

20. Solidago petiolaris. *Late-flowering Golden-rod.*
Ait. kew. 3. 216.
Stem upright villoſe, leaves elliptic ſomewhat rugged petioled, racemes upright, ligules elongated.]

21. Solidago bicolor. *Two-coloured Golden-rod.*
Lin. ſyſt. 763. *Reich.* 3. 815. *mant.* 114. *Ait. kew.* 3. 216.
S. alba. *Mill. dict. n.* 26. *ed.* 7. *n.* 28.
Stem and leaves hairy, leaves elliptic, the lower ones ſerrate, branches having ſmall leaves on them, racemes upright, calyx-leaves blunt.

22. Solidago rigida. *Hard-leaved Golden-rod.*
Lin. ſpec. 1235. *Reich.* 3. 818. *hort. cliff.* 410. *Ait. kew.* 3. 216.
Virga aurea Novæ Angliæ, lato rigidoque folio. *Herm. par. t.* 243. *Raii ſuppl.* 167.
Stem and leaves ovate-oblong hairy rugged, ſtem-leaves quite entire, the loweſt ſerrate, flowering-branches panicled, racemes compact upright, ligules elongated.

23. Solidago cæſia. *Maryland Golden-rod.*
Lin. ſpec. 1234. *Reich.* 3. 816. *Ait. kew.* 3. 217. *Dill. eltb.* 414. *t.* 307. *f.* 395. *Raii ſuppl.* 168. *n.* 18.
Stem even ſtraight, leaves lanceolate ſerrate ſmooth, racemes upright, ligules middling.

24. Solidago flexicaulis. *Crooked-ſtalked Golden-rod.*
Lin. ſpec. 1234. *Reich.* 3. 816. *Ait. kew.* 3. 217. *Gron. virg.* 123. *Kniph. cent.* 4. *n.* 84, 85.
S. latifolia. *Lin. ſpec.* 1234. *Reich.* 3. 817. *Pluk. phyt. t.* 235. *f.* 3, 4.
Virga aurea canadenſis aſteriſci folio. *Herm. par. t.* 244. *Raii ſuppl.* 168.
Stem flexuoſe ſmooth angular, leaves ovate acuminate ſerrate ſmooth, racemes upright, ligules middling.

[25. Solidago ambigua. *Angular-ſtalked Golden-rod.*
Ait. kew. 3. 217.
Stem ſubflexuoſe ſmooth angular branched, leaves oblong-lanceolate cloſely ſerrate ſomewhat hairy underneath, racemes upright, ligules elongated.]

26. Solidago Virgaurea. *Common Golden-rod.*
Lin. ſpec. 1235. *ſyſt.* 764. *Reich.* 3. 817. *hort. cliff.* 409. *fl. lapp. n.* 306. *ſuec. n.* 754. *mat. med.* 186. *Ait. kew.* 3. 218. *Gærtn. fruct.* 2. 448. *Hudſ. angl.* 367. *Smith brit.* 889. *engl. bot. t.* 301. *Wither. arr.* 727. *Hull,* 186. *Lightf. ſcot.* 482. *Relh. cant. ed.* 2. *n.* 693. *Sibth. oxon. n.* 707. *Abbot bedf. n.* 601. *Fl. dan. t.* 663. *Hall. helv. n.* 69. *Scop. carn. n.* 187. *Neck. gallob.* 352. *Leers herborn. n.* 656. *Pollich pal. n.* 892. *Krock. ſilef. n.* 1407. *Villars dauph.* 3. 223. *Allion. pedem. n.* 741. *Gmel. ſib.* 2. 164. *Thunb. jap.* 317. *Ludw. ed. t.* 150. *Blackw. t.* 169. *Kniph. cent.* 7. *n.* 89. *Knorr. del.* 1. *t.* W. 11. *Regnault hot.*
α. S. vulgaris. *Mill. dict. n.* 2.
Virga aurea. *Ger.* 348. 2. *emac.* 430. 2. *Matth.* 1006. *valgr.* 2. 354. *Dalech. hiſt.* 1272. *Dod. pempt.* 142. 2. *Raii hiſt.* 278. *ſyn.* 176. *Petiv. brit. t.* 16. *f.* 10.
Virga aurea vulgaris. *Park. theat.* 542.
β. S. latifolia. *Mill. dict. n.* 1.
Virga aurea latifolia ſerrata. *Bauh. pin.* 268. *Mor. hiſt. ſ.* 7. *t.* 23. *f.* 4.—vulgaris latifolia. *Bauh. hiſt.* 2. 1062.
γ. S. anguſtifolia. *Mill. dict. n.* 3.
Virga aurea anguſtifolia minus ſerrata. *Bauh. pin.* 268. *Dod. pempt.* 142. 1. *Lob. ic.* 298. 2. *Ger.* 348. 1. *emac.* 430. 1. *Petiv. brit. t.* 16. *f.* 9. *Mor. hiſt. ſ.* 7. *t.* 23. *f.* 20.
δ. S. minor. *Mill. dict. n.* 4.
Virga aurea vulgari humilior. *Raii ſyn.* 176. 3. *Dill. eltb.* 414.—minor fol. ſerratis utrinque acuminatis. *Rand.*
ε. S. cambrica. *Welch Golden-rod.*
Hudſ. angl. 367. *Wither. arr. ed.* 3. 728. *Hull,* 186. *Smith. brit.* 889. γ. *Ait. kew.* 3. 218.
S. minuta. *Mill. dict. n.* 5.
Virga aurea cambrica, floribus conglobatis. *Dill. eltb.* 413. *t.* 306. *f.* 393.—montana, folio anguſto ſubincano, floſculis conglobatis. *Raii ſyn.* 177.
ζ. S. lapponica. *Wither. arr. ed.* 3. 728.
Stem ſomewhat flexuoſe pubeſcent angular, racemes panicled erect cluſtered:—ligules elongated; leaves ſerrate, ſomewhat hairy.

[27. Solidago multiradiata. *Labrador Golden-rod.*
Ait. kew. 3. 218.
Stem ſomewhat villoſe, leaves ſeſſile lanceolate ſmooth ciliate, the lower ones ſerrate at the top, raceme terminating upright, ligules elongated numerous.

28. Solidago minuta. *Leaſt Golden-rod.*
Lin. ſpec. 1235. *Reich.* 3. 817. *Hall. helv. n.* 69. γ. *Krock. ſilef. n.* 1408. *Villars dauph.* 3. 224. *Allion. pedem. n.* 742. *Pluk. phyt. t.* 235. *f.* 7, 8. *Herm. par. t.* 245. *Barrel. ic.* 783. *Bocc. muſ.* 169. *t.* 118. *Sebeuch. it.* 2. 144. & 4. 463. *Camer. epit.* 748.
Stem quite ſimple hairy, leaves lanceolate acute ſerrate ſmooth, raceme terminating ſimple upright, ligules elongated.]

29. Solidago urticifolia. *Nettle-leaved Golden-rod.*
Mill. dict. n. 30.
Virga aurea americana, urticæ foliis conjugatis rugoſis & hirſutis, florum ſpicis foliofis. *Houſt. Mſs.*
Stem round hairy, leaves ovate-lanceolate crenate oppoſite rugged, racemes very ſhort lateral.

30. Solidago fruticoſa. *Shrubby Golden-rod.*
Mill. dict. n. 31.
Virga aurea amer. fruticoſa, ſalicis folio, floribus quaſi umbellatis. *Houſt. Mſs.*
Stem ſhrubby, leaves lanceolate ſmooth quite entire, flowers corymbed terminating.

DESCRIPTIONS, *&c.*

[The Golden-rods are natives of North America, except two ſpecies which are ſouud in Europe, and two others which were diſcovered by Houſtoun in New Spain, and have not been adopted by Linneus or any other author. I have generally followed the catalogue of the Royal Garden at Kew in the determination of the ſpecies, and the ſpecific characters, which were probably reformed by the late Dr. Solander. Moſt of the ſpecies are there ſaid to have been cultivated by Mr. Miller in 1758, which was the year when Mr. Aiton came to the Cheliea garden: many of them however had been there long before, certainly as far back as 1731, and ſome even in 1699. They were very imperfectly diſtinguiſhed by Linneus. The flowers are yellow, and frequently in long ſpikes, whence the names of *Virga aurea* and *Golden-rod*.

1. Linneus only remarks upon this ſpecies, that the leaves are narrow-lanceolate, ſcarce apparently ſerrate, and almoſt ſmooth.

Mr. Miller makes two ſpecies of this—*canadenſis* and *humilis*. The firſt he deſcribes as having] the ſtalks round, ſmooth, and two feet high; the leaves narrow and rough, with three longitudinal veins, two inches and a half long, and a quarter of an inch broad in the middle, ſeſſile, ending in acute points, and having ſometimes a few ſlight ſerratures: the flowers in a roundiſh terminating panicle, the lower ſpikes of which are reflexed, but thoſe at the top erect and joined very cloſe; theſe appear in July.

The ſtalks of the ſecond are very ſtrong and near two feet high; very cloſely garniſhed with narrow, ſpear-ſhaped, ſtiff leaves, four inches long, and half an inch broad, a little indented on their edges and ſeſſile. The flowers are diſpoſed in large panicles at the top of the ſtalks: the ſpikes are long, recurved, and compoſed of ſmaller ſpikes in cluſters: they appear in ſeptember.

[A third variety is added in the Kew catalogue, the leaves of which are hairy underneath, and the upper ones quite entire. The common Canadian Golden-rod has been long known in our gardens, having been cultivated in 1656, by Mr. John Tradeſcant, junior [b].]

2. This ſeems to be the *hirſutiſſima* of Miller, which he ſays grows naturally in Canada. The ſtalk is ſtrong and hairy, five or ſix feet high, cloſely gar-

[b] Hort. kew.

niſhed with rough ſpear-ſhaped leaves ending in acute points, four inches long, and one broad, very hairy on their under ſide, ſharply ſerrate, and having three ſtrong longitudinal veins: the flowers are diſpoſed in a roundiſh panicle at the top of the ſtalk; the ſpikes are recurved; the flowers are ſmall and of a brimſtone colour; they appear in ſeptember, and frequently continue to the end of octobor.

[3. I cannot affix any of Mr. Miller's ſpecies to this, though he certainly cultivated it. The copious ſpecific character is ſufficient to diſtinguiſh it.

4. 5. The caſe is the ſame with theſe two ſpecies.

6. Plant, according to Linnæus, ſmaller than *S. canadenſis*. Leaves not ſerrate, ſofter, but ſometimes having one or two teeth. Flowers and all things as in the preceding, but the ſtem below the middle puts out ſimple branches, a little ſhorter than the ſtem, corymboſe at the top but no branches between the terminating corymb of the ſtem and the middle or branches, which is ſingular in this ſpecies. The deſcription affixed to fig. 1. of plate 254. in Mr. Miller's figures, ſeems to agree with the ſpecific character of this ſpecies, as given in the Kew catalogue: but I dare not ſay that they are the ſame.—Stalk upright, ſmooth, near three feet high. Leaves ſmooth, ſpear-ſhaped, ending with acute points, about three inches long, and an inch broad in the middle, of a light green colour. The upper part of the ſtalk branches out into a panicle, and theſe branches have long ſpikes of flowers coming out from their wings, which are recurved: the flowers are ranged on one ſide of the foot-ſtalk, and ſtand erect; they are of a bright yellow, and have five or ſeven florets in the ray. It flowers at the beginning of auguſt, and if the autumn proves favourable, the ſeeds will ripen at the end of ſeptember. Native of New Jerſey, whence the ſeeds were ſent to Mr. Miller in 1756, by Mr. John Bartram.

In the ſame plate (fig. 2.) another ſpecies is repreſented, which in the Dictionary (n. 27.) he calls *conferta*. I cannot refer it to any of the ſpecies in Linnæus or the Kew catalogue.—He thus deſcribes it:] Stalks branching, from three to four feet high. Leaves ſmooth; the lower ones ſpear-ſhaped, oblique, entire, five inches long and two broad in the middle, on long footſtalks. The axillary ſpikes of flowers are long, blunt, and a little recurved at the end: thoſe on the upper part of the ſtalk are erect, and cluſtered together in a cloſe ſpike; they appear in ſeptember.—Native of Philadelphia, whence the ſeeds were ſent to Mr. Miller by Dr. Benſel. The ſeeds, in warm ſeaſons, will ripen in England.

[The Kew catalogue diſtinguiſhes two varieties of the *laterifiora*: one with red ſtalks ſcarcely hairy; the other with green hairy ſtalks.

7. Stems three feet high, the thickneſs of a ſtraw at the baſe, round, hairy, finely ſtreaked, clothed with leaves from top to bottom, diminiſhing gradually in ſize upwards, ſerrate, hirſute and rough, hairy along the nerve and veins at the back, deſtitute of hairs on the upper part, rough at the edge to the touch, of a ſomewhat paler colour underneath. At a foot or a foot and half from the top the ſtem puts out branches, which are very full of ſmall flowers, on ſpikes a little reflexed.

Native of Virginia and Carolina. It flowers here in ſeptember[a]. Cultivated in 1732, by James Sherard, M. D.[b].

This is a ſmaller plant than the next; the leaves are ſhorter and ſomewhat wider, of a darker green, and ſerrate almoſt to the top; the flowers are in more numerous ſpikes, and appear a little later[a].

8. Stems numerous, ſtraight, rigid, from three to four feet and a half high, the thickneſs of a ſtraw or more at the baſe, round, ſlightly ſtreaked, hirſute, clothed from top to bottom at ſhort diſtances with leaves, which are widiſh, oblong, pointed, rough, at their upper and lower parts thinly crenate, in the middle ſerrate, the ſerratures minutely crenate; thoſe on the upper branches not ſerrate, but only minutely crenate; they are green on both ſides, with a few oblique veins, and are hairy along the nerve and veins at the back, but without hairs every where elſe. Flowers very many, on the upper branches, in long rod-like ſpikes, ſomewhat reflexed; having four, five or ſix florets in the ray. They appear in auguſt and ſeptember.—Native of New England, Virginia and Carolina[c].

Linnæus ſays, it has the habit of the *canadenſis*, but differs in the ſize, ſerratures and nerves of the leaves: and that it unites ſpecies ſcarcely genuine, perhaps mules, of which the limits can ſcarcely be diſtinguiſhed. He recommends therefore a compariſon of ſeveral which he names.

Mr. Miller has made ſeveral ſpecies out of this.]

1. *S. altiſſima*: the ſtalks of which are round and ſmooth, above four feet high: the leaves rough, acute-pointed, and without veins; cloſer together on the ſtalks, and ſhorter and broader than thoſe of *canadenſis*: the panicles of flowers are much larger, the ſpikes much longer, ſpreading out wider, and more reflexed.

2. *S. piloſa*: the ſtalks of which are round and hairy, near three feet high, cloſe garniſhed with rough ſpear-ſhaped leaves, two inches long, and half an inch broad, ſlightly ſerrate, and ſeſſile. Flowers from the axils at the upper part of the ſtalk, in long recurved ſpikes, ſmall, ſulphur-coloured, on ſhort footſtalks, appearing at the end of july.

3. *S. recurvata*. Stalks hairy, branching towards the top. Leaves ſpear-ſhaped, rough, ſeſſile; the lower ones four inches long, and an inch and half broad; on the ſtalks gradually diminiſhing in ſize to the top; rough, veined and ſerrate. Flowers in a terminating panicled corymb; the ſpikes on the lower part recurved, but at the top cluſtered and erect. They appear in ſeptember and octobor. Native of Philadelphia.

4. *S. virginiana*. Stalks round, channelled, two feet high. Leaves rough, acute-pointed, ſerrate, two inches and a half long, and an inch broad. Flowers in a terminating panicle: ſpikes very long, recurved, and ſpreading out on every ſide; the lower parts of the branches cloſely furniſhed with ſmall leaves, and the flowers in cloſe cluſters at the end of the ſpike: they are of a bright yellow, and appear late in ſeptember. Native of Virginia.

5. *S. rugoſa*. Stalks round, hairy, two feet and a half high; the upper branches in a looſe panicle. Leaves ſeſſile, rough, ſpear-ſhaped, entire; the lower ones two inches long, and half an inch broad, but gradually ſmaller to the top. Spikes of flowers axillary: the lower ones long, but diminiſhing to the top. The branches have many ſmall leaves growing along them, ſome of which are intermixed with the flowers; which appear in the middle of november. Native of New England.

[9. This was introduced in 1769, by Samuel Martin, M. D. and flowers in ſeptember.

10. Cultivated by Mr. Miller in 1758. It flowers in july and auguſt.

11. Introduced in 1769, by Samuel Martin, M. D. It flowers in auguſt and ſeptember. Theſe are all natives of North America[d].]

12. Stalks ſtiff, round, ſmooth, with a white bark, upwards of three feet high. Leaves ſpear-ſhaped, ſmooth, with ſeveral veins, three inches and a half long, and one inch broad, alternate. Flowers from the upper axils, in ſhort, erect, obtuſe ſpikes, of a pale yellow colour, and appearing in auguſt. Native of Canada.

13. [This is remarkable, ſays Linnæus, for its red ſtalk, higher than a man, with very ſmooth and ſomewhat fleſhy leaves, a little rugged at the edge, continuing the whole winter; it flowers very late, ſo that in Sweden the froſt commonly prevents them from opening.

Linnæus did not diſtinguiſh this from the *lævigata*. Miller ſeems to have intended the *ſempervirens* by his *glabra*, which he thus deſcribes.] The lower leaves are fleſhy, narrow ſpear-ſhaped and entire: the ſtalks ſmooth, purpliſh, near three feet high, garniſhed with long, narrow, ſmooth, keel-ſhaped entire leaves: the

[a] Dillenius. [b] Hort. kew. [c] Dill. hort. elth. [d] Idem. [e] Hort. kew.

flowers

flowers are diſpoſed in a looſe panicle at the top of the ſtalk; the ſpikes are ſlender and erect; the flowers of a bright yellow, appearing late in October, and ſometimes continuing till december.

Native of North America. [Linneus ſays New York and Canada, we may add Virginia, if this be Gronovius's plant.—It was cultivated in 1699 by the Dutcheſs of Beaufort.

14. Cultivated in 1763, by Mr. James Gordon. It flowers in july and auguſt[h].

15. Stem five feet high. Leaves long, rugged eſpecially at the edge. Calyxes ſmall, obovate, ſubquarroſe. Ray of the corolla ſmall[i]. It is deſcribed at length in Linneus's ſpecies under the name of *Coryſocoma graminifolia*. Unleſs this is the *noveboracenſis* of Miller, I know not where to fix it. He thus deſcribes that ſpecies.] The lower leaves are long, narrow, and very ſmooth, keel-ſhaped and entire. Stalks red, fleſhy, ſmooth, two feet high, thinly garniſhed with narrow, ſmooth leaves. Flowers in looſe panicles at the top of the ſtalks, and ſome ſingle ſpikes from the axils below. Flowers bright yellow, appearing in auguſt. Native of New England, [and other parts of North America.

16. Stalks thick, fleſhy, of a purpliſh colour, frequently ſix feet high in good ground. Leaves ſpear-ſhaped, thick, fleſhy, of a deep green colour, and very ſmooth; but their edges are a little rough to the touch; they are ten inches long, and an inch and half broad, drawing to a point at each end. The flowers terminate the ſtalk in a roundiſh panicle or corymbus. The common calyx is longer than in moſt of the other ſpecies, and the ſcales are ſmoother; the radial florets are much narrower in proportion to their ſize; the florets of the diſk are large, and their ſegments not ſo acute. It is a native of many parts of North America, but was firſt brought to Europe from Canada. It ſeldom ſhows its flowers till late in october, ſo that unleſs the autumn proves favourable, the ſtalks are pinched by the froſt before the flowers blow. The ſeeds ſcarcely ever ripen in England, unleſs the plants are ſheltered[k].

This ſeems to be what Linneus intended by his *ſempervirens*. There is no doubt of its being the *carneſa* of Miller.

Moriſon ſays it is a taller plant, and has wider thicker leaves than our *ſempervirens* (n. 13.) They both flower in the ſame manner; the ſtems with the leaves and flowers continue the whole winter, and they were cultivated in the Chelſea garden in 1699, when the third part of his work was publiſhed[l].]

17. Stalks oblique, a foot and half high, ſmooth, with a brown bark. Leaves ſmooth, ſpear-ſhaped, entire, three inches long, and three quarters of an inch broad. The flowers come out on branching foot-ſtalks on the ſide of the ſtalks, are ranged on one ſide, and have a few ſmall leaves under the flowers; which appear at the end of auguſt.

[Native of North America. Cultivated in 1697, by the Dutcheſs of Beaufort[m].

Caſpar Bauhin called it *Virga aurea Mexicana*, having been told probably that it was a native of Mexico; Mr. Miller has adopted this error; Linneus doubted it. Bauhin had it from Spoerlin, who gathered it in Robin's garden at Paris.]

18. Stalks ſmooth, erect, a foot and half high. Leaves narrow, ſmooth, entire, dark green. Flowers in cloſe compact panicles at the top of the ſtalk; ſpikes ſhort, cluſtered. Flowers large, bright yellow, appearing in ſeptember.

Native of North America. [Cultivated by Mr. Miller in 1759.

19. 20. Natives of North America, and cultivated by Mr. Miller in 1758. The former flowers in ſeptember; the latter from october to december[n].

Mr. Miller has a ſpecies which he names *S. petiolata* (n. 29.) But it can ſcarcely be the ſame with the *petiolaris* of the Kew catalogue. He deſcribes it as having] the lower leaves ſmooth, entire, narrow and ſpear-ſhaped, three inches and a half long, and half an inch broad, ſtanding upon long foot-ſtalks: the ſtalks round, ſmooth, three feet high, having very ſmall, ſmooth, entire, ſeſſile leaves on them: the flowers in a cloſe panicle at the top of the ſtalk, of a bright yellow, and appearing in ſeptember. Native of Philadelphia.

21. Lower leaves oval, ſix inches long, and three broad, ending in acute points, ſerrate, having ſeveral ſtrong longitudinal veins on long foot ſtalks which have leafy borders or wings. Stalks a foot and half high, branching out almoſt from the bottom, garniſhed with ſmall, ſpear-ſhaped, entire leaves. The branches grow erect, are cloſely furniſhed with ſmall leaves below, and are terminated by ſhort cloſe ſpikes of white flowers; [or rather, having a yellow diſk and a white ray, in cloſe racemes[o].

Native of North America. Cultivated by Mr. Miller in 1759. It flowers in ſeptember[p].]

22. Stalks two feet high. Lower leaves ovate, ſtiff, ſmooth and entire, four inches long, and two inches and a half broad, on foot-ſtalks four inches in length: thoſe on the upper part of the ſtalk are ſpear-ſhaped, entire, and embrace the ſtalk half round. Flowers in looſe, ſpreading, terminating panicles; ſpikes ſhort, cluſtered, roundiſh; bright yellow, appearing in auguſt.

Native of New England. [Cultivated in 1759, by Mr. Miller[q].]

23. Stalk ſlender, ſmooth, a foot and half high. Leaves narrow-ſpear-ſhaped, two inches long, and half an inch broad, indented on their edges, and ending in acute points. Flowers in a looſe terminating panicle, with the ſpikes cloſer and thicker towards the top.

[According to Dillenius, the ſtems are three feet high, ſtiff, round, ſmooth, without ſtreaks, gray, but purpliſh towards the top, dividing into many branches. Leaves tender, thin, ſmooth, glaucous, pale grayiſh-green underneath.

Native of Maryland, whence it was procured and ſent to the Eltham garden by Peter Collinſon. It flowers in ſeptember.]

24. The lower leaves are four inches long, and almoſt two broad; their foot-ſtalks are two inches long, and have a membrane or wing on each ſide. The ſtalks riſe two feet high; they are ſlender, ſmooth, and of a light purple colour. Leaves ovate-lanceolate, indented, near two inches long, and three quarters of an inch broad, of a pale green on their under ſide. The flowers are produced in ſhort bunches from the axils almoſt the whole length; the lower ſpikes are an inch long, but the upper ones are almoſt round. The flowers are of a brimſtone colour, and appear late in auguſt.

[Linneus has made two ſpecies out of this, which he names *flexicaulis* and *latifolia*. The latter, he ſays, is too nearly allied to the former: the ſtem ſtraight, (whereas the other is flexuoſe or winding,) and acutely angular: the leaves ovate, mucronate both ways, ſerrate, ſmooth above but rugged beneath: racemes from the wings, commonly ſhorter than the leaf.

Native of Canada,—and other parts of North America. Cultivated by Mr. Miller in 1731[r].

25. This is ſaid in the Kew catalogue to have been cultivated by Mr. Miller in 1759; but we are not informed there which ſpecies of the Dictionary is intended. I know not which it is, unleſs it be the *ſcrophulariifolia*, n. 12. He thus deſcribes it:] Stalks ſlender, ſmooth, two feet high. Leaves ovate, acuminate, ſerrate, three inches long and two broad, alternate at two inches diſtance. Flowers in long bunches from the axils, diſpoſed looſely, and pale yellow; appearing in auguſt, and continuing part of ſeptember.

26. [Root perennial, of long ſimple fibres. Stem very various in height, from ten inches to three feet, commonly branching into a panicle, more or leſs flexuoſe, never entirely ſtiff and ſtraight, leafy, angular, ſtriated, a little downy; at the baſe round and often purple. Leaves elliptic-lanceolate, ſomewhat rugged, and ſtiffiſh; thoſe next the root wider, on longer

[h] Hort. kew. [i] Linn. mant. [k] Mill. fig. [l] Hiſt. oxon. 3. p. 124. [m] Hort. kew. [n] Ibid. [o] Linn. mant. [p] Hort. kew. [q] Idem. [r] Idem.

petioles,

petioles, and more widely ſerrate; ſtem-leaves for the moſt part indiſtinctly crenate-ſerrate, ſometimes almoſt quite entire, varying in ſize, often recurved; the upper ones gradually diminiſhing into lanceolate downy bractes: all ſomewhat hairy, or covered with ſhort ſtiff down, paler underneath: footſtalks winged. Flowers in terminating and axillary erect cluſters or corymbs, forming a denſe leafy pubeſcent panicle, which varies extremely as to luxuriance and number of flowers; in a barren ſoil and on mountains being ſhorter, more denſe and leſs compound. Corolla of a golden colour. Calyx-leaves finally patulous, but all ſtraight, lanceolate, ciliate, ſometimes rugged at the back, having a membranous border. Florets of the ray from five to nine or ten, ſpreading, elliptic-oblong, toothed at the top. Seeds pubeſcent. Seed-down appearing rugged when magnified [a].

On heaths it frequently does not exceed a foot in height; but in hedges and coppices it is three or four feet high, unbranched. Lower leaves ovate-lanceolate, tapering into the footſtalk, diſtantly ſerrate but almoſt entire at the ſummit, rough, ſlightly hairy, dark green above, glaucous beneath, reticulated with numerous veins; upper leaves alternate, almoſt ſeſſile, lanceolate, entire or nearly ſo. Numerous flowering-branches ariſe from the axils of the leaves; lower ones ſhorter, upper longer than the leaves, bearing ſix or eight flowers, or branched peduncles, with each one or two ſmall bracteal ſcales. Calyx imbricate with unequal lanceolate ſcales, having a green dorſal line, and whitiſh ſhining membranaceous edges. Seeds brown, convex on one ſide, plane on the other, hairy the whole length, nearly as long as the calyx, crowned with a ſeſſile ſimple down [b]:—ſmall, oblong, tapering downwards, round or indiſtinctly angular, beſet with very minute briſtles: down capillary, remotely toothletted, half as long again as the ſeed. Receptacle narrow, flat, naked, full of ſmall excavations, and rugged with their toothletted margins [c].

Native of Europe, Siberia, and Japan, in woods, coppices, hedges and heaths; flowering from july to ſeptember.

It has been ſuſpected that our Engliſh Golden-rod is different from the *S. Virgaurea* of Linneus; but we are aſſured by Dr. Smith, whoſe authority is deciſive, that on a careful compariſon of ſpecimens, they are found to be preciſely the ſame.

The herb when bruiſed ſmells like wild Carrot. It has been eſteemed a vulnerary, and is recommended to be taken internally, as well as applied to the wound. As a tonic it may ſtrengthen the general habit, and by that means be of uſe [d]. A caſe is related in the Gentleman's Magazine for february 1788, of the efficacy of a decoction made with this plant, in the ſtone. A boy ten or eleven years of age, after taking a decoction or infuſion of the Golden-rod for ſome months at times, voided great quantities of gravel, with many ſmall ſtones, and after that fifteen larger ſtones from three fourths of an ounce to an ounce and quarter, beſides fifty or more not leſs than a large pea.—It is celebrated in old authors for its lithonthriptic qualities, ſome more modern ones allow them, but it is entirely diſcarded from our regular practice. In my remembrance, ſays Gerarde, the dry herb which came from beyond the ſea ſold in Bucklerſbury for half a crown an ounce; but ſince it was found in Hampſtead wood, no man will give half a crown for an hundred weight of it.

From its vulnerary qualities, it is called in ſome places *Woundwort*, which is a name given to many other plants, for the ſame reaſon; others call it *Aaron's rod*.

Mr. Miller has made five ſpecies from the varieties of the European Golden-rod.] 1. Not common in England, but grows plentifully in Brabant, and is the moſt common in Germany. Stalks ſtiff, purpliſh brown, two feet high. Panicles axillary and terminating, each flower on a long ſlender foot-ſtalk, pale yellow, appearing at the beginning of auguſt. Leaves lanceolate, almoſt four inches long, and a quarter of an inch broad, deeply ſerrate, pale green beneath. This is our β. and the broad-leaved Golden-rod.

2. Our common Golden-rod about London. (α.) Lower leaves ovate-lanceolate, two inches long and an inch broad, ſlightly ſerrate, on pretty long foot-ſtalks. Stems ſlender, a foot and half high; with ſmall, narrow, entire, ſeſſile leaves. Flowers in panicled bunches, cluſtered together, forming a thick, erect ſpike; appearing in auguſt and ſeptember.

3. Narrow-leaved Golden-rod. (γ.) Frequent in ſeveral parts of England, as in the woods near Dulwich in Surry. Stalk round, ſmooth, a foot and half high. Leaves narrow-lanceolate, an inch and quarter long, and an eighth of an inch broad, almoſt entire, ſeſſile. Flowers in ſmall cluſtered bunches from the axils, to which they ſit very cloſe; and the ſtalk is terminated by a roundiſh bunch. The flowers being produced at every joint on the upper half of the ſtalk, the ſpikes being ſhort, do not make ſo good an appearance as thoſe of the ſecond.

4. Dwarf Golden-rod (δ.) grows in the woods at Hampſtead, whence Mr. Miller ſeveral times tranſplanted roots into the garden, where they continued many years without varying. Lower leaves indented. Stalk ſeldom more than a foot high, branching out almoſt from the bottom. Branches terminated by ſhort, cluſtered, erect ſpikes. Leaves on the ſtem and branches very narrow, acute-pointed and entire.

[Whether this be the ſame which was gathered by Sherard in Ireland, I cannot ſay. That is deſcribed, as having the leaves narrower and ſlightly ſerrate, on long petioles; and the flowers larger, from the axils, collected into a ſort of ſpike [e].

In all theſe varieties, the degree of ſerrature on the leaves, as well as the length of the leaf-ſtalks, is very variable; but the ſtem in all is ſerpentine (flexuoſe,) ribbed and cottony [f].]

5. Welch Golden-rod (ε.) has the lower leaves narrow-lanceolate, an inch and half long, and a quarter of an inch broad, ſmooth, ſlightly ſerrate, a little hoary on the under ſide. Stalk about ſix inches high, with the ſame ſort of leaves on it, only ſmaller. Flowers in roundiſh cluſtered terminating ſpikes, much larger than thoſe of the common ſort, and appearing five or ſix weeks earlier.

[This is a well-marked variety, but can ſcarcely be reckoned a diſtinct ſpecies, though it is ranked as ſuch, not only by Miller, but by Hudſon, Withering and Aiton. In the work of the latter it is diſtinguiſhed by its very ſimple pubeſcent ſtem; wedge-lanceolate ſerrate and ſomewhat hairy leaves, upright racemes, and elongated ligules.

According to Dr. Withering, it is from three to ſeven inches high. The flowers ſometimes form a corymbus, ſometimes a compact ſpike-like bunch, but the ſecondary fruit-ſtalks do not ſeem to be ever branched, as they are in the common Golden-rod. When cultivated, it attains the height of eighteen inches or more, but ſtill preſerves its ſtraight unbranched ſtem, and its great length of leaf-ſtalks. Specimens from Profeſſor Thunberg, under the name of *S. Virgaurea*, agree with our *cambrica*, which confirms an obſervation made by Mr. Afzelius, that Linneus (in hort. cliff.) had placed this as a variety of the common *S. virgaurea*, whereas it is the plant of the Flora Suecica, and really diſtinct from that of the Hortus Cliffortianus, which is our more common ſpecies.

Dillenius, who regarded it as a ſpecies, diſtinguiſhes it, by its low ſtature, ſlender ſtem, ſmaller, narrower and more hairy leaves, but principally by the inflorescence; having many flowers on the top of the ſtem only, cloſely collected together into a ſhorter blunt ſpike: it alſo flowers earlier, namely at the beginning of june, in gardens, but later in its natural places of growth. In cultivation, it produces ſeveral ſtems from the ſame root, and longer leaves [g].

Lhwyd, who firſt diſcovered this plant in Wales,

[a] Smith brit. & engl. bot. [b] Woodw. Miſc. [c] Gaertner. [d] Engl. bot. [e] Ray ſyn. [f] Withering. [g] Hort. elth.

on the top of the mountain called y Glydder, doubted whether it was any thing more than a variety [a]. Mr. Woodward alſo much doubts its being diſtinct; and ſays it ſeems only to differ in having the flowering heads in a cloſer ſpike, the ſingle heads larger, and the florets of the ray broader. The leaves are more hairy, but this is frequently the caſe with plants which grow dwarfiſh and ſtunted. Specimens gathered on the rocky precipice on the ſummit of Ingleborough to the N. W. afford no marks ſufficient to form a ſpecific difference [c].

It has been found by Hudſon about Llanberys, and by Pennant on Llyn y Cwyn near Snowdon. Mr. Hudſon found it on the mountains of Yorkſhire and Weſtmoreland, and Mr. Gough, near Kendal. Mr. Lightfoot ſaw it on the highlands of Scotland.

Plukenet has figured two dwarf varieties (*t.* 235. *f.* 7, 8.) not above two inches high; which ſeem to be only ſtunted plants of the common ſort, owing to their growth in a very barren ſoil. Such Dillenius ſeems to have found near Petersfield in Hampſhire [d], flowering in auguſt.

ζ. Withering's S. lapponica is about ſix inches high, and the ſpike contains about ten flowers. Mr. Aſzelius informed Dr. Withering that this Lapland plant had been found in Scotland; and the Dr. had a ſpecimen which he believed came from the mountains of Weſtmoreland. The root-leaves are ovate, on bordered leaf-ſtalks; the ſtem-leaves ſpear-ſhaped and ſeſſile; the flowers in a ſpike-like terminating bunch and in the boſom of the upper leaves: the ſtem is ſtraight and unbranched, as in *cambrica* [e]. Lightfoot's dwarf plant is probably the ſame with this.

27. Native of Labrador. Introduced in 1776, by the Hudſon's-bay company. It flowers in july [f].

28. Linnæus ſays it is too nearly allied to the *S. Virgaurea*; and Haller that the *cambrica* ſeems to differ from it in having hoary leaves. It is lower, according to him, than the common Golden-rod, often a long ſpan in height, with fewer, larger flowers, on one-flowered petioles, in a very ſhort ſpike: but theſe marks do not ſeem to be ſufficient to diſtinguiſh it, ſince they agree ſo entirely in the habit. It is frequent in all the Alps [g]; and Pyrenees. Introduced in 1772, by Monſ. Richard. It flowers in july [h].

Mr. Miller ſeems to have ſuppoſed it to be the ſame with the *cambrica*, from which it differs in having a hairy ſtem, the leaves lanceolate acute and ſmooth, and one ſimple upright terminating raceme. In the ſeventh edition of his Dictionary, it is the eighth ſpecies, and is deſcribed as having] the ſtalk about four or five inches high; the leaves ſmall, ſpear-ſhaped, and indented on their edges; the flowers produced ſingly upon long ſlender foot-ſtalks from the axils; they are large, pale yellow, and appear in june.

29. Stalks round, hairy, and near three feet high. Leaves oppoſite, upon ſhort foot-ſtalks, three inches long, and an inch and a quarter broad, their ſurface very rough, of a dark green on the upper ſide, but paler on the under, crenated on the edges. Flowers in ſhort bunches from the upper axils, deep yellow, and pretty large.

30. Stalk ſhrubby, ſeven or eight feet high, dividing into many ſpreading branches, which are ſlender, woody, and covered with a ſmooth gray bark. Leaves two inches and a half long, and an inch broad, of a light green, and upon ſhort foot-ſtalks. Flowers in a looſe terminating corymbus, large, of a pale yellow colour, upon pretty long peduncles. The common calyx is cut almoſt to the bottom. Peiver ſeems to have this plant, under the name of Pulmonaria jamaicenſis, ſalicis folio, calycibus paleaceis. Theſe are both natives of La Vera Cruz in New Spain, where they were diſcovered by Dr. Houſtoun; and conſequently muſt have been cultivated by Mr. Miller before 1733, in which year Dr. Houſtoun died.

[Forſter has one ſpecies (S. arborescens) native of New Zealand; and Loureiro two ſpecies (decurrens and cantonienſis) natives of China near Canton.]

[a] Raii ſyn. [b] Bauh. art. [c] Mſs. [d] Hort. elth. p. 413. [e] Hort. kew. [f] Helv. p. 30. [g] Hort. kew.

PROPAGATION AND CULTURE.

Theſe plants are all hardy, (except the two ſorts laſt mentioned) and therefore will thrive in the open air in England. Many of them having ſpecious panicles of flowers, are great ornaments to the Engliſh gardens at the end of the ſummer, when there is a ſcarcity of other flowers, which renders them more valuable. The European ſorts are ſeldom admitted into gardens, as they do not make any great appearance, but the ſorts from North America are better eſteemed; theſe have been greatly increaſed in their number of late years, and if we can judge from the ſorts which have been introduced from North America within a few years paſt, we muſt ſuppoſe that country abounds with many more ſorts than are yet known.

Theſe plants when they are once obtained, may be propagated in plenty by parting their roots; the beſt time for doing it is in autumn, as ſoon as their flowers are paſt; but thoſe ſorts which do not flower till very late in the year, ſhould be tranſplanted early in the ſpring before they begin to ſhoot, and the roots may be then parted; but if the ſpring ſhould prove dry, they will require water to eſtabliſh them well in the ground, otherwiſe they will not flower ſtrong the ſucceeding autumn. Some of the ſorts ſpread their roots, and propagate much faſter than others, theſe may be tranſplanted and parted every other year; or if the plants are wanted, they may be every year divided, but then they will not flower ſo ſtrong as thoſe which are ſuffered to remain longer unremoved; and thoſe ſorts whoſe roots do not multiply ſo faſt, ſhould be parted only once in three years, if they are expected to flower ſtrong.

The ſorts which grow tall, are not very proper furniture for ſmall gardens, becauſe they require much room, for theſe ſhould be allowed four or five feet, otherwiſe their roots will intermix with thoſe of the neighbouring plants, and draw away their nouriſhment; therefore theſe plants are proper ornaments for large extended walks round fields, or for the borders of wood-walks, where they will make a fine appearance during their ſeaſon of flowering; and as they require little culture, they are adapted to thoſe places. They will thrive in almoſt any ſoil, but when they are planted in good ground they will grow much larger, and make a better appearance.

Theſe plants may alſo be propagated by ſeeds, but it is only the early flowering kinds which perfect their ſeeds in England. Theſe ſeeds ſhould be ſown in autumn ſoon after they are ripe, for thoſe which are kept out of the ground till ſpring ſeldom ſucceed, or at beſt do not come up the ſame year; they may be ſown in drills upon a bed of freſh earth, at about a foot aſunder, but the ſeeds ſhould be ſcattered pretty thick in the drills, and covered lightly over with fine earth. When the plants come up, they muſt be kept clean from weeds, and where they are too cloſe, part of them may be drawn out, and planted in a ſhady border, to allow room for the others to grow till autumn, when they ſhould be tranſplanted where they are deſigned to remain. The following year they will flower, and their roots will abide many years.

The two laſt mentioned ſorts being natives of a warm country, will not thrive here, unleſs they have artificial heat in winter, eſpecially the laſt ſort, which requires a warmer ſituation than the other. Theſe plants ſhould be planted in pots, and the laſt ſhould be plunged into the tan-bed in the ſtove, and treated in the ſame way as other tender plants from the ſame country. This may be propagated by cuttings, which, if planted in pots filled with loamy earth, and plunged into a moderate hot-bed, will take root. The other ſort is propagated by parting the roots, in the ſame manner as the ſorts before mentioned; theſe ſhould be kept in a moderate ſtove in winter, and in ſummer may be placed abroad in a ſheltered ſituation.

SOLIDAGO. See *Amellus*, *Cacalia*, *Cineraria*, *Inula*, *Othonna*, *Senecio*.

SOLOMON'S SEAL. (So called from impreſſions on the roots like thoſe of a ſeal.) See *Convallaria*.

SOMO.

SOMO. See *Illicium*.
SONCHO AFFINIS. See *Lapsana*.
SONCHORUS. See *Kæmpferia*.
SONCHUS. (Σόγχος of *Theophraſtus and Dioſcorides. According to ſome, it is corrupted from* σῦριγξ *inanis, vacuus; from its hollow ſtalks: according to others, it is ſo called* ἀπὸ τοῦ σὺν ὄγκῳ χεῖσθαι, *from its pouring out a wholeſome juice.*)
Lin. gen. n. 908. *Reich. n.* 987. *Schreb. n.* 1233. *Tourn. t.* 268. *Vaill. act. gall.* 1721. 22. *Juſſ.* 169. *Gærtn. t.* 158. Crepis. *Vaill. act.* 1721. 55. 22.
Claſſ. 19. 1. Syngeneſia Polygamia Æqualis.
Nat. order of *Compoſitæ Semiflosculoſæ. Cichoraceæ*, Juſſ.

GENERIC CHARACTER.

CAL. *Common* imbricate, ventricoſe: *ſcales* very many, linear, unequal.
COR. *Compound* imbricate, uniform. *Corollets* hermaphrodite, numerous, equal.
Proper one-petalled, ligulate, linear, truncate, five-toothed.
STAM. *Filaments* five, capillary, very ſhort. *Anther* cylindrical, tubular.
PIST. *Germ* ſubovate. *Style* filiform, length of the ſtamens. *Stigmas* two, reflexed.
PER. none. *Calyx* converging into a depreſſed acuminate globe.
SEEDS ſolitary, oblongiſh. *Down* capillary, ſeſſile.
REC. naked.

ESSENTIAL CHARACTER.

Cal. imbricate, ventricoſe. *Down* hairy. *Recept.* naked.

SPECIES.

1. Sonchus maritimus. *Sea Sow-thiſtle.*
Lin. ſpec. 1116. *Reich.* 3. 620. *Allion. pedem. n.* 818. *t.* 16. *f.* 2. *Krock. ſilef. n.* 1252. *Deſfont. atlant.* 223. *Cavan. ic. n.* 57. *t.* 51.
S. anguſtifolius. *Neck. gallob.* 326.—maritimus. *Bauh. pin.* 124. *prodr.* 61. *Raii hiſt.* 226. *Pluk. phyt. t.* 62. *f.* 5. *Tournef. inſt.* 475. *Vaill. acad.* 1721. *p.* 196. *Zanich. hiſt. n.* 98.
Chondrilla paluſtris longifolia ſinuata læviter ſpinoſa. *Raii ſuppl.* 137.
Peduncle naked, leaves lanceolate embracing undivided ſharply toothed backwards.
2. Sonchus cæruleus. *Blue Sow-thiſtle.*
Smith brit. 815. *Curner. epit.* 281.
S. canadenſis. *Lin. ſpec.* 1115. *Reich.* 3. 624. *Wither. arr. ed.* 3. 674. *Hull*, 177.
S. alpinus. *Hudſ. angl.* 336. *El. dan. t.* 182. *Hall. helv. n.* 20. *Villars dauph.* 3. 161.
S. alp. cæruleus alter. *Park. theat.* 808. 1.
S. cæruleus latifolius. *Bauh. hiſt.* 2. 1005. *Raii hiſt.* 225.
S. flore cæruleo. *Ger.* 231. 6. *emac.* 294. 7.
Peduncles and calyxes hiſpid and racemed, leaves ſubhyrate, terminating lobe deltoid and very large.
3. Sonchus paluſtris. *Marſh Sow-thiſtle.*
Lin. ſpec. 1116. *Reich.* 3. 620. *Hudſ. angl.* 337. *Wither. arr. ed.* 3. 674. *Hull*, 177. *Smith brit.* 816. *engl. bot. t.* 935. *Curt. lond.* 5. *t.* 59. *Relh. cant. ed.* 2. *n.* 629. *Fl. dan. t.* 606. *Neck. gallob.* 326. *Allion. pedem. n.* 812. *Pallas it.* 1. 59.
S. aſper arboreſcens. *Bauh. pin.* 124.
S. lævior auſtriacus 5. altiſſimus. *Cluſ. hiſt.* 2. 147.
S. arboreſcens. *Park. theat.* 808. 2.—alter. *Ger. emac.* 294. 9.
S. tricubitalis folio cuſpidato. *Merr. pin. Raii ſyn.* 163. *Pet. brit. t.* 14. *f.* 7.
S. lævis paluſtris altiſſimus. *Raii hiſt.* 226.
Peduncles and calyxes hiſpid ſubumbelled, leaves runcinate ſagittate at the baſe rugged at the edge.
4. Sonchus arvenſis. *Corn Sow-thiſtle.*
Lin. ſpec. 1116. *Reich.* 3. 621. *fl. ſuec. n.* 687. *hort. cliff.* 384. *Hudſ. angl.* 337. *Wither. arr. ed.* 3. 674. *Hull*, 177. *Smith brit.* 817. *engl. bot. t.* 674. *Curt. lond.* 4. *t.* 53. *Lightf. ſcot.* 427. *Relh. cant. ed.* 2. *n.* 630. *Sibth. oxon. n.* 659. *Abbot bedf. n.* 555. *Hall. helv. n.* 23. *Pollich pal. n.* 726. *Neck. gallob.* 325. *Krock. ſilef. n.* 1251. *Villars dauph.* 3. 159. *Allion. pedem. n.* 813.
S. repens multis Hieracium majus. *Bauh. hiſt.* 2. 1018. 1. *Raii hiſt.* 226. *ſyn.* 163. *Petiv. brit. t.* 14. *f.* 6.
Hieracium arvenſe. *Scop. carn. n.* 974.
H. majus. *Fuchſ. hiſt.* 319.—folio ſonchi, ſ. H. ſonchites. *Bauh. pin.* 126.
S. arboreſcens. *Ger.* 231. 7. *emac.* 294. 8.
S. dendroides Dalechampii. *Park. theat.* 808. 3.
S. hieracites, &c. *Mor. hiſt. ſ.* 7. *t.* 6. *f.* 12.
Peduncles and calyxes hiſpid ſubumbelled, leaves runcinate toothletted cordate at the baſe, root creeping.
5. Sonchus agreſtis.
Swartz prodr. 110.
S. lævis. *Sloan. cat.* 122. *hiſt.* 1. 255.
Peduncles tomentoſe many-flowered, calyxes ſmooth, ſtem ſtriated, leaves gaſh-ferrate ſeſſile.
6. Sonchus oleraceus. *Common Sow-thiſtle.*
Lin. ſpec. 1116. *Jyſt.* 712. *Reich.* 3. 621. *fl. lapp. n.* 289. *ſuec. n.* 688. *hort. cliff.* 384. *Hudſ. angl.* 336. *Wither. arr. ed.* 3. 675. *Hull*, 177. *Smith brit.* 818. *Curt. lond.* 2. *t.* 58. *Lightf. ſcot.* 428. *Relh. cant. ed.* 2. *n.* 631. *Sibth. oxon. n.* 658. *Abbot bedf. n.* 554. *Pollich pal. n.* 727. *Neck. gallob.* 326. *Krock. ſilef. n.* 1253.
Hieracium oleraceum. *Scop. carn. n.* 975.
α. S. lævis. *Lin. ſpec.* 1117. α. *Hall. helv. n.* 21. *Villars dauph.* 3. 158. 2. *Allion. pedem. n.* 815. *Cumer. epit.* 279. *Matth.* 497. *valgr.* 1. 452. *Ger.* 231. 4, 5. *emac.* 292. 3. *Dod. pempt.* 643. 1. *Raii hiſt.* 224. *ſyn.* 162. *Petiv. brit. t.* 14. *f.* 9, 10. *Park. theat.* 805. 1. *non ic.*
S. lævior vulgaris 1. *Cluſ. hiſt.* 2. 146.
S. lævis laciniatus latifolius. *Bauh. pin.* 124. *Mor. hiſt. ſ.* 7. *t.* 3. *f.* 1. *Gmel. ſib.* 2. 9.
Smooth jagged Sow-thiſtle.
β. S. oleraceus. *Fl. dan. t.* 682. *Deſfont. atlant.* 224.
S. lævis minor paucioribus laciniis. *Bauh. pin.* 124. *Raii hiſt.* 224. 2. *ſyn.* 163. *Petiv. brit. t.* 14. *f.* 8. *Blackw. t.* 130.
S. lævis latifolius. *Ger.* 230. 3. *emac.* 292. 4. *Park. theat.* 806. *f.* 3. *Mor. hiſt. ſ.* 7. 1. 3. *f.* 2.
Smooth broad-leaved Sow-thiſtle.
γ. S. aſper. *Lin. ſpec.* 1117. γ. *Hall. helv. n.* 22. *Villars dauph.* 3. 158. 3. *Allion. pedem. n.* 816. *Gærtn. fruct.* 2. 360. *Lightf. ſcot.* 429.
S. alpinus. *Ger.* 229. 2. *emac.* 291.
S. aſper laciniatus. *Bauh. pin.* 124. *Park. theat.* 804. *n.* 3. *Raii hiſt.* 225. *ſyn.* 163. *Petiv. brit. t.* 14. *f.* 5.
S. lacin. ſpinoſus. *Bauh. hiſt.* 2. 1016. 2.
Prickly jagged Sow-thiſtle.
δ. S. aſper. *Ger. emac.* 291.—non laciniatus. *Bauh. pin.* 124. *Raii hiſt.* 225. *ſyn.* 163. *Petiv. brit. t.* 14. *f.* 2.—major, non lacin. *Park. theat.* 803. 1.
Prickly toothed Sow-thiſtle.
ε. S. ſubrotundo folio. *Dill. in Raii ſyn.* 163. *Pluk. phyt. t.* 61. *f.* 5. *Petiv. brit. t.* 14. *f.* 1.
Round-leaved Sow-thiſtle.
ζ. S. aphyllocaulis anguſto & oblongo folio. *Dill. in Raii ſyn.* 163. *Pluk. phyt. t.* 62. *f.* 4. *Petiv. brit. t.* 14. *f.* 3.
Narrow-leaved Sow-thiſtle.
Peduncles tomentoſe, calyxes even, leaves runcinate toothed.
7. Sonchus tenerrimus. *Clammy Sow-thiſtle.*
Lin. ſpec. 1117. *Jyſt.* 712. *Reich.* 3. 622. *Gouan monſp.* 407. *Deſfont. atlant.* 223. *Pluk. phyt. t.* 93. *f.* 3. (Hieracium.)
S. lævis in plurimas & tenuiſſimas lacinias diviſus. *Bauh. pin.* 124. *prodr.* 61. *Tourn. inſt.* 475. *Vaill. acad.* 1721. *p.* 197.
Chondrilla lutea. *Bauh. hiſt.* 1. 120.
Peduncles tomentoſe, calyxes hairy.
8. Sonchus Plumieri. *Plumier's Sow-thiſtle.*
Lin. ſpec. 1117. *Jyſt.* 712. *Reich.* 3. 622. *Gouan illuſtr.* 54.
Lactuca alpina glabra, acanthi folio, flore magno cæruleo. *Vaill. act.* 1721. *p.* 200. *Mounier obſ.* 157.
Peduncles naked, flowers panicled, leaves runcinate.

9. Sonchus

9. Sonchus alpinus. *Alpine Sow-thiſtle.*
Lin. ſpec. 1117. *ſyſt.* 712. *Reich.* 3. 623. *fl. ſuec. n* 689. *lapp. u.* 290. *hort. cliff.* 385. *Gunn. norv. n.* 52. *Gouan monſp.* 408. *Smith ic. ined.* 1. 21.
S. lævis laciniatus cæruleus, ſ. S. alpinus cæruleus. *Bauh. pin.* 124.
S. cær. latifolius. *Scheuch. alp.* 50.—S. lævis flore cæruleo. *Cluſ. pan.* 651.
Peduncles ſcaly, flowers racemed, leaves runcinate.

10. Sonchus fruticoſus. *Shrubby Sow-thiſtle.*
Lin. ſyſt. 712. *ſuppl.* 346. *Jacqu. collect.* 1. 83. *L'Herit. ſtirp. nov.* 6. 171. *t.* 81.
Peduncles ſomewhat ſcaly, leaves attenuated at the baſe and lyrate, lobes rounded obtuſe, flowering calyxes ſquarroſe.

11. Sonchus pinnatus. *Wing-leaved Sow-thiſtle.*
Ait. kew. 3. 116.
Peduncles naked, calyxes even, leaves pinnate, pinnas linear-lanceolate ſomewhat toothed.

12. Sonchus radicatus. *Long-rooted Sow-thiſtle.*
Ait. kew. 3. 116.
Peduncles naked together with the calyxes ſmooth, ſtem almoſt naked, root-leaves lyrate even on both ſides, lobes triangular ovate.

13. Sonchus floridanus. *Small-flowered Sow-thiſtle.*
Lin. ſpec. 1118. *ſyſt.* 712. *Reich.* 3. 623. *Lour. cochinch.* 480. *ed. Willd.* 586. *Gron. virg.* 115.
S. annuus canadenſis altiſſimus laciniatus, flore cæruleſcente. *Vaill. act.* 1721. *p.* 198.
Lactuca altiſſima, folio ſonchi laciniato, flore parvo cæruleo. *Boerh. lugdb.* 1. 81.
Peduncles ſcaly, leaves lyrate-haſtate.

14. Sonchus ſibiricus. *Willow-leaved Sow-thiſtle.*
Lin. ſpec. 1118. *Reich.* 3. 623. *fl. ſuec. n.* 690. *Gort. ingr.* 119. *Lour. cochinch.* 481. *ed. Willd.* 586. *Kniph. cent.* 10. *n.* 82.
Peduncles ſcaly, leaves lanceolate undivided ſeſſile.

15. Sonchus tataricus. *Tartarian Sow-thiſtle.*
Lin. ſyſt. 712. *Reich.* 3. 623. *mant.* 572. *Gmel. ſib.* 2. 11. *t.* 3.
Peduncles naked, leaves lanceolate toothed runcinate.

16. Sonchus tuberoſus. *Tuberous-rooted Sow-thiſtle.*
Lin. ſyſt. 712. *ed.* 13. 346. *Reich.* 3. 624.
Lower leaves runcinate, upper ſagittate.

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17. Sonchus querciſolius. *Oak-leaved Sow-thiſtle.*
Deſfont. atlant. 225. *t.* 213.
Stem ſhrubby, leaves wedge-form, lobed at the edge, lobes remote acute toothed, the end ones in threes.

18. Sonchus anguſtifolius. *Narrow-leaved Sow-thiſtle.*
Deſfont. atlant. 225.
Leaves glaucous ſmooth linear, pinnules diſtant toothletted.

19. Sonchus chondrilloides.
Deſfont. atlant. 226.
Chondrilla ſicula tragopogonoides maritima. *Bocc. ſic.* 13. *t.* 7. *f.* A.
Root-leaves unequally pinnatifid toothed narrow, branches rod-like ruſty one-flowered.

DESCRIPTIONS, *&c.*

1. Stem ſmooth, decumbent, ſometimes erect, ſimple or ſparingly branched. Leaves ſmooth, glaucous, acute. Flowers few, paniclecorymbed: peduncles ſmooth or tomentoſe. Calyx ſmooth, or tomentoſe at the baſe. Flower the ſize of the common ſort. Seed-down white, villoſe.—It is diſtinguiſhed by its lanceolate, glaucous, toothletted leaves. Sometimes the ſtem has only one or two flowers[1].

The ſtem, according to Cavanilles, is round and near two feet high: the leaves near a ſoot long, narrow, ſomewhat earletted: the flowers terminating, two or three, on ſhort pedicels: ſcales of the calyx lanceolate, the outer ones ſhorter: corollets yellow, with a villoſe tube. He remarks, that Plukenet's figure, referred to by Linneus differs very widely from this plant.

Native of the South of Europe, and of Barbary, in ſandy wet places. Introduced in 1774, by Monſ. Richard. It flowers from july to ſeptember[k].

[1] Deſfontaines. [k] Hort. kew.

2. Root perennial, fleſhy, branched in tufts. Stems upright, three feet high, ſimple, leafy. Leaves alternate, embracing, runcinate-lyrate, toothletted, even, glaucous beneath; the lobes acute, that at the end very large and deltoid: the upper ones linear and ciliate. Raceme terminating, ſolitary, upright, hiſpid with red ſtretched-out glandular-viſcid hairs. Bractes linear. Calyx hiſpid, red. Corolla blue-purple, twice as long as the calyx. Anthers red. Seeds compreſſed. Seed-down rugged, not feathered[l].

Native of Canada and the European alps. Found on the borders of corn fields about Willington and Howden-Pans in Northumberland[m].

This has been confounded with the *alpinus* of Linneus, from which it differs widely. The trivial name *canadenſis* being improper for a plant common on the alps of Europe, Dr. Smith has judiciouſly reſtored that by which it is known in old authors.

3. Mr. Curtis has well diſtinguiſhed this ſpecies from the *arvenſis*, in oppoſition to the opinion of Haller. The root is perennial, fleſhy and branched, but not creeping; the whole herb is twice or thrice as large, though the flowers are rather ſmaller, and generally a little paler; the ſtem-leaves are longer, and their baſe is arrow-ſhaped, terminating in a pair of long narrow divaricating lobes, inſtead of being heart-ſhaped, their margin is minutely toothed; the panicle aſſumes nearly the ſhape of an umbel or cyme, varying in the number of flowers; the ſtalks as well as the calyx are rough with denſe ſhort black glandular hairs or briſtles, in which reſpect, as well as in the ſeeds and their down, it much agrees with *S. arvenſis*[n].

Johnſon (in Ger. emac.) and Sam. Dale (in Ray hiſt.) remarked the greater ſize of this ſpecies, with ſmaller flowers, which induced Ray to conſider them as diſtinct, contrary to the opinion of the Bauhins.

The root, when old, forms a large ſtool, and throws out numerous ſtems from four to ſeven feet in height; the plant from which Mr. Sowerby's drawing is made was ſeven feet high; Dr. Smith ſays, from ſix to eight, Mr. Curtis ſix feet or more, but that he has ſeen it ten feet high; he conſiders it as the talleſt of our Engliſh herbaceous plants; and remarks that it flowers later by three weeks than the *arvenſis*.—Lower ſtem-leaves very large, upper ſmaller, embracing, and arrow-ſhaped at the baſe, pinnatifid with two or three pairs of lanceolate pinnas, and a very long terminating one, ſmooth, finely toothed at the margins: the pinnas are varioully bent, and the main nerve does not run through the middle, but near the interior edge: uppermoſt leaves arrow-ſhaped at the baſe, lanceolate upwards and acuminate. Bractes awl-ſhaped. Calyx of numerous ſtrap-ſhaped unequal ſcales, hairy, but the hairs not ſo long as in *arvenſis*, though as in that terminated by globules[o].

Native of Germany, Flanders, France, Italy, Hungary, Denmark and England. Thomas Williſel found it on the banks of the Thames not far from Greenwich. Mr. Curtis ſays it occurs ſparingly in the marſhes about Blackwall and Poplar. Mr. Sowerby's ſpecimen was gathered between Greenwich and Woolwich, late in july. Near Stretham-ferry in the iſle of Ely, it has not been found for many years. Mr. Ray mentions his having gathered it in Suſſex, and near Frankfort on the Mayne, where Cluſius alſo found it.

4. Root perennial, creeping, milky, compoſed of oblong fleſhy branches, which render it very difficult to be extirpated. Stem three or four feet high, upright, little branched, roundiſh or ſlightly angular, hollow, leafy, rough with glandular briſtly hairs. Leaves alternate, runcinate, ſharpiſh, ſmooth, ſhining, fringed with little ſpinous teeth, paler on the under ſide; the upper leaves heart-ſhaped at the baſe and embracing; the uppermoſt entire. The larger leaves are notched with triangular teeth, which are again much ſharper toothed, the teeth more ſpinous than in the *paluſtris*: the upper ones are lanceolate, but not ſo much acuminated as in that. Paniele ſomewhat cymoſe or umbellate, terminating, few-flowered.

[l] Smith brit. [m] Wallis, 186. [n] Engl. bot. [o] Woodw. Mſs.

Calyx and peduncles, as well as the upper part of the ſtem, clothed with ſpreading brown glandular briſtles. Withering ſays they are pale green (or yellowiſh,) and are terminated by yellow globules: this is in their young ſtate. Dr. Abbot remarks, that after flowering they are turgid at the baſe: and Mr. Woodward, that theſe hairs are more numerous and longer than in *paluſtris*. Calyx-leaves more pointed than in *paluſtris*. Flowers very large and conſpicuous, of a bright gold-colour, externally reddiſh; on longer peduncles than thoſe of *paluſtris*. Each floret has a hairy tube. Seeds ovate, compreſſed, bay-coloured, both longitudinally and tranſverſely grooved. Seed-down ſmooth [p].

Mr. Curtis remarks, that this ſpecies is properly termed *arvenſis*, being commonly found in corn fields, where its large yellow flowers towering above the corn render it a very conſpicuous plant in july and auguſt. Its ſize, creeping root, and numerous globular hairs on the calyxes and peduncles, ſufficiently diſtinguiſh this from *S. oleraceus*. Many of the ſeeds prove abortive; owing probably to its creeping ſo much at the root. [q] Cows and goats are ſaid to eat this plant, and horſes to be very fond of it. The leaves, like thoſe of the common Sow-thiſtle, applied outwardly by way of cataplaſm, have been found ſerviceable in inflammatory ſwellings.

5. Native of Jamaica. Sloane conſidered it as our common ſmooth Sow-thiſtle.

6. Root annual, fuſiform, whitiſh, milky. Stem from one to three feet high, upright, branched, eſpecially towards the top, round except near the top where it is ſomewhat angular, ſmooth, tender, brittle, hollow, leafy, ſometimes purpliſh. Leaves embracing, ſmooth, glaucous, runcinate or pinnatifid, with the lobes acute, and more or leſs toothed or ſpiny. Peduncles axillary and terminating, forming a ſort of cyme, downy with a white and very ſoft lanugo, which quickly falls off. Calyx before flowering cylindrical and truncate, afterwards bellying out and forming a cone; ſcales ſmooth and pointed. Corolla pale yellow. Seed oblong, flattened, angular, grooved, ſomewhat rugged, notchletted. Seed-down very fine and ſmooth. Receptacle rugged with little prominent points, and ſhining [r].

Gærtner deſcribes the receptacle before it is fully ripe as concave, and having very minute depreſſed papillæ ſcattered over it: the ſeeds obovate, compreſſed, having three or five longitudinal ſtreaks, and other tranſverſe ones more indiſtinct and ſlender; the colour is ruſty yellow or cinnamon. Seed-down ſnow-white, three times as long as the ſeed.

The common Sow-thiſtle is ſubject to vary extremely: among the varieties Haller and others make the *aſper* or prickly one a diſtinct ſpecies; and the old botaniſts formed ſeveral others, from the ſize, breadth and diviſion of the leaves, &c. but theſe variations are owing merely to ſoil and ſituation; even the prickly one may readily be traced into the ſmooth, in a garden overrun with theſe plants.

The Sow-thiſtle ſeems to have nearly the ſame properties as Dandelion and Succory, but it is little regarded as a medicine. It is a favourite food with hares and rabbets; and is ſaid to be eaten by goats, ſheep and ſwine, but not to be reliſhed by horſes. The young tender leaves are in ſome countries boiled and eaten as greens: and it is even affirmed that the tender ſhoots of the ſmooth variety, boiled in the manner of Spinach, are ſuperior to any greens not in common uſe.

Common Sow-thiſtle abounds moſt in gardens, and is often met with on walls. It is more injurious to the ſlovenly gardener than the huſbandman: and flowers chiefly in july, auguſt, and ſeptember [s].

7. Root annual. Stem very much branched, with ſcattered, glutinous hairs on it. Pedicels clothed with a white nap. Calyxes cylindrical, with ſpreading hairs ſcattered over them. Leaves ſmooth, tender, pinnatifid, unarmed [t].

It is thus deſcribed more at large by Monſ. Deſfontaines. Stems procumbent, ſmooth, ſtriated, brittle; hollow. Leaves ſmooth, very tender, deeply pinnatifid; pinnules remote, unequal, lanceolate, often irregular, toothed, acute, ſublanceolate, increaſing from the baſe of the petiole to the top, often bowed and turned back; the lobe of the baſe much the largeſt, and embracing; the end one ſometimes ſubhaſtate. Flowers corymbed. Peduncles leafleſs. Calyx ovate, clothed at the baſe with a white nap; leaflets linear, hairy. Flowers yellow, nearly as big as in *S. arvenſis*. Seed-down whitiſh, villoſe, ſimple, ſeſſile. Seed ſmall, browniſh, even, oblong, ſmooth.

This plant varies much. The ſtems have rufous glutinous hairs thinly ſcattered over them, or are frequently quite ſmooth. The leaves are ſometimes pinnate, ſometimes pinnatifid; the ſegments in ſome plants are wide, in others almoſt linear; and in ſome the uppermoſt leaves are entire and lanceolate. The very tender pinnatifid leaflets, and the calyx tomentoſe at the baſe, diſtinguiſh it from the other ſpecies.

Native of Italy and the South of France. Found alſo in Barbary, both in corn fields and on the ſea ſhore, by Monſ. Deſfontaines. Dr. Smith obſerved it on the walls of Rome; and remarks, that it flowers perpetually, and is eaten by the common people as a ſalad [u]. It was cultivated in the Cheſſea garden in 1713 [x].

8. This very much reſembles the next ſpecies, but the corolla has only one row of florets, or are fewer by half than in that, but four times as big. Stem the height of a man. Leaves two feet long, runcinate like thoſe of Dandelion, even above, rugged on the veins beneath. Stem-leaves narrower and ſharper. Panicle terminating, with naked peduncles. Corolla like that of Succory. The calyx exſudes very ſmall, ſcattered reſinous globules. Seed-down ſtiped, as in *Lactuca* [y].

Gouan ſays that this is very different from *S. alpinus* in the whole of its habit. The root is perennial, woody and branched, whereas in that it is annual. Stem green, very ſmooth, very finely ſtreaked. Root-leaves and lower ſtem-leaves runcinate, and like thoſe of *Eryſimum Irio*, &c. The other ſtem-leaves reſemble theſe, but have narrower pinnules, more torn, a wider baſe, and commonly more ſharply toothletted: the uppermoſt very ſmall, with a wide ſheath terminated by a very long entire awl-ſhaped leaflet. Pedicels naked for the moſt part, but never covered with ſcattered ſtrap-ſhaped bractes; and the leaves from whoſe axils the peduncles ſpring are wider, haſtate-cordate at the baſe, not awl-ſhaped as in *S. alpinus*. Calyxes twice as large and very ſmooth; the ſcales larger, and the outer ones at the baſe cordate, as in *Scorz. pteroides*. Corollas blue.—Native of the Pyrenees.

9. Root annual. Stem ſimple, upright, round, ſtriated, glaucous, the height of a man and upwards. Leaves alternate, irregularly toothed, ſmooth, glaucous beneath, with the terminating ſegment ſcarcely larger than the reſt. Raceme compound, leafy, very long, terminating, upright, many-flowered; flowers upright. Peduncles branched, wholly covered with alternate triangular acute ſmooth bractes. Calyx oblong, bellying at the baſe, ſmooth; ſcales lanceolate, acute, green, pale at the edge. Corolla blue. Seeds contracted, ſtriated. Seed-down ſimple, ſeſſile, appearing rugged when viewed with a magnifying glaſs.

This has been much confounded with the ſecond ſpecies, from which it is totally different, as appears clearly from comparing the ſpecific differences. Dr. Smith has not ſeen a ſpecimen of it in any herbarium except in his own, and Leche's now in the poſſeſſion of Sir Joſeph Banks. Linneus found it very common on the ſide of the Lapland alps in 1732 [z].

The natives eat the ſtalks raw, like Angelica, ſtripping off the bark; but Linneus found them too bitter for his palate [a].

I have given the ſynonyms from the Flora Lapponica, but probably they do not belong to this ſpecies.

[p] Smith brit. & engl. bot. Curt. lond. Wither. arr. Woodw. Mſs. [q] Curt. lond. Smith brit. [r] Curt. lond. [s] Linn. ſpec. [t] Tour. a. 296. [u] Hort. kew. [x] Linn. ſpec. & ſyſt. [y] Smith. [z] Fl. lapp.

10. Stem ſhrubby, ſmooth, milky, upright, ſcarcely branched, round, thick, gray. Branches alternate, ſpreading. Leaves ſeſſile, cluſtered, ſinuate-runcinate or repand-ſinuate, unequally toothed, acute, very ſmooth, bright green on both ſides, ſpreading, flat, milky, a foot long and three inches wide. Corymbs terminating, very looſe, upright, few-flowered. Peduncles alternate, ſpreading, many-flowered, ſomewhat mealy. Pedicels one-flowered, ſcaly with little ſcattered linear acute recurved bractes, ſwelling at the top and hollow. Flowers yellow, two inches wide. Bractes like involucres, lanceolate, acute, waved, ſeſſile, the upper ones gradually ſmaller. Calyx pitcher-ſhaped: ſcales lanceolate, acute, reflex, gibbous at the baſe, the upper ones gradually larger. Seeds oblong, ſtriated, browniſh. Seed-down ſilky, white. Receptacle flat, honey-combed [a].

Native of Madeira, where it was found by Mr. Francis Maſſon, and introduced by him in 1777. It flowers from april to july [b].

11. Native of Madeira. Introduced in 1777.

12. Native of the Canary iſlands. Introduced in 1780. It flowers in july. Both theſe are ſhrubby, and were found by Maſſon [c].

13. Stem annual, four feet high, upright, round, ſmooth, branched. Leaves ſeſſile. Flowers yellow, terminating, many [d].

Native of North America; and of China near Canton, according to Loureiro.—Cultivated here in 1713; flowering in july, and biennial [e].

14. Stem ſuffruticoſe, four feet high, ſimple, upright, round. Leaves ſomewhat toothletted, ſmooth. Flowers yellow, in a large ſpreading panicle. Calyx oblong, ventricoſe, ſmooth [f]. Seed-down ſimple ſeſſile. This as well as the *alpinus* varies with a white flower [g].

Native of Sweden and Ruſſia,—according to Loureiro, of China alſo near Canton. Cultivated by Mr. Miller in 1759. It flowers in july and auguſt, and is perennial [h].

15. Root perennial, creeping. Plant very like the preceding. Stems even, twice as high as in that. Moſt of the leaves lanceolate, pinnatifid-toothed or ſubruncinate, even, with a white rib; ſtature of *S. arvenſis*. Flowers blue, altogether like thoſe of *S. ſibiricus* [i].

Native of Siberia. Introduced in 1784, by William Pitcairn, M. D. [k]

16. This reſembles the *tataricus*, but the root is not at all creeping. Corollas erect, blue. All the piſtils in the centre of the flower.—Native place unknown [l].

17. Stems ſhrubby, branched, fleſhy, roughened with the rudiments of the petioles, as thick as the finger or even the thumb. Leaves ſcattered, glaucous, very ſmooth, ſomewhat fleſhy, perennial, running down along the petiole; the teeth of the lobes ſnow-white at the top. Petioles cluſtered, flat above, embracing. Flowering branches terminating, dichotomous, ſtriated, ſmooth. At the baſe of each peduncle a leafy ſcale. Flowers in a looſe corymb. Peduncles unequal, with a few ſcales on them, one-flowered. Calyx cylindrical, looſely imbricate, ſmooth: outer ſcales wide, ovate, leafy, whitiſh and ſhrivelling at the top. Flowers yellow: floſcules twice as long as the calyx. Seeds oblong, ſmooth: ſeed-down ſeſſile, ſimple, ſnow-white, villoſe. It is a very handſome ſingular ſpecies, and quite diſtinct.—Native of the mountains of Caſſa in Barbary.

18. Root long, fuſiform, the thickneſs of a gooſe quill or the little finger, putting forth fibres all over. Stem none or ſhort. Leaves ſomewhat fleſhy, pinnate: pinnules remote, unequal, toothed; teeth ſhrivelled and whitiſh. Peduncles one or many-flowered, having few ſcales ſcattered over them, and ſhorter than the leaves. Calyx ſmooth, ovate; the outer ſcales ovoid, the inner ovate-lanceolate, frequently having a whitiſh membranaceous point. Corolla yellow, the ſize of *S. arvenſis*.—Found near Caſſa by Desfontaines.

19. Plant glaucous and very ſmooth. Segments of the root-leaves ſomewhat remote, acute or obtuſe, whitiſh at the tip; ſtem-leaves few, narrow lanceolate, with acute remote teeth. Branches upright, ſlender, unequal, clothed with ſmall, linear or ſcaly leaves. Calyx like that of *Lactuca*, ſmooth, cylindrical, imbricate with widiſh lanceolate ſcales, hoary at the tip. Floſcules yellow, twice as long as the calyx. Seed-down ſimple, white, villoſe, ſeſſile. Seed ſmall, oblong, brown. It has the appearance of *Hieracium porrifolium*. Boccone's figure repreſents the ſegments of the leaves too ſharp, and the peduncles too ſhort; the flowers are alſo ill drawn: but it is certain that it is the ſame with this, from the ſpecimen in his herbarium at Paris.

Native of ſandy fields about ancient Carthage [m].]

PROPAGATION AND CULTURE.

Many of theſe are weeds and therefore not to be planted in gardens, but extirpated continually, not only in the garden itſelf, but in all the parts near it; their winged ſeeds being wafted to a conſiderable diſtance.

[The foreign ſorts may be propagated by ſeeds; and thoſe which are ſhrubby, by cuttings alſo.

SONCHUS. See *Andryala*, *Cacalia*, *Conyza*, *Lactuca*, *Lapſana*, *Prenanthes*, *Scorzonera*, *Tragopogon*.

SONGIUM. See *Dillenia*.

SONNERATIA. (*So named by the younger Linnæus, in memory of Monſ. Sonnerat, who travelled into New Guinea, the Eaſt Indies and China, and communicated many new plants to the botaniſts in Europe.* Voyage à la Nouvelle Guinée. Par. 1776. qu. Voyage aux Indes Orientales & à la Chine. 1774—1781. Par. 1782. qu.)

Lin. gen. Schreb. n. 853. *Suppl.* 38. *Juſſ.* 325. Pagapate. *Sonn. nov. Guin. p.* 16. *t.* 10, 11. Aubletia. *Gærtn. t.* 78. Rhizophoræ. *Sp. edit. pr.*

Claſſ. 12. 1. Icoſandria Monogynia.

Nat. ord.: of *Hesperideæ*. *Myrti*, Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* one-leafed, bell-ſhaped, flat, ſix-cleft, permanent: *ſegments* ovate.

COR. *Petals* ſix, awl-ſhaped, ſpreading, inſerted into the baſe of the calyx, and ſcarcely longer than it.

STAM. *Filaments* very many, filiform, inſerted into the baſe of the calyx, long. *Anthers* globular.

PIST. *Germ* ſuperior, globular. *Style* filiform. *Stigma* ſimple.

PER. *Berry* placed upon the permanent patulous calyx, ſubglobular, acuminate, ſmooth, with a bladdery pulp, many-celled.

SEEDS ſome in each cell.

OBS. The cells are commonly twenty-ſix. *Sonnerat.* twelve or more. *Gærtner.* *S. apetala* has eight cells, and no corolla.

ESSENTIAL CHARACTER.

Cal. ſix-cleft. *Pet.* ſix, lanceolate. *Berry* many-celled, with ſeveral ſeeds in each cell.

SPECIES.

1. Sonneratia acida.

Lin. ſyſt. 464. *ed. Willd.* 999. *ſuppl.* 252.

Rhizophora caſeolaris. *Lin. ſpec.* 635. *Reich.* 2. 414. *Lour. cochinch.* 296. *ed. Willd.* 363.

Aubletia caſeolaris. *Gærtn. fruct.* 1. 379. *t.* 78. *f.* 2.

Pagapate. *Sonn. it.* 16. *t.* 10, 11.

Mangium caſeolare. *Rumph. amb.* 1. 111. *t.* 73, 74.

DESCRIPTION, &c.

This is a tree. The leaves are oppoſite, ſubſeſſile, oblong, quite entire, like thoſe of *Hypericum*. Flowers terminating, ſolitary, large. Petals red. Fruit reſembling that of *Meſembryanthemum*, with an acid bladdery juice [n].

Native of the Molucca iſlands, and the bogs of New Guinea; alſo of Cochinchina, on the banks of rivers.

[a] L'Heritier. [b] Hort. kew. [c] Idem. [d] Loureiro.
[e] Hort. kew. [f] Loureiro. [g] Linn. ſpec.
[h] Hort. kew. [i] Linn. mant. [k] Hort. kew.
[l] Linn. ſyſt.

[m] Desfontaines. [n] Linn. ſuppl.

Loureiro obſerved it on the eaſt coaſt of Africa, of a lower ſtature, with ſome of the leaves emarginate, but agreeing with the other in the flower and fruit.

Gærtner deſcribes the berry as ſuperior, globular, flatted a little, terminated by the filiform ſtyle, very ſmooth, glaucous, many-celled: rind very thin, membranaceous, adhering cloſe to the pulp, which is hardiſh, granular and whitiſh: cells twelve or more, filled with the pulp and ſeeds intermingled: partitions thin, not ſeparate from the pulp. Seeds very numerous, of different ſhapes, having the appearance of fragments of broken teeth, but for the moſt part irregularly club-ſhaped, curved, and reſembling ivory; they lie in the pulp like pebbles in a pavement.

Another ſpecies is figured in Major Symes's account of an Embaſſy to the kingdom of Ava, under the name of *Sonneratia apetala*. It is thus deſcribed in that ſplendid work, p. 477. The apetalous Sonneratia is a moſt beautiful tree, reſembling the weeping Willow, but loftier: the branches are ſcattered, pendulous, round, and ſmooth; the ſmaller branches or twigs oppoſite, divaricating, ſubbrachiate, ſmooth, filiform. Leaves on the twigs few, oppoſite, ovate-lanceolate, one of the margins more gibbous than the other, quite entire, commonly blunt, without nerves or veins, flat, ſomewhat fleſhy. Petiole linear, depreſſed, ſharp at the edge on each ſide, ſhort, oblique, ſmooth. Flowers drooping, greeniſh, ſmooth, the ſize of a nutmeg, axillary, ſubſolitary; the terminating ones moſtly in threes. Peduncles ſhorter by half than the leaves, pendulous, one-flowered, ſmooth, whitiſh, thickened towards the top, jointed, angular. Calyx coriaceous, thick, four-cleft beyond the middle; ſegments patulous, acute. Corolla none. Nectary a thick membrane, faſtened to the bottom of the calyx, with the margin entire, ſtaminiferous, produced beyond the diviſion of the calyx. Filaments erect at the baſe, but curved in above, the length of the calyx, placed in ſeveral rows on the top of the nectary. Anthers ſmall, upright, cordate. Germ turbinate. Style round, longer than the ſtamens, flexuoſe. Stigma very large, concavo-convex, reſembling a cap. Fruit an orbicular depreſſed Pome, girt at the baſe with the ſpreading calyx, eight-celled, pointed with the permanent ſtyle. Seeds very many, angular, neſtling in the pulp.

Native of Rangoon in the kingdom of Ava, on wet inundated banks by the coaſt. Called in the Birman language *Kom-ba-la*.

It is clearly diſtinguiſhed from that of the Moluccas and Cochinchina, by having the calyx divided into four parts only, and in the want of a corolla. In theſe circumſtances it recedes from the generic character. Various are the names of the fruit: in Syſtema Vegetabilium it is a capſule, in Aublet, Sonnerat, Juſſieu and Gærtner a berry, in Loureiro a drupe, in Symes a pome; it ſeems to have the beſt claim to the name of a berry.

SOPERRAY. See *Sapindus*.

SOPEWORT. See *Saponaria*.

SOPHERA. See *Caſſia*.

SOPHIA. See *Siſymbrium*.]

SOPHORA. (*Linneus's derivation of the name of this genus will be beſt given in his own words.*—"Sophora vel Sophera eſt verbum antiquum plantæ, huic proximæ, impoſitum, quo utor ad deſignandum hocce genus quod Sophorum eſt ſive ſapientiam et admonitionem fert ſtaminum filamenta in papilionaceis, ſi ſeparata inter ſe ſint, vix claſſe naturali conjungendas eſſe plantas, ſi unquam limites claſſis reperiundi ſint." *Hort. Cliff. p.* 156.)

Lin. gen. n. 508. *Reich. n.* 551. *Schreb. n.* 694. *Gærtn. t.* 149. *Juſſ.* 352.

Claſſ. 10. 1. Decandria Monogynia.

Nat. order of *Papilionaceæ* or *Leguminoſæ*.

GENERIC CHARACTER.

CAL. *Perianth* one-leafed, ſhort, bell-ſhaped, gibbous at the baſe above: *mouth* five-toothed, oblique, obtuſe.

COR. Papilionaceous, five-petalled. *Standard* oblong, gradually wider, ſtraight, reflexed at the ſides. *Wings* two, oblong, appendicled at the baſe, length of the ſtandard. *Keel* two-petalled, with the petals conformable to the wings, the lower margins approximating and boat-ſhaped.

STAM. *Filaments* ten, diſtinct, parallel, awl-ſhaped, length of the corolla within the keel. *Anthers* very ſmall, riſing.

PIST. *Germ* oblong, cylindrical. *Style* ſize and ſituation of the ſtamens. *Stigma* obtuſe.

PER. *Legume* very long, ſlender, one-celled, knobbed at the ſeeds.

SEEDS very many, roundiſh.

OBS. *It agrees in every thing with the plants of the claſs* Diadelphia, *except in having all the filaments ſeparate.*

ESSENTIAL CHARACTER.

Cal. five-toothed, gibbous above. *Cor.* papilionaceous, with the wings of the ſame length with the ſtandard. *Legume.*

SPECIES.

[1. Sophora tetraptera. *Wing-podded Sophora.*
Ait. kew. 2. 43. *Lin. ſpec. ed. Willd.* 2. 499. *Joh. Miller. ic. t.* 1. *Curt. magaz.* 167. *Lamarck illuſt. t.* 325. *f.* 3.
Leaves pinnate, leaflets numerous (17—19) *lanceolate-oblong ſomewhat villoſe, legumes quadrangular-membranaceous, ſtem arboreous.*

2. Sophora microphylla. *Small-leaved ſhrubby Sophora.*
Ait. kew. 2. 43. *Lin. ſpec. ed. Willd.* 2. 499. *Lamarck illuſtr. t.* 325. *f.* 1.
S. tetraptera. *Lin. ſuppl.* 230. *Forſt. prodr. n.* 183.
Leaves pinnate, leaflets very numerous (33—41) *obovate ſomewhat villoſe, legumes quadrangular-membranaceous, ſtem arboreous.*

3. Sophora flaveſcens. *Siberian Sophora.*
Ait. kew. 2. 43. *Lin. ſpec. ed. Willd.* 2. 499.
Leaves pinnate, leaflets numerous oblong ſmooth, ſtem herbaceous.]

4. Sophora alopecuroides. *Fox-tail Sophora.*
Lin. ſpec. 533. *ſyſt.* 391. *Reich.* 2. 241. *Willd.* 2. 499. *hort. cliff.* 156. *Kniph. cent.* 10. *n.* 94.
Ervum orientale alopecuroides perenne, fructu longiſſimo. *Tournef. cor.* 27. *Dill. elth.* 136. *t.* 112. *f.* 136.
Glycyrrhiza ſiliquis nodoſis quaſi articulatis. *Buxb. cent.* 3. 25. *t.* 46.
Leaves pinnate, leaflets numerous oblong villoſe, ſtem herbaceous.

5. Sophora tomentoſa. *Downy Sophora.*
Lin. ſpec. 533. *Reich.* 2. 241. *Willd.* 2. 500. *fl. zeyl. n.* 163. *hort. cliff.* 487. (Indigoſera.) *Gærtn. fruct.* 2. 320. *Forſt. prodr. n.* 182.
Colutea zeylanica argentea tota. *Herm. lugdb.* 169. *t.* 171. *Raii hiſt.* 1720.
Leaves pinnate, leaflets numerous roundiſh tomentoſe.

[6. Sophora occidentalis. *Occidental Sophora.*
Lin. ſpec. 533. *ſyſt.* 391. *Reich.* 2. 241. *Willd.* 2. 500. *Swartz obſ.* 154. *Trew Ehret.* 27. *t.* 59. *Brown. jam.* 289. 1. *t.* 31. *f.* 1. (Galega.) *Plum. ſpec.* 21. *ic.* 101. (Corallodendron.) *Sloan. jam.* 2. 40. *t.* 107. *f.* 3. (Arbori coral affinis.)
Leaves pinnate, leaflets numerous roundiſh hoary ſubtomentoſe.

7. Sophora monoſperma. *One-ſeeded Sophora.*
Swartz prodr. 66. *deſcr.* 2. 722. *Willd. ſpec.* 2. 501. *Brown. jam.* 298. 3. (Glycine.)
Leaves unequally pinnate, pinnas five-paired, legumes one-ſeeded. ſtem arboreous.

8. Sophora japonica. *Shining-leaved Sophora.*
Lin. ſyſt. 391. *Reich.* 2. 242. *Willd.* 2. 500. *mant.* 68. *Burm. ind.* 93. *Thunb. jap.* 178. *Willd. arb.* 364.
Leaves pinnate, leaflets many ovate ſmooth, ſtem arboreous.

9. Sophora heptaphylla. *Seven-leaved Sophora.*
Lin. ſpec. 533. *ſyſt.* 391. *Reich.* 2. 242. *Willd.* 2. 501. *mat. med.* 110. *fl. zeyl. n.* 164. *Thunb. jap.* 178? *Plenck, ic.* 323. *Pluk. amalth. t.* 451. *f.* 10? (Fruticulus ſinenſis.)
Anticholerica. *Rumph. amb.* 4. 60. *t.* 22.
Leaves pinnate, leaflets ſeven ſmooth.
Podalirias.

10. Sophora capenſis. *Vetch-leaved Sophora.*
Lin. ſyſt. 391. *Reich.* 2. 242. *mant.* 67.

S. oroboides.

S. oroboides. *Berg. cap.* 142.
Podalyria capenſis. *Lin. ſpec. ed. Willd.* 2. 501.
Leaves pinnate, leaflets numerous lanceolate hoary beneath pointed, legumes tomentoſe, ſtem ſhrubby.

11. Sophora aurea. *Golden-flowered Sophora.*
Ait. kew. 2. 44.
Podalyria aurea. *Lin. ſpec. ed. Willd.* 2. 502.
Virgilia. *Lamarck illuſtr. t.* 326. *f.* 1.
Robinia ſubdecandra. *L'Herit. ſtirp. nov.* 1. 157. *t.* 75.
Leaves pinnate, leaflets numerous elliptic ſharpiſh very ſmooth above almoſt naked beneath, legumes ſmooth, ſtem ſhrubby.

12. Sophora argentea. *Silvery-leaved Sophora.*
Pallas in act. petrop. 1792. *p.* 373. *t.* 8.
Podalyria argentea. *Lin. ſpec. ed. Willd.* 2. 502.
Petioles two-leaved ſpineſcent, leaflets ſilky-tomentoſe oblong acute at both ends.

13. Sophora geniſtoides. *Broom-leaved Sophora.*
Lin. ſpec. 534. *ſyſt.* 391. *Reich.* 2. 242. *Thunb. prodr.* 79.
Podalyria geniſtoides. *Lin. ſpec. ed. Willd.* 2. 502.
Geniſta africana foliis galii. *Old. afr.* 31.
β. S. galloides. *Berg. cap.* 141. *Pluk. phyt. t.* 413. *f.* 5.
Leaves ternate ſeſſile, leaflets linear mucronate revolute at the edge.

14. Sophora ternata. *Ternate-leaved Sophora.*
Thunb. prodr. 79.
Podalyria ternata. *Lin. ſpec. ed. Willd.* 2. 503.
Leaves ſeſſile, leaflets lanceolate ſilky.

15. Sophora auſtralis. *Blue Sophora.*
Lin. ſyſt. 391. *Reich.* 2. 243. *mant.* 378. *Gærtn. fruct.* 2. 321. *Curt. magaz. t.* 509.
Podalyria auſtralis. *Lin. ſpec. ed. Willd.* 2. 503.
Leaves ternate petioled, leaflets obovate-lanceolate obtuſe, ſtipules lanceolate acute twice as long as the petiole.]

16. Sophora tinctoria. *Dyer's Sophora.*
Lin. ſpec. 534. *ſyſt.* 391. *Reich.* 2. 243. *mant.* 377.
Podalyria. *Lamarck illuſtr. t.* 327. *f.* 1.
P. tinctoria. *Lin. ſpec. ed. Willd.* 2. 503.
Leaves ternate petioled, leaflets roundiſh-obovate obtuſe mucronate, ſtipules obſolete oblong acute many times ſhorter than the petiole.

17. Sophora alba. *White Sophora.*
Lin. ſyſt. 391. *Reich.* 2. 243.
Crotalaria alba. *Lin. ſpec.* 1006. *mant.* 440. *hort. cliff.* 499. *Mill. dict. n.* 11.
Podalyria alba. *Lin. ſpec. ed. Willd.* 2. 503.
Anonis caroliniana, &c. *Mart. cent. t.* 44.
Leaves ternate petioled, leaflets oblong obtuſe, ſtipules filiform ſhorter than the petiole.

[18. Sophora lupinoides. *Lupin-leaved Sophora.*
Lin. ſpec. 534. *ſyſt.* 391. *Reich.* 2. 243. *amoen.* 2. 350. *Pallas it.* 2. 676.
Podalyria lupinoides. *Lin. ſpec. ed. Willd.* 2. 504.
Leaves ternate petioled, leaflets elliptic-lanceolate obtuſe pubeſcent, ſtipules lanceolate longer than the petiole.

19. Sophora trifoliata. *Three-leaved Sophora.*
Thunb. prodr. 79.
Podalyria trifoliata. *Lin. ſpec. ed. Willd.* 2. 504.
Leaves ternate petioled, leaflets ovate ſilky.

20. Sophora calyptrata. *Veiled Sophora.*
Retz. obſ. 1. 36. *Thunb. prodr.* 79.
S. biflora. *Houttuyn Lin. pſl. ſyſt.* 3. 501. *t.* 24. *f.* 1.
Podalyria calyptrata. *Lin. ſpec. ed. Willd.* 2. 504.
Crotalaria fol. ſimplicibus ovatis villoſis, petiolis ſimpliciſſimis, ramis teretibus. *Lin. hort. cliff.* 357. *Seba muſ.* 2. *t.* 99. *f.* 3.
Leaves ſimple elliptic ſomewhat rugged above, beneath villoſe and netted-veined, peduncles one-flowered, calyxes villoſe having a deciduous veil at the baſe.

21. Sophora biflora. *Two-flowered Sophora.*
Retz. obſ. 1. 36.
Podalyria. *Lamarck illuſtr. t.* 327. *f.* 3.
P. biflora. *Lin. ſpec. ed. Willd.* 2. 505.
Leaves ſimple ovate ſubtomentoſe, peduncles two-flowered, calyxes thruſt in at the baſe tomentoſe coloured.]

22. Sophora myrtillifolia. *Round-leaved Sophora.*
Retz. obſ. 1. 36.
S. rotundifolia. *Thunb. prodr.* 79.
S. biflora. *Lin. ſpec.* 534. *ſyſt.* 392. *Reich.* 2. 244. *Ait. kew.* 2. 46.
S. rotundifolia α. *Berg. cap.* 138.
Podalyria myrtillifolia. *Lin. ſpec. ed. Willd.* 2. 505.
Crotalaria arbor africana ſtyracis folio molli incano. *Pluk. phyt. t.* 185. *f.* 2.
C. villoſa. *Mill. dict. n.* 8. & *Dict. noſtr. n.* 29.
Geniſta arboreſcens afr. ſtyracis folio. *Herm. lugdb.* 270. *t.* 271.
Myrto-Geniſta Capitis bonæ ſpei. *Breyn. cent. t.* 29?
Leaves ſimple elliptic-obovate obtuſe cuſped ſilky on both ſides, peduncles one-flowered.

[23. Sophora hirſuta. *Hairy Sophora.*
Ait. kew. 2. 46.
Podalyria hirſuta. *Lin. ſpec. ed. Willd.* 2. 505.
Leaves ſimple hirſute, the upper ones ovate the lower roundiſh, branches round, ſegments of the calyx lanceolate and length of the wings.

24. Sophora buxifolia. *Box-leaved Sophora.*
Retz. obſ. 1. 35.
S. pedunculata. *Thunb. prodr.* 79.
Podalyria. *Lamarck illuſtr. t.* 327. *f.* 4.
P. buxifolia. *Lin. ſpec. ed. Willd.* 2. 505.
Geniſta africana frutcſcens nummulariæ hirſuto folio, floribus parvis purpureis. *Raii dendr.* 105?
Leaves ſimple oval ſmooth above ſilky beneath, peduncles one-flowered, calyxes thruſt in at the baſe tomentoſe coloured.

25. Sophora cordata. *Heart-leaved Sophora.*
Thund. prodr. 79.
Leaves ſimple ovate hirſute.

DESCRIPTIONS, *&c.*

1. This magnificent tree is a native of New Zealand; where it was found by Sir Joſeph Banks, and introduced in 1772. It diſplays its pendulous branches of large golden flowers in may and june [a].

2. This is a ſmooth tree, with ſmall leaves almoſt wedge-ſhaped. Flowers large and yellow. Legume compreſſed, toruloſe, flat at the back and belly, keeled at the ſides with longitudinal membranes, as in *Lotus tetragonolobus* [b].

Native of New Zealand, where it was found by Sir Joſeph Banks, and introduced in 1772. It flowers in may and june [c].

3. This reſembles the next ſpecies, but is ſmooth all over. Leaves unequally pinnate, with the leaflets in ſix pairs, ovate-lanceolate, bluntiſh. Calyx indiſtinctly five-toothed [d].

Native of Siberia. Introduced in 1785 by Mr. John Bell [e].]

4. Root perennial, creeping, from which ariſe ſeveral erect ſtalks from three to four feet high. Leaves unequally pinnate. Flowers pale blue and ſmall, in long axillary ſpikes ſtanding erect cloſe to the ſtalk.

[Stems ſtriated, the thickneſs of a reed. Leaves from top to bottom: pairs of leaflets ten or more, deep green above, whitiſh and ſilky beneath, hairy not only there but along the edges and above, though leſs ſo. The ſtem puts forth a few branches only towards the top: theſe have leaves like thoſe of the ſtem, but much ſmaller and more hairy. Spike terminating, long, compoſed of many flowers, neither looſely nor very cloſely put together, of a whitiſh herbaceous or pale yelloviſh colour: calyx divided into five blunt ſhort ſegments, and of the ſame colour with the corolla. The flowers riſe obliquely or incline gently, but are not pendulous. Germ ſlender, ſilky. Legume an inch and half or two inches long. The flowers ſmell ſweet [f].

Native of the Levant. Cultivated in 1732, by James Sherard, M. D. It flowers in july and auguſt [g].]

5. Stem downy, ſix or ſeven feet high. Leaves unequally pinnate, compoſed of five or ſix pairs of leaflets. Flowers in ſhort looſe axillary ſpikes, large and yellow, not unlike thoſe of Spaniſh Broom, void of ſcent. Pods larger, woolly, five or ſix inches long, having four or five large ſwellings, in each of which is a roundiſh brown ſeed as big as a pea.

[a] Hort. kew. [b] Linn. ſuppl. [c] Hort. kew.
[d] Willdenow. [e] Hort. kew. [f] Dillenius.
[g] Hort. kew.

[Gærtner describes the legume or pod as pedicelled, necklace-form, silky-tomentose, white, many-celled; the cells divided by spongy isthmuses: the valve scarcely open. Seeds separate, four or a few more in the whole, subglobular, attenuated at each end into a short point, and having an oblong excavation at the navel, smooth, of a chestnut-bay or pale red colour.

The whole plant is clothed with a thick white nap. Leaflets about seventeen, ovate and blunt, or roundish. Calyxes tomentose. The plant is sometimes entirely smooth [a].

Native of Ceylon; and according to Forster, of the Society Isles. Mr. Miller says, of Senegal in Africa, and of the West Indies, particularly Jamaica, where it is called Sea-side Pigeon-Pea; but he probably confounded this with the next species, from which it does not materially differ, in Linnæus's opinion.

6. This is a shrub, with a round hoary-pubescent stem, and round spreading subtomentose branches. Leaves on alternate, long, spreading, round, hoary petioles, thickened at the base: leaflets opposite, mostly six-paired with an odd one, entire, flat, hoary, white-tomentose beneath, on short round petioles. Flowers in a sort of spike. Peduncle terminating, erect, a foot long, simple, round, many-flowered: flowers close, biggish, pedunculed, yellow. Calyx bluntly five-toothed, with the three lower teeth longer, hoary, pale green. Germ hoary. Legume pedicelled, very long, at first filiform, then swelling out and jointed. Seeds roundish [b].

The leaves are less tomentose than in the preceding, according to Linnæus, who suspects it to be only a variety of that.

Native of the West Indies. In Jamaica, according to Browne, this shrubby plant grows chiefly in the low lands, near the sea, and rises generally to the height of six or seven feet.—Cultivated in 1739, by Mr. Miller [c]. In Jamaica it flowers in may and june.

7. This is a small tree, ten feet high, with a whitish bark, and a hard wood: branches ferruginous tomentose. Leaflets smooth on both sides and rigid. Panicles terminating, branched. Corolla large, blue, smelling sweet. Legume ovate, villose, woody; in which there is only one large spherical scarlet seed with a black spot.

Native of Jamaica and other islands of the West Indies [d]. Browne says he has seen this tree often in Montserrat; that it rises by a moderate trunk, and spreads much towards the top; that the seeds are pretty large, and well marked with a proportioned large spot. He names it the Red-Bead Tree.

8. Branches round, even, purplish. Leaves alternate, unequally pinnate: leaflets suboppolite, on very short petioles, oblong, blunt with a point, quite entire, glaucous beneath, smooth, spreading, an inch long. Flowers on panicled racemed branchlets. Legumes somewhat fleshy, single or two-jointed, the joints globular [e].

The leaves are like those of *Robinia Caragana*; they are scattered, and the leaflets are ovate, thin, even on both sides, from seven to eleven in number; the lower ones a little smaller. Racemes small. Flowers white, of the same size as in Indigo.

Native of Japan [f]. Introduced in 1753, by Mr. James Gordon [g].

9. The whole plant is smooth. Leaves alternate: leaflets ovate-oblong, petioled, commonly seven, sharpish, remote from each other. Raceme terminating, long, naked. It is about the same-sized plant with *tomentosa* [h].—Native of the East Indies.

Willdenow, following Lamarck, has divided this genus into two, *Sophora* to which the foregoing, and *Podalyria* to which the following species belong. In the first the calyx corresponds with the generic character, and the pod is moniliform or like a necklace of beads: in the second, the calyx is subbilabiate, and the pod only swelling. The name is given from Podalirius, one of the sons of Æsculapius.—

———— "Ασκληπιου δυω παιδε,
Ιητηρ αγαθω, Ποδαλειριος ηδε Μαχαων." *Hom. Il.* 2. 731.

10. This is a tender pubescent shrub, when more advanced in its wild state naked; having the appearance of *Amorpha*. Leaves alternate, unequally pinnate: leaflets twenty-three, narrow-lanceolate, equal, quite entire, shining above, subtomentose beneath. Raceme terminating, composed of white flowers resembling those of *Crotalaria* and recurved. Filaments interwoven as it were with villose hairs. Legume oblong, compressed, tomentose. Seeds from three to six, very hard [i].

Native of the Cape of Good Hope. Introduced in 1773, by Mr. Francis Masson [k].

11. This is a shrub, the height of a man. The root has the smell and taste of Liquorice. Stem upright, round, tubercled, gray: branches alternate, spreading, like the stem. Leaves alternate, unequally pinnate, spreading, eight inches long: petioles round on one side, channelled on the other, pubescent. Leaflets from twelve to fifteen pairs, opposite, on short petioles, those of the outmost longer, quite entire, one-nerved, bright green, paler beneath, spreading very much, flat. Stipules linear, acute, pubescent, brownish, erect, permanent. Racemes axillary, solitary, pedunculed, spreading, bracted, pubescent, four or five inches long. Flowers alternate, nodding, yellow, eight or nine lines in length, on round pedicels jointed at the top. Bractes lanceolate, acute, concave, pressed close, one under each pediicel, pubescent, brown. Calyx half-four-cleft, pubescent; segments lanceolate, acute, erect, the upper one twice as wide as the rest and bifid. Germ pedicelled, linear, compressed, villose. Legume oblong, attenuated at the base, acuminate, compressed, having a longitudinal raised line at the lower future on each side, an inch and half long, and half an inch wide. Seeds few (about three) oblong, subreniform [l].

Monf. L'Heritier united this plant with the Robinias, though he perceived that it receded from them in several circumstances. Monf. Lamarck named it *Virgilia* from the celebrated Roman poet. Willdenow has joined it to his *Podalyrias*.

Native of Africa. Found by James Bruce, Esq. who gave seeds of it to the Paris garden, where it flowers at the end of summer or the beginning of autumn, and sometimes perfects the fruit [m]. It was introduced at Kew in 1777, by Monf. Thouin, and flowers there in july [n].

12. This shrub very much resembles *Robinia Halodendron*. The legumes are flat and one-seeded.

Native of Siberia, on sandy hills, in the Songurian desert, by the river Bekun [o].

13. The keel of the corolla is horned on both sides, as in *Indigofera* [p].—Native of the Cape of Good Hope. Introduced in 1787, by Mr. Francis Masson. Shrubby [q].

14. Native of the Cape of Good Hope [r].

15. Stem herbaceous, most commonly decumbent. Leaves cuneate-oblong, smooth, yellowish green. Stipules ensiform, longer than the shortest petiole [s]. Flowers blue. Legume pedicelled, inflated, swelling next the future to which the seeds are fixed; on the opposite side, compressed and keeled, papery, dark brown, one-celled. Receptacle fungous, white, ending in various conoid processes, instead of umbilical chords, to which the seeds are fastened in several rows. Seeds numerous, reniform, smooth, dun-coloured. By the calyx and fruit this species has a greater affinity to *Crotalaria* than to *Sophora* [t].

Native of Carolina. Cultivated in 1758, by Mr. Miller. It flowers in june and july [u].]

16. Root perennial, from which arise several stalks about a foot and half high, sending out from the bottom a great number of small branches. The flowers come out towards the end of the branches in short spikes; they are yellow and appear in july. The pods are short and swelling, and in warm seasons

[a] Linn. zeyl. [b] Swartz obf. [c] Hort. kew. [d] Swartz defcr. [e] Thunberg. [f] Linn. mant. [g] Hort. kew. [h] Linn. zeyl. [i] Linn. mant. [k] Hort. kew. [l] L'Heritier. [m] Idem. [n] Hort. kew. [o] Willdenow. [p] Linn. fyſt. [q] Hort. kew. [r] Thunb. prodr. [s] Linn. mant. [t] Gærtner. [u] Hort. kew.

come to maturity in England. The ſtalks decay to the root in autumn.

[Stem very much branched. Stipules ſcarcely any. Leaves on very ſhort petioles, obovate, obtuſe, becoming black in drying. Racemes the thickneſs of a horſe hair, few-flowered [a].

Native of Barbadoes and Virginia.] Mr. Miller ſays that he received the ſeeds both from Virginia and Philadelphia, and that formerly a coarſe ſort of Indigo was made from it in America, before the true plant was introduced there. [He cultivated it before 1759.

17. Stem even, high, dark purple. Leaves like thoſe of *Laburnum*, even, elliptic, ſmooth on both ſides, an inch and half long. Stipules ſcarcely any. Raceme a foot long, pendulous: flowers white, the ſize of thoſe of *Laburnum* [b]. Standard ſhorter than the corolla; filaments quite diſtinct [c].]

Root perennial, ſending up every ſpring a number of leaves in proportion to its ſize: their foot-ſtalks are ſmooth, riſing two feet high, and dividing upwards into three or five branches. The peduncles ſpring immediately from the root, and advance rather higher than the leaves; being terminated by a thyrſe (raceme) of large flowers, which is near a foot in length. The corolla is either white or deep blue. Pods ſwelling, black when ripe, having one row of kidney-ſhaped ſeeds. It flowers in june, and the ſeeds ripen in the autumn.

Native of Virginia and Carolina. [Introduced in 1724, by Mr. Mark Cateſby [a].

18. Flowers ſubſeſſile, yellow. Stipules enſiform, large [a]. — Native of Kamtſchatka. Introduced in 1776, by Hugh Duke of Northumberland [a].

19. Found by Thunberg at the Cape of Good Hope [a].

20. Stem ſhrubby: branches ſtiff, obſcurely angular, leafy, tomentoſe, ſubdivided. Leaves ſcattered, petioled, ovate, the younger ones obovate, twenty-two lines in length, and twelve or thirteen in breadth, quite entire, ſometimes having a ſmall reflexed point, above rugged with very ſhort hairs that are ſcarcely viſible, beneath villoſe but not ſoft or ſilky; the rib and veins beneath have an aſh-coloured nap. Stipules two, awl-ſhaped, ſhorter than the petiole, caducous. Flowers axillary, ſolitary, on tomentoſe peduncles ſhorter than the adjoining leaf, having a ſingle joint near the flower; the rudiment of which is covered with a globular villoſe veil, faſtened to the joint of the pedunele; as the flower increaſes this veil ſeparates at its baſe from the joint, and falls off when the flower is about half opened: being villoſe like the calyx, and of the ſame colour, this veil is not eaſily remarked by an inattentive obſerver, before it begins to ſeparate, and falling off before the flower expands it is ſeldom found in dried ſpecimens, which are commonly gathered when plants are in full flower. Although this ſpecies be named *calyptrata*, yet it is not improbable that the other ſingle-leaved ſpecies may have the *calyptra* or veil at the joint of the peduncle. Calyx villoſe, reflexed, not at all thruſt in. Corolla very large, purple.

21. Stem ſhrubby, round, leafy, even, yellow: branches round, tomentoſe. Leaves ſcattered, except on the outmoſt twigs, where they are ſometimes oppoſite, eleven lines long and ſix broad, quite entire, acuminate with a reflexed point, ſmooth; the younger ones tomentoſe-ſilky beneath, the youngeſt on both ſides; all grooved above, keeled beneath, and coriaceous: petioles ſhort. Stipule awl-ſhaped, tomentoſe, ſcarcely longer than the petiole, on each ſide of the petiole. Flowers at the ends of the branches from the laſt axils of the leaves. Common peduncle the length of the next leaf, and then divided into two one-flowered pedicels, joined by a common articulation; theſe pedicels become gradually thicker towards the upper part, and have a yellowiſh nap on them like the peduncle itſelf. Calyx five-toothed, bell-ſhaped, gibbous, thruſt in at the baſe, cloſely covered with long, curled, reddiſh-yellow ſtrigæ, whence it appears to be longer than the corolla; which itſelf is large, and ſeems to be pale yellow with purple ſtreaks. Germ hiſpid. Stigma capitate [a].

This and the preceding are natives of the Cape of Good Hope.

22. Stem ſhrubby, round, leafy, even: branches almoſt upright, tomentoſe, ſomewhat angular towards their tops. Leaves ſcattered, on ſhort petioles, ten lines long, and four broad, quite entire, rounded at the end with a reflexed point, grooved above and keeled beneath, coriaceous. On each ſide of the petiole an awl-ſhaped tomentoſe ſtipule, twice as long as the petiole. Flowers towards the end of the branches from the axils of the leaves, ſolitary, on peduncles the length of the adjacent leaf, white-tomentoſe; ſeldom two-flowered. Calyx bell-ſhaped, five-toothed, thruſt in at the baſe, of the ſame colour with the peduncle. Corolla purple, with a paler keel. Germ extremely hiſpid. Stigma ſimple, becoming black [a].

Native of the Cape of Good Hope. Cultivated in 1692 by Biſhop Compton, as appears from Plukenet. It flowers from november to january [a].

23. Native of the Cape of Good Hope, where it was found by Mr. Francis Maſſon; and introduced in 1774. It flowers in july and auguſt. Shrubby [a].

24. Stem ſuffruticoſe, looſe, round, leafy, tomentoſe: branches ſhort, ſpreading, more tomentoſe. Leaves ſcattered, on very ſhort petioles, ſix lines long and three wide, quite entire, bluntiſh, above ſmooth and grooved, beneath ſilky-tomentoſe and keeled, fleſhy: the young leaves rufous and ſhining, eſpecially at the edge and beneath. Stipules two, ſubulate, intrapetiolar, three times as long as the petiole. Flowers from the ends of the branchlets, ſolitary, on a peduncle the length of the leaf next below, rufous-tomentoſe. Calyx bell-ſhaped, five-toothed, thruſt in at the baſe, rufous-hoary on the outſide, but white within; ſegments ſharp. Corolla purple with paler wings. Germ extremely hiſpid. Style terminated by a little head [a]: Native of the Cape of Good Hope.

25. Found at the Cape of Good Hope by Thunberg [a].

PROPAGATION AND CULTURE.

1. 2. The two firſt ſpecies may be raiſed from ſeeds, which ſometimes ripen in this country. They may alſo be increaſed by cuttings and layers. They will bear our climate, if planted againſt a wall, where they may be covered with mats, to protect them from ſevere froſt.

A finer ſight, ſays Mr. Curtis, can ſcarcely be imagined than a tree of this ſort, extending to a great breadth on a wall with a weſtern aſpect, in the Apothecaries garden at Cheliea, where it was planted by Mr. Forſyth about the year 1774, and which at this moment (april 28, 1791) is thickly covered with large pendulous branches of yellow, I had almoſt ſaid, golden flowers; for they have a peculiar richneſs, which it is almoſt impoſſible to repreſent in colouring.]

4. This increaſes faſt enough by its creeping root, in the ſame manner as Liquorice, and being very hardy, may be planted in ſome corner of the garden, at a diſtance from other plants, which it will otherwiſe ſoon overbear. It will thrive in almoſt any ſoil and ſituation.

5. 6. 7. Theſe muſt have the protection of a ſtove; and may be propagated by ſeeds, when they can be procured from the countries where they grow naturally. Sow the ſeeds in pots, plunging them in a good hot-bed, and they will appear in a month or ſix weeks. When fit to remove, tranſplant them into ſeparate pots, filled with ſoft loamy earth, and plunge them into the bark-pit; ſhading them till they have taken new root. They muſt be kept in the bark-pit, and have little water in winter.

[8. 10. 11. 13. 14. 19. 20 to 25. Require the protection of the dry ſtove, or a good glaſs caſe, and may be increaſed by cuttings.]

[a] Linn. mant. [b] Mart. cent. [c] Idem. [d] Linn. ſyſt. [e] Prodr. [a] Linn. ſyſt. [a] Hort. kew. [a] Retzius. [b] Idem. [c] Retzius. [d] Hort. kew. [e] Prodr. [a] Idem.

15. 16. 17. May be propagated by ſeeds ſown on a warm border, at the beginning of april, in ſhallow drills. When the ſtalks decay in autumn, take the plants up carefully, and ſet them in a warm border, where they are deſigned to remain; for they do not bear tranſplanting well.

Or the ſeeds may be ſown, and the young plants raiſed in a moderate hot-bed. The firſt winter they may be placed in a common frame, or covered with mats; and the following ſpring, turned out of the pots, and planted in the full ground, where if the ſoil be dry, and the ſituation ſheltered, they will live many years, flowering and producing ſeeds.

[SORAMIA. See *Mappia*.

SORB TREE. See *Sorbus domeſtica*.]

SORBUS (*of Pliny, &c. a ſorbendo, quia caro matura ſorbetur: the pulp being ſupped or ſucked in.*)

Lin. gen. n. 623. *Reich. n.* 679. *Schreb. n.* 855. *Juſſ.* 335.

Claſſ. 12. 3. Icoſandria Trigynia.

Nat. order of *Pomaceæ*. *Roſaceæ*, Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* one-leafed, concave-ſpreading, five-cleft, permanent.

COR. *Petals* five, roundiſh, concave, inſerted into the calyx.

STAM. *Filaments* twenty, awl-ſhaped, inſerted into the calyx. *Anthers* roundiſh.

PIST. *Germ* inferior. *Styles* three, filiform, erect. *Stigmas* headed.

PER. *Berry* ſoft, globular, umbilicate.

SEEDS three, ſomewhat oblong, diſtinct, cartilaginous.

ESSENTIAL CHARACTER.

Cal. five-cleft. *Petals* five. *Berry* inferior, three-ſeeded.

SPECIES.

1. Sorbus aucuparia. *Mountain Service. Mountain Aſh, Quicken Tree, Roan Tree.*

Lin. ſpec. 683. *ſyſt.* 465. *Reich.* 2. 495. *Willd.* 2. 1008. *mat. med.* 126. *hort. cliff.* 188. *fl. ſuec. n.* 435. *Gron. orient.* 151. *Hudſ. angl.* 215. *Wither. arr. ed.* 3. 460. *Engl. bot. t.* 337. *Lightf. ſcot.* 256. *Abbot bedf. n.* 364. *Fl. dan. t.* 1034. *Gunn. norv. n.* 99. *Hoffm. germ.* 171. *Roth. germ.* 1. 213. 2. 544. *Pollich pal. n.* 473. *Neck. gallob.* 217. *Krock. ſilef. n.* 756. *Villars dauph.* 3. 541. *Gmel. ſib.* 3. 178. *Du Roi harbk.* 2. 420. *Willd. arb.* 363. *Blackw. t.* 173. *Plenck, ic.* 392. *Mill. illuſtr. Hunter Evel.* 218. *ed.* 1.—211. *ed.* 2. *Duham. arb.* 2. *t.* 73. *Baub. hiſt.* 1. 62. *Tournef. inſt.* 634.

S. ſylveſtris. *Camer. epit.* 161. *Matth.* 261. *valgr.* 1. 238.—foliis domeſticæ ſimilis. *Baub. pin.* 415. *Raii hiſt.* 1457. *ſyn.* 452.

S. ſylv. ſ. Fraxinus bubula. *Ger.* 1290. *emac.* 1473.

S. ſylv. alpina. *Lob. ic.* 107. *obſ.* 544. 2.

Meſpilus aucuparia. *Scop. carn. n.* 593. *Allion. pedem. n.* 1810. *Hall. helv. n.* 1091.

Ornus. *Dod. pempt.* 834.—ſ. Fraxinus ſylveſtris. *Park. theat.* 1419. 2.

Pyrus aucuparia. *Gærtn. fruct.* 2. 45. *t.* 87. *Smith brit.* 533. *Relh. cant. ed.* 2. *n.* 414.

Leaves pinnate ſmooth on both ſides.

[2. Sorbus hybrida. *Baſtard Service* or *Mountain Aſh.*

Lin. ſpec. 684. *ſyſt.* 465. *Reich.* 2. 496. *Willd.* 2. 1008. *Lin. fil. ſuppl.* 1. *t.* 6. *Hudſ. angl.* 216. *Wither. arr. ed.* 3. 461. *Fl. dan. t.* 302. *Hoffm. germ.* 171. *Roth. germ.* 1. 213. 2. 545. *Willd. arb.* 366.

Crataegus ſennica. *Lin. ſuec. n.* 433. γ.

Pyrus hybrida. *Smith brit.* 534.

Leaves ſemipinnate tomentoſe beneath.]

3. Sorbus domeſtica. *True Service* or *Sorb.*

Lin. ſpec. 684. *ſyſt.* 465. *Reich.* 2. 496. *Willd.* 2. 1009. *Hudſ. angl.* 215. *Wither. arr. ed.* 3. 460. *Hoffm. germ.* 171. *Roth. germ.* 1. 214. 2. 546. *Crantz auſtr. t.* 2. *f.* 3. *Jacqu. auſtr.* 5. *t.* 447. *Krock. ſilef. n.* 757. *Villars dauph.* 3. 541. *Du Roi harbk.* 2. 423. *Plenck, ic.* 391. *Matth.* 261. *valgr.* 1. 237. *Camer. epit.* 160. *Lob. ic.* 2. 106.

Sorbus. *Baub. hiſt.* 1. 59. *Ger. emac.* 1471. 1. *Raii hiſt.* 1456. *ſyn.* 452. *Dod. pempt.* 803. 1.

S. ſativa. *Baub. pin.* 415. *Edw. av. t.* 211. *Tournef. inſt.* 633. *Blackw. t.* 174.

S. legitima. *Cluſ. hiſt.* 1. 10. 3. *Park. theat* 1420. 1. *Duham. arb.* 1.

Meſpilus domeſtica. *Allion. pedem. n.* 1811.

M. Sorbus. *Hall. helv. n.* 1092.

Pyrus Sorbus. *Gærtn. fruct.* 2. 45. *t.* 87.

P. domeſtica. *Smith brit.* 532. *engl. bot. t.* 350.

Leaves pinnate villoſe underneath.

DESCRIPTIONS, *&c.*

1. [The Mountain Aſh is an elegant tree, of ſlow growth; the wood tough and cloſe-grained; not very hard; the bark ſmooth and gray; the young branches purpliſh brown. Leaves unequally pinnate: leaflets (five, ſix, ſeven or eight pairs,) ſerrate except at the baſe, ſmooth above, and nearly ſo beneath, except a few fine ſcattered hairs; their under ſide is alſo glaucous: they are ſeſſile, lanceolate, the middle ones are longeſt, and the odd one is rather oblong-ovate: the midrib is channelled, and often purple.] Mr. Miller remarks, that the leaves on the young trees in the ſpring are hoary on their under ſide, but about midſummer the hoarineſs goes off, and thoſe upon the older branches have very little at any ſeaſon. [The flowers are in large, terminating, pubeſcent corymbs, very much branched. Corollas white, with very concave petals. Germ hairy. Styles three or four. Fruit bright red or ſcarlet when ripe, nearly round, the ſize of a large pea, juicy, with an aſtringency. Seeds three, ſometimes four or five [b]. Dr. Smith calls the fruit a pome. Gærtner, who follows Linneus in naming it a berry, ſays that it has five cells, two or three of which are often abortive; the fertile ones are lined with a very thin papery membrane: in each of theſe are two germs, which become two oblong ſeeds, acuminate at both ends, and plano-convex. He reduces it to the genus *Pyrus*; Dr. Smith and Mr. Relhan have followed him. We might thus reduce the genera of ſome natural orders into one, as Scopoli has done in the *Stellatæ*.

Native of the colder parts of Europe, mount Libanus, Siberia, &c. Woods and hedges on mountainous and boggy ſituations in the north of England, in Wales, Scotland and Ireland; flowering in may.] In the ſouthern counties it is ſeldom found of any ſize, but in the northern counties and in Wales there are trees of very large growth. The leaves make a pretty variety when mixed with other trees in plantations. It is alſo handſome when in flower, and in the autumn, when in fruit: but the black birds and thruſhes are ſo fond of it, that they devour it before it is well ripe.

[In the Scottiſh highlands, ſays Mr. Gilpin, the Mountain Aſh becomes a conſiderable tree. There on ſome rocky mountains covered with dark pines and waving birch, a few of theſe trees mixing with them have a fine effect. In ſummer, the light green tint of their foliage; and in autumn the glowing berries, which hang cluſtering upon them, contraſt beautifully with the deeper green of the pines: if they are happily blended, and not in too large a proportion, they add ſome of the moſt picturesque furniture with which the ſides of thoſe rugged mountains are inveſted.

In ancient days, when ſuperſtition held that place in ſociety, which diſſipation and impiety now hold, the Mountain Aſh was conſidered as an object of great veneration. Often at this day, a ſtump of it is found in ſome old burying place; or near the circle of a Druid temple, whoſe rites it formerly inveſted with its ſacred ſhade [a].

This tree may to this day, ſays Mr. Lightfoot, be obſerved to grow more frequently than any in the neighbourhood of the druidical circles of ſtones, ſo often ſeen in North Britain; and ſuperſtitious perſons ſtill believe that any ſmall part of it carried about them, will prove a ſovereign charm againſt all the effects of enchantment or witchcraft. The dairy-

[b] Smith brit. & engl. bot. Relh. Abbot.

[a] Foreſt ſcenery. 1. 38.

maid

maid will not forget to drive her cattle to the *ſhealings* or ſummer paſtures with a rod of the Roan-tree, which ſhe carefully lays up over the door of the *ſheal-boothy* or ſummer-houſe, and drives them home again with the ſame. In Strathſpey, they make, on the firſt of may, a hoop with the wood of this tree, and in the evening and morning cauſe all the ſheep and lambs to paſs through it.

In Wales, ſays Mr. Evelyn, this tree is reputed ſo ſacred, that as there is not a church-yard without one of them planted in it, ſo on a certain day in the year every body religiouſly wears a croſs made of the wood, and it is reputed to be a preſervative againſt faſcinations and evil ſpirits, whence perhaps we call it *Witchen*; the boughs being ſtuck about the houſe, or the wood uſed for walking ſtaves [k]. It is curious to obſerve how the ſame old ſuperſtitions have been driven with the ancient inhabitants into the remote corners of our iſland, ſo diſtant from each other as Scotland and Wales.

The wood is tough and cloſe-grained, but not hard. It may be uſed in mill-work, and converted into tables, chairs, ſpikes for wheels, ſhafts, ſcrews for preſſes, &c. The roots are formed into handles for knives, and ſpoons [l]. Beſides the uſe of it for huſbandmen's tools, goads, &c. the wheelwright commends it for being all heart; and if the tree be large, it will ſaw into planks, boards and timber. Our fletchers commend it for bows next to Yew; and it is excellent fuel [m]. The berries dried and reduced to powder make wholeſome bread; and an ardent ſpirit may be diſtilled from them, which has a fine flavour, but is ſmall in quantity. The Scottiſh highlanders make this uſe of them, and ſo do the inhabitants of Kamtſchatka, as we are informed by Gmelin. Infuſed in water, they make an acid liquor ſomewhat like Perry, which is drank by the poorer people in Wales. In the iſland of Jura they uſe the juice of them as an acid for punch. In Germany the fowlers bait ſpringes or nooſes of hair ſuſpended in the woods with theſe berries, to entice the red-wings and field-fares; whence the trivial name of *aucuparia* [n].

This tree is generally known in the ſouth of England, by the name of *Mountain Aſh*, from its growing in high ſituations, and having pinnate leaves like the Aſh; but this name has led ignorant perſons to ſuppoſe that it has an affinity with the Aſh; and even Mr. Gilpin ſpeaks of it as a variety of that tree, whereas it is totally different in every reſpect except a ſmall ſimilitude in the leaves. Gerarde calls it the wild Aſh, Quickbeam or Quicken tree. Evelyn the Quickbeam, Wild Sorb, or Witchen; which is otherwiſe written Whicken, or Whitten. All theſe names, except Aſh and Sorb, are evidently the ſame, and are derived from the ſuppoſed efficacy of this tree in reſiſting witchcraft. In Scotland and the north of England it is called *Roan-tree*, and this name is variouſly ſpelt *Rowne*, *Roddan* and *Rantry*.

2. This is a middle-ſized tree. Leaves lobed in front, pinnate at the baſe, ſerrate, without any ſtipules, ſmooth above, white-tomentoſe beneath. Corymbs terminating, tomentoſe, many-flowered. Flowers white. Styles three, or ſometimes two only. Fruit as in the preceding, but a little larger [o].

Stature and leafing ſomewhat like that of *Cratægus* or *Pyrus Aria*; but the corymb, flowers and three piſtils of *Sorbus aucuparia* [p].

Linnæus conſiders it as a new tree produced between theſe two, and making a diſtinct ſpecies. He remarks that the leaves have the ſame texture as in thoſe of *Aria*, and that the outmoſt leaflets are confluent [q].

In the Flora Suecica he relates that it was ſent him by Kalm, and that it occurs only in Finland. It has ſince been found in Thuringia; and in Wales, on the walls of Caſtel Dinas brân in Denbighſhire; but Dr. Smith ſays that a ſpecimen gathered in the latter place was moſt certainly only the *Aria*. He remarks alſo that it may be propagated by the ſeeds, and therefore cannot properly be conſidered as a mule. It was introduced in 1779 by Chevalier Thunberg [r].

3. The true Service is a tree of a middling ſize, not unlike the Mountain Aſh, of very ſlow growth, not flowering till it arrives at a great age; the wood is very hard. Leaves alternate, compoſed of from ſix or ſeven to nine pairs of oppoſite, ſeſſile, ovate or oblong, equal leaflets, with a terminating one of the ſame ſize; all entire at the baſe, ſerrate from about half way to the end, ſmooth above, downy beneath, but that downineſs goes off towards autumn. Flowers in terminating panicles, ſubcorymbed, tomentoſe. Petals cream-coloured, concave with hairy claws. Calyx very woolly. Styles always five, with oblique concave ſtigmas. Fruit pear-ſhaped, reddiſh and ſpotted, extremely auſtere, and not eatable till it is quite mellowed by froſt or time, when it becomes brown and very ſoft. In the middle are five cells, with one ſeed in each [s], as in the Apple and Pear; with which this tree agrees certainly in the fruit, and number of ſtyles; but if general habit has any thing to do in the arrangement of plants, the Service ought not to be united with them.

The fruit is certainly a Pome, Gærtner however, following Linnæus and others, calls it a ſubturbinate Berry, an inch long, variegated with green, yellow and red: it has five cells, two or three of which are often abortive, and the fertile ones are lined with a thin poliſhed papery membrane: in each of theſe cells there are conſtantly two germs, but commonly one ſeed only, biggiſh for the ſize of the fruit, lenticular-compreſſed, ruſeſcent.

According to Krocker, this is diſtinguiſhed from the firſt ſpecies by its greater height, harder wood, and later flowering, for it does not come into full bearing before it is ſixty years old, as Gmelin affirms. The branches are more villoſe and whitiſh; the leaves wider, and tomentoſe at the back; they do not ſmell unpleaſantly: the cymes are ſmaller; the calyx is woolly, and the ſegments are very ſmall: the fruit is pear-ſhaped and much larger, being as big as ſome pears; it is yellow mixed with red on the outſide, and within has five cells, with five ſeeds: but Crantz ſays that the ſeeds are ſeldom all perfect.]

Mr. Miller informs us that there are ſeveral varieties of this fruit, differing from each other in ſize and ſhape; ſome are like Catherine Pears, and nearly as large, others are ſhaped like Apples; but both ariſe from ſeeds of the ſame tree. The ſeveral varieties differ in the number of their ſeeds, ſome having three only, others four or five. When it is ſaid therefore that one character of the genus is to have three ſeeds, it muſt be underſtood of the wild tree; but in trees that are cultivated the number of ſeeds is as uncertain as in Apples and Pears.

In Italy, where the Service tree is very common, they have many varieties obtained from ſeeds, but I have not obſerved in the Engliſh gardens more than three, and thoſe are very ſcarce, for the fruit not being eſteemed in England, we have very few large Service trees. There was one in the garden of John Tradeſcant at South Lambeth, near forty feet high, which produced a great quantity of fruit annually, ſhaped like Pears. Some trees of middling growth in the garden of Henry Marſh, Eſq. at Hammerſmith, produced fruit of the Apple ſhape. From theſe many trees were raiſed in the nurſeries near London, but the fruit is ſmall compared with that of Tradeſcant.

Great numbers of large Service trees grow wild about Aubigny in France, whence the late Duke of Richmond brought a great quantity of the fruit, and from the ſeeds raiſed a conſiderable number of young plants at Goodwood in Suſſex.

The true Service is a native of the warmer parts of Europe, where it becomes a large and lofty tree.—[In England, Ray ſays it has been obſerved to grow wild in many places in the mountainous parts of Cornwall, by that ingenious young gentleman Walter

[k] Sylva, c. 15. p. 86. ed. 4. [l] Withering. [m] Evelyn. [n] Withering and Lightfoot. [o] Smith brit. [p] Linn. ſyſt. [q] Spec. [r] Hort. kew. [s] Smith brit. & Engl. bot.

Moyle,

Moyle, Esq. in company with Mr. Stevens of that county. It was also found by Mr. Pitts, alderman of Worcester, in a forest of that county; and is said by Dr. Plot, to grow wild in many places of the Morelands in Staffordshire[1]. Lord Valentia has found a solitary tree in the middle of Wire forest near Bewdley, the same probably that was observed by Alderman Pitts[2]. It flowers in may.

The wood is used by the turner in foreign countries. Nash says it is valuable for making mathematical rulers and excisemens gauging-sticks.

The fruit is austere and astringent, like a Medlar, but inferior to it. In the south of Europe it is reputed good in the dysentery and fluxes.]

PROPAGATION AND CULTURE.

All these sorts may be propagated by sowing their seeds in pots soon after the fruit is ripe, sheltering them under a common frame in winter, and plunging the pots into a moderate hot-bed in the spring, which will soon bring up the plants; and when they are come up, they should be carefully kept clear from weeds, and in dry weather watered; but they should be exposed to the open air, for the only reason of putting them in a hot-bed is to forward the growth of the seeds; but if, when the plants are come up, the bed is kept covered, it will draw the plants and spoil them. In this bed the plants should remain until the middle of october, at which time the leaves will decay, when there should be a warm light spot of ground prepared to receive them, into which they should be planted in rows two feet asunder, and a foot distant in the rows, observing to take them up carefully, and to plant them as soon as possible, that their roots may not dry.

During the summer, the ground should be kept constantly clear from weeds, and in winter there should be a little mulch laid upon the surface of the ground about their roots, to protect them from being injured by frost; but in the spring the ground between them should be dug, burying the mulch therein, in doing of which you must be careful not to cut or injure the roots of the plants.

In this nursery they may continue three or four years according to their growth, when it will be proper to transplant them out where they are to remain; the best season for which is in october, or in the spring, just before they begin to shoot. The soil should be warm in which they are planted, and the situation defended from cold winds, in which place they will thrive, and produce fruit in a few years.

Those who raise many trees of the true Service from seeds, will procure some varieties of the fruit, from which the best may be selected, and propagated for the table, and the others may be planted for variety in wildernesses or wood-walks, or may be used for stocks to graft the better kinds upon.

There is a sort of this with variegated leaves, which is preserved by such as are curious in collecting the several sorts of striped plants, but there is no great beauty in it; it may be propagated by layers, or by being budded on the plain sort, but they become plain on a very rich soil.

The wild sort should have a moist strong soil, but will grow in the most exposed places, being extremely hardy, which renders them worthy of care, since they will thrive where few other trees will succeed.

[If the fruit be sown in the common ground it will frequently be the second spring before it makes its appearance, as in the Hawthorn. It should therefore be divested of its pulp and preserved in sand.

Mr. Boutcher recommends, when the seedling plants have stood a year to remove them, and let them stand two seasons more; then cutting away all crois downright or superfluous roots, to remove them into another nursery, planting them three feet and a half by eighteen inches asunder; there to remain three years, when they will be of proper size to remove where they are to continue.

[1] Ray syn. [2] Engl. bot.

They may also be raised from layers, but the trees will neither be so handsome nor so straight as those which are raised from seeds.

SORBUS. See *Crataegus*, *Mespilus*, *Pyrus*.

SORGHUM, SORGO, SORGUM. See *Holcus*.]

SORREL. See *Rumex*.

[SORREL TREE. See *Andromeda* and *Rumex*.

SORREL, WOOD. See *Oxalis*.

SOUR GOURD. See *Adansonia*.

SOUROUBEA. See *Ruyschia*.

SOUR SOP. See *Annona*.]

SOUTHERNWOOD. See *Artemisia*.

[SOUTH-SEA TEA. See *Ilex*.

SOWBANE. See *Chenopodium murale*.]

SOW-BREAD. See *Cyclamen*.

[SOW-THISTLE. See *Sonchus*.

SOYA, SOYE or SOY. See *Dolichos*.

SPANISH BROOM. See *Spartium*.

——— CRESS. See *Vella*.

——— ELM. See *Cordia*.

——— HEDGE-NETTLE. See *Prasium*.

——— POTATOES. See *Convolvulus*.

SPARGANIUM. (Σπαργανον of Dioscorides. *From σπαργανω, fascia, a bandage: from the similitude of the leaves to ribbands.*)

Lin. gen. n. 1041. *Reich. n.* 1132. *Schreb. n.* 1402. *Tournef. t.* 302. *Juss.* 26. *Leers herborn.* 726. *t.* 13. *f.* 11. *Gærtn. t.* 29.

Class. 21. 3. Monoecia Triandria.

Nat order of *Calamariæ*. *Typhæ*, Juss.

GENERIC CHARACTER.

* *Males numerous collected into a head.*

CAL. *Ament common* roundish, very closely imbricate on all sides, consisting of *Proper Perianths* that are three-leaved, linear, deciduous.

COR. none.

STAM. *Filaments* three capillary, longer than the calyx. *Anthers* oblong.

* *Females, below the males.*

CAL. as in the male (six-leaved, *G.*) *Receptacle common* roundish.

COR. none.

PIST. *Germ* ovate, ending in a short awl-shaped *Style*. *Stigm.* one or two, acute, channelled, permanent.

PER. *Drupe* juiceless, turbinate with a point, angular below.

SEED. *Nut*, bony, oblong-ovate, angular.

OBS. *Tournefort remarked, that the seed in some species is one-celled, in others two-celled; but neither Adanson nor Gærtner could ever see two seeds or a two-celled drupe.*

ESSENTIAL CHARACTER.

MALE and FEMALE. *Ament* roundish. *Cal.* three-leaved. *Cor.* none.

FEM. *Stigma* bifid. *Drupe* juiceless, one-seeded.

SPECIES.

1. Sparganium ramosum. *Branched Bur-reed.*
   Hudf. angl. 401. *Curt. lond.* 5. *t.* 66. 342. *Wither. arr. ed.* 3. 112. *Smith brit.* 961. *eng. bot. t.* 744. *Hull*, 203. *Lightf. scot.* 539. *Relh. cant. ed.* 2. *n.* 744. *Sibth. oxon. n.* 73. *Baub. pin.* 15. *theat.* 228. *Park. theat.* 1205. 1. *Ger. emac.* 45. 1. *Raii hist.* 1311. *syn.* 437. *Petiv. brit. t.* 72. *f.* 9. *Mor. hist. f.* 8. *t.* 13. *f.* 1. *ord.* 2.
   S. erectum. *Lin. spec.* 1378. *syst.* 841. *Reich.* 4. 95. *mant.* 494. *fl. lapp. n.* 345. *suec. n.* 831. *hort. cliff.* 439. *Gærtn. fruct.* 1. 75. *Abbot bedf. n.* 653. *Hall. helv. n.* 1303. *Pollich pal. n.* 872. *Leers herborn. n.* 726. *t.* 13. *f.* 11. *Scop. carn. n.* 1146. *Villars dauph.* 2. 222. *Gron. virg.* 114. *Gmel. sib.* 1. 133.
   Sparganium. *Matth.* 990. *Baub. hist.* 2. 541. 1. *Camer. epit.* 732. *Best. eyst. vern.* 7. *t.* 2. *f.* 3.
   Platanaria f. Butomon. *Ded. pempt.* 691. *f.* 2.
   Butomos dissecta pannicula. *Bod. & Theoph.* 462. *f.* 1.
   Phleos foeminea. *Dalech. hist.* 1017.
   Leaves triangular at the base, their sides concave; common flower-stalk branched; stigma linear.
2. Sparganium simplex. *Unbranched Bur-reed.*
   Hudf. angl. 401. *Curt. lond.* 5. *t.* 67. 341. *Wither. arr. ed.* 3. 112. *Smith brit.* 962. *engl. bot. t.* 745. *Hull*,

Hull, 203. *Relh. cant. ed.* 2. *n.* 745. *Sibth. oxon. n.* 74. *Abbot hedf. n.* 654. *Dickf. hort. fice. faſc.* 6. 7. *Fl. dan. t.* 932.

S. erectum β. *Lin. ſpec.* 1378. *Reich.* 4. 95.

S. natans. *Lin. ſuec. n.* 832. *lapp. n.* 345.

S. non ramoſum. *Bauh. pin.* 15. *Park. theat.* 1206. 2. *Raii hiſt.* 1311. 1910. *ſyn.* 437. *Petiv. brit. t.* 72. *f.* 10. *Mor. hiſt. ſ.* 8. *t.* 13. *f.* 3.—ſ. latifolium. *Ger.* 41. 2. *emac.* 45. 2.

S. alterum. *Bauh. hiſt.* 2. 541. 2.

Plataneria altera. *Ded. pempt.* 601. 3.

Butonum alterum. *Bod. in Theophr.* 462. *f.* 2.

Leaves triangular at the baſe, their ſides flat; common flower-ſtalk ſimple, ſtigma linear.

3. Sparganium natans. *Floating Bur-reed.*

Lin. ſpec. 1378. *ſyſt.* 841. *Reich.* 4. 95. *fl. ſuec. n.* 832 β. *Smith brit.* 962. *engl. bot. t.* 273. *Wither. arr. ed.* 3. 112. *Lightf. ſcot.* 540. *Relh. cant. ed.* 2. *n.* 746. *Pollich pal. n.* 873. *Fl. dan. t.* 260. *Villars dauph.* 2. 222.

S. minimum. *Bauh. hiſt.* 2. 541. *Baub. pin.* 15. *prodr.* 24. *theat.* 232. *Park. theat.* 1205. *Raii hiſt.* 1312. *ſyn.* 437. *Petiv. brit. t.* 72. *f.* 11.

S. non ramoſum minus. *Dill. giſſ.* 130. *ſpec.* 58.

Leaves drooping flat, heads of flowers in a ſimple ſpike, moſt of them accompanied by leaves, ſtyle not longer than the germ.

DESCRIPTIONS, *&c.*

1. Root perennial, creeping. Stem upright, about three feet high, round, leafy, ſmooth, divided at the top into ſeveral alternate ſlightly flexuoſe flowering-branches. Root-leaves ſword-ſhaped, erect, ſmooth, entire; at their baſe triangular, with their ſides concave or channelled, not flat. Stem-leaves merely concave, and ſheathing at their baſe. Heads of flowers alternate, ſeſſile, many-flowered; the lower female, the upper male, more numerous, and cloſer together. Calyx-leaves ſpatulate, browniſh, ſhorter than the ſtamens. Anthers yelloviſh white. Germ of two cells, one of them generally obliterated and abortive in the fruit. Style ſhort. Stigma long, linear, oblique, downy on one ſide, for the moſt part ſolitary, but ſometimes two. The fruit ripens into brown prickly heads of dry deciduous drupes, by which, as well as its ſpreading roots, the plant increaſes abundantly [6].

Curtis remarks, that the root-leaves are of a deep green colour, almoſt twice the length of the ſtem; and that the ſtem-leaves are about three in number, beſide the floral-leaves, which are about four.

The parts of fructification vary much in number, as is uſual in monoecious and dioecious plants; one of the many reaſons for keeping them in diſtinct claſſes from the hermaphrodite ones.

Common in ditches and along the banks of rivers; flowering in july and auguſt [7]. Having a very ſtrong creeping root, it ſoon fills up a ditch or pond, if ſuffered to remain unmoleſted [8]: the ſmaller brooks are ſoon clogged by it, and it forms dams with other aquatic plants, which arreſt the deſcending ſoil and make iſlands or banks of earth. It is common not only in Europe, but in Barbary, Siberia, and North America.

2. This was conſidered by Linneus as a variety of the preceding; but they were held to be diſtinct by all the old botaniſts, Mr. Hudſon and after him our other Engliſh botaniſts have followed theſe, and Mr. Curtis has ſeveral important diſtinctions. This ſpecies is ſeldom found more than one fourth ſo high as *S. ramoſum*, and yet the flowers are larger in proportion. The leaves incline much more to a yellow colour, and inſtead of being hollow on two ſides near the baſe, they are flat, ſo that a tranſverſe ſection forms a triangle with nearly plane ſides. Each flower-ſtalk ſupports only a ſingle globule of male or female flowers: the lowermoſt (which ſupport female flowers) vary conſiderably in length, being ſometimes more than an inch in length. Pollich remarks this circumſtance, and Mr. Woodward relates that in his ſpecimen, the fruit-ſtalk of the loweſt ball is two inches long, the next one inch, and two above theſe ſeſſile.—The flowers before they blow look yellow, and have none of the blackneſs about them, ſo conſpicuous in thoſe of *ramoſum*. In Engliſh Botany it is remarked, that the calyx is generally green, or at leaſt of a paler brown than in the former: that the ſtigma, as in that is long and linear, not ſhort and ovate as in *S. natans*, to which the preſent ſpecies is in other reſpects perhaps more nearly allied than to *S. ramoſum*: and that it has ſometimes two ſtigmas like that.

Unbranched Bur-reed, though by no means ſo common as the preceding, is not very rare in ponds and ditches. It is found, as Mr. Curtis ſays, only on particular ſpots, eſpecially on heaths and commons, in pools of water made by digging gravel. It flowers in july and auguſt. Lightfoot affirms that this is more common in Scotland than the preceding. He does not diſtinguiſh them ſpecifically, but conjectures that they are different.

3. Root perennial, creeping, with long fibres, running deep into the muddy bottoms of ditches or ſlow ſtreams. Stems aſcending, round, leafy. Leaves linear, narrow, thin and almoſt pellucid, flat; ſheathing and a little channelled towards the baſe, but without any degree of keel or midrib; the lowermoſt long and floating, the reſt gradually ſhorter. Flowers from the boſoms of the upper leaves, in three or four ſolitary little round heads, improperly called aments by Linneus: the loweſt is on a footſtalk: the uppermoſt only, or part of the next, conſiſts of male flowers; the reſt are female. Calyx of three whitiſh leaves. Stamens twice as long. Germ ovate, very ſmooth. Style ſimple: ſtigma oblique, with a fiſſure on the upper ſide. The ſhortneſs of this ſeems the beſt mark of diſtinction between the *natans* and the two former ſpecies. The fruit is a one-ſeeded drupe [6].

Lightfoot remarks, that the ſtalk is about two feet long; the leaves four, a quarter of an inch wide at the baſe, one eighth in the middle, and ending in a point; that the female ſphærules are commonly three, the two lower ones on peduncles, the uppermoſt ſeſſile; males alſo generally three, all ſeſſile; and that when the plant flowers, the ſtalk is raiſed above the water three or four inches, the leaves ſtill continuing to float.

Mr. Woodward ſays, that the flowering-ſtem is very ſlender, and does not riſe above ſix inches out of the water, ſimple with few balls of female flowers, and thoſe not longer than a pea; and that the leaves float on the water to a conſiderable length. Mr. Hudſon conſiders this as a variety of the preceding. Mr. Curtis remarks with reaſon, that ſoil and ſituation often make a great difference in the appearance of plants; but that does not ſeem to be the caſe here.

The *natans* occurs in Cambridgeſhire near Sawſton moor, on Wilbraham moor, and Burwell fen; near Norwich; in Yorkſhire and Weſtmoreland; Scotland and Wales; flowering in july. It ſeems to prefer a muddy or clay ſoil.

SPARGANOPHORUS. See *Ethulia*.

SPARRMANNIA. *(So named in memory of Anders or Andrew Sparrman, a Swede, fellow of the academy of ſciences at Stockholm. He travelled into China, the Cape of Good Hope, and the Iſlands of the South Sea. His travels were publiſhed at London in* 1785, *in two volumes quarto: and there are many deſcriptions of animals and plants by him, in the Vetenſk. Acad. Handling. Philoſ. Tranſactions, &c.)*

Lin. gen. Schreb. n. 893. *ſuppl.* 41. *Thunb. nov. gen.* 88. *Juſſ.* 290.

Claſſ. 13. 1. Polyandria Monogynia.

Nat. order of *Columniferæ*. *Tiliaceæ*, Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* four-leaved: *leaflets* lanceolate, entire, reflexed, villoſe.

COR. *Petals* four, equal, wedge-ſhaped, entire, flat, twice as long as the calyx.

Nectaries proper, diſtorm, filiform, toruloſe, ſhorter than the ſtamens: ſwellings inflated, turbinate.

STAM. *Filaments* very many, inſerted into the germ, filiform: outer like the nectaries, but longer, ſhorter

[6] Engl. bot. [7] Idem. [8] Curtis

[6] Engl. bot.

however

however than the corolla. *Anthers* ovate-cordate, placed on the top of the filaments.

PIST. *Germ* ſubglobular, five-cornered, hiſpid, ſuperior. *Style* filiform, ſtraight, hanging down among, and much longer than the ſtamens. *Stigma* truncate, terminated by elongated papillæ.

PER. *Capſule* five-cornered, five-celled, echinate with ſtraight, rigid, hairy briſtles, terminated by a pellucid, ſtraight, pungent ſpine, larger and more pungent at the corners.

SEEDS two, oblong, ſmooth, keeled on one ſide.

ESSENTIAL CHARACTER.

Cal. four-leaved. *Cor.* of four reflexed petals. *Nect.* ſeveral, toruloſe. *Capſ.* angular, five-celled, echinate.

SPECIES.

1. Sparrmannia africana.

Lin. ſpec. ed. Willd. 2. 1160. *Syſt.* 492. *Suppl.* 265. *Thunb. nov. gen.* 5. 89. *Retz. obſ.* 5. 25. *n.* 65. *t.* 3. *Curt. magaz. t.* 516.

DESCRIPTION, *&c.*

This beautiful ſhrub grows to the height of ſix feet or more, and is thickly divided into alternate branches, finely clothed with large cordate and lobed pendulous leaves upon erect footſtalks, making a very handſome appearance even in foliage, in which ſtate it much reſembles a *Sida*; its fine umbels of flowers are produced plentifully along the young branches, oppoſite to the leaves, in the ſame manner as in the common ſpecies of *Pelargonium*, which it reſembles much in its inflorescence, the flowers nodding before they are expanded, and becoming erect as they approach maturity. The petals, which are of a ſnowy white, remain but a ſhort time open, being ſoon reflected with the calyx: this is white like the petals, but covered, as is the whole plant except the petals, with fine hairs. The ſingular nectaries ſurround the filaments, which they ſo nearly reſemble, that a ſuperficial obſerver might eaſily confound them; they are very numerous, ſhorter than the purple filaments, of a yellow colour, and toruloſe or knobbed at the upper part: they have no anthers, but purple tips not unlike them. The whole plant abounds with a taſteleſs mucilage [a].

The herb reſembles the *Triumfettas*, and ſtill more the *Commerſonia*; it has the peduncle and inflorescence of the Geraniums, with the fruit of *Hibiſcus*, but prickly as in *Geum*, ſo that it is as it were compoſed of ſeveral different genera [c].

The deſcription in the *Supplementum Plantarum* of the younger Linneus, is in moſt reſpects very accurate, but the petals and nectaries are ſaid to be yellow, which may be a miſtake ariſing from having deſcribed from a dried ſpecimen [d].

The ſynonym, country, and obſervation in Retzius, belong to *Lagerſtroemia* [e].

This ſhrub is native of Africa, near the Cape of Good Hope, in Eſſeboſch and Houtniquas woods, and the ſides of the mountains at Lange Kloof, where it was found by the celebrated traveller whoſe name it bears.

It has been introduced at Kew ſince the catalogue was printed; and has flowered there, and at Meſſrs. Whitley's nurſery at Old Brompton.

PROPAGATION AND CULTURE.

It may be readily increaſed by cuttings, if treated in the ſame manner as ſome of the more tender *Pelargoniums* [f].

SPARROW-WORT. See *Paſſerina*.

SPARTEUM. See *Borbonia*.]

SPARTIUM. (Σπαρτον of *Dioſcorides*: *frutex ex cujus ramulis* ſpartei *funes conteruntur*.)

Lin. gen. n. 858. *Reich. n.* 929. *Schreb. n.* 1166. *Gærtn. t.* 153. Geniſta. *Tournef. t.* 411. *Juſſ.* 353. Claſſ. 17. 4. Diadelphia Decandria.

Nat. order of *Papilionaceæ* or *Leguminoſæ*.

GENERIC CHARACTER.

CAL. *Perianth* one-leafed, cordate-tubular: at the upper edge very ſhort, below towards the tip marked with five toothlets, coloured, ſmall.

COR. papilionaceous, five-celled. *Standard* obcordate; the whole reflexed, very large. *Wings* ovate, oblong, ſhorter than the ſtandard, annexed to the filaments. *Keel* two-petalled, lanceolate, oblong, longer than the wings, (the carinal margin connected by hairs,) inſerted into the filaments.

STAM. *Filaments* ten, connate, adhering to the germ, unequal, gradually longer: the uppermoſt very ſhort: the lower nine-cleft. *Anthers* oblongiſh.

PIST. *Germ* oblong, hirſute. *Style* awl-ſhaped, riſing. *Stigma* growing to the upper ſide of the top, oblong, villoſe.

PER. *Legume* cylindric, long, obtuſe, one-celled, two-valved.

SEEDS many, globe-kidney form.

ESSENTIAL CHARACTER.

Cal. produced downwards. *Filam.* adhering to the germ. *Stigma* longitudinal, villoſe above.

SPECIES.

[1. Spartium contaminatum. *Narrow-leaved Broom.*

Lin. ſyſt. 643. *Reich.* 3. 400. *mant.* 268. Geniſta africana frutescens, foliis linariæ anguſtioribus glaucis, flore luteo. *Raii dendr.* 104. *n.* 30. *Branches round, leaves alternate ſiliform ſtained at the baſe.*

2. Spartium ſepiarium. *Hedge Broom.*

Lin. ſpec. 995. *ſyſt.* 643. *Reich.* 3. 400. *amoen.* 6. *afr.* 27. *Berg. cap.* 196. *Pet. gaz. t.* 83. *f.* 3. *Raii dendr.* 105. *n.* 33. (Geniſta.) *Pluk. mant. t.* 424. *f.* 1.

Branches rugged, upper leaves cluſtered ſiliform.]

3. Spartium junceum. *Spaniſh Broom.*

Lin. ſpec. 995. *Reich.* 3. 401. *hort. upſ.* 208. *Gron. orient. n.* 211. *Ger. prov.* 480. 1. *Villars dauph.* 3. 418. *Allion. pedem. n.* 1258. *Aſſo aragon. n.* 657. *Medic. in obſ. ſoc. œcon. Lutr.* 1774. *p.* 276. *Kniph. cent.* 1. *n.* 83. *Regnault. bot. Curt. magaz. t.* 85.

S. arboreſcens, ſeminibus lenti ſimilibus. *Baub. pin.* 396.

S. macrolobium. *Reneulm. ſpec.* 34. *t.* 33.

S. hiſpanicum frutex vulgare. *Park. theat.* 231. *f.* 12.

S. dioſcoridem narbonenſe & hiſpanicum. *Lob. ic.* 91.

Geniſta juncea. *Baub. hiſt.* 1. 395. *Tournef. inſt.* 643. *Duham. arb.* 1. 257. *t.* 103. *Scop. carn. n.* 870.

G. hiſpanica. *Ger.* 1131. *emac.* 1313. *f.* 3. *Raii hiſt.* 1726.

Branches oppoſite round flowering at the top, leaves lanceolate.

4. Spartium monoſpermum. *White-flowered ſingle-ſeeded Broom.*

Lin. ſpec. 995. *ſyſt.* 643. *Reich.* 3. 401. *hort. cliff.* 335. *Sauv. monſp.* 60. *Oſb. it.* 37. *Deſfont. atlant.* 130. *Aſſo aragon. n.* 658. *Vahl ſymb.* 1. 51. *Ait. kew.* 3. 10.

Spartium. *Camer. epit.* 949. *f.* 2.

S. tertium flore albo. *Baub. pin.* 396. *Tournef. inſt.* 645.

S. hiſpanicum 3. *Cluſ. hiſt.* 103.

S. hiſp. flore candido. *Bauh. hiſt.* 1. 398. *Raii hiſt.* 1727.

S. hiſp. majus flore albo. *Park. theat.* 232. *f.* 14.

S. 2 flore albo Cluſii. *Lob. ic.* 2. 92.

S. 5 hiſp. 2 Cluſii. *Tabern. ic.* 1107.

S. aliud hiſp. *Dalech. hiſt.* 165.

S. frutex minus. *Dod. pempt.* 764.

Pſeudo-Spartum album aphyllum. *Ger.* 1137. 3. *emac.* 1318. 2.

Geniſta Rætam. *Forſk. deſcr.* 214. *n.* 66.

Branches round ſtriated, racemes few-flowered, flowers ſubaggregate, leaves lanceolate ſilky.

[5. Spartium ſphærocarpum. *Yellow-flowered ſingle-ſeeded Broom.*

Lin. ſyſt. 643. *Reich.* 3. 401. *mant.* 571. *Deſfont. atlant.* 129. *Ait. kew.* 3. 11.

Spartium. *Camer. epit.* 949. 1.

S. alterum monoſpermum ſemine reni ſimili. *Baub. pin.* 396. *Tournef. inſt.* 645.

S. 2. hiſpanicum. *Cluſ. hiſt.* 102.

S. hiſp. alt. flore luteo. *Lob. ic.* 2. 91. *Dalech. hiſt.* 170. *Baub. hiſt.* 1. 397. *Raii hiſt.* 1726. 2.

[a] Curtis. [b] Willdenow. [c] Linn. ſuppl. [d] Curtis. [e] Curtis.

S. hiſp. 4. *Tabern. ic.* 1107.
S. frutex majus. *Dod. pempt.* 764.
S. hiſp. minus monoſpermum flore luteo. *Park. theat.* 232. *n.* 13. 231. *f.* 13.
S. hiſp. alterum. *Dodart. ic.*
Pſeudo-Spartum hiſp. aphyllum. *Ger.* 1137. 2. *emac.* 1318. 1.
Upoſphærolobion. *Renealm. ſpec.* 33.
Branches round ſtriated, racemes many-flowered, flowers remote, leaves lanceolate ſeſſile pubeſcent beneath.]
6. Spartium purgans. *Purging Broom.*
Lin. ſyſt. 643. *Reich.* 3. 402. *Gouan monſp.* 474. *Ger. prov.* 480. 3. *Allion. pedem. n.* 1259. *Aſſo arag. n.* 659. *Thunb. jap.* 278.
Geniſta purgans. *Lin. ſpec.* 999. *Mill. dict. n.* 4.
G. ſ. Spartium purgans. *Baub. hiſt.* 1. 404. *Raii hiſt.* 1727. *Tournef. inſt.* 644.
Branches round ſtriated, leaves lanceolate ſubſeſſile pubeſcent.
[7. Spartium aphyllum. *Leafleſs Broom.*
Lin. ſyſt. 644. *ſuppl.* 320. *Pallas it.* 3. 742. *t.* V. *f.* 3.
Branches round ſtriated ſmooth rod-like, leaves very ſhort linear propped.
8. Spartium virgatum. *Twiggy Broom.*
Ait. kew. 3. 11. *L'Herit. ſtirp. nov.* 183.
Cytiſus tener. *Jacqu. collect.* 1. 40.
Branches round ſtriated, leaves lanceolate-oblong ſilky, calyxes funnel-form two-lipped rough-haired, ſtandard and keel pubeſcent.
9. Spartium decumbens. *Trailing Broom.*
Ait. kew. 3. 11. *Hall. helv. n.* 355. *Durande bourg.* 1. 299.
Geniſta pedunculata. *L'Herit. ſtirp. nov.* 184. *t.* 89.
Stem decumbent branched, leaves ſolitary ovate flowers on long peduncles.
10. Spartium Scorpius. *Scorpion Broom.*
Lin. ſpec. 995. *Reich.* 3. 402. *Gouan monſp.* 355. *Ger. prov.* 480. 2. *Villars dauph.* 3. 418. *Desfont. atlant.* 134.
Geniſta-ſpartium ſpinoſum majus, flore luteo. *Bauh. pin.* 394. *Tournef. inſt.* 645.
Geniſta-ſpartium ſpinoſum majus. *Lob. ic.* 2. 94.
Geniſta ſpinoſa minor. *Ger.* 1138. *emac.* 1319. 2.
Aſpalathus alter tertius hirſutus. *Park. theat.* 999. *n.* 3.
A. ſecunda monſpelienſis. *Baub. hiſt.* 1. 402. *Raii hiſt.* 1729.
A. alter 3. *Cluſ. hiſt.* 106.
Branches ſpiny ſpreading, leaves ovate.
11. Spartium alpalatoides.
Desfont. atlant. 136. *Poiret itin.* 2. 209. *Lamarck dict.* 2. 220.
Branchlets bowed ſmooth tubercled flower-bearing, leaves linear-lanceolate, flowers axillary pedicelled, calyx three-parted, corollas ſilky.
12. Spartium multiflorum. *Portugal white Broom.*
Ait. kew. 3. 11. *L'Herit. ſtirp. nov.* 183. *t.* 87.
S. album. *Desfont. atlant.* 132.
Geniſta alba. *Lamarck dict.* 2. 623.
Leaves ternate and ſimple ſilky, ſhoots ſtrict ſtriated flowering on every ſide.]
13. Spartium angulatum. *Angular-branched Broom.*
Lin. ſpec. 996. *Reich.* 3. 402.
S. orientale ſiliqua compreſſa glabra & annulata. *Tournef. cor.* 44.
Leaves ternate and ſolitary, branches hexangular flowering at the end.
14. Spartium ſcoparium. *Common Broom.*
Lin. ſpec. 996. *ſyſt.* 644. *Reich.* 3. 403. *hort. cliff.* 356. *fl. ſuec. n.* 633. *Hudſ. angl.* 310. *Wither. arr. ed.* 3. 623. *Hull*, 158. *Smith brit.* 753. *Curt. lond.* 5. *t.* 52. *Lightf. ſcot.* 382. *Relh. cant. ed.* 2. *n.* 578. *Sibth. oxon. n.* 611. *Abbot bedf. n.* 504. *Woodv. med. bot.* 243. *t.* 89. *Fl. dan. t.* 313. *Hall. helv. n.* 354. *Pollich pal. n.* 665. *Leers herborn. n.* 522. *Neck. gallob.* 302. *Krock. ſileſ. n.* 1146. *Villars dauph.* 3. 419. *Allion. pedem. n.* 1260. *Aſſo arag. n.* 660. *Du Roi harbk.* 2. 425. *Knorr. del.* 2. *t.* S.
Cytiſo-geniſta ſcoparia vulgaris, flore luteo. *Tournef. inſt.* 649. *Duham. arb.* 1. *t.* 84.

Geniſta. *Dod. pempt.* 761. 1. *Camer. epit.* 950. *Fuchſ. hiſt.* 218. *Ger.* 1130. 1. *emac.* 1311. 1. *Riv. tetr. t.* 63. *f.* 1. *Blackw. t.* 244.
G. anguloſa & ſcoparia. *Bauh. pin.* 395.
G. vulgaris ſ. ſcoparia. *Park. theat.* 228. 1. 229. *f.* 1.
G. anguloſa trifolia. *Baub. hiſt.* 1. 388. 3. *Raii hiſt.* 1723. *ſyn.* 474.
Leaves ternate and ſolitary, branches unarmed angular—flowers axillary ſolitary, legumes ciliate.
[15. Spartium umbellatum. *Umbelled Broom.*
Desfont. atlant. 133. *t.* 180. *L'Herit. ſtirp.* 183.
Leaves ternate and ſimple, branches very numerous oppoſite and alternate, flowers in terminating heads, corollas and legumes ſilky.
16. Spartium ferox. *Fierce Broom.*
Desfont. atlant. 136. *t.* 182. *Poiret itin.* 2. 206. *Shaw afr. n.* 194.
S. heterophyllum. *L'Herit. ſtirp. nov.* 183.
Leaves ternate and ſimple mucronate, flowers in terminating racemes, branches ſtriated ſpineſcent, legumes compreſſed ſomewhat toruloſe elongated hoary with a very ſhort lanugo.
17. Spartium horridum. *Rough Broom.*
Vahl ſymb. 1. 51.
S. aphyllon fruticoſum, junceis aculeis, lanatis capitulis. *Lob. adv.* 409.
Geniſta-ſpartium minus ſaxatile, aculeis horridum. *Tournef. inſt.* 645.
Leaves ternate complicate ſilky, branchlets round ſpiny oppoſite.
18. Spartium patens. *Woolly-podded Broom.*
Lin. ſyſt. 644. *Reich.* 3. 402. *L'Herit. ſtirp. nov.* 183. *t.* 86. *Krock. ſileſ. n.* 1147. *Mid. fig.* 92. *t.* 138. *ſec. L'Herit.*
Cytiſus patens. *Lin. ſyſt.* 666. *Reich.* 3. 482.
C. pendulinus. *Lin. ſyſt.* 667. *ſuppl.* 328.
C. luſitanicus, medicæ folio, floribus in foliorum alis. *Tournef. inſt.* 648.
Leaves ternate, branches rod-like, flowers lateral in pairs drooping.
19. Spartium arboreum.
Desfont. atlant. 131. *t.* 177. *Shaw afr. n.* 191. (Cytiſus.)
Leaves ternate obovate, branches ſtriated, flowers aggregate axillary nodding, legumes villoſe with the hairs preſſed cloſe.
20. Spartium biflorum. *Two flowered Broom.*
Desfont. atlant. 133. *t.* 179.
Unarmed, branchlets angular, leaves petioled ternate linear ſubvilloſe, flowers in pairs terminating, legumes ſmooth.
21. Spartium linifolium. *Flax-leaved Broom.*
Desfont. atlant. 134. *t.* 181.
Geniſta linifolia. *Lin. ſpec.* 997. & *Dict. noſtr. n.* 3.
G. tinctoria hiſpanica. *Cluſ. hiſt.* 101. *Bauh. hiſt.* 1. 392. *Tabern. ic.* 1101. *Raii hiſt.* 1725.
Unarmed, branches angular, leaves ſeſſile ternate, leaflets linear hoary beneath, flowers in terminating racemes.
22. Spartium ſericeum. *Silky Broom.*
Ait. kew. 3. 12.
Unarmed ſilky, leaves ternate, leaflets linear, racemes terminating, branches angular.
23. Spartium cytiſoides. *Cytiſus-leaved Broom.*
Lin. ſyſt. 644. *ſuppl.* 320. *Berg. cap.* 199. *Ait. kew.* 3. 12. *L'Herit. ſtirp. nov.* 183.
Unarmed ſilky, leaves ternate, leaflets lanceolate blunt, racemes terminating, branches round.
24. Spartium nubigenum. *Cluſterflowered Broom.*
Ait. kew. 3. 13. *L'Herit. ſtirp.* 183.
S. ſupra-nullum. *Lin. ſyſt.* 644. *ſuppl.* 319.
Leaves ternate lanceolate hairy petioled, flowers in lateral bundles, legumes ſmooth, branches round ſtriated.]
25. Spartium radiatum. *Starry Broom.*
Lin. ſpec. 996. *ſyſt.* 644. *Reich.* 3. 404. *Mill. fig.* 173. *t.* 259.
S. æquicolorum minimum montanum triphyllum. *Col. ecphr.* 1. 295. *t.* 294.
Geniſta radiata. *Scop. carn. n.* 871.—ſ. ſtellaris. *Bauh. hiſt.* 1. 399. *Raii hiſt.* 1727. 5.
Leaves ternate linear ſeſſile, petioles permanent, branches oppoſite angular.

26. Spartium

26. Spartium ſpinoſum. *Prickly Broom.*
Lin. ſpec. 997. *Reich.* 3. 402. *hort. cliff.* 356. *upſ.* 208.[a] *Sauv. monſp.* 191. *Gron. orient.* 212. *Deſfont. atlant.* 135.
Cytiſus ſpinoſus. *Tournef. inſt.* 648. *Shaw afr. n.* 196.—Acacia dictus. *Raii hiſt.* 1723.
Acacia trifoliata. *Bauh. pin.* 392.
A. altera trifolia. *Ger.*
A. alt. Dioſcoridis. *Lob. ic.* 2. 95. *Dod. pempt.* 753. *Tabern. ic.* 1089. *Dalech. hiſt.* 162. *Park. theat.* 999. *f.* 4.
Aſpalathus ſecunda trifolia, quæ Acacia ſecunda Matthiolo. *Bauh. hiſt.* 1. 375.
Leaves ternate, branches angular ſpiny.
[27. Spartium villoſum.
Vahl ſymb. 2. 80. *Poiret itin.* 2. 207.
S. lanigerum. *Deſfont. atlant.* 135.
Cytiſus ſpinoſus creticus, ſiliqua villis denſiſſimis longiſſimis & incanis obducta. *Tournef. cor.* 44.
Leaves ternate, branches ſpiny, calyxes and legumes villoſe.

DESCRIPTIONS, *&c.*

1. Stem ſhrubby, rod-like, branched at the baſe, round, even. Leaves alternate not ſcattered, remote, flatted above, purple at the baſe, with a ſubferruginous patulous tip, erect, a finger's length. Raceme long, erect, terminating, with the flowers alternate, of a tawny colour with a yellow keel. It differs from the next ſpecies in having the tenth ſtamen not diſtinct: the leaves not cluſtered, but ſcattered and four times narrower; the purple colour at their baſe is a very evident mark of this ſpecies.—Native of the Cape of Good Hope, in the ſands[b]. Introduced in 1787, by Mr. Francis Maſſon[b].

2. Branches rugged with the fallen leaves. Leaves very cloſely cluſtered, a finger's length. Racemes terminating. Flowers yellow.—Native of the Cape of Good Hope[c].]

3. Branches ſmooth, flexible, eight or ten feet high: the lower ones have ſmall ſmooth leaves, at the end of the ſhoots of the ſame year, the flowers are diſpoſed in a looſe ſpike, they are large, yellow, have a ſtrong agreeable odour, appear in july, and in cool ſeaſons continue in ſucceſſion to ſeptember. Pods compreſſed, about three inches long, ripening in autumn.

[The leaves have two ſtipules at the baſe; Gerard ſays that they are apparent with the lower leaves only, that they ſpread out before flowering time, and when the flowers are fully open, fall off[b].

[The bees are fond of the flowers; and the ſame qualities which are attributed to the common Broom belong alſo to this, perhaps in an inferior degree, at leaſt as it is found in our gardens. In Languedoc they make a thread of it, and it is there uſed as a green food for ſheep.

Spaniſh Broom is native of all the ſouthern countries of Europe, Spain, Portugal, Italy, Sicily, Carniola, and the South of France: Rauwolff obſerved it in Judea, about Joppa and Rama.—It appears from Turner's herbal (2. 144.) that it was cultivated here in 1562, by Lord Cobham.

There is a variety of it with double flowers[d], which is very unuſual in this natural order.] Miller mentions another variety, which is ſmaller and has narrower leaves, ſmaller and paler flowers, appearing later than the common ſort. It was introduced from Portugal; [but being inferior to the other, does not appear to be worth cultivating.]

4. This has a thick ſtalk, covered with a rugged bark when old; it riſes eight or nine feet high, ſending out many ſlender ruſh-like branches of a ſilvery colour, almoſt taper, which terminate in very ſlender bending ends; theſe have a few narrow ſpear-ſhaped leaves on the lower branches. The flowers are produced in very ſhort ſpikes or cluſters on the ſide of the branches; they are ſmall and white. Pods large ovate, containing one kidney-ſhaped ſeed.

[Stem upright, very much branched, as thick as the thumb, and ſometimes as the arm. Branches round, upright, ſlightly ſtriated, ſlender, ſmooth, bundled, leafleſs. On the younger twigs are a few ſmall lanceolate ſilky leaves. Flowers very numerous, diſpoſed in ſhort diſtinct little racemes along the branches; ſometimes they are aggregate, or even ſolitary: each of them is on a very ſhort pedicel. Calyx ſmall, pitcher-ſhaped, often tinged with purple, ſmooth, three-toothed; teeth ovate, almoſt equal. Corolla white, villoſe with very ſhort hairs. Legume ſmooth, roundiſh, a little inflated, hooked, pulpy within; containing one brown ſmooth ſhining roundiſh ſeed, nearly as big as a garden pea. It is a very handſome ſhrub, remarkable for its numerous ſnow-white flowers[e].

Native of Spain and Portugal. Cluſius obſerved it about Cadiz near the coaſt, flowering in february: Aſſo in Aragon abundantly. Oſbeck remarks that it grows like willow-buſhes along the ſhore of Spain, as far as the flying ſands reach, where ſcarcely any other plant grows except the *Ononis repens*, or creeping Reſtharrow. The uſe of this ſhrub is very great in ſtopping the ſand. The leaves and young branches are delicious food for goats. It converts the moſt barren ſpot into a fine odoriferous garden by its flowers, which continue a long time. It ſerves to ſhelter hogs and goats againſt the ſcorching heat of the ſun. The twigs are uſed for tying bundles; and all kinds of herbs that are brought to market are faſtened together with them[e]. Forſkahl found it in Arabia; and Deſfontaines in Barbary, on the ſandy coaſt. The Spaniards call it *Retamas*, from the arabic name *Retem*. It was introduced here in 1690, by Mr. Bentick, and flowers in june and july[e].

5. Stem upright. Branches numerous, ſlender, round, ſmooth, ſlightly ſtriated, having a few tubercles ſcattered over them, below leafleſs. Leaves on the younger branchlets, ſmall, lanceolate, deciduous, ſilky with very ſhort hairs preſſed cloſe. Flowers ſmall, racemed, each on a very ſhort pedicel. Calyx ſmall, pubeſcent, two-lipped, the lower lip longer, five-toothed, the three lower teeth very ſmall. Corolla yellow, ſmall, ſilky: ſtandard almoſt upright, roundiſh, entire, ſhorter than the keel; wings lanceolate, obtuſe, ſhorter than the keel, which is ſomewhat bowed, obtuſe, two-leaved. Legume roundiſh, ſlightly bent in on one ſide, yellowiſh, ſmooth, containing one (ſometimes but ſeldom) two ſeeds[e].

Native of the South of Europe; and of Barbary, near Mayane.—Introduced in 1778, by Monſ. Thouin. It flowers in june and july[e].]

6. Stalks ſtriated, taper, four feet high, ſending out ſeveral branches terminated by ſpines. Flowers in terminating ſpikes, large and pale yellow.

[Stems ruſhy, ſtraight, very much branched. Branches unarmed, divided into others, which are frequent and irregular, green, ſtriated, almoſt naked, withering at the end, truncate. Stipules at the baſe of the branches, ſhaped like the nail, blunt, mortified at the tip, at the ſmaller branches wandering: the lower ones leafleſs. The leaves together with the flowers come out from the ſummits of the branches; they are ſeſſile, ovate-lanceolate, unequal, ſilky, more ſhining beneath, ſhorter than the flowers. Flowers ſolitary, on peduncles coming out from the ſide of the leaves. Calyx two-lipped, ſhort, almoſt equal: upper lip retuſe; lower entire: petals almoſt equal; ſtandard cordate-roundiſh, wide; wings oblong, with linear oblique claws, appendicled at the baſe towards the ſtandard; keel a little longer than the ſtandard, not bending down. All the filaments united. Stigma hooked. Legume oblong, compreſſed, villoſe[f]: according to Linneus, ovate, pendulous, ſinuate on one ſide.

Native of the South of France, the county of Nice, Aragon, and Japan. Cultivated by Mr. Miller in 1768.

7. With its branches and their ramifications into very ſimple filiform attenuated flowering branchlets,

[a] Linn. mant. [b] Hort. kew. [c] Linn. amoen. [d] Fl. prov. [e] Hort. kew.
[a] Deſfontaines. [b] Hort. kew. [c] Deſfontaines. [d] Gerard prov. [e] Voyage, vol. 1. p. 42. engl. ed. [f] Hort. kew.

this ſpecies reſembles *S. junceum*. There are no leaves except a ſingle ſmall one, which is linear, at each diviſion of the branchlet, ſoon withering away, and rather reſembling a ſtipule. Bractes to each flower, ſmall, awl-ſhaped. Flowers ſmall, pedicelled, forming a raceme on the ſide of the branchlets. Corolla violet. Legumes ſhort, compreſſed, hoary, two-ſeeded.—Found by Pallas, in the driving ſand of the Wolga deſert[1].

8. This is a ſhrub about three feet high, with a trunk of about a finger's thickneſs, dividing into numerous branches, which are ſomewhat villoſe and ſpreading: the leaves are ſimple, lanceolate, either obtuſe or ſlightly pointed, green above and pale beneath: they are ſcarcely more than half an inch in length: the flowers are yellow and ſweet-ſcented; ſtanding on ſhort footſtalks in a kind of racemes at the tips of the branches: the pods are upright and covered with a whitiſh hairy down[1].

Native of the iſland of Madeira: where it was found by Mr. Francis Maſſon; and introduced in 1777. It flowers from march to june[2].

9. Stems angular, branched. Leaves not hard, longer than ovate leaves, wider on this ſide the end, obtuſe, hirſute, not all ſilky, ſolitary even the loweſt. Pedunicles an inch long. Flowers ſmaller by half than in the common Broom, and leſs placed on one ſide. Calyx two-lipped, the upper ſegment two-toothed; the teeth triangular, acute, curved a little; the lower three-toothed. Standard veined, yellow, large, emarginate; the wings alſo are wide, oval, with the hook more apparent; beak of the keel curved, and much more acute than in the common Broom.

Found in Burgundy, and in that part of Switzerland which borders on it as at Roulier and Chaux de Fonds[3]. Introduced into England by the doctors Pitcairn and Fothergill. It flowers here in may and june[4].

10. The whole ſhrub is covered with alternate ſpines, on which the flowers are placed[5]. This renders it quite inacceſſible. The branches and leaves are ſtriated and aſh-coloured, and the latter are a little villoſe. The flowers are yellow and rather large. The legumes are villoſe, flatted, and a little curved. The calyx is ſmall, and has five diviſions[6].

Native of the South of Europe, and of Barbary. Cultivated by Parkinſon in 1640. It flowers in march and april[7].

11. This is a very branching ſhrub. Branchlets ſmooth, ſtriated, ſlender, tubercled, frequently bowed, becoming thorny, flower-bearing. Leaves ſmall, narrow-lanceolate, ſilky with very ſhort hairs preſſed cloſe. The older branches are leafleſs. Flowers numerous, ſolitary or in pairs, on pedicels furniſhed with little bractes. Calyx ſmall, ſilky, the three ſegments lanceolate, the loweſt longer and trifid. Corolla pale yellow, ſize the ſame as in *Geniſta tinctoria*: ſtandard obovate, the length of the keel; wings linear, obtuſe, a little ſhorter; keel ſomewhat bowed, obtuſe.—Native of Barbary, on the hills near La Calle[1].

12. This ſhrub is very much branched. The branches or flowering-twigs are erect, ſlender, ſtreaked or furrowed, hoary in the furrows. Leaves ovate, oblong-ovate and lanceolate, petioled and ſeſſile, ſilvery-tomentoſe or ſilky with hairs preſſed cloſe: there is a knot of two or three leaves or more to each flower. Flowers in long lateral racemes, moſtly pointing one way, and ſo numerous that the ſhrub ſeems wholly covered with them: they are each ſolitary, or at moſt two together, and pedicelled. Calyx ſo ſmall as to be ſcarce viſibly toothed. Standard of the corolla erect not reflex, involute, beautifully marked with purple lines radiating from the baſe; the wings alſo have ſometimes a few of theſe purple lines; the reſt of the corolla is white; the wings are involute, bellying in the middle, but meeting at the tips, to the full as long as the ſtandard, and longer than the keel, but being curved meet it at the tip: keel ſeeming to be of one piece unleſs examined carefully, the two parts not being ſeparable without ſome difficulty. The filament cloſely inveſts the naſcent legume after the flower is paſt. Legume very hairy, about an inch long, pointed; containing two or three ſeeds, ſometimes only one.

The above deſcription was made from the live ſhrub in full flower on the 19th of may 1791.

Desfontaines remarks, that the lower leaves are ternate, the upper ſimple, obovate or linear-lanceolate; the calyx ſmall, truncate, ſilky, two-lobed, the lobes blunt; the corolla white, a little ſmaller than in *S. monoſpermum*, the ſtandard elliptic and quite entire, the wings ovate-lanceolate, obtuſe, a little longer than the keel, which is ſomewhat bowed, compreſſed and two-leaved; the filaments are united below into a half-ten-cleft column; anthers ſaffron-coloured; ſtyle filiform, bowed, acute; germ pubeſcent; legume compreſſed, oblong, very villoſe.

Native of Portugal and mount Atlas.—Introduced about 1770, by Mr. James Gordon[2].]

13. Stalks and branches ſlender, having a few trifoliate and ſingle leaves towards the bottom. The branches have ſix angles or furrows; [or as Linneus expreſſes it, three angles run down along the branches from each leaf; and hence his trivial name.] Flowers ſmall, of a pale yellow colour, produced in looſe ſpikes at the ends of the branches. They rarely produce ſeeds in England.

Native of the Levant. [Cultivated by Mr. Miller in 1759.

14. The common Broom grows from three to ſix feet high or more, very much branched; the branches upright, ruſhy, evergreen, angular, flexible, leafy, ſmooth except the very young ones which are downy. Leaves ternate, ſmall, ovate, acute, downy and edged with ſoft hairs bending inwards; the leaf-ſtalks are alſo ſlightly hairy, and flattened. Flowers axillary, ſolitary or two together, rarely three, nodding, on round ſmooth peduncles, furniſhed on each ſide with a very minute ſtipule. Calyx ſomewhat bell-ſhaped, two-lipped, gaping, even, often purple, faintly toothed, the extremities of the lips withered and brown. Corolla large, handſome, of a fine gold colour, ſometimes tinged with orange or tawny on the outſide, and leſs frequently wholly lemon-coloured: ſtandard nearly round, ſlightly notched at the end, very large, reflexed; wings the length of the keel, ſomewhat oval, on ſhort claws; keel large and deep with a blunt beak, compoſed of two petals, which are rather hooked, and united at the lower edge by an interexture of very fine ſoft woolly hairs. Stamens four long and ſix ſhort, all united at the baſe into a tube; anthers oblong, ſaffron-coloured. Germ villoſe. Style bent almoſt into a circle, and after flowering into a ſpiral, near the tip hollowed below. Stigma terminating, very ſmall, and forming a little head. Dr. Withering remarks, that the very end of the ſtyle, which one ſhould be inclined to regard as the ſtigma, is not hairy. Legume compreſſed, brown or blackiſh, edged with long ſoft hairs[3]. Seeds ſometimes as many as eighteen or twenty, ſmall, of an oblong elliptic form, compreſſed, gloſſy, dingy yellow, beaked above the navel with a ſhort point: the navel is defended by a white two-lobed or cordate gland, which falls off after it is fully ripe. This umbilical wart or gland is wanting in the ſeeds of the Spaniſh Broom (S. junceum,) at leaſt Gærtner's ſpecimens had it not[4].

Native of Europe, in dry ſandy ſoils; flowering in may and june.

The common Broom merits a place among our flowering ſhrubs, eſpecially the variety with a purple calyx, and the flowers ſtrongly tinged with orange. There is another variety much more hoary than uſual. But even in its common ſtate, ſuch is the profuſion of golden-coloured bloſſoms with which its branches are loaded in ſummer, and ſuch the verdure of its twigs in winter, that it may vie with moſt of the foreign Brooms, and is ſuperior to ſome of them as

[1] Linn. ſuppl. [2] Jacquin. [3] Hort. kew. [4] Haller. [5] Hort. kew. [6] Linn. ſpec. [7] Villars. [1] Hort. kew. [2] Desfontaines. [3] Curtis, Smith, Withering. [4] Gærtner, Curtis.

an ornamental ſhrub. It claims ſome attention alſo as an uſeful plant in rural œconomy and medicine.

It is uſed for beſoms, and from their common name of brooms, one may ſuppoſe that this plant was firſt in uſe for the purpoſe of ſweeping. In the northern parts of Great-Britain it ſerves for thatching cottages, corn and hay-ricks, and as a ſubſtitute for reeds in making fences or ſereens. In ſome parts of Scotland, where coals and wood are ſcarce, it is ſaid whole fields are ſown with it for fuel.

Bees are fond of the flowers: the flower-buds, juſt before they become yellow, are pickled in the manner of capers: the branches are ſaid to be capable of tanning leather, and of being manufactured into coarſe cloth; when tender, they are mixed with hops in brewing: the old wood furniſhes the cabinet-maker with the moſt beautiful material for veneering.

The twigs, when bruiſed, ſmell diſagreeably, which perhaps may be one reaſon why our Broom is generally rejected by cattle [g]: but they have alſo a naufeous bitter taſte.

Thomſon alludes to the fondneſs which kine ſhow for broom-fields, which they frequent much during the ſummer heat, probably for the ſake of bruſhing off the ſwarms of flies with its tough yielding branches.

The tops and leaves of Broom are commended for their purgative and diuretic qualities. Dr. Mead relates the caſe of a dropſical patient who was cured by taking half a pint of a decoction of green Broom tops, with a ſpoonful of whole Muſtard ſeed, every morning and evening. The patient had been tapped three times, and had tried the uſual remedies before. An infuſion of the ſeeds, drank freely, has been known to produce ſimilar happy effects: but whoever expects theſe effects to follow in every dropſical caſe will be greatly deceived. I knew this medicine ſucceed, ſays Dr. Withering, in one caſe that was truly deplorable; but out of a great number of caſes, in which it had a fair trial, this proved a ſingle inſtance. Dr. Cullen ordered half an ounce of freſh Broom tops to be boiled in a pound of water, till one half was conſumed; and gave two table ſpoonfuls of the decoction every hour, till it operated by ſtool, or till the whole was taken. It ſeldom failed to operate both by ſtool and urine; and by repeating the medicine every day, or every ſecond day, ſome dropſies have been cured.

The plant when burnt affords a tolerably pure alkaline ſalt; and upon this ſalt the efficacy of the aſhes of Broom in dropſies muſt depend. They were uſed principally on the authority of Sydenham; whoſe account of their good effects have been ſince confirmed by Dr. Monro and other writers [h]. The ſame qualities are attributed to *Spartium junceum* and *Genißa tinctoria*, probably with equal reaſon.

15. Branches very numerous, round, ſlender, ſmooth, upright, cluſtered, ſtriated, with a few tubercles on them. Leaves on the younger branchlets ſilky, linear or linear-lanceolate, acute, villoſe with hairs preſſed cloſe. Flowers in terminating heads, ſeſſile. Calyx ſilky, ſubbilobed, five-toothed: teeth acute, two upper, three lower. Corolla yellow, ſilky on the outſide; ſtandard as long as the keel, obovate, entire, with a very ſhort claw: wings ſhorter than the keel, which is ſlightly bowed. Legume compreſſed, linear, acuminate, covered cloſely with hoary ſhort hairs. Seeds from three to five, ſmall, compreſſed, ſomewhat kidney-ſhaped.

Native of Barbary, on dry hills near Arzeau, on the ſea coaſt.

16. Stem upright, with numerous ſtriated branches, and ſtout long ſtriated flowering ſpines. Leaves ſmooth or very ſhortly villoſe, mucronate; the upper ones ſimple, lanceolate and obovate, on very ſhort petioles; the lower ternate and obovate. Flowers numerous, ſolitary, axillary, on ſhort pedicels, diſpoſed in looſiſh racemes. Rachis pubeſcent. Calyx three-parted, with acute ſegments, the lower one a little longer and trifid. Corolla yellow, the ſame ſize as in *Genißa ſpinoſa*, and ſmooth. Germ ſilvery. Legume bowed a little, compreſſed, acuminate, toruloſe, hoary with cloſe and very ſhort hairs preſſed cloſe, containing from eight to ten ſeeds.—Native of Barbary, near La Calle [i].

17. This is a low ſhrub, a foot high, very much branched, diffuſed, rigid, rough with ſpines. Branches trichotomous, many times divided, marked with ſix lines, ſmooth, widening towards the top: branchlets above often five from the ſame joint, round, awl-ſhaped, ſpiny, rigid, yelloviſh at the end. Leaves petioled, oppoſite: the three leaflets are ſeſſile, linear, complicate, ſilky, equal. Petiole the length of the leaves, with a ſpinuloſe ſtipule growing to it at the baſe on each ſide. Flowers from the top of the middle branchlet, ſolitary or in pairs, ſubſeſſile. Bractes four, cordate-acuminate, villoſe, dry, at the baſe of the flowers. Calyx dry, two-lipped, villoſe, ſhorter than the pod: upper lip three-toothed, teeth acuminate; lower with two teeth. Corolla yellow. Legume hirſute, hoary, four-ſeeded.

Found by Vahl on mount Uruel, by Jacca, a city of Aragon [k].

18. Branches ſpreading, ſtriated. Leaves ſmall: leaflets obovate, almoſt equal, ſomewhat pubeſcent beneath. Flowers large, tumid, very deep yellow, with a tawny or orange ſpot at the back of the ſtandard. Seed hirſute [l].

This ſhrub appears three times in the *Syſtema Vegetabilium*: and the ſame ſynonym from Tournefort is given in Reichard's edition and the *Supplementum Plantarum* to all three. In the latter work it is ſaid that the branches are dry at the ends; the buds hoary; the flowers ſometimes three together, on one-flowered peduncles, ſhorter than the flowers; calyx ſmooth; corolla yellow; legumes hairy, compreſſed.

Mon. L'Heritier refers the *Genißa* figured in Miller's plates, t. 138. to this ſpecies. He deſcribes it as growing to the height of ſix or ſeven feet, ſending out many ſlender pliant branches, ſo as to form a large ſpreading head: theſe branches being fully furniſhed with flowers in every part, the ſhrub makes a fine appearance during their continuance. He adds that the branches are generally three-cornered, ſpread and turn downward; that the leaves are ſometimes ſingle, and thoſe that terminate the branches end in three points; that the flowers come out ſingly from the axils on ſhort pedicels; that the calyx is ſhort and cut into five parts, and the corolla yellow; that it flowers at the end of april and beginning of may, and the ſeeds ripen in july; that it is a native of Portugal, and he has ſeveral times received the ſeeds from thence.

All are agreed that this ſpecies is a native of that country. According to the Kew catalogue, it was introduced about 1764, by Mr. James Gordon.

Mr. Miller has three ſorts in his Dictionary (n. n. 5, 6, 7.) with ternate leaves and unarmed branches, from Spain and Portugal; which he names *luſitanicum*, *hirſutum* and *glabrum*. They have not been adopted by other authors, and may perhaps belong to this ſpecies.

19. Trunk often as thick as the human arm. Branches numerous, unarmed, deeply ſtriated, frequently leafleſs at the top. Leaves petioled: leaflets ſmooth or ſcarcely villoſe with very ſhort hairs. Flowers numerous, aggregate and ſometimes ſolitary, on filiform pedicels. Calyx ſmall, pitcher-ſhaped, two-lobed, with very ſmall teeth, two upper and three lower. Corolla deep yellow, ſhining, a little inflated, the ſame ſize as in *S. ſcoparium*; ſtandard obcordate, the length of the wings and keel; wings large, elliptic, obliquely truncate, clawed; keel rounded at the top, bowed. Filaments bowed, united at the baſe into a column, five ſhorter. Style curved in. Legume flat, linear, many-ſeeded, black when ripe, ſilky-villoſe with ſhort ſilvery hairs. It is allied to *S. patens*, and is perhaps a variety of it: but the legume is almoſt twice as long, and villoſe with much ſhorter hairs, preſſed cloſe.—Native of mount Atlas and in the vallies near Algiers.

20. This is an unarmed ſhrub, with erect ſtriated branches, the younger ones angular. Flowers ſubſeſſile

[g] Curtis. [h] Withering, Woodville. [i] Desfontaines. [k] Vahl. [l] Linn. ſyſt.

at

at the ends of the branches, generally two together, ſeldom one or three. Calyx two-lobed, pitcher-ſhaped, villoſe, membranaceous, five-toothed, two of the teeth ſuperior. Corolla almoſt the ſize of thoſe of common Broom, yellow, ſhining, ſmooth, ſomewhat inflated: ſtandard obovate, quite entire, ſcarcely exceeding the wings and keel; wings lanceolate-linear, obtuſe; keel boat-ſhaped, obtuſe. Filaments united below. Style bowed. Stigma obtuſe. Legume ſmooth, compreſſed, hooked, many-ſeeded.—Native of Mount Atlas near Tlemſen.

21. This is an upright ſhrub, the younger branches of which are ſtriated, pubeſcent, cluſtered, and tubercled. Leaves numerous ſcattered in cluſters: leaflets narrower below, ſilvery-ſilky beneath, reflexed at the edge. Pedicels one-flowered. Calyx ſilky, deeply three-parted: ſegments lanceolate, acute, the lower one longer and triſid. Corolla yellow, the ſize of *Geniſta tinctoria*, villoſe with cloſe-preſſed hairs: ſtandard depreſſed, obovate, a little longer than the keel, with the margin reflexed upwards; wings elliptic, obtuſe, equalling the keel, which is ſlightly bowed. Legume linear, flat, hirſute, many-ſeeded. It is an elegant ſhrub, flowering early in ſpring, and is a native of the mountains of Algiers [a].

22. Native of the Cape of Good Hope, where it was found by Mr. Francis Maſſon, and introduced in 1774. It flowers in april [b].

23. This is a ſilky ſhrub. Leaves alternate, petioled; leaflets linear, villoſe [c]. Native of the Cape of Good Hope. Introduced in 1774, by Maſſon. It flowers in april [d].

24. At firſt ſight this exactly reſembles *S. junceum*, but the leaves are ternate, and the branches grooved; the exiſts of the branches are often leafleſs. Leaves ſmall. Peduncles from the axils of the leaves, ſeveral, heaped, one-flowered. Flowers white, ſmelling very ſweet, ſmall. Legumes compreſſed, ſmooth, becoming black in drying. It is a valuable ſhrub on account of the abundance of its fragrant white flowers [e].

Native of the Pic of Teneriffe, where it was found by Maſſon, and introduced in 1779 [f].

25. Stems low, with oppoſite four-cornered branches. Leaves oppoſite, ſubſeſſile: leaflets ſeſſile, thin, ſubpubeſcent. Petioles extremely ſhort, but permanent, three-cornered, gibbous, very blunt, thicker than the branchlet to be ſupported. Flowers terminating, in threes, ſeſſile. Bracte acute, deciduous [g].]

In its natural ſtate this is a low ſhrub: when cultivated it becomes much larger, though rarely exceeding two feet and a half in height, but the branches ſpread very much and form a large buſh; they are angular and pliable, and always come out by pairs oppoſite. Leaves narrow and awl-ſhaped, placed round the ſtalk, ſpreading out like the points of a ſtar, whence John Bauhin's name, which Linneus has adopted. Flowers in ſmall ſpikes at the end of the branches; bright yellow, but not more than half the ſize of *S. junceum*, and without ſcent. Pods ſhort and hairy, containing two or three ſmall ſeeds. It flowers in june and the ſeeds ripen in auguſt.

Native of Italy upon the mountains: [alſo of Carniola.—Cultivated by Mr. Miller in 1758 [h].

26. Branches denſe, divaricating, ſmooth, ſtriated, having ſtout, ſtriated, diverging ſpines, ending in a very ſharp prickle. Leaves petioled: leaflets obovate, ſmooth, very ſhortly mucronate, or having no point, a little longer than the petiole. Flowers numerous, pedicelled, axillary, ſolitary and aggregate. Calyx ſmall, membranaceous, with five indiſtinct teeth. Corolla yellow, ſmooth, only half the ſize of the common Broom: ſtandard obovate, quite entire, the length of the wings and keel; wings lanceolate, obtuſe; keel two-petalled, ſlightly bowed, obtuſe. Filaments united. Style inflexed. Legume compreſſed, linear, ſmooth, containing two or four ſeeds [i].]

Stalks five or ſix feet high, ſending out many flexible branches, armed with long ſpines; flowers terminating in cluſters, each upon a long pedicel; corolla bright yellow, appearing in june; pods ſhort, woody, with a thick border on their upper edge, and containing three or four ſeeds.

Native of Italy and Spain near the ſea coaſt; [alſo of the South of France, mount Libanus, and about Algiers.—Cultivated in 1640 by Parkinſon [k].

27. This reſembles the preceding very much, and is diſtinguiſhed from it by its thick legume, covered with a very cloſe wool [l].

Vahl is inclined to think it no more than a variety of the *ſpinoſum*, with which it agrees in every thing, except in the woolly ſhagginess of the calyx and legume. He gathered it in Barbary and about Naples. Desfontaines alſo found it in Barbary.

Juſſieu and Lamarck have united *Spartium* and *Geniſta* into one genus, perhaps not without reaſon. They ſeem to form one natural genus, and there are ſcarcely ſufficient artificial characters to diſtinguiſh them.

The Brooms are ornamental, flexible, deciduous Shrubs, of middling growth, with long ruſh-like ſhoots, few leaves, and numerous flowers. Some of them (10. 11. 16. 17. 26. 27.) are armed with ſpines; the reſt are unarmed. They may be divided into three parcels from the leaves; which in the eleven firſt ſpecies are ſimple, in the five next (12 to 16) ſimple and ternate, and in the remainder ternate only. The predominating colour of the flowers is yellow; but in n. 7. they are violet-blue, and in 4. 12. and 24. white. The greater part are natives of the South of Europe, particularly Spain and Portugal, in arid ſterile ſoils: 3 to 6. 9. 10. 12. 14. 17. 18. 25. 26. 27. Many of theſe, and ſome others, are natives of Barbary: 4. 5. 10. 11. 12. 15. 16. 19. 20. 21. 26. 27.—13 and 26 are found in the Levant; 8 in Madeira; 24 in Teneriffe; 1. 2. 22. 23. at the Cape of Good Hope; and 7 in Siberia.]

PROPAGATION AND CULTURE.

3. Spaniſh Broom is eaſily propagated by ſeeds, ſown in the ſpring, upon a bed of common earth, in a ſhady ſituation, where the plants will riſe very freely; they muſt be kept clear from weeds the following ſummer, and in autumn they may be taken up, and tranſplanted into a nurſery, which ſhould be choſen in a warm ſheltered ſituation. N. 7. 9. 10. 12. 18. may be raiſed and treated in the ſame manner.

4. Sow the ſeeds about the middle of april upon a bed of freſh light earth, in drills half an inch deep; the drills not leſs than a foot aſunder, and the ſeeds three inches apart. Remove them at michaelmas, for if ſuffered to ſtand longer, they ſhoot downright roots very deep, and if theſe be cut or broken, when they are grown large, the plants frequently miſcarry.

If the ſeaſon ſhould not be favourable, defer the ſowing, for the ſeeds are ſubject to periſh in the ground by cold or wet. The beſt rule is to ſow them at the ſame time with Kidney-beans.

At michaelmas ſome of the plants may be potted, to be ſheltered in winter, and the reſt may be planted in a warm ſituation and on a dry ſoil; where, if the winter ſhould not prove ſevere, they will ſtand very well. If ſome of the plants are left in the ſeed-bed, they may be ſheltered with mats in ſevere froſt, and ſome mulch laid about their roots.

The above directions will ſerve for n. 5. 6. 8. 11. 13. 15. 16. 17. 19. 20. 21. 26. 27.

25. Sow the ſeeds in autumn in a bed of common earth in rows. The following autumn remove the plants from the ſeed-bed to the places where they are to remain, or into a nurſery for a year or two to get ſtrength: but they will not bear tranſplanting when they are large.

[1. 2. 22. 23. with 8. and 24. are inhabitants of the dry ſtove. Several alſo of the above in the ſecond claſs, require the protection of a greenhouſe in ſevere weather.

SPARTIUM. See *Anthyllis*, *Aſpalathus*, *Ebenus*, *Geniſta*, *Pterocarpus*, *Securidaca*.

[a] Desfontaines. [b] Hort. kew. [c] Linn. ſyſt. & Berg. [d] Hort. kew. [e] Linn. ſuppl. [f] Hort. kew. [g] Linn. ſpec. [h] Hort. kew. [i] Desfontaines. [k] Hort. kew. [l] Desfontaines.

SPARTIUM africanum. See *Borbonia* and *Polygala*.
——— capenſe. See *Crotalaria* and *Liparia*.
——— complicatum. See *Cytiſus divaricatus*.
——— ſophoroides. See *Crotalaria*.
SPARTUM. See *Daſtylis, Lygeum, Nardus, Stipa*.
SPATHE. See *Spathelia*.
SPATHELIA. (*Altered by Linneus from the* Spathe of *Browne*.)
Lin. gen. n. 373. *Reich. n.* 403. *Schreb. n.* 506. *Gærtn. t.* 58. *Juſſ.* 371. Spathe. *Browne*.
Claſſ. 5. 3. Pentandria Trigynia.
Nat. order of *Bicornes*. *Terebintaceæ*, Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* five-leaved: *leaflets* oblong, coloured.
COR. *Petals* five, oblong, equal.
STAM. *Filaments* five, awl-ſhaped, aſcending, marked with a tooth at the baſe. *Anthers* ovate.
PIST. *Germ* ovate, ſhorter than the ſtamens. *Styles* three. *Stigmas* ſimple.
PER. *Capſule* oblong, three-cornered, three-winged, three-celled: cells accompanied by a lateral reſiniferous canal.
SEEDS ſolitary, oblong, three-ſided.

ESSENTIAL CHARACTER.

Cal. five-leaved. *Pet.* five. *Capſ.* three-cornered, three-celled. *Seeds* ſolitary.

SPECIES.

1. Spathelia ſimplex. *Rhus-leaved Spathelia.*
Lin. ſpec. 386. *Reich.* 1. 738. *Willd.* 1. 1496. *Brown. jam.* 187. (Spathe.) *Sloan. jam.* 2. 28. *t.* 171. *Raii dendr.* 94. (Aceri aut Paliuro affinis, &c.)

DESCRIPTION, *&c.*

This tree riſes by a ſingle ſlender ſtem, like the Palms, and bears all its oval leaves in a pinnated order, on moderate ribs diſpoſed cloſely together about the top, from the centre of which the flower-ſpike riſes; this is very ſpreading, and generally ſhoots ſo as to appear a large blooming pyramid many feet above the foliage. The trunk is ſeldom divided, but is ſo very like what we have already deſcribed under this Engliſh appellation, (Maiden Plumb-tree, Comacladia, p. 124.) both in ſize and appearance, that I could never diſtinguiſh them when out of flower; nor do I yet know which is the true timber tree. This would make a moſt beautiful flowering ſhrub, for it ſeldom riſes above fourteen or ſixteen feet, and its flowering top is generally from four to ſix feet in height. It is frequent in the rocky hills above the ferry, and makes a moſt beautiful appearance in the woods when in bloom*.

Gærtner deſcribes the fruit as a juiceleſs drupe, ovate-three-ſided, ſmooth, bay-coloured: rind membranaceous-fungous, widening out into rigid brittle wings: ſhell three-celled, ſtony, ovate-acuminate, pedunculed with a long rigid briſtle, rounded three-cornered; the corners and cells accompanied by a roundiſh appendicle, prominent above into a dagger point, internally channelled and abounding in a reſinous fluid. Seeds in each cell one, ſubcylindric, acuminate at both ends, on the ſide towards the reſiniferous channel, ſlightly marked with a groove, of a red-ruſty colour, cohering with the outer ſide of the cells. On the ſame tree are other fruits, compreſſed like a lens, having two wings only, and two-celled, but in the reſt of their ſtructure reſembling the others.

Native of Jamaica. Introduced in 1778, by William Wright, M. D.†

Spathium chinenſe, *Lour.* is Aponogeton monoſtachyon, *Lin.*

SPATHULA. See *Iris fœtidiſſima*.
SPATLING POPPY. See *Cucubalus*.
SPEARAGE. See *Aſparagus*.
SPEAR, KING'S. See *Aſphodelus*.
SPEARMINT. See *Mentha*.
SPEARWORT. See *Ranunculus*.
SPECULUM VENERIS. See *Campanula* and *Ruellia*.
SPEEDWELL. See *Veronica*.
SPELTA and SPELT. See *Triticum*.
SPERAGE. See *Aſparagus*.

* Browne. † Hort. kew.

SPERGULA. (*Dimin.* a ſpargendo; *from its throwing the ſeed about.*)
Lin. gen. n. 586. *Reich. n.* 638. *Schreb. n.* 798. *Dill. gen.* 7. *Juſſ.* 301. *Gærtn. t.* 130.
Claſſ. 10. 4. Decandria Pentagynia.
Nat. order of *Caryophyllei*.

GENERIC CHARACTER.

CAL. *Perianth* five-leaved: *leaflets* ovate, obtuſe, concave, ſpreading, permanent.
COR. *Petals* five, ovate, concave, ſpreading, bigger than the calyx, undivided.
STAM. *Filaments* ten, awl-ſhaped, ſhorter than the corolla. *Anthers* roundiſh.
PIST. *Germ* ovate. *Styles* five, from erect-reflex, filiform. *Stigmas* thickiſh.
PER. *Capſule* ovate, ſtraight, one-celled, five-valved.
SEEDS very many, depreſſed-globular, girt with an emarginate rim.
OBS. *It is diſtinguiſhed from* Ceraſtium *by its entire petals.* S. pentandra *has only five ſtamens.*

ESSENTIAL CHARACTER.

Cal. five-leaved. *Pet.* five, entire. *Capſ.* ovate, one-celled, five-valved.

SPECIES.

1. Spergula arvenſis. *Corn Spurrey.*
Lin. ſpec. 630. *Syſt.* 437. *Reich.* 2. 403. *Willd.* 2. 818. *hort. cliff.* 173. *fl. ſuec. n.* 419. *lapp. n.* 190. *Gærtn. fruct.* 2. 230. *Hudſ. angl.* 202. *Wither. arr. ed.* 3. 436. *Smith brit.* 502. *Curt. lond.* 5. *t.* 31. *Lightf. ſcot.* 243. *Relh. cant. ed.* 2. *n.* 393. *Sibth. oxon. n.* 431. *Fl. dan. t.* 1033. *Gunn. norv. n.* 20. *Hoffm. germ.* 160. *Roth. germ.* 1. 195. 2. 504. *Pollich pal. n.* 446. *Neck. gallob.* 206. *Krock. ſilef. n.* 709. *Villars dauph.* 3. 656. *Allion. pedem. n.* 1734. *Gmel. ſib.* 4. 153. *Deſfont. atlant.* 368.
Spergula. *Ded. pempt.* 537. *Bauh. biſt.* 3. 719. 2. *Dalech. biſt.* 1331. *Raii biſt.* 1034.
Saginæ Spergula. *Ger. emac.* 1125. — Polygonon Tragi. *Lob. ic.* 803.
Sagina Spergula major. *Park. theat.* 562.
Stellaria arvenſis. *Scop. carn. n.* 542.
Alſine. *Hall. helv. n.* 873.
A. Spergula dicta major. *Bauh. pin.* 251. *Raii ſyn.* 351. *Petiv. brit. t.* 59. *f.* 6. *Tournef. inſt.* 243. *Dubam. cult.* 6. 149. *t.* 1.
Leaves whorled, fruiting peduncles reflexed, ſeeds kidney-ſhaped.
2. Spergula pentandra. *Little Corn Spurrey.*
Lin. ſpec. 630. *Syſt.* 437. *Reich.* 2. 404. *Willd.* 2. 818. *Leyſ. it.* 43. *Smith brit.* 503. *Hoffm. germ.* 160. *Roth. germ.* 1. 196. 2. 505. *Weber ſpic.* 14. *Villars dauph.* 3. 656.
S. annua, ſemine foliaceo nigro, circulo membranaceo albo cincto. *Dill. in Raii ſyn.* 351. *Giſſ.* 46. *Eph. nat. cur. cent.* 5 & 6. 275. *t.* 4. *f.* 1.
Alſine Spergula dicta, ſemine membranaceo fuſco. *Raii ſyn. ed.* 2. 210. conf. *Mor. biſt.* 2. 551. *n.* 16. 17.
A. Spergulæ facie minima. *Magn. monſp.* 14.—ſeminibus marginatis. *Vaill. par.* 8.
A. marginata. *Schreb. ſpicil.* 31.
Stellaria pentandra. *Scop. carn. n.* 543.
Arenaria media. *Pollich pal. n.* 426. *Rupp. gen.* 2. 118.
Leaves whorled, flowers five-ſtamened, ſeeds depreſſed winged.
3. Spergula nodoſa. *Knotted Spurrey.*
Lin. ſpec. 630. *Syſt.* 437. *Reich.* 2. 404. *Willd.* 2. 819. *hort. cliff.* 173. *fl. ſuec. n.* 420. *lapp. n.* 191. *Hudſ. angl.* 203. *Wither. arr. ed.* 3. 437. *Smith brit.* 503. *Lightf. ſcot.* 244. *Relh. cant. ed.* 2. *n.* 394. *Sibth. oxon. n.* 432. *Abbot bedf. n.* 346. *Curt. lond.* 4. *t.* 34. 261. *Fl. dan. t.* 96. *Hoffm. germ.* 161. *Roth. germ.* 1. 196. 2. 505. *Pollich pal. n.* 447. *Reyg. ged.* 1. 124. *Krock. ſilef. n.* 711. *Gmel. ſib.* 4. 153. *Kniph. cent.* 11. *Dill. giſſ.* 156.
Alſine. *Hall. helv. n.* 871.
A. nodoſa germanica. *Bauh. pin.* 251. *Park. theat.* 764.

A. paluſtris foliis tenuiſſimis, f. Saxifraga paluſtris anglica. *Ger. emac.* 568. *Raii ſyn.* 350. *Petiv. brit. t.* 59 *f.* 5. *Pluk. phyt. t.* 7. *f.* 4.

Saxifraga paluſtris anglica. *Park. theat.* 427. 3. *Raii hiſt.* 1032.

S. pal. alſinefolia. *Goodyer in Ger. emac.* 567. *f.* 6.

Stellaria nodoſa. *Scop. carn. n.* 545.

Arenaria. *Baub. hiſt.* 3. 724. *Raii hiſt.* 1033. ſec. Linn.

Polygonum foliis gramineis alterum. *Loeſ. pruſſ.* 204. *t.* 64.

Leaves oppoſite awl-ſhaped even, the upper ones in bundles, calyx nerveleſs.

[4. Spergula laricina. *Larch-leaved Spurrey.*

Lin. ſpec. 631. *ſyſt.* 437. *Reich.* 2. 404. *Willd.* 2. 820. *Smith ic. ined.* 1. *t.* 18.

Alſine foliis oppoſitis linearibus rigidis faſciculatis baſi ciliatis, petalis integris calyci æqualibus. *Gmel. ſib.* 4. 155.

Leaves oppoſite awl-ſhaped ciliate in bundles.

5. Spergula ſaginoides. *Smooth awl-ſhaped Spurrey.*

Lin. ſpec. 631. *ſyſt.* 437. *Reich.* 2. 404. *Willd.* 2. 820. *Smith brit.* 504. *Gouan illuſtr.* 31. *Swartz in act. holm.* 1789. 44. *t.* 1. *f.* 2.

Alſine. *Hall. helv. n.* 862.

A. foliis gramineis ſæpe faſciculatis glabris, pedunculis longis nudis unifloris. *Gmel. ſib.* 4. 157.

Leaves oppoſite awl-ſhaped awnleſs naked, peduncles ſolitary very long ſmooth.

6. Spergula ſubulata. *Ciliated awl-ſhaped Spurrey.*

Lin. ſpec. ed. Willd. 2. 820. *Swartz in act. holm.* 1789. 45. *t.* 1. *f.* 3. *Wither. arr. ed.* 3. 436. *Smith brit.* 505.

S. laricina. *Hudſ. angl.* 203. *Lightf. ſcot.* 244. *Fl. dan. t.* 858. *Jacqu. collect.* 2. 207.

S. ſaginoides. *Curt. lond.* 4. *t.* 35. *Hoffm. germ.* 161. *Roth. germ.* 1. 197. 2. 506. *Retz. obſ.* 1. 19. 2. 18. & 3. 32.

Sagina procumbens β. *Lin. ſpec.* 185.

Saxifraga graminea puſilla foliis brevioribus craſſioribus & ſuccolentioribus. *Raii ſyn.* 345.

Alſine tenuifolia pediculis florum longiſſimis. *Vaill. par.* 8.

Leaves oppoſite awl-ſhaped awned ciliate, peduncles ſolitary very long ſomewhat hairy.

7. Spergula glabra. *Smooth Spurrey.*

Lin. ſpec. ed. Willd. 2. 821.

S. ſaginoides. *Allion. pedem. n.* 1735. *t.* 64. *f.* 1.

Leaves oppoſite bundled filiform ſmooth, flowers ten-ſtamened, petals bigger than the calyx.

DESCRIPTIONS, *&c.*

1. Root annual, ſmall, fibrous. Stems numerous, a ſpan or a foot in length, nearly upright or ſpreading a little, round, ſmooth, hairy, clammy and panicled on the upper part, leafy, jointed; joints ſwelling, globular. Stipules in pairs at the joints, very ſhort, the tips of the lower ones reflexed. Leaves in whorls, forming two bundles, about eight in each, the inner ones gradually ſmaller, linear, round, having a deep furrow on the back, blunt and yellow at the tip; the upper ones hairy and clammy. Panicle dichotomous, divaricating, many-flowered. Peduncles one-flowered, pubeſcent, clammy, bracted at the baſe, bent down when the flowering is over. Leaflets of the calyx ovate, obtuſe, concave, hairy, ſcarioſe ſcurfy or whitiſh at the edge. Petals ovate, white, longer than the calyx, a little pointed, faſtened by a ſhort claw[b]. Capſule ovate, ſmooth, ſhining, ſcarcely opening beyond the middle. Receptacle columnar, free, hiſpid with the umbilical chords, a little longer than half the capſule. Seeds numerous, (about ſeventy) ſubovate, compreſſedly three-cornered, ſhagreened with ſcattered raiſed dots, having a groove along the back, and a ridge along the belly, ruſeſcent[c]. Smith deſcribes the capſule as being double the length of the calyx; and the ſeeds kidney-ſhaped, gibbous, margined, and finally rugged with tubercles. According to Curtis, the capſule is covered by the remaining calyx; and the ſeeds are rather large, round with a ſmall degree of flatneſs, blackiſh, and if viewed with a magnifier beſet with ſmall, reddiſh, prominent points, and encircled with a maniſeſt ring. Gærtner ſays that the capſule is ſix-valved, but ſurely that is not the natural number.

[b] Curtis, Smith. [c] Gærtner.

The number of ſtamens is by no means conſtant in this and other kindred genera. Mr. Curtis has not found this plant to vary unuſually in this reſpect. Dr. Smith ſays it varies, but ſeldom, with five ſtamens. This has made ſome confound it with the next ſpecies; which by others has been conſidered as a variety only of this. Pollich affirms that *Spergula arvenſis* has often five, ſix or ſeven ſtamens: Scopoli, that it has five, ſeven or eight, as well as ten: Withering, that it has frequently fewer than ten in the autumn; which is certainly the caſe in ſome other plants. The Biſhop of Drontheim ſays that he has not obſerved any plant in which the number of ſtamens varies ſo much as in this, having obſerved from five to nine and very few with ten, on the ſame individual.

Native of Europe, in ſandy ſoils; alſo of Barbary and Siberia. It flowers here from july to ſeptember.

The inhabitants of Finland and Norway make bread of the ſeeds, when their crops of corn fail. Poultry and birds in general are very fond of the ſeeds. In ſome parts of Holland, Brabant, Flanders, Germany, &c. they ſow great quantities to feed their cattle with the plant, and it is reputed very nutritious. It has been recommended for cultivation in England, but we have fortunately better crops for ſandy lands, ſuch as Rie, Peas, Tares or Vetches, Buckwheat, Carrots, &c.]

Mr. Miller ſays, the chief uſe that is made of Spurrey abroad is for feeding ſheep and cattle in winter, when the common graſs is eaten bare. It is ſaid that it makes cows yield excellent butter, that mutton fed on it is well taſted, and that it cauſes hens to lay abundance of eggs.

[Spurrey, and Chickweed, ſays Dr. Anderſon, are by many thought to cauſe cows to give an extraordinary quantity of milk; that cattle prefer it when green, to almoſt any other plant, and ſheep are exceedingly fond of it. Though cultivated in Holland as a uſeful plant, it is in ſome parts of Scotland a very pernicious weed among corn crops, particularly in ſpongy ſoils. It is ſometimes called *Tarr* there[d]. In Norfolk they call it *Pickpurſe*, which ſhows their contempt of it, and *Sandweed*[e].

2. This has all the habit of the preceding, but it is ſmaller, and has fewer, leſs fleſhy leaves. The margin of the calyx is ſcarcely ſcarioſe. The number of ſtamens is five. The ſeeds are flatted, even, and have a widened, membranaceous, white rim[f].

If the difference between theſe two plants, ſays Mr. Curtis, were to depend ſolely on the number of its ſtamina, we ſhould be ready to conſider them as the ſame; but Ray founds his ſpecific difference on characters leſs ſubject to variation: the leaves at the joints, he obſerves, are fewer and thicker, the plant flowers early and ſoon goes off. Theſe circumſtances are noticed by French botaniſts, and by Ruppius. The difference in the ſeeds are remarked by Moriſon, Dillenius and Villars; the latter of whom ſays it is eaſily diſtinguiſhed, not by the number of ſtamens, but by its blackiſh flatted ſeeds, bordered by a little membrane.

Native of Germany, France, Spain, and Ireland; where it was obſerved by William Sherard, LL. D. Conſul at Smyrna, in ſandy grounds.

Dr. Smith informs us, that Linnæus had it from Lœfling; and that he has admitted it into the Britiſh Flora entirely on the authority of Dillenius. Some Engliſh botaniſts have miſtaken the *arvenſis* with fewer ſtamens than common for this ſpecies.]

Mr. Miller affirms, that both ſpecies are equally cultivated in Holland and Flanders for feeding cattle; [and Moriſon ſays they are ſo alike that they cannot be diſtinguiſhed but by the ſeeds.

3. Root perennial, fibrous. Stems ſeveral, four inches or more in length, procumbent, but ſometimes

[d] Eſſays, vol. 2. 63 & 298. [e] Marſhall's Norfolk, p. 385. [f] Smith brit.

nearly

nearly upright, after flowering often-creeping, ſimple or little branched, leafy, round, ſlender, ſmooth or ſparingly haired; the hairs appearing globular at top when magnified, having numerous joints which are ſwelled. Leaves next to the root numerous, forming a tuft, of a beautiful dark green colour, about an inch in length, ſomewhat fleſhy; the lowermoſt ſtem-leaves a little longer than the radical ones, connate, and ſometimes indiſtinctly ciliate at the baſe; the upper ſtem-leaves very ſhort, from their axils producing ſmall tufts of leaves, the rudiments of branches. Flowers white, large in proportion to the ſize of the plant, at the ends of the ſtems and branches, on upright peduncles, about half an inch in length. Calyx-leaves ovate, obtuſe, keeled, nerveleſs, ſmooth, or ſlightly hairy. Petals twice the length of the calyx, rounded ovate, entire. Capſule, ſmall, ovate; half as long again as the calyx. Seeds numerous, very minute, blackiſh [a].

This elegant little plant recommends itſelf to our notice by the beauty of its verdure, and the delicacy of its flowers; the largeneſs and pure whiteneſs of which, joined to its place of growth, ſerve to diſtinguiſh it from thoſe plants which have ſome reſemblance to it in the foliage. It is found in the greateſt part of Europe, in moiſt ſituations, frequently among herbage, and ſometimes out of walls, rocks or ſtones. It flowers in july and auguſt. About London it is a ſcarce plant; but in the north of England it is very common on the borders of rivulets, and generally grows more upright than with us. Mr. Curtis obſerved it growing out of the wall by the Thames ſide, in ſeveral places betwixt Lambeth and Putney: alſo on Houndſlow-heath [b]. Mr. John Goodyer obſerved it, auguſt 12, 1626, plentifully on the boggy ground below the red well of Wellingborough in Northamptonſhire: Dr. John Sibthorp, on Shotover hill, and near Stow wood in Oxfordſhire: Dr. Abbot, at Ampthill and Stevington, in Bedfordſhire: on Hinton and Teverſham moors, Gamlingay, &c. in Cambridgeſhire: boggy ground in Sutton park, Warwickſhire, by Dr. Stokes: bogs about Settle, and other places in the north, by Mr. Curtis: in the bogs on Chorley foreſt, and Beacon hill, Leiceſterſhire, by Dr. Pulteney: on Hampſtead heath and Harefield moor, in Middleſex. In Dorſetſhire not uncommon, moſt plentifully by the Avon; in the marſh between the town and the river at Ringwood; Dr. Pulteney. Side of the lake at Llanberris, by Mr. Aiken. In Scotland, but not very common, in wet paſtures, and on the ſides of lakes and marſhes.

4. Root perennial. Stems decumbent, branched, leafy, round. Flowering-branches aſcending, ſimple, leafy, few-flowered, ſubflexuoſe, with the joints ſwelling a little, ſmooth. Leaves briſtle-ſhaped, connate with a membranaceous baſe, ciliate towards the baſe, ſurface ſmooth; the younger ones in axillary ſolitary bundles. Flowers terminating and lateral ſolitary white, the ſize of *Stellaria boleſtea*. Bractes like the leaves but ſhorter, naked. Peduncles filiform, ſmooth. Calyx-leaves lanceolate acute three-nerved ſmooth membranaceous at the edge. Petals obovate ſcarcely longer than the calyx. Five ſtamens the length of the petals, and five ſhorter. Anthers roundiſh. Germ ovate, obtuſe, five-grooved. Styles ſpreading, ſcarcely longer than the ſtamens.—It is a handſome plant, agreeing very much with the Arenarias, except in the number of ſtyles. It has more affinity to *Spergula nodoſa* than to *ſaginoides*, to which its ſynonyms are often attributed by Engliſh botaniſts.

Native of Siberia, and found by Steller between Jacutz and Ochotz [c].

5. Stem procumbent, two inches high. Leaves linear, in bundles at the joints. Peduncles quite ſimple, very long, lateral without bractes. Flowers drooping [d].

Root perennial, fibrous. Herb entirely ſmooth. Stems decumbent, ſomewhat branched, an inch and half long, leafy, round, jointed, upright at the top. Leaves connate, acute. Peduncles for the moſt part terminating, erect, one-flowered, round, naked, almoſt the length of the ſtems. Flowers drooping, white. Calyx-leaves ovate, obtuſe, even, almoſt nerveleſs, gibbous at the baſe. Petals roundiſh, obtuſe, quite entire, ſhorter than the calyx. Stamens ten, ſcarcely longer than the petals. Capſule ovate, twice as long as the calyx. Seeds kidney-ſhaped, brown, not margined.—Swartz found only five ſtamens [e].

Native of Sweden, Switzerland, France, Siberia, Scotland, on mountains. It was found on Ben Lawers, a mountain in Scotland, in 1794, by Mr. J. Mackay.

6. Root perennial fibrous. Stems ſeveral, an inch or two in length, procumbent and rooting, then upright, branched, leafy, roundiſh, ſmooth, (according to Curtis, covered with ſhort glandular hairs, ſcarcely viſible.) Leaves connate, about half an inch in length, ſharp and terminated by a whitiſh point or briſtle, of a deep green colour, ſomewhat ſhining and rather fleſhy, on the upper ſide ſmooth, on the under and at the edge hairy, the hairs terminated by little glands: ſtem-leaves ſhorter, flattiſh, and tending ſomewhat one way. Peduncles terminating and axillary, one-flowered, more or leſs hairy, an inch or more in length, of a browniſh purple colour. Flowers drooping a little. Calyx-leaves ovate, obtuſe, ſomewhat keeled, hairy and inclined to clamminеſs, membranous at the edge. Petals white, length of the calyx, roundiſh, entire and ſpreading. Stamens commonly five, but ſometimes ten. Capſule little longer than the calyx, five-valved. Seeds numerous very ſmall, kidney-ſhaped, compreſſed, pale-brown girt with a black line, ſcarcely margined; when magnified appearing dotted [f].

This plant was taken for the *laricina* of Linneus by Hudſon and Lightfoot, and for *the ſaginoides* of the ſame author by Curtis: but the latter is more branched, has ſwollen knots at the joints of the ſtems, with a remarkable contraction juſt under the knots; it is alſo a larger plant, is deſtitute of hairineſs, and its flowers have always ten ſtamens. The *laricina* has the leaves in oppoſite pairs, with bundles of young leaves or branches in the axils. The peduncles are ſmooth and furniſhed with floral leaves. The calyx-leaves are three-fibred; the flowers much larger, and the ſtamens always ten [g].

Wulfen's plant, deſcribed in Jacquin's collectanea is probably this, though the petals are ſaid to be bigger than the calyx, whereas they are really ſmaller [h].

Linneus certainly confounded this plant with *Sagina procumbens*.

Native of Denmark, Sweden, Germany and Britain; on ſandy commons, and dry gravelly paſtures. Not uncommon on Putney heath, and about Coomb wood. On Bagſhot heath. Cobham and Eſher. On Uxbridge moor. In Dorſetſhire, Devonſhire and Cornwall. In Scotland, near Forfar and between Dundee and St. Andrew's, and in the Iſle of Bute. It flowers from june to auguſt.

7. Stems procumbent, round, knotted: at each knot a pair of linear-ſubulate leaves, connate next the knots, ſhining green, curved in; each pair putting forth on one ſide a bundle of leaves. The extremities of the branches produce a bundle of leaves, which is the rudiment of a new ſtem, and a one-flowered peduncle longer than the new branch, being near two inches in length. Calyx-leaves ovate, with a white membranaceous margin, neither acute nor obtuſe. Petals ovate, marked with lines, not emarginate, obtuſe, white. Filaments ſhorter by half than the corolla. Anthers pale whitiſh purple. Sometimes the flowers have ſix ſtyles.

Native of Piedmont, in alpine paſtures [i].

Allioni took this for the *ſaginoides* of Linneus, but Willdenow regards it as a diſtinct ſpecies. Allioni gives to this that ſynonym of Vaillant which Linneus attributes to his *ſaginoides*, and we have given to *ſubulata*. He alſo gives Haller's *Alſine*, *n.* 862, as another ſynonym.]

[a] Curt. lond. and Smith brit. [b] Curt. lond. [c] Smith, ic. ined. [d] Linn. ſyſt. [e] Smith brit. [f] Curtis and Smith. [g] Withering. [h] Willdenow. [i] Smith. [k] Allioni.

PROPAGATION AND CULTURE.

The uſual time for ſowing the ſeed of Spurrey for feeding cattle, is in July or auguſt, that the plants may acquire ſtrength before winter. As Spurrey will grow on the pooreſt ſand, it may be cultivated in many places to good advantage, where no graſs will thrive well; and by feeding it off the ground, the dung of the cattle or ſheep will improve the land.

For ſaving the ſeeds, they ſhould be ſown in april, that they may ripen in auguſt. The crop muſt be cut before the heads are quite brown, otherwiſe the ſeeds will ſoon ſcatter.

About twelve pounds of ſeed is ſufficient to ſow an acre. Harrow the ground well before the ſeeds are ſown. In the Low countries, this plant ſucceeds a crop of corn. The ſecond ſort is now much cultivated in Flanders; for though it is a much lower plant, they eſteem it to be ſuperior to the other.

[SPERGULA. See *Aſine*, *Arenaria*, *Gypſophila*, *Holoſteum*, *Limoſella*, *Linum*, *Pharnaceum*.]

SPERMACOCE. (*So named by Dillenius, from* σπειρμα, *a ſeed; and* ακωκη, *a ſharp point: theſe plants having prickly ſeeds.*)

Lin. gen. n. 119. *Reich. n.* 126. *Schreb. n.* 155. *Dill. elth.* 277. *Juſſ.* 197. *Gærtn. t.* 25.

Claſſ. 4. 1. Tetrandria Monogynia.

Nat. order of *Stellatæ*. *Rubiaceæ*, Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* ſmall, four-toothed, ſuperior, permanent.

COR. one-petalled, funnel-ſhaped: *tube* cylindric, ſlender, longer than the calyx: *border* four-parted, from ſpreading reflexed, obtuſe.

STAM. *Filaments* four, awl-ſhaped, ſhorter than the corolla, or ſtanding out. *Anthers* ſimple.

PIST. *Germ* roundiſh, compreſſed, inferior. *Style* ſimple, but cloven above. *Stigmas* obtuſe.

PER. *Capſules* two, connate, oblong, gibbous on one ſide, flat on the other, obtuſe; each two-horned.

SEEDS ſolitary, roundiſh.

OBS. S. hiſpida *has a turbinate-campanulate ereƈt corolla.* R. *It is manifeſtly one-capſuled and two-celled; not two-capſuled.* M. *Gærtner deſcribes* S. tenuior *as one-capſuled. The fruit is always two-celled, bipartile when ripe, naked or covered with a thin cruſt, like a capſule, and therefore neareſt to Diodia.* Swartz.

ESSENTIAL CHARACTER.

Cor. one-petalled, funnel-ſhaped. *Seeds* two two-toothed.

SPECIES.

1. Spermacoce tenuior. *Slender Button-weed.*
Lin. ſpec. 147. *ſyſt.* 148. *Reich.* 1. 290. *Willd.* 1. 568. *Gærtn. fruƈt.* 1. 122. *Swartz obſ.* 43. *Knipb. cent.* 2. *n.* 88. *Sabb. hort. rom.* 2. *t.* 99. *Dill. elth.* 370. *t.* 277. *f.* 359. *Lœfl. it.* 202. *Brown. jam.* 141. *n.* 5. *Pluk. phyt. t.* 136. *f.* 4.
Smooth, leaves lanceolate, ſtamens included, flowers whorled, ſeeds rough-haired.

[2. Spermacoce latifolia. *Broad-leaved Button-weed.*
Lin. ſpec. ed. Willd. 1. 569. *Aubl. guian.* 1. 55. *t.* 19. *f.* 1.
Smooth, leaves ovate, ſtamens ſtanding out, flowers in whorls, ſtipules ciliate.

3. Spermacoce cæruleſcens. *Blue-flowered Button-weed.*
Lin. ſpec. ed. Willd. 1. 569. *Vahl ecl.* 1. 9. *Aubl. guian.* 1. 57. *t.* 19. *f.* 2.
Leaves ovate-acute ſomewhat hairy even, ſtipules equalling the whorled flowers, ſtamens ſtanding out.

4. Spermacoce alata. *Wing-ſtalked Button-weed.*
Lin. ſpec. ed. Willd. 1. 569. *Aubl. guian.* 1. 60. *t.* 22 *f.* 7.
Smooth, leaves ovate the uppermoſt ſeſſile, flowers terminating in heads, ſtem four-cornered winged creeping.

5. Spermacoce hexagona. *Hexagon-ſtalked Button-weed.*
Lin. ſpec. ed. Willd. 1. 569.
S. hexangularis. *Aubl. guian.* 1. 61. *t.* 22. *f.* 8.
Smooth, leaves ovate petioled, flowers terminating, ſtem proſtrate ſix-cornered.

6. Spermacoce proſtrata. *Proſtrate Button-weed.*
Lin. ſpec. ed. Willd. 1. 570. *Aubl. guian.* 1. 58. *t.* 20. *f.* 3.
Smooth, leaves ſubſeſſile elliptic acute, flowers in whorls, ſtem proſtrate.

7. Spermacoce radicans. *Rooting Button-weed.*
Lin. ſpec. ed. Willd. 1. 570. *Aubl. guian.* 1. 58. *t.* 20. *f.* 4.
Smooth, leaves ſubſeſſile lanceolate, flowers in whorls, ſtem procumbent rooting.

8. Spermacoce longifolia. *Long-leaved Button-weed.*
Lin. ſpec. ed. Willd. 1. 570. *Vahl ecl.* 1. 8. *Aubl. guian.* 1. 58. *t.* 21.
Smooth, leaves lanceolate acute at both ends rugged at the edge, whorls halved.]

9. Spermacoce verticillata. *Whorl-flowered Button-weed.*
Lin. ſpec. 148. *Reich.* 1. 291. *Willd.* 1. 570. *Swartz obſ.* 44. *Dill. elth.* 369. *t.* 277. *f.* 358. *Brown. jam.* 141. *n.* 4. *Pluk. phyt. t.* 58. *f.* 6? (Scabioſa.) *Sloan. jam.* 1. 170? (Pulegium.)
Smooth, leaves lanceolate, whorls globular.

[10. Spermacoce ſumatrenſis. *Sumatra Button-weed.*
Lin. ſpec. ed. Willd. 1. 571. *Retz. obſ.* 4. 23.
Hiſpid, leaves lanceolate, corymbs terminating dichotomous.

11. Spermacoce aſpera. *Rough Button-weed.*
Lin. ſpec. ed. Willd. 1. 571. *Aubl. guian.* 59. *t.* 22. *f.* 6. *Vahl ecl.* 1. 10.
Leaves elliptic very rugged acute ſmoothiſh, flowers axillary cluſtered, ſtamens included.

12. Spermacoce hirta. *Rough haired Button-weed.*
Lin. ſpec. 148. *ſyſt.* 148. *Reich.* 1. 291. *Willd.* 1. 571. *Swartz obſ.* 45. *Brown. jam.* 141. *n.* 3.
Rugged branched, leaves ovate-lanceolate, flowers cluſtered axillary, ſtamens ſtanding out.

13. Spermacoce villoſa. *Villoſe Button-weed.*
Lin. ſpec. ed. Willd. 1. 571. *Swartz prodr.* 29. *obſ.* 45.
Villoſe ſimple, leaves ovate-lanceolate pubeſcent, the uppermoſt in fours, flowers in whorls, ſtamens included.

14. Spermacoce hiſpida. *Shaggy Button-weed.*
Lin. ſpec. 148. *ſyſt.* 148. *Reich.* 1. 291. *Willd.* 1. 572. *mant.* 558. *Murr. in comm. nov. gott. vol.* 3. *p.* 77. *t.* 5. *Burm. zeyl.* 163. *t.* 20 *f.* 3? (Galeopſis.)
Hiſpid, leaves obovate oblique.

15. Spermacoce ſcabra. *Rugged Button-weed.*
Lin. ſpec. ed. Willd. 1. 572.
Tardavel. *Rheed. mal.* 9. 149. *t.* 76?
Leaves roundiſh with the ſtem biſpid-rugged, flowers in whorls, ſtamens ſtanding out.

16. Spermacoce articularis. *Jointed Button-weed.*
Lin. ſyſt. 148. *Willd.* 1. 572. *ſuppl.* 119.
Leaves elliptic bluntiſh ſomewhat rugged.

17. Spermacoce ſtricta. *Stiff Button-weed.*
Lin. ſyſt. 148. *Willd.* 1. 573. *ſuppl.* 120.
Crataegonum amboinicum minus. *Rumph. amb.* 6. 25.
Leaves linear-lanceolate marked with lines.

18. Spermacoce linifolia. *Flax-leaved Button-weed.*
Lin. ſpec. ed. Willd. 1. 573. *Vahl ecl.* 1. 8.
Leaves linear-lanceolate villoſe even, the uppermoſt in fours, flowers in whorls, ſtamens ſtanding out.

19. Spermacoce procumbens. *Procumbent Button-weed.*
Lin. ſyſt. 148. *Reich.* 1. 292. *Willd.* 1. 573.
S. corymboſa. *Lin. ſpec.* 149.
Procumbent, leaves linear, corymbs lateral peduncled.

20. Spermacoce ſpinoſa. *Thorny Button-weed.*
Lin. ſpec. 148. *ſyſt.* 148. *Reich.* 1. 292. *Willd.* 1. 573. *Swartz obſ.* 45. *Brown. jam.* 140. *n.* 1.
S. ſuffruticoſum. *Lœfl. it.* 201.
Suffruticoſe, leaves linear ciliate with ſpinules.]

DESCRIPTIONS, &c.

1. This plant grows to the height of two feet and a half. The ſtalks are ſtiff, a little angular, and covered with a brown bark; the branches come out by pairs. There are two leaves at each joint placed oppoſite, two inches long, and almoſt a quarter of an inch broad; between theſe come out three or four ſmaller leaves, which ſtand in whorls round the ſtalks; they are ſmooth, and have one ſtrong nerve or rib in the middle. The flowers grow in ſlender whorls toward the top of the ſtalks; they are ſmall, white, and ſeſſile, having a whorl of leaves cloſe under them: theſe are ſucceeded by two oblong ſeeds, having ſmall horns, and ripening in the calyx.

[Capſule

[Capſule inferior, ſmall, rough-haired, crowned with the four teeth of the calyx, cruſtaceous, rigid, two-celled, not bipartile: one cell cloſed, the other opening to the middle, with a one-toothed valve. Seed in each cell one, ſmall, elliptic, ferruginous, on one ſide convex and ſmooth, on the other concave by reaſon of the edges being rolled together into a belly [f].

It is an annual plant, native of Carolina, and the Weſt Indies, where it is very common.—In Jamaica it is found only in the woods; and is there obſerved to be ſometimes upright and ſometimes a climber; when erect, it generally riſes to the height of two or three feet; but when it is aſſiſted by the neighbouring ſhrubs, it grows commonly to twice or three times that length. It is called there Iron-graſs [b].

Swartz obſerves, that the ſeeds when unripe are like a capſule and two-celled; but when ripe, are ſeparable, roundiſh, two-toothed with the permanent calyx and rough-haired. It varies with a ſmooth and pubeſcent ſtem, ſtiff and more looſe; with narrower and wider leaves; with whorled and ſubſolitary flowers.

Cultivated in 1732 by James Sherard, M. D. It flowers from june to auguſt [c].

2. This is a herbaceous plant, riſing with ſeveral tetragonal knotty branching ſtems the length of two or three feet; the leaves are oppoſite, ovate, rough, entire, and terminated by a long point: they are diſpoſed in a cruciate direction from each of the knots or joints: the flowers are white, and are borne in ſeſſile groupes or pacquets from the boſoms of the leaves: the calyx is downy, and the anthers long and bilocular.

This ſpecies is a native of Cayenne, growing by pathways and in open plains.

3. This differs from the preceding in having the ſtems lower, ſtraight and ſimple; the leaves ſmaller and green; the ſtipule ſhorter and leſs ciliate; the flowers ſmall and blue; and a little fruit.—Native of Cayenne and Guiana by way ſides.

4. This differs from the Spermacoce alata of Aublet in having a hexagonal flexuous ſtem, by which it ſpreads on the neighbouring plants: the leaves are alſo ſhorter and leſs ſharp: the flowers are borne at the extremities of the branches and are of a blue colour.

Native of Cayenne and Guiana on the banks of rivers [d]. Stamens didynamous, two longer than the corolla [e].

5. This differs from the preceding in having the ſtems hexangular and ſcattered over the neighbouring plants; the leaves ovate ſmaller and petioled.—Native of Guiana, on the banks of rivers.

6. This ſpecies has proſtrate or decumbent ſtems, which are branchy and furniſhed with oppoſite green, ſoft, glabrous, ſeſſile, ovate, and pointed leaves: flowers blueiſh.—Native of Guiana, on the banks of rivers.

7. A perennial ſpecies, with ſeveral branchy and knotty ſtems, the diviſions of which proceed ſometimes from the right and ſometimes from the left of the boſoms of the leaves: flowers ſmall and blueiſh. Native of Guiana, growing about the borders of rivers [f].

8. Stem four-cornered, ſmooth, purpliſh, even, aſh-coloured at the top with very ſhort hairs viſible only with the naked eye. Branches axillary, alternate, of the ſame ſtructure with the ſtem, terminated by three leaves. Leaves ſpreading very much, an inch and half long, remote, cluſtered at the top, indiſtinctly nerved on the upper ſurface, on the lower paler, nerved, appearing hairy on the nerves when examined with a magnifier, but ſcarcely rugged. Petioles very ſhort. Stipules multifid, with ſix or ſeven briſtle-ſhaped erect ſegments. Flowers from one of the axils, collected into a round head, ſeſſile, ſomewhat villoſe, about twenty-four; in the oppoſite axil a branchlet or the rudiment of one. Segments of the calyx ovate [g].

Native of Cayenne and Guiana. Found both by Aublet and von Rohr.

The leaves in the ſpecimen of the latter are larger than thoſe in the figure of the former, but the plants were gathered in the ſame place by both [h].]

9. Stem ſhrubby, three or four feet high, ſending out a few ſlender branches, with narrow leaves on them, not ſo long as thoſe of the firſt ſort; they are ſmooth, of a light green, and ſtand in a kind of whorl round the ſtems, two being larger than the others in each whorl. The flowers grow in thick globular whorls towards the top, and one terminates the ſtem; they are ſmall and very white. The ſtamens ſtand out above the tube.

[Stem rather herbaceous, only a little ſhrubby at the baſe, erect, a foot high, ſtiff, four-cornered. Branches oppoſite, decuſſated, faſtigiate, four-cornered. Leaves oppoſite, decuſſated, lanceolate-linear, with a middle nerve, entire, even on both ſides. Branchlets axillary, length of the leaves, oppoſite. Stipules connate, membranaceous, with whitiſh briſtles. Whorls of flowers embracing, ſmall, white, cluſtered very cloſe together. Calyx ſuperior, minute, with two teeth, on the branches with three or four. Tube of the corolla very ſhort, four-cornered: border four-cleft, erect, minute. Filaments ſtanding out, faſtened to the middle of the tube: anthers incumbent, whitiſh. Germ ovate, ancipital: ſtyle ſhort, emarginate at the top or ſubbifid. Seeds naked, compreſſed, bipartile, crowned, ſmooth, black [i].

Native of Jamaica and Africa. Browne ſays, this little bushy plant is frequent in the low and hilly lands of Jamaica; that it branches very much, is adorned with many ſmall leaves, and bears all its flowers at the upper joints of the branches.

Swartz remarks, that when it is in flower, it ſmells like Melilot.

Cultivated in 1732, by James Sherard, M. D. who had the ſeeds from near the river Gambia in Africa. It flowers here from june to auguſt [k].

10. Stem herbaceous, four-cornered, tomentoſe, with long joints. Branches oppoſite. Leaves petioled, quite entire, hiſpid, with the nerves underneath tomentoſe. Calyx minute, four-toothed. Fruit two-ſeeded, four-toothed. It was found in Sumatra by Wennerberg [l].

11. Stem herbaceous, erect, four-cornered with the corners hairy, branched. Leaves ſubſeſſile, oppoſite, an inch long, quite entire, nerved, very rugged eſpecially beneath, the four uppermoſt approximating, appearing to have a few hairs ſcattered over them when examined with a microſcope, veinleſs, obliquely nerved, the lower marked with lines along the nerves, ſubciliate at the edge. Membrane of the ſtipules having five hairy briſtles on each ſide. Flowers ſeveral on each ſide in every axil.

Native of the Weſt Indies.

This would appear to be the ſame with the *hirta* of Linneus, if the leaves were rough-haired; but the hairs not being diſcoverable without a magnifying glaſs, and the ſtamens not being longer than the corolla, it is perhaps a diſtinct ſpecies, and ſeems to differ in having the leaves ſcarcely villoſe. The *aſpera* of Aublet is referred to this on the authority of von Rohr, though his figure has lanceolate and longer leaves [m].

12. Stem herbaceous, from one to two feet high, four-cornered, ſtiff, ſtriated. Branches erect, four-cornered, with the angles rough-haired. Leaves ſubſeſſile, entire, nerved, rough-haired. Stipules connate, membranaceous, briſtly at the edge. Flowers ſeſſile, ſmall, white. Calyx four-toothed, very ſhort. Tube of the corolla round, funnel-ſhaped: border four-parted, reflexed. Filaments ſtanding out: anthers blue. Germ hiſpid: ſtyle length of the ſtamens, bifid at top: ſtigmas blue, reflexed. Seeds two covered and united by a ſkin, crowned with the teeth of the calyx, rough-haired; when ſtripped of the ſkin black and ſmooth [n].

Annual. Native of Jamaica: common in all the fields in Liguanee.

According to Browne, it ſeldom riſes above twelve

[a] Gærtner. [b] Browne. [c] Hort. kew. [d] Aublet. [e] Willdenow. [f] Aublet. [g] Vahl. [h] Vahl. [i] Swartz. [k] Hort. kew. [l] Retz. [m] Vahl. [n] Swartz.

floreſcence, ſeparate this plant from the Lantanas; with which it agrees in nothing but in the ſtructure of the hooked ſtigma. The eſſence of the genus conſiſts in the four anthers, not twin; the throat cloſed with hairs; the hooked ſtigma; and the nut divided by a partition into two equal hemiſpheres [b].

The upper leaves are alternate, and from the axils of theſe come out ſolitary flowers. The ſtamens are equal in length [b].

This ſhrub flowered and perfected its fruit in Ludwig's garden at Leipſic; and was found to have a five-parted calyx, which is permanent, and has awl-ſhaped ſegments. The fruit an inſipid, globular, ſub-acuminate drupe, two-parted by a groove: the kernel globular and two-celled [b].

Native of the Cape of Good Hope. Cultivated in 1731, by Mr. Miller. It flowers from february to november [c].]

PROPAGATION AND CULTURE.

Flowers are not ſucceeded by ſeeds in England, but the plants are eaſily propagated by cuttings, which, if planted upon an old hot-bed any time in july, and covered with a bell or hand-glaſs, and ſhaded from the ſun, will put out roots in a month or five weeks; then they may be planted in pots, and placed in the ſhade till they have taken freſh root; after which they may be removed to a ſheltered ſituation, where they may remain till the froſts come on. This plant is not very tender, therefore may be preſerved in a good green-houſe in winter; but during that ſeaſon it muſt have a large ſhare of air in mild weather, otherwiſe it is apt to grow mouldy, and this will cauſe the tender branches to decay. In the ſummer ſeaſon it may be expoſed in the open air, with other green-houſe plants, in a ſheltered ſituation, where it will add to the variety; and although the flowers are ſmall, and are produced ſingly from between the leaves, ſo do not make any great appearance; yet as there is a ſucceſſion of theſe flowers moſt part of the year, and the leaves continue green throughout the year, it is worthy of a place in every collection of plants.

SPIGELIA. *(So named by Linnæus, in memory of Adrian Spigelius, born at Bruſſels in* 1578; *profeſſor of anatomy and ſurgery at Padua: died* 1625. *Author of* Iſagoge in rem herbariam. Pat. 1606. qu. & Lugdb. 1633. 24°.)

Lin. gen. n. 209. *Reich. n.* 222. *Schreb. n.* 272. *Juſſ.* 143. Arapabaca. *Plum.* 31.

Claſſ. 5. 1. Pentandria Monogynia.

Nat. order of *Stellatæ* β. *Gentianæ*, Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* one-leafed, five-parted, acuminate, ſmall, permanent.

COR. one-petalled, funnel-ſhaped: *tube* much longer than the calyx, narrowed below; *border* ſpreading, five cleft; *ſegments* wide, acuminate.

STAM. *Filaments* five, ſimple. *Anthers* ſimple.

PIST. *Germ* compoſed of two globes, ſuperior. *Style* one, awl-ſhaped, length of the tube. *Stigma* ſimple.

PER. *Capſule* twin, two-celled, four-valved.

SEEDS numerous, very ſmall.

ESSENTIAL CHARACTER.

Cor. funnel-ſhaped. *Caſſ.* twin, two-celled, many-ſeeded.

SPECIES.

1. Spigelia Anthelmia. *Annual Worm-graſs.*

Lin. ſpec. 213. *ſyſt.* 197. *Reich.* 1. 425. *Willd.* 1. 824. *amoen.* 5. 133. *t.* 2. *mat. med.* 59. *Brown. jam.* 156. *t.* 37. *f.* 3. *Plenck, ic.* 88. *Pet. gaz. t.* 59. *f.* 10.

Arapabaca quadrifolia, fructu teſticulato. *Plum. gen.* 11. *Barr. æquin.* 15.

A. braſilienſibus dicta planta. *Maregr. braſ.* 46.

Stem herbaceous, uppermoſt leaves in fours.

2. Spigelia marilandica. *Perennial Worm-graſs.*

Lin. ſyſt. 197. *Reich.* 1. 425. *Willd.* 1. 825. *mant.* 338. *Hope alt. edinb.* 3. 1771. *p.* 151. *t.* 1. *Woodv. med. bot.* 288. *t.* 105. *Curt. magaz.* 80. *Plenck, ic.* 89. *Walter carol.* 92.

S. Lonicera. *Mill. dict. n.* 2.

Lonicera marilandica. *Lin. ſpec.* 249. *Gron. virg.* 142.

Periclymeni virginiani flore coccineo planta marilandica, ſpica erecta, foliis conjugatis. *Raii dendr.* 32. *Cateſb. car.* 2. *t.* 78.

Stem four-cornered, all the leaves oppoſite.

DESCRIPTIONS, *&c.*

1. This is an annual plant with a fibrous root, from which ariſes a ſtrong erect herbaceous ſtalk, a foot and half high, channelled, ſending out two ſide branches oppoſite near the bottom, and a little above the middle four acute-pointed leaves placed in form of a croſs; theſe, and alſo the principal ſtalk, have four ſmaller leaves near the top, placed round in the ſame manner as the others; and from theſe ariſe ſhort ſpikes of herbaceous flowers, ranged on one ſide of the foot-ſtalk; which are ſucceeded by roundiſh twin capſules containing ſmall ſeeds.

[Stem ſimple. Terminating leaves lanceolate, four; the reſt on the ſtem oppoſite in pairs. From each axil of the ſtem-leaves a ſingle branch, very like the ſtem, terminated, as in that, by four leaves placed croſſwiſe. Racemes terminating ſolitary on the ſtem and branches [d]. It riſes from a ſmall tapering root, well charged with fibres on all ſides, and ſhoots by a ſtraight ſmooth roundiſh hollow ſtalk, which ſeems to grow thicker as it riſes to the height of five, ſeven, nine or thirteen inches, its uſual growths; the main ſtem emits two, four or ſix lateral oppoſite branches, as it riſes, which like the parent ſtalk, are furniſhed with four oval pointed and almoſt equal leaves diſpoſed in the form of a croſs at the top: from the centre of theſe it throws out one, two or more ſpikes, which bear all their flowers and ſeed-veſſels on one ſide, and are commonly from half an inch to two or three inches in length [e].

Native of the Weſt Indies. Cultivated by Mr. Miller in 1759. It flowers in july [f].

This vegetable has been long in uſe among the Negroes and Indians, and takes its names (of Anthelmia, Anthelmenthia, and Worm-graſs,) from its peculiar efficacy in deſtroying worms; which I dare affirm, (ſays Dr. Browne) from a great number of ſucceſsful experiments, it does in ſo extraordinary a manner, that no other ſimple can be of equal efficacy in any other diſeaſe as this is in thoſe that proceed from theſe inſects, eſpecially when attended with a fever or convulſions.

Take of the plant, roots and all, either freſh or dry, two moderate handfuls, and boil them over a gentle fire in two quarts of water until one half of the liquid is conſumed; then ſtrain off the remainder, and add a little ſugar and lemon juice, to give it a more agreeable taſte, and to keep it from growing viſcid or ropy.

To a full-grown perſon give half a pint at the hour of reſt, and a proportionate quantity to all weaker and younger ſubjects. Repeat the doſe once in twenty-four hours for two or three days after. But as the largeneſs of this doſe may render its operation too violent, the following method is leſs hazardous, and as effectual.—Give about four ounces to a full grown perſon for the firſt doſe, and two or three ounces every ſix hours after, if its anodyne quality will permit; but to perſons of a weaker conſtitution it ſhould be repeated only every ten or twelve hours: this is to be continued for thirty-ſix or forty-eight hours, when the double doſe may be again repeated; and after this takes its full effect, it muſt be worked off with ſome gentle purgatives.

This medicine procures ſleep almoſt as certainly, and in an equal degree with Opium; but the eyes ſeem diſtended, and appear bright and ſparkling, as they generally do before the eruption of the ſmall-pox and meaſles, after the ſleepy effects are over. In a ſhort time after this firſt doſe is adminiſtered, the pulſe grows regular and begins to riſe; the fever cools; the convulſions, if any, abate; and the worms are

[b] Medicus. [c] Juſſieu. [d] Schreber in ſyſt. veg. [e] Hort. kew. 2. 353.

[d] Linn. ſpec. [e] Browne. [f] Hort. kew.

generally

generally diſcharged in great quantities, by the uſe of the ſubſequent purgatives, if not before; often above a hundred at a time: but when a few only come away, and thoſe alive, which ſeldom is the caſe, the doſe muſt be repeated, and this ſcarcely ever fails[a].]

2. This has a perennial fibrous root, from which ariſe two or three erect herbaceous ſtalks, ſeven or eight inches high; having three or four pairs of acute-pointed leaves, placed oppoſite, ſitting pretty cloſe to the ſtalk, ſmooth, entire, and having ſeveral veins diverging from the midrib. The ſtalk is terminated by a ſhort ſpike of flowers, ranged on one ſide the foot-ſtalk. Calyx ſhort, cut into five acute ſegments. The outſide of the flower is of a bright red, and the inſide of a deep orange colour.

[Stems ſimple, rugged, quadrangular, rigid, annual. Leaves oppoſite, ſeſſile, ovate-lanceolate, quite entire, ſmooth, ſpreading. Spike ſolitary, with ſmall oppoſite bractes. Calyx five-leaved; with awl-ſhaped, permanent leaflets. Corolla five-cornered above, gibbous at the throat, widening at the baſe: border five-parted; the parts lanceolate and revolute. Stamens ſhorter than the corolla: anthers ſagittate, converging. Style cylindric, jointed below, the upper part deciduous. Stigma attenuated. Capſule roundiſh, twin: cells two-valved. Seeds angular, rugged[b].

Native of North America, in the warmer parts, as Virginia, Maryland, and Carolina, where it is called Indian Pink. It flowers here in July and auguſt. Cultivated in 1694 by Bobart[c].

The accounts of the vermifuge virtues of Spigelia given by Drs. Linning and Garden refer to this ſpecies; and as the efficacy reſides chiefly in the root, which in the preceding is ſmall, this ſhould ſeem to be preferable. Dr. Garden, in his firſt letter to Dr. Hope, about the year 1763, ſays, about forty years ago, the anthelmintic virtues of the root of this plant were diſcovered by the Indians; ſince which time it has been much uſed by phyſicians and planters. I never found it do much ſervice, except when it proved gently purgative.

Previous to the uſe of it, I have lately given a vomit, when the circumſtances of the caſe permitted it, and have found it to anſwer ſo well, that it ſhould never be omitted. I have known half a dram of this root purge as briſkly as the ſame quantity of rhubarb; but at other times it has produced no ſuch effect, in larger quantities. It is in general ſafer to give it in large doſes; for giddineſs, dimneſs of ſight and convulſions frequently reſult from ſmall ones, whereas large ones only prove emetic or violently cathartic. To a child of two years of age, who had been taking ten grains of the root twice a day, without any other effect than making her dull and giddy, I preſcribed twenty-two grains morning and evening, which purged her briſkly, and brought away five large worms. After ſome months an increaſed doſe had the ſame good effects. Of the root properly dried I give from twelve to ſixty or ſeventy grains in ſubſtance. In infuſion it may be given to the quantity of two, three or four drams twice a day.

In Dr. Garden's ſubſequent letters to Dr. Hope in the years 1764 and 1766, the efficacy of this root in worm caſes is farther confirmed. In what he calls continued or remitting low worm fevers, he found its efficacy promoted by the addition of the root of Serpentaria virginiana[a].]

PROPAGATION AND CULTURE.

1. Sow the ſeeds in pots filled with ſoft loamy earth, in the autumn, and plunge them into the bark-bed, where they ſhould remain till the ſpring, when they muſt be plunged into a freſh hot-bed. Afterwards plant them in ſeparate pots, ſhading them till they have taken root; and then treat them in the ſame way as other tender annual plants from the ſame countries, keeping them conſtantly in the hot-bed under cover to perfect the ſeeds. They ripen in ſeptember, and ſhould be ſown ſoon after; for if they are kept out of the ground till ſpring, they frequently fail. But Mr. Miller was not able to raiſe any plants from Engliſh ſeeds.

2. This is not eaſily propagated in England, for the ſeeds do not ripen here, and the roots increaſe ſlowly; ſo that the plant is very uncommon in the Engliſh gardens at preſent. It delights in a moiſt ſoil, and muſt not be often tranſplanted.

[The ſcarcity of this plant, even now, is a proof, ſays Mr. Curtis, of the juſtneſs of Mr. Miller's obſervation; it is, in fact, very difficult of culture, and ſcarcely to be kept in this country but by frequent importation.

SPIGNEL. See *Athamanta*.

SPIKE LAVENDER. See *Lavendula*.

SPIKENARD. See *Andropogon* and *Nardus*.

——— Plowman's. See *Baccharis* and *Conyza*.

SPILANTHUS. (*From σπιλος macula, a ſpot or dot; and ανθος, a flower. The corolla being dotted with black, from the ſhedding of the pollen.*)

Lin. gen. Reich. n. 1011. *Schreb. n.* 1266. *Gærtn. t.* 167. *Jacqu. Juſſ.* 187. Pyrethrum. *Medic. act. palat.* 3. 237. *t.* 18.

Claſſ. 19. 1. Syngeneſia Polygamia Æqualis.

Nat. order of *Compoſitæ Oppoſitifoliæ. Corymbiferæ*, Juſſ.

GENERIC CHARACTER.

CAL. *Common* ſubhemiſpherical, imbricate: *ſcales* lanceolate-linear, compact, in a double row.

COR. *Compound* uniform, tubular, conico-convex. *Corollets* hermaphrodite numerous, equal.

Proper one-petalled, funnel-ſhaped: *border* four or five-cleft, reflexed.

STAM. *Filaments* four or five, capillary, very ſhort. *Anther* cylindric, tubular.

PIST. *Germ* oblong, compreſſed. *Style* filiform, length of the ſtamens. *Stigmas* two, recurved.

PER. none. *Calyx* unchanged.

SEEDS ſolitary, oblong, compreſſed-flat, membranaceous-margined, two-awned at the tip; one awn often ſmaller than the other.

REC. chaffy, conical: *chaffs* compreſſed, deciduous.

OBS. *In* Sp. atriplicifolius *the ſeeds are awnleſs. In* Sp. Acmella *the ray is three-flowered and very ſmall.*

ESSENTIAL CHARACTER.

Cal. almoſt equal. *Down* two-toothed. *Rec.* conical, chaffy.

SPECIES.

1. Spilanthus urens. *Biting Spilanthus.*
Lin. ſyſt. 731. *Reich.* 3. 701. *Jacqu. amer.* 214. *t.* 126. *f.* 1. *pict.* 103. *t.* 194.
Cotula Spilanthus. *Lin. mant.* 116. *Reich.* 3. 857.
Leaves lanceolate quite entire, ſtem proſtrate.

2. Spilanthus Pſeudo-Acmella. *Spear-leaved Spilanthus.*
Lin. ſyſt. 731. *Reich.* 3. 701.
Verbeſina Pſeudo-Acmella. *Lin. ſpec.* 1270. *mant.* 475. *fl. zeyl. n.* 308. *Mill. dict. n.* 5.
Pyrethrum Acmella. *Medic. act. pal. vol.* 3. *phyſ.* 243. *t.* 19.
Bidens zeylanica, flore luteo, meliſſæ folio, Acmella dicta. *Seba theſ.* 1. 19. *t.* 10. 11.
Chryſanthemum maderaſpatanum latifolium, ſcabioſæ capitulis parvis. *Pluk. phyt. t.* 159. *f.* 4.
Leaves lanceolate ſerrate, ſtem erect.

[3. Spilanthus albus. *White-flowered Spilanthus.*
L'Herit. ſtirp. nov. 7. *t.* 4. *Ait. kew.* 3. 152.
S. ſalivaria. *Murr. in comm. gott.* 6. 1783. *p.* 3. *t.* 1. *ſyſt.* 731.
Leaves ovate almoſt entire, lower alternate, upper oppoſite, ſtem panicled.

4. Spilanthus Acmella. *Balm-leaved Spilanthus.*
Lin. ſyſt. 731. *Reich.* 3. 702. *mant.* 475.]
Verbeſina Acmella. *Lin. ſpec.* 1271. *mat. med.* 191. *fl. zeyl. n.* 309. *Mill. dict. n.* 6.
Ceratocephalus baſiotes foliis. *Vaill. act.* 600.
Bidens zeylanica, &c. *Seba theſ.* 1. 19. *t.* 9. 10.
Chryſanthemum bidens, ſ. Bidens zeyl. flore, luteo, lamii folio, Acmella dicta. *Raii ſuppl.* 228. (226.) *Breyn. prodr.* 3. *t.* 48.
Senecio ind. orient. ocymi majoris folio profunde crenato. *Pluk. phyt. t.* 315. *f.* 2.
Abecedaria. *Rumph. amb.* 6. 145. *t.* 65.
Leaves ovate ſerrate, ſtem erect, flowers radiate.

[a] Browne. [b] Linn. mant. [c] Hort. kew. [a] Woodville.

[5. Spilanthus tinctorius. *Dyer's Spilanthus.*
Lour. cochinch. 484. *ed. Willd.* 590.
Leaves lanceolate ferrate ſmooth, peduncles many-flowered terminating, ſtem diffuſed.

6. Spilanthus uliginoſus. *Boggy Spilanthus.*
Swartz prodr. 110.
Leaves ovate-lanceolate crenate, ſtem erect dichotomous, peduncles terminating, flowers radiate.

7. Spilanthus atriplicifolius. *Orach-leaved Spilanthus.*
Lin. ſyſt. 731. *Reich.* 3. 702.
Bidens atriplicifolia. *Lin. ſpec.* 1168. *amoen.* 4. 329
Leaves alternate deltoid toothed petioled ſtipaled, ſtem paniculed.

8. Spilanthus inſipidus.
Lin. ſyſt. 731. *Reich.* 3. 702. *Jacqu. amer.* 215. *pict.* 105. *t.* 261. *f.* 63.
Leaves obovate ſomewhat toothed ſeſſile.

9. Spilanthus oleraceus. *Eſculent Spilanthus.*
Lin. ſyſt. 731. *Reich.* 3. 703. *Jacqu. hort.* 2 63. *t.* 135. *Gærtn. fruct.* 2. 413.
Pyrethrum Spilanthus. *Medic. in act. pal.* 3. *phyſ.* 242 & 273.
Bidens acmelloides. *Berg. in act. holm.* 1768. *p.* 247. *t.* 7.
Leaves ſubcordate ſerrulate petioled.

DESCRIPTIONS, *&c.*

This new genus is made up chiefly of thoſe ſpecies of *Bidens* and *Verbeſina* which do not properly belong to thoſe genera. They are inhabitants of the Eaſt or Weſt Indies.

1. Root perennial. Stems herbaceous, round, ſmooth, branched, procumbent and putting out round whitiſh fibres from the joints. Leaves numerous, narrow-lanceolate, acute, ſmooth on both ſides, gray on the under ſurface, ſeſſile, always oppoſite, three-nerved, the nerves united above the baſe, an inch and half long. Theſe leaves when chewed for ſome time, are very hot, like the root of *Pyrethrum* or Pellitory of Spain, and are uſed for the ſame purpoſes as that. Peduncles one-flowered, ſolitary, ſuberect together with their branchlet, long, ſubterminating, bearing a whitiſh flower, void of ſcent, variegated with black dots, which proceed from the anthers ſhedding their dark pollen over the corolla. After the flower is perfectly opened, from the ſide of the peduncle at the baſe, a new leafy ſtemlet ſprings forth, which in time produces its flower.

Native of America, about Carthagena, in ſandy fields; flowering from may to octobe[r].

2. Stem upright, round, brown, ſtiffiſh, rough with white ſcattered procumbent hairs. Branches oppoſite. Leaves oppoſite, petioled, without ſtipules, ovate, three-nerved, veined, naked, deeply ſerrate, opaque. Petioles ſlightly channelled, ſcarcely pubeſcent. Peduncles from the forkings of the ſtem, ſolitary, one-flowered, round, upright, naked, long. Flower together with the calyx ovate, yellow, without any ray. Corollets five-cleft. Calyx ſqueezed with four or five leaflets, the outer ones a little ſhorter [m].] It is an annual plant, with the ſtalks two feet high.

Native of Ceylon. [Cultivated in 1768, by Mr. Miller. It flowers in july [n].

3. Root annual, fibrous, whitiſh, exciting ſaliva, whence Murray's trivial name of *ſalivaria*. Stem herbaceous, upright, ſomewhat flexuoſe, very much branched, looſely panicled, round, ſomewhat rugged, green, a foot high. Branches like the ſtem, the lower alternate, the upper oppoſite, roughiſh with hairs, ſcarcely ſtriated. Leaves ſpreading, bluntiſh, attenuated at the baſe and running down along the petiole, ſerrulate-ciliate with ſmall ſtiffiſh hairs, and having the ſame ſort of hairs ſcattered over both ſurfaces, bright green, of the ſame colour on both ſides, flat, two inches long, and fifteen lines wide. Petioles channelled, margined above; the upper ones gradually ſhorter. Flowers terminating, ſolitary, erect, conical, obtuſe, white; on erect, ſtriated, ſubvilloſe peduncles, ſcarcely thicker at the top, higher than the plant, from twelve to fifteen lines long.

[l] Jacquin. [m] Linn. mant. [n] Hort. kew.

Native of Peru, whence it was ſent to the Paris garden by Dombey [o]. In 1783, it was introduced at Kew by Monſ. Thouin. It flowers in june and july [p].

The whole plant ſtimulates the tongue and palate, and produces ſaliva, like the *oleraceus* and its congeners.

Spilanthus is diſtinguiſhed from *Bidens*, by having the ſcales of the calyx in a regular erect double row: the ſeeds vertical, flat, margined, ciliate, not awned but having two naked briſtles at the tip: the receptacle fuſiform, with the chaffs keeled and much compreſſed [q].

4. This is ſo like the ſecond ſpecies as ſcarcely to be diſtinguiſhed from it; but it is more branched and many-flowered, with moſt of the florets in the diſk four-cleft, a few only that are five-cleft mixed along with them, but it differs chiefly in having a ſmall five-flowered ray, which the other had not; but that might be owing to the defect of climate [r]; and Mr. Miller ſays that the *Pſeudo-Acmella* has ſhort rays of female flowers.

The ſtalks riſe two feet high. The peduncles are very long, and ſupport one yellow flower, with very ſhort rays. There is a ſucceſſion of flowers from july till the froſt puts a ſtop to them, when the plant decays.

Native of Ceylon. Cultivated in 1768, by Mr. Miller [s].

This plant is reputed to be a ſpecific in the ſtone, in the Eaſt Indies; and there is a long account of it in the third volume of Ray's hiſtory, communicated by Profeſſor Hotton from Leyden, in may 1700.

5. Stem herbaceous, three feet high, round, with a creeping root. Leaves unequally ſerrate, ſmooth on both ſides, nerveleſs, oppoſite, juicy, bright green. Flowers whitiſh-blue: calyx-leaves equal, obtuſe. Receptacle convex, naked. Seeds three-awned.

Abecedaria of Rumphius ſcarcely differs in form from this plant, if we except the one-flowered lateral peduncles: but he makes no mention of the uſe of that in dyeing. In this circumſtance, and in ſome marks this ſpecies agrees with *Serratula tinctoria* of Linneus, but the leaves are different, and the awns of the ſeed-down refer it to this genus.

It is cultivated for dyeing both in China and Cochinchina. The leaves bruiſed yield a moſt excellent blue colour, and a green prepared by a method more eaſy than from Indigo, and by no means inferior in brightneſs [t].

6. This is an annual plant, native of Jamaica [u].

7. Seeds awnleſs. Receptacle conical. Native of South America [x].

8. Stems ſhrubby, round, branched, procumbent. Leaves attenuated at the baſe, very ſmooth, crenate-toothed, acuminate, ſubſeſſile, oppoſite, an inch and half long, having a ſalt taſte, and in ſome degree biting. Peduncles and flowers very like thoſe of *urens*.

Native of America. Found by Jacquin at the Havanna; where it flowers in december and january [y].

9. Stems procumbent, a foot long, round, ſomewhat rugged. Leaves oppoſite, blunt. Flowers ſolitary, on long peduncles, yellow [z]. Receptacle cylindrical, very long, covered all over with herbaceous membranaceous chaffs, coloured at the tip, in part embracing the ſeeds. Seeds ſmall, ovate-oblong, compreſſed, with little white briſtles ſcattered over it, brown, with whitiſh ciliate margins. Seed-down ſetaceous-awned: with two rays, ſhorter than half the ſeed, a little matter unequal, flexile, ſmooth [a].

Native of the Eaſt Indies. Introduced in 1770, by Monſ. Richard. It is annual, and flowers from july to november [b].]

PROPAGATION AND CULTURE.

Sow the ſeeds upon a moderate hot-bed in the ſpring, and when the plants are fit to remove, tranſplant them on to a freſh hot-bed, ſhading them till they have taken *new root*, and then treating them as

[o] L'Heritier. [p] Hort. kew. [q] L'Heritier.
[r] Linn. mant. [s] Hort. kew. [t] Loureiro. [u] Swartz.
[x] Linn. ſpec. [y] Jacquin. [z] Linn. ſyſt. [a] Gærtner.
[b] Hort. kew.

other

other render annual plants, being careful not to draw them up too weak. In june take them up with balls of earth, and plant them in a warm border, ſhading and watering them. Several of them may be kept through the winter in a ſtove.

[SPINA ACUTA. See *Cratægus.*

——— ALBA. See *Drypis, Echinops, Eryngium, Onopordum.*

——— CERVINA and CHRISTI. See *Rhamnus.*

——— INFECTORIA. See *Rhamnus.*

——— SANCTA. See *Cratægus.*

——— SPINARUM. See *Cariſſa.*

——— TOMENTOSA. See *Onopordum.*]

SPINACIA. (*A modern name, ſaid by Caſpar Bauhin to be corrupted from* Σπανάχια, *as the modern Greeks call it, from its rare uſe in medicine. In Arabic, it is* Hiſpanac.—*Others derive it from* Spina, *the ſeeds being probably ſpiny in its wild ſtate.*)

Lin. gen. n. 1112. *Reich. n.* 1218. *Schreb. n.* 1520. *Tournef. t.* 308. *Juſſ.* 85. *Gærtn. t.* 126.

Claſſ. 22. 5. Dioecia Pentandria.

Nat. order of *Holoraceæ. Atriplices*, Juſſ.

GENERIC CHARACTER.

* *Male.*

CAL. *Perianth* five-parted: *ſegments* concave, oblong, obtuſe.

COR. none.

STAM. *Filaments* five, capillary, longer than the calyx. *Anthers* oblong, twin.

* *Female.*

CAL. *Perianth* one-leafed, four-cleft, acute, with two oppoſite ſegments very ſmall, permanent.

COR. none.

PIST. *Germ* round-compreſſed. *Styles* four, capillary. *Stigmas* ſimple.

PER. none. *Calyx* unites and hardens.

SEED one, roundiſh, covered by the calyx.

OBS. *Fruit round, or two-horned, or four-horned.*

ESSENTIAL CHARACTER.

MALE. *Cal.* five-parted. *Cor.* none.

FEM. *Cal.* four-cleft. *Cor.* none. *Styles* four. *Seed* one, within the hardened calyx.

SPECIES.

1. Spinacia oleracea. *Garden Spinach.*
Lin. ſpec. 1456. *Reich.* 4. 250. *hort. cliff.* 457. *upſ.* 266. *mat. med.* 213. *Gærtn. fruct.* 2. 198. *Lour. cochinch.* 617. *ed. Willd* 757.

α. Spinachia. *Ded. pempt.* 619. *Matth.* 464. *Ger.* 260. *emac.* 330. *Park. parad.* 496. *t.* 497. *f.* 4. *theat.* 751. *f.* 1. *Raii hiſt.* 162. *Blackw. herb. t.* 49.
S. mas & femina. *Dalech. hiſt.* 543.
γ. ſemine ſpinoſo. *Mor. hiſt.* 2. 598.
Lapathum hortenſe, ſ. Spinacia fem. ſpinoſo. *Bauh. pin.* 114.
Prickly Spinach.

β. Spinacia glabra. *Smooth Spinach.*
Mill. dict. n. 2.
S. ſemine non pungente, folio majore & rotundiore. *Bauh. hiſt. Raii hiſt.* 162.
Lapathum hortenſe, ſ. Spinacia fem. non ſpinoſo. *Bauh. pin.* 115. *Mor. hiſt.* 2. 598. 2.
Fruits ſeſſile.

[2. Spinacia fera. *Wild Spinach.*
Lin. ſpec. 1456. *Reich.* 4. 250. *Gmel. ſib.* 3. 86. *n.* 67. *t.* 16. *Amm. ruth. n.* 247 & 248.
Fruits peduncled.]

DESCRIPTIONS, *&c.*

1. Root annual. Leaves ſagittate. Stem hollow, branching, herbaceous, about two feet high. The male flowers are herbaceous, in long ſpikes; they abound in pollen, which, when ripe, flies out when the plants are ſhaken, and ſpreads all round; after which the plants ſoon decay. The female flowers, which are on a ſeparate plant, ſit in cluſters cloſe to the ſtalks at every joint; they are ſmall, herbaceous, and are ſucceeded by roundiſh ſeeds, which (in variety α) are armed with ſhort acute ſpines.

There are two or three varieties of this, which differ in the ſize and ſhape of the leaves; and the more or leſs prickleneſs of the ſeeds.

β. Smooth or round Spinach has ovate thick leaves, not angular at their baſe; both ſtalks and leaves are much more fleſhy and ſucculent; and the ſeeds are ſmooth without any ſpines. Of this alſo there are two or three varieties, differing in the ſhape, thickneſs and ſize of their leaves.

[The ſeed has no proper pericarp; but the calyx gradually hardens and cloſes over the ſeed; this is ſometimes unarmed; or it is terminated by two, three or four channelled ſpines ſpreading out horizontally; this covering protects the ſeed and does not drop it. The ſeed is ſubglobular, acuminate at the baſe, where it is faſtened to the bottom of the calyx[c].

The native place of growth is unknown. There is no mention of this plant among the ancients; but with the moderns the uſe of Spinach has been of long date. The Arabian phyſicians ſpeak of it, and it has been known time out of mind in Spain, inſomuch that it has been called *Hiſpanum olus.* Perhaps the Spaniards might have it from the Saracens: but this I propoſe as matter of conjecture, for thoſe to enquire into who have more leiſure. It has been cultivated in England, as far back as we have any records of ſuch things: being mentioned by Turner in 1568[d].

The etymology of this well-known pot-herb is involved in much obſcurity. Latin names ending in *aca*, as Verbenaca, Portulaca; or in *acia*, as Spinacia; are deduced from ſomething to which they bear a reſemblance, as Verbena, Portula, Spina: hence our Engliſh names Smallach, Spinach, now commonly ſpelt Smallage, Spinage.

Much ſtreſs has been laid by the opponents of the doctrines of the ſexes in vegetables, upon plants having been produced from the ſeeds of female Spinage, from which all male plants have been carefully ſeparated. But they were not aware that it is by no means uncommon in this and other dioecious vegetables, to have ſome hermaphrodite flowers mixed among the females[e].

2. Stem higher, ſmooth and even. Leaves deltoid-ovate, ſometimes ſinuate, obtuſe, petioled. Fruits axillary, three or more, each on its peduncle, the length of its fruit, ovate or obovate, obtuſe, ſomewhat keeled on each ſide, even, very blunt.—Native of Siberia[f].]

PROPAGATION AND CULTURE.

Prickly Spinach was formerly more cultivated in the Engliſh gardens than at preſent, becauſe it is much hardier, ſo not in much danger from cold, therefore was generally cultivated for uſe in winter.

The ſeeds ſhould be ſown upon an open ſpot of ground the beginning of auguſt, obſerving, if poſſible, to do it when there is an appearance of rain; for if the ſeaſon ſhould prove dry for a long time after the ſeed is ſown, the plants will not come up regularly; part of them may come up ſoon, and a great part of them may remain till rain falls before they come up; and if that ſhould not happen in a little time after, many times there will not be half a crop. When the Spinach is come up, and the plants have four leaves, the ground ſhould be hoed to deſtroy the weeds, and alſo to cut up the plants where they are too cloſe, leaving the remaining plants about three or four inches aſunder; but this ſhould always be done in dry weather, that the weeds may be deſtroyed ſoon after they are cut.

About a month or five weeks after the firſt hoeing, the weeds will begin to grow again; therefore the ground ſhould be then hoed the ſecond time, obſerving, as before, to do it in dry weather. But if the ſeaſon ſhould prove moiſt, it will be proper to gather the weeds up after they are cut, and carry them off the ground; for if the Spinach is not cleaned from weeds before winter, they will grow up and ſtifle it ſo much, that in wet weather the Spinach will rot away.

In october the Spinach will be fit for uſe, when you ſhould only crop off the largeſt outer leaves, leaving thoſe in the centre of the plants to grow bigger; and thus you may continue cropping it all the winter and

[c] Gærtner. [d] Hort. kew.
[e] Thunb. præf. ad flor. japon. xxi. [f] Lin. ſpec.

ſpring.

ſpring, until the young Spinach ſowed in the ſpring is large enough for uſe, which is commonly in april; at which time the ſpring advancing, the Winter Spinach will run up to ſeed; ſo that it ſhould be all cut up, leaving only a ſmall parcel to produce ſeeds if wanted.

But if the ground in which this Winter Spinach is ſown, be planted with early Cabbages, it is not proper to let any of the Spinach remain there for ſeed; therefore it ſhould be cleared off as ſoon as ever the Spring Spinach is fit for uſe, that the Cabbages may be earthed up and laid clear, which is of great ſervice to them; wherefore you ſhould ſow a ſmall ſpot of ground with this ſort of Spinach, on purpoſe to ſtand for ſeed, where there ſhould be no other plants among it.

Smooth-ſeeded or round-leaved Spinach is ſown in the ſpring upon an open ſpot of ground ſeparate, or elſe mixed with Radiſh-ſeed, as is the common practice of the London gardeners, who always endeavour to have as many crops from their land in a ſeaſon as poſſible; but where land is cheap in the country, it will be the better method to ſow it alone; and when the plants are come up, the ground ſhould be hoed to deſtroy the weeds, and cut out the plants where they are too cloſe, leaving the remaining about three inches aſunder; and when they are grown ſo large as to meet, you may then cut out a part of it for uſe, thinning the plants that they may have room to ſpread; and this thinning may be twice performed, as there is occaſion for the herb, at the laſt of which the roots ſhould be left eight or ten inches aſunder; and if then you hoe the ground over again to deſtroy the weeds, it will be of great ſervice to the Spinach; for if the land is good upon which it is ſown, the ſort with broad thick leaves, commonly called Plantain Spinach, will with this management many times produce leaves as large as the broad-leaved Dock, and be extremely fine.

But in order to have a ſucceſſion of Spinach through the ſeaſon, it will be proper to ſow the ſeed at three or four different times in the ſpring; the firſt in january, which muſt be on a dry ſoil; the ſecond the beginning of february, upon a moiſter ſoil; the third the beginning of march, which ſhould be on a moiſt ſoil; and the fourth the beginning of april; but theſe late ſowings ſhould be hoed out thinner at the firſt time than either of the former, for there will be no neceſſity to leave it for cutting out thin for uſe, becauſe the former ſowings will be ſufficient to ſupply the table till theſe are full grown; beſides, by leaving it thin at firſt, it will not be apt to run up to ſeed ſo ſoon as it would if the plants were cloſe.

Theſe ſowings here mentioned are ſuch as are practiſed by the kitchen-gardeners near London; but as this herb is much uſed in ſoups, &c. for great tables, there ſhould be ſome ſeeds ſown every three weeks, during the ſummer ſeaſon, to ſupply the kitchen; but theſe late ſowings ſhould be on moiſt ſtrong ground, otherwiſe, if the ſeaſon proves hot and dry, the Spinach will run to ſeed before the plants obtain ſtrength, eſpecially if the plants do not ſtand thin.

In order to ſave ſeeds of either of theſe kinds, you ſhould ſow an open rich ſpot of ground, with the ſort you intend in february, after the danger of being injured by froſt is over; and when the plants are come up, they ſhould be hoed out to fix or eight inches diſtance, obſerving to cut down the weeds at the ſame time; and when the plants have grown about three weeks or a month longer, they ſhould be hoed a ſecond time, when they ſhould be left twelve or fourteen inches aſunder at leaſt, for when they have ſhot out their ſide branches they will ſufficiently ſpread over the ground.

You muſt alſo obſerve to keep them clear from weeds, which, if ſuffered to grow amongſt the Spinach, will cauſe it to run up weak, and greatly injure it. When the plants have run up to flower, you will eaſily perceive two ſorts amongſt them, viz. male and female. The male will produce ſpikes of ſtamineous flowers, which contain the farina, and are abſolutely neceſſary to impregnate the embryos of the female plants, in order to render the ſeeds prolific. Theſe male plants are, by the gardeners, commonly called She Spinach, and are often by the ignorant pulled up as ſoon as they can be diſtinguiſhed from the female, in order, as they pretend, to give room for the ſeed-bearing to ſpread; but, from ſeveral experiments which I have made on theſe plants, I find wherever the male plants are entirely removed before the farina is ſhed over the female plants, the ſeed will not grow which they produce, ſo that it is abſolutely neceſſary to leave a few of them in every part of the ſpot, though there may be a great many drawn out where they are too thick, for a ſmall quantity of male plants (if rightly ſituated) will be ſufficient to impregnate a great number of female, the farina when ripe, ſpreading to a conſiderable diſtance, when the plants are ſhaken by the wind.

When the ſeeds are ripe (which may be known by their changing their colour, and beginning to ſhatter, the plants ſhould be drawn up, and ſpread abroad for a few days to dry, obſerving to turn them every other day, that the ſeeds on both ſides may dry equally; you muſt alſo guard the ſeeds from birds, otherwiſe they will devour them. When dry, the ſeeds ſhould be threſhed out, cleaned from the dirt, and laid up for uſe where mice cannot come to them, for they are extremely fond of this ſeed.

[SPINACH, WILD. See *Chenopodium*.

SPINDLE TREE. See *Euonymus*.

SPINIFEX. (*From* Spina *and* Facio: *ſo named from the leaves becoming thorny.*)

Lin. gen. Reich. n. 1250. *Schreb. n.* 1611. *Linn. fil. nov. gen. gram.* 29. *f.* 1—5. *Juſſ.* 30.

Claſſ. 23. 2. Polygamia Dioecia.

Nat. order of *Gramina, Graminea* or *Graſſes*.

GENERIC CHARACTER.

* *Hermaphrodite Flowers.*

CAL. *Head* terminating, compoſed of ſeveral bundles, involucred. *Bundles partial* approximating, involucred: in each a *Rachis* ſolitary, awl-ſhaped, excavated a little above the baſe, flower-bearing, the reſt naked, and others ſimilar, without flower.

Involucre common two-leaved: *leaflets* lanceolate, channelled, ſubulate-mucronate, unequal: *proper* four-leaved, ſimilar.

Glume one-flowered, two-valved: *valves* lanceolate, awl-ſhaped at the tip, unequal; outer longer, inner concealed within an excavation of the rachis.

COR. *Glume* two-valved: *valves* lanceolate, convoluted: *inner* involving the genitals.

STAM. *Filaments* three, filiform. *Anthers* linear, long, cloven at both ends, probably barren.

PIST. *Germ* oblong. *Style* filiform, longer than the glumes. *Stigmas* two, villoſe, ſtanding out.

PER. none. *Corolla* unchanged, growing to the ſeed.

SEED one, oblong, ſmooth.

* *Male Flowers.*

CAL. *Head* as in the Hermaphrodite. *Bundles* involucred, with glumes longer dagger-pointed, pungent. *Rachis* each ſubtrigonal, flowering almoſt from top to bottom: flowers from five to ſeven, ſeſſile, alternate, biſarious, parallel, ovate-oblong, awnleſs.

Glume two-flowered, two-valved: *valves* oblong, obtuſe, ſtriated, channelled, ſhorter than the corolla, unequal; *outer* ſhorter: one floſcule hermaphrodite, barren.

COR. *Glume* two-valved: *valves* lanceolate, channelled, convolute: *inner* narrower.

Nectary of two valves, linear, membranaceous, looſe, diaphanous, ſhort.

STAM. *Filaments* three, filiform. *Anthers* linear, long, cloven at both ends, ſtanding out.

PIST. (in one floſcule) *Germ* oblong. *Style* biſid. *Stigmas* none.

OBS. Spiniſex *differs from* Lolium *in having two valves to the calyx; from* Triticum *in their not being tranſverſe.*

ESSENTIAL CHARACTER.

HERM. *Cal.* Glume two-valved, two-flowered: valves parallel to the rachis. *Cor.* two-valved, awnleſs. *Stam.* three. *Styles* two.

MALE.

MALE. *Cal. common* with the Hermaphrodite. *Cor.* and *Stam.* ſimilar.

SPECIES.

1. Spiniſex ſquarroſus.
Lin. ſyſt. ed. 13. 757. 14. 902. *ſuppl.* 432. *Lour. cochinch.* 647. *ed. Willd.* 794.
Stipa ſpiniſex. *Lin. ſyſt. ed.* 13. 104. *Reich.* 1. 220. *mant.* 300.
Arundo arboreſcens tabaxifera. *Mor. hiſt.* 3. 219. *ſ.* 8. *t.* 8. *f.* 11.
Ily-Mullu. *Rheed. mal.* 12. *t.* 75. *Raii ſuppl.* 614.
Gramen dactylon pumilum malabaricum, ſpicis loliaceis in acutam ſpinam terminatis. *Scheuch. gram.* 112.

DESCRIPTION, *&c.*

Culms very large, as thick as the finger, glaucous, as is the whole plant, jointed, with heaps of leaves at every joint, even, not hollow but full. Leaves graſſy, convolute; recurved-ſpreading, rigid, ſpiny at the end: ſheaths widened, ſtriated, with a woolly ligule. Bundles three or four, terminating, compoſed of ſeveral ſmaller bundles; the latter of a few lanceolate ſhorter leaflets without ſheaths; among theſe are the ſpikes, moſt commonly three. Each ſpike near a finger's length; with a three-ſided rachis ending in a ſpine and five alternate lateral ſeſſile remote flowers. Theſe are ovate-oblong, with the ſide, not the belly, turned towards the rachis, as in the leaf. Glume two-valved: valves ovate, lanceolate, ſtriated, acute.

Native of the Eaſt Indies, China and Cochinchina, on ſandy coaſts [c].

SPINIFEX. See *Hibiſcus* and *Stipa*.]

SPIRÆA. (*Spiræa of Pliny.* Σπειραία *of Theophraſtus. From* σπεῖρα, *a rope, theſe ſhrubs being flexible like ropes*, Miller. Σπειραι *in Theophraſtus, are large circular or ſpiral veins in trees.*)
Lin. gen. n. 630. *Reich. n.* 686. *Schreb. n.* 862. *Tournef. t.* 389. *Juſſ.* 339. *Gærtn. t.* 69. *Mill. fig. t.* 256, 257. Filipendula. *Tournef. t.* 150. Ulmaria. *Tournef. t.* 141. Aruncus. *edit. prior.*
Claſſ. 12. 4. Icoſandria Pentagynia.
Nat. order of *Pomaceæ*. *Roſaceæ*, Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* one-leafed, five-cleft, flat at the baſe, with acute ſegments; permanent.
COR. *Petals* five, inſerted into the calyx, oblong-rounded.
STAM. *Filaments* more than twenty, filiform, ſhorter than the corolla, inſerted into the calyx. *Anthers* roundiſh.
PIST. *Germs* five or more. *Styles* as many, filiform, length of the ſtamens. *Stigmas* headed.
PER. *Capſules* oblong, acuminate, compreſſed, two-valved.
SEEDS few, acuminate, ſmall, faſtened to the internal ſuture.
OBS. Filipendula, Tourn. *has numerous capſules in a ring.*
Ulmaria, Tourn. *has numerous capſules contorted as in Helicteres.*
Aruncus *differs from the reſt in being dioecious.*
S. opulifolia *is trigynous.*

ESSENTIAL CHARACTER.

Cal. five-cleft. *Pet.* five. *Capſ.* many-ſeeded.

SPECIES.

* *Shrubby.*

[1. Spiræa lævigata. *Smooth-leaved Spiræa.*
Lin. ſyſt. 471. *Reich.* 2. 519. *Willd.* 2. 1055. *mant.* 244. *Willd. arb.* 370. *Gærtn. fruct.* 1. 338.
S. altaica. *Pallas roſſ.* 1. 37. *t.* 23. *itin.* 2. *app.* 739. *n.* 3. *t.* T.
S. altaienſis. *Laxm. nov. act. Petrop.* 15. 555. *t.* 29. *f.* 2.
Leaves lanceolate quite entire ſeſſile, racemes compound.]
2. Spiræa ſalicifolia. *Willow-leaved Spiræa.*
Ait. kew. 2. 197. *Willd. ſpec.* 2. 1055. *arb.* 370.
α. S. ſalic. carnea. *Fleſh-coloured Willow-leaved Spiræa. Ait. kew.* 2. 197. *Ehrh. beitr.* 7. 136.
S. ſalicifolia. *Lin. ſpec.* 700. *Reich.* 2. 520. *hort. cliff.* 191. *upſ.* 131. *Wither. arr. ed.* 3. 463. *Smith brit.* 535. *Gmel. ſib.* 3. 183. *n.* 47. *t.* 39.

[c] Linn. mant.

Roth. germ. 1. 215. 2. 550. *Hoffm. germ.* 137. *Du Roi barbecc.* 2. 428. *n.* 1. *Knipb. cent.* 3. *n.* 91. *Weig. obſ.* 31. *Pallas roſſ.* 1. 36. *t.* 21. *Amm. ruth.* 265. *Wangenh. amer.* 119. *Krock. ſileſ. n.* 763. *Duham. arb.* 2. *t.* 75. *Tournef. inſt.* 618.
S. Theophraſti forte. *Cluſ. hiſt.* 1. 80. *Park. theat.* 1436. *t.* 1437. *f.* 1. *Ger. emac.* 1601. *Raii hiſt.* 1699.
Frutex ſpicatus, foliis ſerratis ſalignis. *Bauh. pin.* 475.
Leaves lanceolate, racemes ſubſpiked, petals fleſh-coloured, bark of the branches yellowiſh.
β. S. ſalic. alpeſtris. *Alpine Willow-leaved Spiræa. Willd. ſpec.* 2. 1056.
S. ſalic. β. *Pallas roſſ.* 1. 36. *t.* 22.
S. ſalicis folio breviore latiuſculo crenato, floribus rubris. *Amm. ruth.* 188. *t.* 28.
γ. S. ſalic. paniculata. *Panicle Willow-leaved Spiræa. Ait. kew.* 2. 198. β. *Mill. dict. ed.* 7. *n.* 8. *fig.* 171. *t.* 257. *f.* 2.
S. alba. *Du Roi barbecc.* 2. 430. *Ehrh. beitr.* 7. 137.
Leaves lanceolate, racemes panicled divaricated, petals white, bark of the branches red.
δ. S. ſalic. latifolia. *Broad-Willow-leaved Spiræa. Ait. kew.* 198. γ.
Leaves ovate-oblong, racemes panicled, petals white, bark of the branches rufeſcent.
Leaves oblong ſerrate ſmooth, racemes decompounded.
[3. Spiræa calloſa. *Callous Spiræa.*
Lin. ſyſt. 471. *Willd.* 2. 1056. *Thunb. jap.* 209.
S. japonica. *Lin. ſuppl.* 262.
Leaves lanceolate acute ſerrate ſubvilloſe, paniele decompounded ſubfaſtigiate.]
4. Spiræa tomentoſa. *Scarlet Spiræa.*
Lin. ſpec. 701. *Reich.* 2. 520. *Willd.* 2. 1056. *arb.* 371. *Duham. arb.* 6. *Du Roi barbecc.* 2. 433. *Wangenh. amer.* 118. *Mill. fig. t.* 257. *f.* 1.
Ulmaria pentacarpos, integris ſerratis foliis parvis ſubtus incanis, virginiana. *Pluk. phyt. t.* 321. *f.* 5. *Raii ſuppl.* 330. *Mor. hiſt.* 3. 323.
Leaves lanceolate unequally ſerrate tomentoſe beneath, flowers doubly-racemed.
[5. Spiræa argentea. *Silvery-leaved Spiræa.*
Lin. ſyſt. 472. *Willd.* 2. 1057. *ſuppl.* 261.
Leaves ſilky wedge-ſhaped marked with lines, ſerrate at the tip and ſomewhat plaited, racemes compound.
6. Spiræa alpina. *Siberian alpine Spiræa.*
Lin. ſpec. ed. Willd. 2. 1057. *Pallas roſſ.* 1. 35. *t.* 20.
Spirææ crenatæ varietas. *Georgi itin.* 217.
Leaves linear-lanceolate toothletted very ſmooth, corymbs lateral.]
7. Spiræa hypericifolia. *Hypericum-leaved Spiræa.*
Lin. ſpec. 701. *Reich.* 2. 521. *Willd.* 2. 1057. *hort. cliff.* 190. *upſ.* 131. *Du Roi barbecc.* 2. 434. *Wangenh. amer.* 119. *Willd. arb.* 372.
S. hyperici folio non crenato. *Tournef. inſt.* 618. *Duham. arb.* 3.
Pruno ſylveſtri affinis canadenſis. *Bauh. pin.* 517. *Raii hiſt.* 1782. *Pluk. phyt. t.* 218. *f.* 5.
Hypericum fruteſcens americanum flore albo. *Park. theat.* 573. *f.* 7.
Leaves obovate quite entire, umbels ſeſſile.
[8. Spiræa chamædrifolia. *Germander-leaved Spiræa.*
Lin. ſpec. 701. *ſyſt.* 472. *Reich.* 2. 521. *Willd.* 2. 1058. *arb.* 372. *Du Roi barbecc.* 2. 432. *Thunb. jap.* 210. *Gmel. ſib.* 3. 189. *Pallas roſſ.* 1. 32. *t.* 15.
S. chamædryos foliis. *Amm. ruth.* 269.
S. cantonienſis. *Lour. cochinch.* 322. *ed. Willd.* 395.
Leaves obovate gaſh-toothed at the tip, corymbs pedunculed.
9. Spiræa ulmifolia. *Elm-leaved Spiræa.*
Lin. ſpec. ed. Willd. 2. 1058. *arb.* 372. *Scop. carn. n.* 600. *t.* 22.
S. chamædrifolia. *Jacqu. hort.* 2. *t.* 140.
S. betulifolia. *Pallas roſſ.* 1. 33. *t.* 16.
S. foliis ovatis crenatis. *Gmel. ſib.* 3. 189.
Leaves ovate-lanceolate doubly toothed, corymbs pedunculed.]

10. Spiræa crenata. *Hawthorn-leaved Spiræa.*
Lin. ſpec. 701. *Reich.* 2. 521. *Willd.* 2. 1058. *Gouan illuſtr.* 31? *Gmel. it.* 1. 112. *Knipb. cent.* 11. *n.* 94. *Pallas roſſ.* 1. 35. *t.* 19. *Thunb. jap.* 210. *Barr. rar.* 1376. *t.* 564?
S. hyperici folio ampliore, modo integro modo dentato. *Amm. ruth.* 270.
S. fol. variis hirſutis. *Amm. ruth.* 189. *n.* 268.
Leaves obovate acute toothed at the tip three-nerved corymbs cluſtered peduncled.
[11. Spiræa triloba. *Three-lobe leaved Spiræa.*
Lin. ſyſt. 472. *Reich.* 2. 521. *Willd.* 2. 1059. *mant.* 244. *Pallas roſſ.* 1. 33. *t.* 17.
S. ramoſiſſima, parvo ſubrotundo opuli folio. *Amm. ruth. n.* 271.
Leaves roundiſh ſubcordate obtuſely lobed toothed, umbels peduncled.
12. Spiræa thalictroides. *Meadow-rue leaved Spiræa.*
Lin. ſpec. ed. Willd. 2. 1059. *Pallas roſſ.* 1. 34. *t.* 18.
S. aquilegifolia. *Pallas itin.* 3. *app.* 734. *n.* 94. *t.* P. *f.* 3.
S. foliis variis per faſciculos congeſtis. *Amm. ruth.* 188. *n.* 267.
Leaves obovate obtuſe ſubtrilobate, umbels lateral ſeſſile.]
13. Spiræa opulifolia. *Currant-leaved Spiræa.*
Lin. ſpec. 702. *ſyſt.* 472. *Reich.* 2. 522. *Willd.* 2. 1059. *hort. cliff.* 190. *Gron. virg.* 55. *Willich obſ. n.* 37. *Gærtn. fruct.* 1. 337. *Du Roi barbecc.* 2. 436. *Wangenh. amer.* 119. *Willd. arb.* 374.
S. opuli folio. *Tournef. inſt.* 618. *Duham. arb.* 5.
Euonymus virginiana, ribeſii folio, capſulis eleganter bullatis. *Comm. hort.* 1. 169. *t.* 87. *Raii biſt.* 1622. & *dendr.* 69.
Leaves ovate three-lobed ſerrate, corymbs peduncled.
14. Spiræa ſorbifolia. *Service-leaved Spiræa.*
Lin. ſpec. 702. *Reich.* 2. 522. *Willd.* 2. 1060. *amoen.* 2. 352. *Gmel. ſib.* 3. 190. *t.* 46. *Pallas roſſ.* 1. 38. *t.* 24. *Du Roi barbecc,* 2. 436. *Willd. arb.* 375.
S. ſorbi folio tenuiter crenato, floribus in thyrſo albis. *Amm. ruth.* 186.
β. S. alpina, caule ſuffruticoſo, floribus corymboſis duplo majoribus. *Pallas roſſ.* 1. 34. *t.* 25.
Leaves pinnate, leaflets uniform ſerrate, ſtem ſhrubby, flowers panicled.
** *Herbaceous.*
15. Spiræa Aruncus. *Goat's-beard Spiræa.*
Lin. ſpec. 702. *ſyſt.* 472. *Reich.* 2. 522. *Willd.* 2. 1060. *Gouan illuſtr.* 31. *Hoffm. germ.* 173. *Roth. germ.* 1. 216. 2. 551. *Pollich pal. n.* 479. *Krock. ſileſ. n.* 764. *Crantz. auſtr.* 109. *Scop. carn. n.* 601. *Villars dauph.* 3. 556. *Allion. pedem. n.* 1621. *Thunb. jap.* 211. *Pallas roſſ.* 1. 39. *t.* 26. *Gmel. ſib.* 3. 192. *Knipb. cent.* 3. *n.* 89.
Aruncus. *Lin. hort. cliff.* 463. *Gron. virg.* 121.
Filipendula. *Hall. helv. n.* 1134.
Barba capræ. *Cam. hort.* 26. *t.* 9. *Dalech. biſt.* 1080.—floribus oblongis. *Bauh. pin.* 163. *Tournef. inſt.* 265.
Barba capri. *Bauh. biſt.* 3. 488. *Ger. emac.* 1043. *n.* 2. *Raii biſt.* 708.
Ulmaria major ſ. altera. *Park. theat.* 592.
Drymopogon 1. *Tabern. ic.* 777.
Leaves ſuperdecompound, ſpikes panicled, flowers dioecious.
16. Spiræa Filipendula. *Common Dropwort.*
Lin. ſpec. 702. *ſyſt.* 472. *Reich.* 2. 523. *Willd.* 2. 1061. *mat. med.* 126. *hort. cliff.* 191. *Fl. ſuec. n.* 439. *Hudſ. angl.* 217. *Wither. arr. ed.* 3. 463. *Smith brit.* 535. *engl. bot. t.* 284. *Lightf. ſcot.* 259. *Relh. cant. ed.* 2. *n.* 415. *Sibth. oxon. n.* 453. *Abbot bedf. n.* 367. *Fl. dan. t.* 635. *Hoffm. germ.* 174. *Roth. germ.* 1. 216. 2. 552. *Pollich pal. n.* 480. *Krock. ſileſ. n.* 765. *Crantz auſtr.* 109. *n.* 3. *Scop. carn. n.* 602. *Villars dauph.* 3. 557. *Allion. pedem. n.* 1622. *Gmel. ſib.* 3. 191. *n.* 52. *Pallas roſſ.* 1. 39. *Ludw. eſt. t.* 60. *Blackw. t.* 467. *Knipb. cent.* 3. *n.* 90. *Regnault bot. Plenck, ic.* 399.
Filipendula. *Camer. epit.* 608. *Matth.* 865. *valgr.* 2. 217. *Ded. pempt.* 56. 1. *Ger.* 900. 1. *emac.* 1058. 1. *Raii biſt.* 623. *ſyn.* 259. *Petiv. brit. t.* 71. *f.* 6. *Hall. helv. n.* 1136.
F. vulgaris. *Bauh. pin.* 163. *Park. theat.* 435. 1. *Mor. biſt.* 3. 322. *ſ.* 9. *t.* 20. *f.* 1.
β. Filipendula minor. *Bauh. pin.* 167. *prodr.* 85. *Park. theat.* 435. *f.* 3. *Raii biſt.* 623.
Spiræa anguſtifolia. *Mill. dict. n.* 9.
Leaves interruptedly pinnate, leaflets uniform ſerrate ſmooth, ſtem herbaceous, flowers cymed many-ſtyled.
17. Spiræa Ulmaria. *Meadow-ſweet.*
Lin. ſpec. 702. *ſyſt.* 472. *Reich.* 2. 523. *Willd.* 2. 1061. *fl. lapp. n.* 201. *ſuec. n.* 440. *hort. cliff.* 191. *mat. med.* 129. *Hudſ. angl.* 217. *Wither. arr. ed.* 3. 464. *Smith brit.* 536. *engl. bot. t.* 960. *Curt. lond.* 5. *t.* 33. 340. *Lightf. ſcot.* 259. *Relh. cant. ed.* 2. *n.* 416. *Sibth. oxon. n.* 454. *Abbot bedf. n.* 368. *Fl. dan. t.* 547. *Hoffm. germ.* 174. *Roth. germ.* 1. 216. 2. 553. *Pollich pal. n.* 481. *Krock. ſileſ. n.* 766. *Crantz auſtr.* 109. *Scop. carn. n.* 603. *Villars dauph.* 3. 557. *Allion. pedem. n.* 1623. *Gmel. ſib.* 3. 191. *n.* 53. *Pallas roſſ.* 1. 40. *Ludw. eſt.* 23. *Knipb. cent.* 1. *n.* 84. *Regnault bot. Plenck, ic.* 400.
Filipendula. *Hall. helv. n.* 1135.
Ulmaria. *Cluſ. pan.* 700. *biſt.* 2. 198. 1. *Bauh. biſt.* 3. 488. 2. *Raii biſt.* 623. *ſyn.* 259. *Petiv. brit. t.* 71. *f.* 8. *Blackw. t.* 465.
U. vulgaris. *Park. theat.* 592. 1.
Regini prati. *Ded. pempt.* 57. *Ger.* 886. *emac.* 1043.
Barba capræ floribus compactis. *Bauh. pin.* 164. *Mor. biſt.* 3. 323. *ſ.* 9. *t.* 20. *f.* 3.
Leaves interruptedly pinnate tomentoſe beneath, the end-leaflet larger lobed, flowers cymed many-ſtyled.
[18. Spiræa digitata. *Finger-leaved Spiræa.*
Lin. ſpec. ed. Willd. 2. 1061.
S. palmata. *Pallas roſſ.* 1. 40. *t.* 27. *itin.* 3. *app.* 735. *n.* 95. *t.* Q. *f.* 1.
S. folio impari majore multifido. *Gmel. ſib.* 3. 192.
Ulmaria foliis profunde laciniatis. *Amm. ruth.* 74.
Leaves pinnate tomentoſe beneath, the end one larger ſeven-lobed, the lateral ones five-lobed, corymb branched contracted.
19. Spiræa lobata. *Lobe-leaved Spiræa.*
Lin. ſyſt. ed. 14. 472. *Willd.* 2. 1062. *Jacqu. hort.* 1. 38. *t.* 88.
S. palmata. *Lin. ſyſt. ed.* 13. 393. *Reich.* 2. 524. *ſuppl.* 262.
Leaves pinnate ſmooth, the end one larger ſeven-lobed, the lateral ones three-lobed, corymbs proliferous.
20. Spiræa camtſchatica. *Ear-petioled Spiræa.*
Lin. ſpec. ed. Willd. 2. 1062. *Pallas roſſ.* 1. 41. *t.* 28. *Gmel. ſib.* 3. 192. *n.* 55.
Leaves five-lobed, petioles eared, ſtem hirſute, corymbs proliferous.
21. Spiræa palmata. *Hand-leaved Spiræa.*
Lin. ſpec. ed. Willd. 2. 1062. *Thunb. jap.* 212.
Leaves palmate ſerrate, panicle ſuperdecompound.]
22. Spiræa trifoliata. *Three-leaved Spiræa.*
Lin. ſpec. 702. *ſyſt.* 472. *Reich.* 2. 524. *Willd.* 2. 1063. *hort. cliff.* 191. *obſ.* 131. *Gron. virg.* 55. *Mill. fig.* 171. *t.* 256. *Curt. magaz. t.* 489. *Pluk. phyt. t.* 236. *f.* 5. *Raii ſuppl.* 330. *Mor. biſt.* 323.
Leaves ternate ſerrate almoſt equal, flowers ſubpanicled.

DESCRIPTIONS, *&c.*

[1. Shrubby with round branches. Leaves alternate, bluntiſh, mucronate, very even. Racemes terminating, ſolitary, erect, compoſed of alternate, erect, racemelets, ſupported by a ſmall bracte. Flowers longer than the pedicel, white, alternate. Stamens longer than the corollas[b].

Stems wand-like, numerous, ſtraight, ſtout, the thickneſs of a finger, little branched, covered with a ſmooth bark, of a glaucous-teſtaceous colour, very tough, and at the end ſomewhat herbaceous. Leaves on the older ſtems in alternate cluſters; on the younger branches ſingly alternate, oblong, ſmooth, quite entire, ſoft, narrowed at the baſe into a ſort of winged petiole, having a toothlet or very ſmall point at the end, emerging from the nerve. Racemes compoſed of

[b] Linn. mant.

partial

partial ones, commonly about twelve; when fruiting, ſubſaſtigiate. Flowers white, nearly of the ſame ſize as in *chamædrifolia*. Calyx flattiſh, acutely five-cleft, ſmooth. Petals ovate. Stamens about thirty, a little longer than the petals, with ovate anthers of a pale yellow colour. Germs commonly four or five. Capſules for the moſt part four, (five or ſix, immerſed in the woolly bottom of the calyx, ſmall, oblong, *Gærtn.*) biggiſh, teſtaceous, hard, ſhaped like ſilicles, erect; when freſh, ſomewhat clammy, with a fragrant roſy ſmell. Seeds uſually two in each capſule, very large, linear-lanceolate, teſtaceous: (four, pendulous, oblong, ſlightly incurved, acuminate, angular, bay, *Gærtner.*)

Native of Siberia, in vallies at the foot of the loftier Altaic mountains, which are covered with ſnow. Flowering in the ſpring, ripening its capſules at the beginning of auguſt, and then flowering again from the lateral branches. The ſhoots being tough, very ſtraight, and of a proper ſize, are uſed by the Coſacks for ramrods. The leaves being gently and pleaſantly aſtringent, may ſerve as a ſuccedaneum for tea [1].

Introduced in 1774, by Daniel Charles Solander, L. L. D. It flowers from april to june [2].

2. This ſhrub is about four feet high, with rod-like ſtems, ſmooth; the branches yellow. Leaves alternate, ſubſeſſile, broad-lanceolate, unequally ſerrate, ſmooth on both ſides. Racemes terminating, ſolitary, erect, decompound, obtuſe, many-flowered; with linear, ſolitary bractes. Corollas of a roſe-red, paler when expanded [1].]

Miller deſcribes the ſhrub as it is commonly cultivated in our nurſeries under the name of *Spiræa Frutex*. Stalks very taper, and rough towards the top, and covered with a reddiſh bark. Leaves about three inches long, and an inch broad in the middle, bluntly ſerrate, and of a bright green colour. In rich moiſt ground the ſtalks will riſe five or ſix feet high, but in moderate land from three to four; for their whole height is one year's growth from the root. They are terminated by ſpikes of pale red or fleſh-coloured flowers: the lower part of the ſpike is branched out into ſmaller, but the upper part is cloſe and obtuſe. Some of the ſtamens ſtand out much beyond the petals, but others are not ſo long; they are terminated by brown headed anthers. The capſules are pointed, but rarely come to perfection in England. This ſhrub flowers in june and july; and in moiſt ſeaſons there are frequently young ſhoots from the root which flower in autumn.

[Pallas deſcribes it thus as found wild in Siberia. From a prolific root this ſhrub is widely luxuriant, with numerous upright ſhoots, little branched, rod-like, clothed with a greeniſh bark, and a browniſh fiſſile deciduous epidermis. Branches herbaceous at the end, round, ſtriated, yelloviſh, hairy, leaſed alternately, flowering at the top. Leaves petioled, broad-lanceolate, pubeſcent, in the larger variety very ſharp, deeply and ſharply ſerrate; the ſerratures double: in the ſmaller variety they are blunter, ſimply ſerrate only here and there, more hoary and drier. Racemes in the larger compound and very handſome; in the low one ſimple, very ſhort, ſometimes a little compound, with one or two branchlets having three or four flowers on each. Bractes to the partial racemes lanceolate, together with the peduncles pubeſcent. The flowers have a little ſcent, before they open are of a very fine roſe colour, but afterwards of a pale fleſh-colour. Calyx minute, green, ſcarcely pubeſcent. Petals biggiſh, oval. Stamens more than twenty, much longer than the petals, pale; with yellow anthers. Capſules erect, biggiſh, teſtaceous, very ſeldom ripening in gardens.

By the banks of rivers it is often a fathom high, with longer leaves and large handſome racemes of flowers, as it appears in gardens: but on the rocky ſides of mountains it is ſmaller and more branched, with ſhorter leaves, and a very ſhort ſimple raceme. The latter of theſe Willdenow has diſtinguiſhed as a variety, under the name of *alpeſtris*.

It begins from the river Ob, and thence becomes gradually more abundant about the Jeniſea, and in the country beyond the lake Baikal.

Pallas can ſcarcely believe it to be wild in Sileſia. Nor can I credit its being indigenous of England, though it occurs ſometimes in moiſt hedges in Weſtmoreland, in many places on the borders of Winandermere; and alſo between Poolbridge and Colthouſe near Hawkſhead, Cumberland; and in a wood at Hafod, Cardiganſhire.]

γ. The ſtalk of the panicled variety is covered with a bright brown bark, and riſes five or ſix feet high, ſending out many ſlender horizontal branches on every ſide. The leaves are of a thin conſiſtence, and a bright colour on both ſides, ſharply ſerrate, and upon ſhort petioles. The flowers are diſpoſed in panicles at the end of the branches: the petals are ſmall, roundiſh and white; filaments many and ſhort, terminated by roundiſh red anthers. It flowers in july and auguſt, but rarely produces good ſeeds in England. It grows naturally in North America, whence Mr. Miller received it. [This variety, which is deſcribed and figured in Mr. Miller's plates, and deſcribed in the ſeventh edition of his dictionary, as a diſtinct ſpecies, is wholly omitted in the eighth.

δ. The broad-leaved variety is alſo a native of North America.

It appears from Rea's Flora, that the common Spiræa Frutex was cultivated here in 1665 [3].

3. Branches and branchlets alternate, roundiſh, villoſe, purpliſh, erect. Leaves alternate, elliptic, unequally ſerrate, ſerratures remote and not glandular; the lower leaves villoſe, eſpecially on the nerves; the upper green, glaucous beneath, nerved, erect, an inch and half long. Petioles a line in length, ſemicylindric, with a ſmooth red callofity on each ſide of the baſe without. Flowers red. Peduncles and pedicels villoſe.—It differs from *tomentoſa* in having villoſe, not tomentoſe leaves, and the flowers in panicles:—from *ſalicifolia*, in having the leaves manifeſtly petioled, elliptic, ſharper and longer, with the ſerratures remote; the panicle faſtigiate, not ſpiked; the under ſurface of the leaves, the ſtem, and peduncles villoſe.

Native of Japan, in the iſland Nipon; flowering in june [4].

4. This differs from the *ſalicifolia* in having the leaves more deeply and unequally ſerrate, very tomentoſe beneath; the terminating compound raceme cloſer and longer; the flowers of a deeper red, and eight times ſmaller; the fruits villoſe [4].]

The ſtalks are ſlender, and branch out near the ground; they have a purple bark covered with a gray mealy down. Leaves ſmaller than thoſe of *ſalicifolia*, downy and veined on their under ſide, but of a bright green above. Branches terminated by a thick raceme of flowers, branched towards the bottom into ſmall ſpikes. Flowers very ſmall, of a beautiful red colour, appearing in july, auguſt and ſeptember.

Native of Pennſylvania. Introduced in 1736, by Peter Collinſon, Eſq. [5]

5. Branches ſtriated, erect, with ſhort branchlets. Leaves alternate, petioled, ſilky-tomentoſe on both ſides. Racemes longer than the branchlets. Flowers very ſmall, with villoſe germs.

Native of New Granada, where it was found by Mutis [6].

6. Shoots a cubit and half or two cubits (a yard) high. Theſe and the older branches are of a teſtaceous colour, with a browniſh epidermis, cloven longitudinally and deciduous. Leaves commonly from three to five in a bundle, or elſe alternate, very much narrowed at the baſe, ſeſſile, very finely ſerrulate at the edge or elſe entire. Corymbs on the ſhoots of the year, (which are ſhort and leafy) ſubglobular, diſpoſed all one way, as in *crenata*, but leſs abundant, and on more ſlender and longer peduncles. Flowers a little larger, with ſmooth calyxes. Capſules oblong, compreſſed, from erect parallel, gray.

This ſeems to be a middle ſpecies between *crenata* and *hypericifolia*. It differs from the former in its

[1] Pallas. [2] Hort. kew. [3] Smith brit. and Withering. [4] Hort. kew. [5] Thunb. jap. [6] Linn. ſpec. [7] Hort. kew. [8] Linn. ſuppl.

place

place of growth, time of flowering, leaves which are not three-nerved, but very ſmooth, tender, attenuated towards the baſe but not petioled; in the outer ſkin of the ſhoots falling off; in the peduncles being more ſlender and longer; and the capſules being larger, and from upright parallel. It differs from the latter, in having the leaves acute and nerveleſs, not rounded and three-nerved; the flowers ſmaller, in many-flowered corymbs, not in ſeſſile few flowered umbels.

Native of eaſtern Siberia, eſpecially beyond the lake Baikal, and about the lake itſelf, flowering in june [a].]

7. This riſes with ſeveral ſlender ſhrubby ſtalks five or ſix feet high, covered with a dark-brown bark, ſending out ſmall ſide branches the whole length. Leaves ſmall, wedge-ſhaped, having many punctures on their ſurface, as in thoſe of St. John's-wort. Flowers in ſmall ſeſſile umbels, each on a long ſlender pedicel, and white. They appear in may and june, and as the flowers are produced almoſt the whole length of the branches, this ſhrub makes a good appearance during the time of flowering.

[It was cultivated here in 1640, according to Parkinſon [b]; who ſays that it came from the north-weſt parts of America. Miller ſays it came originally from Canada, and that country has been generally taken for its native place of growth. Yet Dr. Smith informs us that there is no ſpecimen of this ſhrub among the North American plants which Kalm gave to Linneus, and that it is to all appearance perfectly wild in Italy, where Dr. Smith found all the hedges full of it in flower, on the 28th of april, between Terni and Foligno. He adds, that its common Engliſh name of *Italian May*, ſeems to confirm the opinion of its being a native of Italy [c].—I did not know that ſuch is its common name in Engliſh; but ſurely it is a better appellation than that barbarous one of *Hypericum Frutex*, by which it is generally known among the nurſerymen.

8. Shoots abundant, ſeldom two ells high, the thickneſs of the finger, wand-like, branched. Wood brittle. Bark of the ſhoots yelloviſh-brown, with prominent dots ſcattered over it. Branches alternate, commonly angular, with a teſtaceous bark ſomewhat ſtriated, and in the younger branches covered with a tender aſh-coloured epidermis, which falls off; the annual ſhoots are grooved and pubeſcent. Leaves alternate, ſoftiſh, pubeſcent with proſtrate hairs, quite entire at the baſe, but commonly gaſh-ſerrate from the middle to the end, where they are ſharp. Corymbs at the top of the ſtems frequent, many-flowered, terminating the annual alternate ſhoots: in gardens and in moiſt ſhady places theſe corymbs are more elongated; but in a ruder ſoil moſt of the peduncles are cluſtered at the top like an umbel. Flowers biggiſh, white, having a weak viroſe ſmell, and fugacious. Stamens leſs than twenty. Capſules five, gray, erect, parallel, acute, mucronate outwardly with the ſtyle, inwardly opening longitudinally. Seeds like ſawduſt, gray and very ſmall.

This ſpecies varies very much, eſpecially with larger or ſmaller leaves, more or leſs cut, but more commonly quite entire and ovate-acute [d].

Native of Siberia, Hungary, Japan, and China about Canton.

On the rocks of Dauria, the leaves are very ſmall and very pubeſcent, inſomuch that they are almoſt tomentoſe; the flowers alſo are much ſmaller. At Kamtſchatka the leaves are ſomewhat tomentoſe [e].

The *chamædrifolia* of Jacquin is the next ſpecies, and the ſame with the *betulifolia* of Pallas.—According to Willdenow, the *cantonienſis* of Loureiro is this ſpecies.

In Kamtſchatka the leaves are uſed as a ſuccedaneum for tea, being ſlightly aſtringent. When the ſhoots are ſtraight, they make tobacco-pipes of them. This ſhrub makes beautiful hedges, being entirely covered with flowers in june. The capſules ripen in auguſt; but it does not readily grow from ſeed, and it does not throw out ſuckers ſo freely as ſome of the ſpecies [f].

[a] Pallas. [b] Hort. kew. [c] Tour, vol. 2. 304. [d] Pallas. [e] Idem. [f] Idem.

9. This is very different from the preceding: having ovate-lanceolate leaves groſsly double-toothed; not obovate, gaſhed only at the end, as in that: it has alſo larger flowers, and a higher ſtem [a].

It was imperfectly known to Pallas, only from dried ſpecimens among Steller's plants. The ſpecimen which Jacquin ſent him from Carniola, had the branches more ſharply angular than the Siberian *chamædrifolia*; the leaves larger, ſmoother, ſerrate, but ſcarcely gaſhed; the flowers much bigger; and the ſhrub in general ſtouter [b].

10. Stems ſeveral, ſcarcely two ells high, very much branched from the bottom. Branches rod-like, round, with a teſtaceous bark cloven longitudinally. Leaves on the younger branches and annual ſhoots alternate, attended with ſmaller ones in little bundles, hoary or glaucous, three-nerved, hardiſh, varying in form and ſize; on the luxuriant ſhoots or branches ſometimes ovate-acute, widiſh, ſerrulate from the tip beyond the middle; but commonly oblong, bluntiſh, crenulate or ſerrulate towards the tip, or more commonly quite entire. Corymbs at the ends of the annual twigs, very abundant, diſpoſed along the branches on one ſide, in hemiſpherical cluſters. Flowers ſmalliſh, white, odorous. Calyx bell-ſhaped, together with the peduncle ſomewhat pubeſcent: petals oval: ſtamens fewer than twenty, longer than the petals; with pale anthers. Capſules very ſhort, conical-mucronate, placed in a ſtar, calycled with the withered calyx, of a duſky teſtaceous colour [c].

Thunberg thus deſcribes it as found in Japan.—Stem ſhrubby, looſe, ſmooth in all its parts. Branches round. Branchlets filiform, alternate, brown, from upright ſpreading, looſe, capillary at the end, rod-like, a foot long, frequent, ſometimes ſubdivided. Leaves alternate, petioled, lanceolate, entire or ſerrate at the tip, frequent, erect, half an inch long. Flowers on the branchlets in umbels, two or three from each bud. Umbel ſimple, ſeſſile. Peduncles capillary, erect, one-flowered, the length of the internodes. The buds conſiſt of about ſeventeen leaflets, of which the twelve outer are imbricate, ovate, acute, purple; the five inner are equal, ovate, acute, green; for the moſt part incloſing three flowers. Calyx greeniſh purple. Petals white, ovate, emarginate, a line in length. Filaments twenty, the length of the calyx. Styles ſhorter than the filaments. Capſules five. There is a variety, with ovate wider leaves, and double flowers.

Willdenow thinks that the Spaniſh plant is different from this. It differs from *chamædrifolia*, with which it has been commonly confounded, in having the leaves ſerrate at the tip, three-nerved, not gaſhed at the end and veined; the corymbs more cluſtered, and in a ſort of head, and the flowers a little ſmaller.]

Mr. Miller ſays, that the whole appearance of the ſhrub from Spain is ſo like *hypericifolia*, as not to be diſtinguiſhed at a ſmall diſtance; the only difference being, that the leaves of this are broader at the point, where they have two or three indentures.

[Native of Spain, Ruſſia and Japan. Pallas ſays it is the only ſhrubby ſpecies of Spiræa, which is indigenous of European Ruſſia: and that it is ſo aſtringent as to be capable of tanning leather. It flowers about the middle of may, after leafing, and the fruit is ripe in auguſt.—With us it flowers in april and may; and it was cultivated by Mr. Miller in 1739 [d].

11. Stems numerous, ſcarcely thicker than a ſwan's quill, very much branched, upright, with a gray bark more or leſs pale, and ſomewhat angular with ſharp ſtreaks running down from the branches. Branches and branchlets alternate, thoſe of the laſt year very ſmooth, and yellow, leafy and terminated by an umbel. Leaves alternate, on very ſhort petioles, ſmooth, glaucous, wide-ovate, retuſe, gaſh-trilobate. They vary, even in the garden, with fewer or more frequent gaſhes, with the teeth or lobes obtuſe or acute, in breadth, &c. Umbels very frequent at the ends of the annual branches; peduncles often more than thirty, beſides a few axillary ones ſcattered below the umbel. Flowers

[a] Willdenow. [b] Pallas. [c] Idem. [d] Hort. kew.

middle-ſized, white: the five ſegments of the calyx ſhort and acute: the petals orbicular and emarginate: the ſtamens ſhorter than the petals and not very numerous. The five capſules gray, conical, ſpreading in form of a ſtar, mucronate with the ſtyle, calycled with the margined receptacle.

This elegant ſhrub is a native of Siberia, and is not ſeen till we arrive at the Altaic chain of mountains; thence it continues eaſtward to the Jeniſea and the lake Baical; being ſcarcely ever more than two feet high, even in the academical garden at Peterſburgh; on the Altaic rocks it is yet more dwarf. It multiplies very little by the root [a].

12. Stature of *crenata*, between which and *triloba* this ſeems to be a middle ſpecies. Branches ſtraight, ſtiffer, of a yellowiſh teſtaceous colour, ſcarioſe with the longitudinally cloven and deciduous epidermis. Leaves ſcattered alternately, here and there collected into little heaps, ſmooth, glaucous, ovate-wedgeform, produced into a longiſh petiole, very finely three-nerved; the lower ones almoſt entire, often oblong, moſt of them wider at the end, three-lobed-gaſhed, with the lobes blunt. At the ends of the branchlets and ſhoots are ſmall alternate ſeſſile umbels, containing from four to twelve flowers, accompanied by ſmall oblong leaves, ſometimes lobed. Hence they ſeem as it were racemed with flowers in bundles. Flowers white, ſcarcely larger than in *crenata*, with ſtamens more abundant and longer than in *triloba*. Capſules five, thickiſh, conical, of a yellow gray colour, mucronate with a ſetaceous ſtyle [b].

Willdenow remarks, that it has the habit of *hypericifolia*, but that the leaves are very different.

This elegant ſpecies is a native of Dauria, eſpecially in the tranſalpine parts, along with the *chamædrifolia* and *alpina*. It flowers earlier than the firſt of theſe.]

13. This riſes with many ſhrubby branching ſtalks, eight or ten feet high in good ground, but generally five or ſix; they are covered with a looſe brown bark which falls off. Leaves about the ſize and ſhape of thoſe of the common Currant buſh, ending in acute points, and ſerrate on their edges. The flowers are produced in roundiſh bunches at the end of the branches; they are white with ſome ſpots of a pale red.

[Linneus remarks, that this has only three ſtyles. Gærtner deſcribes it as having three or four capſules, which are ſeparate, ovate, acuminate at both ends, ſubmembranaceous, angular inwardly. Seeds two or three, ovate, narrowed and compreſſed a little towards the navel, bay-ſtraw-coloured, very ſmooth and ſhining, faſtened to the inner ſuture of the valves, and pendulous.

Native of Canada and Virginia. Cultivated in 1713 by Biſhop Compton [c].] It is commonly known in the nurſeries by the name of *Virginian Gelder Roſe*.

14. This riſes with ſhrubby ſtalks like the ſecond, but ſends out horizontal branches, which are ſlender, and covered with a brown bark. Leaves of a thin texture, and a bright green colour on both ſides, ſlightly and acutely ſerrate. Flowers in terminating panicles, ſmall and white. Stamens a little longer than the petals, with large, browniſh, round anthers.

[This ſhrub is often more than a fathom in height, very much branched from the bottom, and throwing out abundance of ſuckers from the root. Trunk round, the thickneſs of the wriſt next the root, covered with a browniſh aſh-coloured bark, having frequent warts on it; on the branches it is more of a gray aſh-colour with fewer warts. Wood brittle, hollow within with a ſoft ferruginous pith. Branches alternate, patulous, round, with herbaceous tops that decay every year. The twigs, petioles and peduncles have hairs thinly ſcattered over them which are elegantly ſtarred at the top; on the ſtipules and nerves of the leaves beneath there are alſo theſe ſtellate hairs, but the ſtar is almoſt ſeſſile; on the leaves they are very much ſcattered. Stipules at the baſe of the petioles large, lanceolate, erect, peculiar to this among the ſhrubby ſpecies. Leaves unequally pinnate, with the petioles often red, round, grooved above: leaflets ſoft, often ten pairs or more, lanceolate-acuminate, very elegantly doubly-ſerrate, grooved along the nerves; the end-leaflet often confluent with the next pair, and three-lobed.

Panicles of flowers terminating, on a flouriſhing ſhrub very abundant, a ſpan in length or more, compoſed of ſmaller ones which are alternate. Bracteas to the lower partial panicles like leaves; the upper ones linear-lanceolate; and thoſe to the outmoſt branchlets of the panicle ſmall and linear. Flowers very large, white, fugacious, odorous: calyx ſmall, acutely five-cleft, ſpreading; petals ovate; ſtamens about thirty, much longer than the petals, with ſmall yellow anthers. Styles four or five, ſhorter than the petals. Capſules four or five, from upright parallel, a little reflexed at the top, crowned with the calycular receptacle and the withered remains of the ſtamens.

Native of eaſtern Siberia, in boggy woods, wet vallies, and on the banks of torrents; it is abundant as far as Kamtſchatka, along with the *ſalicifolia*. It flowers in Siberia at the beginning of july; is a very handſome ſhrub in plantations; and the hollow ſhoots are uſed for tobacco-pipes [d].

It was cultivated here in 1759, by Mr. Miller, and flowers in auguſt [e].

8. On the very loſty mountains about the lake Baical this ſhrub becomes gradually ſmaller, till towards the ſummit it is ſcarcely higher than a ſpan, and woody only for a finger's length. The leaflets are leſs, very elegantly gaſh-ſerrate, and almoſt pinnatifid, with the pinnules ſerrate all round; they are not ſo much pointed, and in pairs from five to eleven. The hairs are ſimple and none of them ſtarred. Panicle ſimple, conſiſting of three three-flowered branchlets, and one below from the axil of the upper leaf. Flowers larger, with the ſtamens leſs elongated in compariſon with the petals [f].]

15. Root perennial. Stem annual, from three to four feet high. Leaves doubly pinnate; each having three or four pairs of oblong leaflets terminated by an odd one: they are two inches long, and almoſt an inch broad, ſerrate, and ending in acute points. Flowers diſpoſed in long ſlender ſpikes, formed into looſe terminating panicles; they are ſmall, white, and of two ſexes in the ſame ſpike.

[Gouan remarked this plant to be always polygamous-monoecious. Pollich ſays that the male flowers are on a diſtinct plant, and larger than the females. Scopoli, Haller, and Krocker agree with him and Linneus, in aſſigning dioecious flowers to this plant. Krocker ſays that the male flowers have the rudiment of a germ: and Haller, that he was informed by Ludwig, that he had obſerved an androgynous ſpike in his garden. Thunberg affirms, that in his ſpecimen from Japan, the flowers were all hermaphrodite. He thus deſcribes the plant.—Stem ſcaly at the baſe, round, upright, herbaceous, wholly ſmooth. Leaves alternate, petioled, ſuperdecompound-ternate: leaflets on ſhort round petioles grooved above; the lateral ones ſmaller, ovate, acuminate, doubly ſerrate, ſmooth, paler beneath, nerved, an inch long and more. Racemes numerous, ſcattered, diſtich, ſeldom compound, a finger's length or more. Peduncles filiform, villoſe; pedicels one-flowered, very ſhort. Calyx half-five-cleft, with ovate blunt ſegments. Filaments ten, longer than the corolla. Styles two. Linneus ſays three: and that there are one or two ſeeds in each capſule. According to Haller, there are three capſules with one ſeed in each. Pollich alſo ſays that the capſules are one-ſeeded. Scopoli, that there are four or five germs, and four ſeeds.

Pallas thus deſcribes the Siberian plant.—Root perennial. Stem ſuffruticoſe, three feet high or more, ſlender, ſmooth, ſtriated, ſcarcely branched. Leaves alternate, variouſly compound: leaflets ovate, acuminate, doubly-ſerrate, pubeſcent on the nerve and petiole. The upper ſtem-leaves are often ſimply pinnate, conſiſting only of two pairs with an odd leaflet: the lower ones are made up of two which are quinate-

[a] Pallas. [b] Idem. [c] Hort. kew. [d] Pallas. [e] Hort. kew. [f] Pallas.

pinnate, and of one between them compoſed of a terminating leaflet, two lateral ones which are ternate, and two ſimple pinnas which are interpoſed between them. Panicle terminating, very handſome, hairy, cloſe, compoſed of alternate partial panicles, of which the lower one is axillary, and the upper ones are accompanied by a leaflet or linear bractæ: each ſpike of the panicles is ſeſſile, filiform, from an inch to two inches in length, compoſed of cluſtered ſubpetioled flowers. In ſome panicles theſe are all male, in others all female on a ſeparate plant; the panicles of the latter are leſs abundant, and the flowers are nodding. In the males, the calyx is acutely five-cleft; the petals larger, white, patulous; the ſtamens about fifteen, longer than the petals, pale; the centre bald. In the females, the petals are ſcarcely larger than the calyx; germs three, parallel, oblong, length of the petals, with a longiſh ſtyle, and a headed ſtigma. Capſules nodding with reflexed peduncles, in threes, oblong-ſubventricoſe, mucronate with the ſtyle, gray, two-ſeeded. Seeds linear-acute, ſlender.

Native of Germany, Auſtria, Carniola, Dauphiné, Switzerland, Piedmont, Siberia, Japan, Virginia. It flowers here in june and july, and was cultivated in 1633, by Mr. John Tradeſcant, ſen.[b]: where only Johnſon the editor of Gerarde had ſeen it.

16. Root perennial, conſiſting of oval tubers or ſolid lumps, hanging from the main body by threads, which has given occaſion to its common names of *Filipendula* and *Dropwort*: theſe tubers enable the herb to reſiſt drought, and render it very difficult to be eradicated. Stem erect, from a foot to a foot and half in height, angular, ſmooth, leafy, a little branched at top. Leaves alternate, interruptedly pinnate, ſerrate and jagged, ſmooth, compoſed of ſeveral pairs of leaflets, all of each ſet uniform or nearly correſponding in ſize; the terminating leaflet three-lobed. A pair of roundiſh united indented ſtipules, at the baſe of each leaf, embracing the ſtem. Flowers many in a cymoſe looſe erect panicle, cream-coloured often tipped with red, or red on the outſide. Styles from eight to twelve[i]. Capſules ten to fourteen[n].

It is an elegant plant, very common in high paſtures, on a calcareous ſoil, where it is ſometimes very ſmall. In gardens it grows very luxuriant, and has often double flowers. It flowers early in july. The whole herb is aſtringent[o]: and has been formerly uſed in medicine, but is now wholly neglected with innumerable others. Hogs are fond of the roots.

17. Root perennial, fibrous. Stems erect, three or four feet high, angular and furrowed, tinged with red, leafy, branched in the upper part. Leaves interruptedly pinnate: leaflets very unequal in ſize, ſharply ſerrate, clothed beneath with white down, the end one remarkably large and three-lobed. A pair of rounded ſerrate ſtipules are joined to the common leaf-ſtalk, and claſp the ſtem. Flowers white, in a large very compound cyme, the ſide branches of which riſe much above the central one. Styles and capſules five or ſix to eight, twiſted ſpirally.

Meadow-ſweet or Queen of the meadows abounds in moiſt meadows, about the banks of rivers, brooks and ditches, perfuming the air with the ſweet hawthorn-like ſcent of its plentiful bloſſoms from june to auguſt. The green parts of the herb partake of a ſimilar aromatic flavour, when rubbed or chewed, approaching to the taſte of orange-flower water, a flavour poſſeſſed in higher perfection by the American *Gualtheria*[p]. The flowers infuſed in boiling water, give it a fine flavour, which riſes in diſtillation. Sheep and ſwine eat the herb; goats are fond of it; kine and horſes refuſe it[q].]

A variety with double flowers, and another with variegated leaves are to be found in ſome gardens. The leaves and tops have been uſed in medicine.

Mr. Miller has a variety of the *Filipendula* which he received from Boerhaave, and conſidered as a diſtinct ſpecies, under the name of *anguſtifolia*. The leaves are much longer and narrower than thoſe of the common ſort; ſome of the leaflets are two inches and a half long; and others not more than an inch. The flower-ſtalk riſes much higher, and ſuſtains a much larger bunch of flowers.

[18. Like the next ſpecies, but diſtinct by having the leaves tomentoſe underneath, with the ſegments acuminate; the flowers white, in a contracted branched corymb.

Native of eaſtern Siberia, in meadows and moiſt vallies, in the ſubalpine regions, beyond Baical, and eſpecially in Dauria. It has much of the habit, taſte and ſmell of our common Ulmaria[s].

19. This alſo has the ſtature and appearance of Ulmaria. The root ſmells ſweet, but the herb does not. The leaves are very nearly thoſe of Ulmaria, with the leaflets lobed. Flowers red. Fruit of Filipendula, not twiſted ſpirally but ſtraight[t]. It is probably a native of North America; Jacquin had it from Belgium. It differs from ours, ſays Pallas, in having the leaves naked beneath, and the flowers red.

It was not diſtinguiſhed from the preceding in the Supplement of the younger Linneus, and the Kew catalogue, where it is ſaid to have been introduced in 1765, by Meſſrs. Kennedy and Lee.

20. Root thick, white, black on the outſide. Stems two or three, a fathom high or more, as thick as the finger or thumb at bottom. Root-leaves very large, often a foot wide, and eight inches long, white with hairs beneath, five-lobed; lobes acute, doubly ſerrate. Petioles near the leaf have a few minute ſtipules. Stem-leaves ſimilar; upper three-lobed; uppermoſt ſubhaſtate or lanceolate: ſtipules at the baſe of the petioles, large, lanceolate or ſemicordate, toothed. Stem roundiſh or ſlightly three-ſided, hairy, deeply grooved. Cyme terminating, branched, ſcattered, very handſome. Flowers a little larger than thoſe of Ulmaria, with white ovate petals: calyx hairy, reflexed. Stamens fewer than twenty, often ten. Germs four to ſix, very hirſute; with a ſubcapitate ſtyle, ſhorter than the ſtamens. Capſules like ſilicles, parallel, hiſpid, gray, two-ſeeded; but ſometimes only one ſeed comes to perfection[u].

Willdenow remarks, that the petiole is furniſhed above with roundiſh leafy appendages; and that it ſeems to be allied to the next ſpecies.—Native of Kamtſchatka and Bering's iſland.

21. Stem herbaceous, ſtriated, erect, wholly ſmooth. Leaves alternate, five or ſeven lobed, beneath pale, and netted-veined: lobes oblong, acuminate, acutely and doubly ſerrate: petiole ſtriated, four times ſhorter than the leaf. Flowers white or red; the latter with four ſtyles. It differs from the *opulifolia*, to which it approaches neareſt in the leafing, in having the leaves five or ſeven-lobed, with the ſerratures acute; the panicle decompounded, and the ſtem herbaceous.—Native of Japan[v].]

22. Root perennial. Stalks annual, about a foot high, ſending out branches from the ſide the whole length. Leaves for the moſt part trifoliate, but ſometimes ſingle or in pairs; they are about an inch and half long, and half an inch broad, ending in acute points, ſharply ſerrate, of a bright green above, and pale beneath. Flowers in looſe terminating panicles, on ſlender peduncles: petals long, lanceolate, ſpreading. Stamens no longer than the tube of the flower.

[This ſpecies, ſays Mr. Curtis, is one of the moſt elegant, and when it grows in perfection is certainly a moſt delectable plant. Another circumſtance, that of being rather ſcarce, will recommend it to many. It increaſes little, is propagated with difficulty, and is liable to be loſt unleſs planted in a ſoil and ſituation quite favourable.

Native of North America. Cultivated by Mr. Miller in 1758. It flowers in june and july[w].]

PROPAGATION AND CULTURE.

The ſhrubby ſorts may be propagated from ſuckers, which are ſent forth in plenty from the ſtems of the old plant, in ſome of them; or by laying down the tender branches, which when rooted, ſhould be tranſ-

[b] Hort. kew. [i] Smith. [n] Pollich and Scopoli.
[o] Smith. [p] Idem. [q] Withering.
[s] Willdenow and Pallas. [t] Linn. ſuppl. [u] Pallas.
[v] Thunberg. [w] Hort. kew.

planted out in rows at three feet diſtance, and the plants a foot aſunder in the rows. In this nurſery they may remain two years, obſerving to keep the ground clean from weeds, and in the ſpring to dig it up between the rows, that the roots may the more eaſily extend themſelves: but if they put out ſuckers, theſe ſhould be taken off. Afterwards they may be tranſplanted where they are to remain, among other flowering ſhrubs, obſerving to place them among other ſorts of equal growth. For layers, the branches muſt be laid down in autumn, and in one year they will take root.

Theſe ſhrubs require no other pruning, but to cut out all the dead branches and ſuch as grow irregularly; and to take off the ſuckers every year. If theſe be permitted to grow, they will ſtarve the old plants. The ground between them ſhould be dug every ſpring, to encourage their roots, and every third year a little rotten dung ſhould be buried in it, to make them flower ſtrong.

The herbaceous ſorts may be propagated by ſeeds, or by parting the roots in autumn.

22. Sow the ſeeds on a ſhady border ſoon after they are ripe, for if they are ſown in the ſpring, the plants will not come up till the year after, and many times fail. Remove the plants in autumn, when the leaves begin to decay, either where they are to remain, or into a nurſery-bed, where they may grow a year or two to get ſtrength. This plant loves a ſhady ſituation, and a moiſt light ſoil.

[It is uſually increaſed by parting the roots; poſſibly theſe might grow when made cuttings of. The beſt ſituation for this plant is a north border. It ſhould be planted in a light bog or peat earth, or a mixture of one of theſe with hazel loam *.

SPIRÆA. See *Craſſula* and *Dioſma*.

Spiræ ſimilis. See *Ceanothus*.

——— genus. See *Dioſma*.

SPIRIPLOCA. See *Helicteres*.

SPLACHNUM. (Σπλαγχνον, *viſcus*.)

Lin. gen. Schreb. n. 1641. *amœn.* 2. 270. *Hedw. fund.* 2. 83 *muſc.* 2. 35. *With.* 790.

Claſſ. 24. 3. Cryptogamia Muſci.

GENERIC CHARACTER.

Capſ. cylindrical, veil and receptacle very large: fringe with eight teeth.

Male, a bud on a different plant; circular, terminating.

In Syſtema Vegetabilium ſix ſpecies only are enumerated; in Dr. Withering's arrangement twelve, chiefly from Hedwig. Two ſpecies are figured by Withering:—ampullaceum, in Engliſh Botany, Flora Danica, Dillenius, Vaillant, Moriſon and Buxbaum:—tenue, by Dickſon. Formerly theſe were not diſtinguiſhed from the Bryums.

SPLEENWORT. See *Aſplenium*, *Blechnum*, *Oſmunda*.]

SPONDIAS. (*From* Σπονδη, *libo, comes* σπονδη, *libatio,* σπονδειον *the veſſel for libation, and* σπονδειος, *the material of libation, as wine, honey, milk, &c.*)

Lin. gen. n. 577. *Reich. n.* 627. *Schreb. n.* 786. *Jacqu. amer.* 138. *Gærtn. t.* 103, 104. *Juſſ.* 372.

Claſſ. 10. 4. Decandria Pentagynia.

Nat. order of *Terebintaceæ*, Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* one-leafed, ſubcampanulate, ſmall, five-cleft, coloured, deciduous.

COR. *Petals* five, oblong, flat, ſpreading.

STAM. *Filaments* ten, awl-ſhaped, erect, ſhorter than the corolla, alternately longer. *Anthers* oblong.

PIST. *Germ* ovate. *Styles* five, ſhort, diſtant, erect. *Stigmas* obtuſe.

PER. *Drupe* oblong, large, marked with five dots from the falling of the ſtyles; ten-valved.

SEED. *Nut* ovate, woody, fibrous, five-cornered, five-celled; covered with a fleſhy elaſtic aril.

ESSENTIAL CHARACTER.

Cal. five-toothed. *Cor.* five-petalled. *Drupe* with a five-celled nut.

* Cort. magaz.

SPECIES.

1. Spondias Mombin. *Purple Hog-Plum*, or *Spaniſh Plum*. *Lin. ſyſt.* 428. *Reich.* 2. 375. *Willd.* 2. 750. *Laſt. it.* 209.

S. purpurea. *Lin. ſpec.* 613. *Mill. dict. n.* 1.

S. Myrobalanus. *Jacqu. amer.* 139. *t.* 88. *pict* 69. *t.* 131. *Gærtn. fruct.* 2. 102. *Brown. jam.* 228. 1. *Sloan. jam.* 2. 126. *t.* 219. *f.* 3, 4, 5. *Raii dendr.* 43. (Myrobalanus.) *Pluk. phyt. t.* 218. *f.* 3. *Leaves with the common petiole compreſſed.*

2. Spondias Myrobalanus. *Yellow Hog-Plum* or *Jamaica Plum*.

Lin. ſyſt. 428. *Reich.* 2. 376. *Willd.* 2. 751.

S. Mombin. *Jacqu. amer.* 138. *pict.* 69. *Gærtn. fruct.* 2. 102.

S. lutea. *Lin. ſpec.* 613. *hort. cliff.* 484. *Mill. dict. n.* 2. *Brown. jam.* 229. 3. *Plum. gen.* 44. (Monbin.) *Sloan. jam.* 2. 125. *t.* 219. *f.* 1, 2. *Raii dendr.* 43. (Myrobalanus.)

Hobo. *Laſt. it.* 209.

Prunus americana. *Mer. ſurin. t.* 13.

P. braſilienſis, fructu racemoſo ligno intus pro officulo. *Raii hiſt.* 1154.

Acaja et Ibametara. *Marcgr. braſ.* 29.

Arbor nuci juglandi ſimilis 5. f. Hobos. *Bauh. pin.* 417.

β. Spondias foliis paucioribus pinnatis ovatis nitidis. *Brown. jam.* 229. 2. *Petioles round, leaflets ſhining acuminate.*

[3. Spondias Mangifera. *Mango Hog-Plum*. *Lin. ſpec. ed. Willd.* 2. 751.

Mangifera pinnata. *Lin. ſuppl.* 156. *Retz. obſ.* 5. 4. *Leaflets oblong quite entire, paniele racemed.*

4. Spondias dulcis. *Sweet Hog-Plum*. *Lin. ſpec. ed. Willd.* 2. 752. *Forſt. prodr. n.* 198. *oſcul.* 33.

S. cytherea. *Lamarck encycl.* 4. 245. *illuſtr. gen. t.* 384. *Sonn. it.* 2. 222. *t.* 123. *Gærtn. fruct.* 2. 101. *Petioles round ſix-paired, leaflets ſerrate ribbed.*]

DESCRIPTION, &c.

1. The uſual height of this tree is ten or twelve feet, and the ſtem is as large as a man's leg, ſending out branches towards the top, covered with a gray bark; theſe are deſtitute of leaves for ſome months, and in the ſpring, before the leaves appear, many purple flowers come out from the ſide of the branches; theſe are ſucceeded by fruit like Plums, having a luſcious thin pulp, covering a large fibrous ſtone. The leaves which come out afterwards are unequally pinnate, with four or five pairs of leaflets, about an inch long, and half an inch broad.

[Jacquin deſcribes it as an ugly tree, varying much in height, and ſometimes thirty feet high. The bark is thick, and the wood whitiſh and brittle. Trunk upright. Branches thick, few, irregular. Leaves pinnate, alternate, ſhining, moſtly at the ends of the branches, falling off eſpecially when the fruit is ripening: leaflets ſubovate, entire or ſerrate above the middle, veined, on very ſhort petioles, varying in ſize, about ten on each ſide, with an odd one. Racemes ſhort, placed without order, often pretty cloſely, on the branches; but inſtead of theſe there are ſometimes peduncles with one, two or more flowers. Theſe are ſmall and red: the ſegments of the calyx blunt, roundiſh, concave; the petals blunt, and concave at the end; ſtigmas ſimple. Rind of the fruit purple, yellow, or variegated with both; pulp ſweet ſlightly acidulated, yellow, thin, having a ſingular but not unpleaſant taſte, and a ſweet ſmell. It varies in form; being oblong, ſubovate, very blunt at the end, or with a large appendix there. The ſeed ſcarcely ever ripens, but it is ſo eaſily increaſed by cuttings, that if a branch laden with young fruit be ſet in the ground, it will grow, and the fruit will ſoon come to maturity. Hence in St. Domingo, they make hedges of the boughs, which flower and bear fruit in a few months. If the tree be headed, it puſhes out very long upright branches, with numerous leaves ſcattered the whole length, and puts on an appearance ſo different, as hardly to be known for the ſame tree.

Gærtner

Gærtner deſcribes the drupe as being only one third of the ſize of that in the laſt ſpecies, ovate, narrowed upwards, ſhortly acuminate at the end: pulp in the old fruit fungous, ruſeſcent: ſhell woody, muricate with laminæ and fibres variouſly netted and anaſtomoſing, neither lobed nor pedunclcd, but cohering all over, though with hollows here and there: cells five, connected together, and with the other ſubſtance of the ſhell; in each two germs on a thick umbilical chord common to both; only one of theſe ripens into a ſeed, and this is ovate-oblong, compreſſed like a lens, the colour and conſiſtence of an Almond.

Browne deſcribes it as a ſmall ſpreading tree, which ſeldom riſes above ten or twelve feet in height; its foliage is of a dark gloomy green, and it generally begins to ſhoot as the bloſſoms fall. It is cultivated by many for the ſake of the fruit, which is pretty pleaſant, although not held in any great eſteem in Jamaica, where they are always furniſhed with a great variety of the richeſt fruits.

There is a variety of this fruit, called the *Leather-coat*, from the appearance of its ſkin; but this proceeds from the dry ſoil in which it is produced.

In this, and many other American bacciferous (drupiferous) plants, where the cup (calyx) ſtands under the germ, the embryo is always ſurrounded by a fleſhy navel, which ſwells as that increaſes, and forms the pulp gradually about it.

Native of South America, whence it has been tranſplanted into the Caribbee iſlands; it is very common in St. Domingo, common in Jamaica, Curaçao and St. Martin's, but ſcarce in moſt of the others, according to Jacquin.]

2. This riſes to the height of thirty feet or more, ſending out many crooked irregular branches, which are deſtitute of leaves for ſome months: the branches have a light-coloured bark, and unequally pinnate leaves, with four or ſix pairs of leaflets near two inches long, and an inch broad, having deep longitudinal veins. The flowers come out before the leaves appear; and are ſucceeded by yellow Plums an inch or more in length, growing in a ſort of raceme: they have large fibrous ſtones with a thin covering of fleſh.

[Jacquin deſcribes it as a tall elegant tree, with a very wide branching head. Bark aſh-coloured and full of cleſts. Wood whitiſh, ſmooth, not durable, fit only for fuel and making ſtoppers. Leaves pinnate, alternate, ſubſtroudoſe, with a round rib, a foot long: leaflets for the moſt part eight, with an odd one, ovate-oblong ending in a blunt point, ſmooth, quite entire, petioled, the middle ones about three inches long, the outer ſhorter. Racemes looſely panicled, ſomewhat yellow, length of the leaves, terminating. Flowers very numerous, ſmall, whitiſh, and ſeſſile: calyx five-toothed, acuminate; petals ſublanceolate, acute, ſpreading very much; anthers erect; ſtigmas compreſſed and bilamellate. Very few fruits ſucceed this abundance of flowers in each raceme, being much expoſed to the winds by their great height. They are yellow, with ſometimes a ſlight mixture of redneſs, ſweet-ſmelling, covered with a thin ſkin, the ſize of a pigeon's egg, having within a little ſucculent acidulous pulp, and a very large nut; eaten by children, and ſome of the inhabitants, but making an excellent food for hogs. As the branches or cuttings grow ſo readily, it is uſed by ſome for hedges: and a tree or two is frequently planted in paſtures to afford ſhade to the ſheep.

Gærtner ſays, that the drupes in his ſpecimens were perfectly ovate, the ſame ſize as in the preceding, or near an inch and half long, very indiſtinctly five-cornered, the corners being formed by the back of the cells: ſkin fibrous, tough, in the old fruit hard: pulp ſmall, ſpongy: ſhell as in the preceding. Seeds ſolitary, long, narrow and as it were roundiſh, ferruginous. Seldom more than one cell is fertile.

According to Browne, the filaments ſtand upright, and grow in an even circular order round the germ; the ſtyles are always four, compreſſed, and enlarged at the top.

Native of all the Caribbee iſlands, and the neighbouring continent. Mr. Miller cultivated both this and the preceding in 1768.

β. The fruit of this variety is much eſteemed by ſome perſons in the Weſt Indies, and ſupplies the principal part of the food of the wild hogs in the ſeaſon [r].

3. Leaves a foot long, unequally pinnate; leaflets oblong, quite entire. Panicle racemed large [s]. Stamens commonly ten, but ſometimes eight. Nut five-celled, five-ſeeded [t].

This ſpecies is yet obſcure. It is the ſame with *S. amara* of Lamarck, *encycl.* 4. 245. which is figured by Rheede, *mal.* 1. *t.* 50?

Found in the Eaſt Indies by Koenig [u].

4. This is a tall ſhady tree, with a handſome ſpreading head. Trunk thicker than a man's body, upright, fifty feet high, flowering before the time of leafing in ſeptember. Branches diffuſed, ſpreading, round, with a brown rugged bark. Leaves ſcattered, cluſtered, pinnate, ſix-paired with an odd one: leaflets oblong-lanceolate, acuminate, very finely ſerrate, ſmooth, ſpreading, ribbed with a marginal nerve, and numerous parallel ſtraight veins, running from the rachis to the ribs at a right angle, dark green. Common petioles round, even, ſpreading, a foot long: proper nearly oppoſite, compreſſed a little, half an inch long. The general peduncle terminates the branchlets; it is round, even, almoſt upright, the length of the common petiole. Raceme large, compound. Partial peduncles alternate, round, ſmooth, horizontal, the upper ones gradually ſmaller, aſcending: pedicels one-flowered, ſcattered, very ſhort. Flowers ſmall, greeniſh-yellow. Calyx inferior, very ſmall, five-parted; ſegments equal, acute, pale green. Petals lanceolate, ſpreading very much, interpoſed between the ſegments of the calyx. A fleſhy yellow, toruloſe ring ſurrounds the germ, which is probably the nectarium. Germs five, ſmall, globular, united at the baſe. Styles cylindric, approximating at the baſe, recurved at the top, of the ſame length with the ſtamens. Drupe oval, obtuſe, large, very ſmooth, of a golden colour, and a ſomewhat nauſeous fetid ſmell: outer ſhell very thin, dotted; pulp fleſhy, ſucculent, ſweet, aromatic, fragrant: nut hard, woody, ovate, echinate all over with hard pungent fibrils, five-celled with membranaceous partitions: kernels ſolitary, ovate, compreſſed, the greater part abortive [x].

Gærtner deſcribes the fruit as a ſuperior, berried, oval drupe; with a tough ſkin formed of the capillary fibres of the ſhell, or cohering with them: fleſh firmiſh, taſteful, like a rennet Apple: ſhell woody, fibrous, lobed, on a long peduncle, compoſed of five cells, which are ſeparate, free at the top and on the ſides, but at the baſe cloſely united into one body not only with one another but with the lobes of the ſhell: lobes moſtly five, angular inwards and interpoſed between the cells, but outwardly echinated and muricated variouſly with anaſtomoſing laminæ, many-ſhaped points, and woody fibres. Seeds ſolitary, reſembling Almonds, ovate-attenuate, compreſſed a little, ruſeſcent, faſtened to the bottom of the cells.—This is eaſily diſtinguiſhed from the other ſpecies, by its peduncled ſhell, and cells remote both from each other and from the axis [y].

Cultivated in the Society and Friendly Iſlands of the South Sea, eſpecially in Otaheite. The golden fruit hangs in little nodding bunches, and is eſteemed one of the moſt taſteful and wholeſome; it has almoſt the ſame flavour with the Ananas, and not only aſſuages thirſt, but is given to the ſick without diſtinction [z]. It has been introduced by the French into the iſland of Mauritius.]

PROPAGATION AND CULTURE.

Theſe plants grow eaſily from cuttings planted in pots filled with rich light earth, and plunged into a moderate hot-bed, covering them down either with bell or hand glaſſes, to exclude the external air, and

[r] Browne. [s] Linn. ſuppl. [t] Retz. from Koenig.
[u] Willdenow. [x] Forſter eſcul. [y] Gærtner.
[z] Forſter.

ſhading

ſhading them from the ſun. The beſt time for this is in the ſpring, before the plants put out their leaves.

They may alſo be propagated by the ſtones, if they are brought over freſh. Put them into ſmall pots, filled with the ſame rich earth, and plunge them into a hot-bed of tanner's bark, obſerving duly to water the earth, and in ſix or ſeven weeks the plants will appear. Treat them afterwards in the ſame way as the Annona, keeping them conſtantly in the tan-bed in the ſtove; and when they are deſtitute of leaves give them but little water.

[SPONGE TREE. See *Mimoſa farneſiana.*

SPOONWORT. See *Cochlearia.*

SPRING GRASS. See *Anthoxanthum.*

SPRUCE FIR. See *Pinus.*

SPURGE. See *Euphorbia.*

——— LAUREL. See *Daphne.*

——— OLIVE. See *Daphne Mezereum.*

SPURREY. See *Arenaria* and *Spergula.*

SQUAMARIA. See *Lathræa.*

SQUASH-GOURD. See *Cucurbita.*

SQUILL. See *Scilla.*

SQUINANCY-WORT. See *Asperula.*

SQUIRTING CUCUMBER. See *Momordica.*

STACHYARPAGOPHORA. See *Celoſia.*

STACHYOIDES. See *Ornithogalum.*]

STACHYS (*of Pliny,* Στάχυς *of Dioſcorides. So named from the flowers being in a ſpike.*)

Lin. gen. n. 719. *Reich. n.* 777. *Schreb. n.* 974. *Tournef. t.* 86. *Juſſ.* 114. Galeopſis. *Tournef. t.* 86. Zietenia. *Gled.*

Claſſ. 14. 1. Didynamia Gymnoſpermia.

Nat. order of *Verticillatæ* or *Labiatæ.*

GENERIC CHARACTER.

CAL. *Perianth* one-leafed, tubular, angular, half-five-cleft, acuminate, permanent: *toothlets* acuminate, awl-ſhaped, a little unequal.

COR. one-petalled, ringent: *tube* very ſhort: *opening* oblong, at the baſe gibbous downwards: *upper lip* erect, ſubovate, arched, often emarginate: *lower lip* larger, reflexed on the ſides, trifid; the middle ſegment very large, emarginate, folded back.

STAM. *Filaments* four, two of them ſhorter, awl-ſhaped, when the anthers have ſhed their pollen curved back to the ſides of the opening. *Anthers* ſimple.

PIST. *Germ* four-parted. *Style* filiform, ſituation and length of the ſtamens. *Stigma* bifid, acute.

PER. none. *Calyx* ſcarcely changed.

SEEDS four, ovate, angular.

ESSENTIAL CHARACTER.

Cor. upper lip arched; lower reflexed at the ſides; the middle ſegment larger, emarginate. *Stam.* finally reflexed towards the ſides.

SPECIES.

[1. Stachys ſylvatica. *Hedge Woundwort,* or *Hedge Nettle.*

Lin. ſpec. 811. *Reich.* 3. 56. *Fl. ſuec. n.* 526. *hort. cliff.* 309. *Hudſ. angl.* 259. *Wither. arr. ed.* 3. 531. *Smith brit.* 633. *engl. bot. t.* 416. *Lightf. ſcot.* 312. *Curt. lond.* 3. *t.* 34. *Relh. cant. ed.* 2. *n.* 496. *Sibth. oxon. n.* 528. *Gunn. norv. n.* 70. *Pollich pal. n.* 563. *Neck. gallob.* 256. *Scop. carn. n.* 706. *Crantz. auſtr.* 285. *Krock. ſilef. n.* 939. *Villars dauph.* 2. 379. *Allion. pedem. n.* 108. *Sabb. hort. rom.* 3. *t.* 38. *Riv. mon. t.* 26. *f.* 2. *Regnault bot.*

Cardiaca. *Hall. helv. n.* 275.

Galeopſis legitima. *Cluſ. hiſt.* 2. 35. *t.* 36. *f.* 1. *Park. theat.* 908. 1. *Raii hiſt.* 548. *ſyn.* 237. *Petiv. brit. t.* 32. *f.* 7. *Blackw. t.* 84. *f.* 2.

G. ſ. Urtica iners magna fœtidiſſima. *Baub. hiſt.* 3. 853.

G. vera. *Ger. emac.* 704. 5.

G. procerior fœtida ſpicata. *Tournef. inſt.* 185.

Urtica herculea Tragi 5. *Dalech. hiſt.* 1244.

Lamium maximum ſylvaticum fœtidum. *Baub. pin.* 231. *Mor. hiſt. ſ.* 11. *t.* 11. *f.* 10.

β. Lamium ſylvaticum ſpicatum fœtidum, folio anguloſo, minus. *Dill. in Raii ſyn.* 237.

Whorls ſix-flowered, leaves cordate petioled.

2. Stachys circinata. *Blunt-leaved Stachys.*

L'Herit. ſtirp. nov. 51. *t.* 26. *Ait. kew.* 2. 366. *Vahl ſymb.* 2. 64. *Desfont. atlant.* 2. 20.

Whorls ſix-flowered, leaves cordate-rounded crenate.]

3. Stachys paluſtris. *Marſh Woundwort,* or *Clown's All-heal.*

Lin. ſpec. 811. *Reich.* 3. 56. *fl. ſuec. n.* 528. *hort. cliff.* 309. *Hudſ. angl.* 259. *Wither. arr. ed.* 3. 532. *Smith brit.* 633. *Lightf. ſcot.* 313. *Curt. lond.* 3. *t.* 35. *Relh. cant. ed. n.* 2. 497. *Sibth. oxon. n.* 529. *Dickſ. hort. ſicc.* 15. 8. *Hall. helv. n.* 257. *Pollich pal. n.* 564. *Neck. gallob.* 255. *Scop. carn. n.* 707. *Crantz. auſtr.* 266. *Leeſel. pruſſ.* 41. *Krock. ſilef. n.* 940. *Villars dauph.* 2. 378. *Allion. pedem. n.* 109. *Riv. mon. t.* 26. *f.* 1. *Blackw. t.* 273.

St. pal. fœtida. *Baub. pin.* 236.

St. aquatica. *Tabern. ic.* 577.

Sideritis anglica ſtrumoſa radice. *Park. theat.* 852. *Raii hiſt.* 563. *ſyn.* 242. *Petiv. brit. t.* 33. *f.* 9.

Panax Coloni. *Ger. emac.* 1005.

Galeopſis anguſtifolia fœtida. *Baub. hiſt.* 3. 854.

G. paluſtris Betonicæ folio. *Tournef. inſt.* 185.

Clymenum minus. *Dalech. hiſt.* 1357.

Whorls ſix-flowered, leaves linear-lanceolate half-embracing.

4. Stachys alpina. *Alpine Stachys.*

Lin. ſpec. 812. *Reich.* 3. 57. *fl. ſuec. n.* 527. *hort. cliff.* 310. *upſ.* 170. *Hall. helv. n.* 256. *Leers herborn. n.* 458. *Scop. carn. n.* 709. *Krock. ſilef. n.* 938. *Villars dauph.* 2. 378. *Allion. pedem. n.* 110. *Sabb. hort. rom.* 3. *t.* 41. *Pluk. phyt. t.* 317. *f.* 4.

Galeopſis alpina Betonicæ folio, flore variegato. *Tournef. inſt.* 185. *Schœuch. it.* 1. 36.

Pſeudo-ſtachys alpina. *Baub. pin.* 236. *prodr.* 113. *Park. theat.* 47. *n* 4.

Whorls many-flowered, ſerratures of the leaves cartilaginous at the tip, corollas with a flat lip.

5. Stachys germanica. *Downy Stachys* or *Woundwort.*

Lin. ſpec. 812. *fyſt.* 535. *Reich.* 3. 57. *hort. cliff.* 309. *upſ.* 170. *Hudſ. angl.* 259. *Wither. arr. ed.* 3. 532. *Smith brit.* 634. *engl. bot. t.* 829. *Sibth. oxon. n.* 530. *Hull.* 132. *Fl. dan. t.* 684. *Hall. helv. n.* 255. *Pollich pal. n.* 565. *Jacqu. auſtr.* 4. 10. *t.* 319. *Scop. carn. n.* 710. *Krock. ſilef. n.* 941. *Villars dauph.* 2. 377. *Allion. pedem. n.* 111. *Guel. fil.* 3. 239. *Kniph. cent.* 10. *n.* 83.

St. lanata. *Crantz. auſtr.* 267.

Stachys. *Fuchſ. hiſt.* 766. *Dod. pempt. t.* 90. *f.* 3. *Baub. hiſt.* 3. 319, 320. *Ger.* 563. 2. *emac.* 695. 2. *Roli hiſt.* 554. *ſyn.* 239.

S. montana. *Riv. mon. t.* 27. *f.* 1.

S. major germanica. *Baub. pin.* 236. *Park. theat. t.* 48. *f.* 2. *Mor. hiſt. ſ.* 11. *t.* 10. *f.* 1. *Tournef. inſt.* 186.

S. alba latifolia major. *Barrel. ic. t.* 297.

Pſeudo Stachys. *Matth.* 830.

Whorls many-flowered, leaves crenate, ſtem woolly.

[6. Stachys intermedia. *Oblong-leaved Stachys. Ait. kew.* 2. 301.

Whorls many-flowered, calyxes ſubpungent, leaves oblong ſubcordate crenate, ſtem ſomewhat woolly.

7. Stachys lanata. *Woolly Stachys.*

Lin. ſyſt. 536. *Jacqu. miſc.* 2. 342. *Ait. kew.* 2. 301.

Whorls many-flowered, leaves woolly, ſtems procumbent and rooting at the baſe.]

8. Stachys cretica. *Cretan Stachys.*

Lin. ſpec. 812. *ſyſt.* 536. *Reich.* 3. 58. *hort. upſ.* 170. *Walth. hort.* 108. *t.* 19. *Baub. pin.* 236. *prodr.* 113. *Raii hiſt.* 555. *Park. theat.* 47. *n.* 3.

Whorls thirty-flowered, calyxes pungent, ſtem rough-haired.

[9. Stachys patens. *Spreading Stachys.*

Swartz prodr. 88.

Very much branched, branches filiform, ſpreading, leaves lanceolate ſerrate ſmooth, flowers ſubverticillate.]

10. Stachys glutinoſa. *Clammy Stachys.*
Lin. ſpec. 813. *Reich.* 3. 58. *hort. cliff.* 310. *Vahl ſymb.* 3. 76.
Sideritis glutinoſa bitumen redolens. *Mor. hiſt.* 3. 389. *ſ.* 11. *t.* 4. *f.* 17.
S. viſcoſa cretica bitumen redolens. *Zan. hiſt.* 136.
Branches very much branched, leaves lanceolate ſmooth.
11. Stachys ſpinoſa. *Thorny Stachys.*
Lin. ſpec. 813. *Reich.* 3. 58. *hort. cliff.* 310. *Vahl ſymb.* 3. 76.
St. ſpinoſa. *Park. theat.* 47. 6. *t.* 48. *f.* 6.—cretica. *Baub. pin.* 236. *Ger. emac.* 695. 3. *Mor. hiſt.* 3. 382. *ſ.* 11. *t.* 10. *f.* 9. *Raii hiſt.* 555.
Gaidarothymo. *Cluſ. hiſt.* 2. 311.
Branchlets terminated by a ſpine.
12. Stachys orientalis. *Levant Stachys.*
Lin. ſpec. 813. *Reich.* 3. 58. *Vahl ſymb.* 2. 64.
St. orientalis altiſſima fœtidiſſima. *Tournef. cor.* 12. *Boerh. lugdb.* 1. 154.
Leaves tomentoſe ovate-lanceolate, floral-leaves ſhorter than the whorl.
[13. Stachys palæſtina. *Paleſtine Stachys.*
Lin. ſpec. 1674. *ſyſt.* 536. *Reich.* 3. 58.
St. alba, anguſto ſalviæ folio. *Barr. ic.* 279.
Sideritis incano oleæ foliis, floſculis ex incarnato candicantibus montis Libani. *Volk. norib.* 353. *Raii ſuppl.* 306.
Sid. molli cinereo oleæ folio caulem ambiente, flore violaceo, ex monte Carmelo. *Bocc. muſ.* 2. 145. *t.* 109, 112.
Flowers ſubſpiked, leaves lanceolate ſeſſile tomentoſe wrinkled quite entire, calyxes awnleſs.
14. Stachys maritima. *Yellow or Sea Stachys.*
Lin. ſyſt. 536. *Reich.* 3. 59. *mant.* 82. *Jacqu. hort.* 1. 29. *t.* 70.
Betonica maritima, flore ex luteo palleſcente. *Dill. elth.* 50. *t.* 42. *f.* 50.
B. heraclea latifolia Dioſcoridis. *Donat. venet.* 84. *Bocc. muſ.* 2. 164. *t.* 127.
Sideritis ſalviæ folio noſtras. *Magnol. monſp.* 203. *Park. theat. app.* 1681. 16. *Raii hiſt.* 566. *n.* 17.
Leaves cordate obtuſe tomentoſe crenate, bractes oblong quite entire.
15. Stachys æthiopica. *Cape Stachys.*
Lin. ſyſt. 536. *Reich.* 3. 59. *mant.* 82. *Jacqu. obſ.* 4. 2. *t.* 77. *L'Herit. ſtirp. nov.* 2. *t.* 27. *Pluk. phyt. t.* 315. *f.* 3. (Sideritis.)
Whorls two-flowered.
16. Stachys hirta. *Procumbent Stachys.*
Lin. ſpec. 813. *Reich.* 3. 60. *Allion. pedem. n.* 113. *t.* 2. *f.* 3. *Desfont. atlant.* 20.
Galeopſis hirſuta. *Lin. ſpec. ed.* 1. 580.
G. hiſpanica rotundiore folio. *Tournef. inſt.* 186.
Ocimaſtrum valentinum. *Cluſ. hiſt.* 2. 42. *Dalech. hiſt.* 684.
Marrubium hiſpanicum odore Stœchados. *Leb. ic.* 519.
M. nigrum rotundifolium. *Baub. pin.* 230. *Mor. hiſt. ſ.* 11. *t.* 9. *f.* 15.
M. nigrum hiſpanicum. *Park. theat.* 45.
Whorls ſix-flowered, ſtems proſtrate, upper lip of the corolla biſid divaricate reflexed.
17. Stachys canarienſis. *Canary Stachys.*
Lin. ſyſt. 536. *Jacqu. collect.* 1. 37. *icon. rar.*
Whorls ſix-flowered, leaves cordate villoſe crenate, ſtems almoſt erect, fruiting calyxes of a very ſpreading bell ſhape.
18. Stachys lavandulifolia. *Lavender-leaved Stachys.*
Vahl ſymb. 1. 42.
Galeopſis orientalis, Lavandulæ folio, calyce villoſiſſimo. *Tournef. cor.* 11.
Whorls ſix-flowered very hirſute, leaves lanceolate quite entire marked with lines.
19. Stachys recta. *Upright Stachys.*
Lin. ſyſt. 536. *Reich.* 3. 60. *mant.* 82. *Pollich pal. n.* 567. *Jacqu. auſtr.* 4. 31. *t.* 359. *Geuan illuſtr.* 36. *Neck. in act. palat.* 2. 474. *Krock. ſilef. n.* 942. *Allion. pedem. n.* 114.
St. Betonica. *Crantz auſtr.* 264. *non deſcr.*
Betonica. *Hall. helv. n.* 262.
Sideritis flore luteolo. *Riv. mon. t.* 70.
Sid. vulgaris. *Ger. emac.* 697. *f.* 1. *Raii hiſt.* 563.—hirſuta. *Baub. hiſt.* 3. 425. *Magn. bot.* 240.
S. vulg. hirſ. erecta. *Baub. pin.* 233.
S. vulg. Cluſii. *Park. theat.* 585. *f.* 4.
Whorls ſubſpiked, leaves cordate-elliptic crenate rugged, ſtems aſcending.
20. Stachys arenaria. *Sand Stachys.*
Vahl ſymb. 2. 64. *Desfont. atlant.* 2. 21. *t.* 126.
Whorls ſubſpiked, ſix-flowered villoſe, leaves lanceolate obtuſe ſerrate, ſtems procumbent at the baſe.
21. Stachys annua. *White annual Stachys.*
Lin. ſpec. 813. *ſyſt.* 536. *Reich.* 3. 61. *mant.* 411. *hort. cliff.* 210. *Pollich pal. n.* 566. *Jacqu. auſtr.* 4. 31. *t.* 360. *Krock. ſilef. n.* 943. *Allion. pedem. n.* 115. *Neck. in act. palat.* 2. 475. *Gron. virg* 66. β.
St. Betonica. *Crantz auſtr.* 264. *deſcr. Scop. carn. n.* 608.
Betonica annua. *Lin. ſpec. ed.* 1. 573. *hort. upſ.* 165. *Hall. helv. n.* 263.
B. arvenſis annua flore ex albo palleſcente. *Tournef. inſt.* 203.
Sideritis flore albo, barba luteola. *Riv. mon. t.* 69.
S. arvenſis latifolia glabra. *Baub. pin.* 233. *Park. theat.* 587. *n.* 14. *Raii hiſt.* 566.
S. glabra arvenſis. *Baub. hiſt.* 3. 427.
Alyſſum majus. *Tabern. hiſt.* 929.
Whorls ſix flowered, leaves ovate-lanceolate three-nerved even petioled, ſtem erect.
22. Stachys rugoſa. *Rough Stachys.*
Ait. kew. 2. 303.
Whorls ſix-flowered, leaves lanceolate attenuated at the baſe tomentoſe wrinkled ſerrate, calyxes awnleſs.
23. Stachys arvenſis. *Corn Stachys* or *Woundwort.*
Lin. ſpec. 814. *ſyſt.* 536. *Reich.* 3. 61. *Hudſ. angl.* 260. *Wither. arr. ed.* 3. 552. *Smith brit.* 634. *Lightf. ſcot.* 313. *Curt. lond.* 4. *t.* 41. 249. *Relh. cant. ed.* 2. *n.* 498. *Sibth. exon. n.* 531. *Dickſ. hort. ſicc.* 15. 7. *Fl. dan. t.* 587. *Pollich pal. n.* 568. *Neck. gallob.* 225. *Krock. ſilef. n.* 944. *Allion. pedem. n.* 116. *Sabb. hort. rom.* 3. *t.* 51.
St. arvenſis minima. *Riv. mon. t.* 27. *f.* 2.
Trixago. *Hall. helv. n.* 231.
Sideritis humilis lato obtuſo folio. *Ger. emac.* 699. *n.* 5. *Raii hiſt.* 565. *ſyn.* 242. *Petiv. brit. t.* 33. *f.* 12.
Sid. alſines trixaginis folio. *Baub. pin.* 233. *prodr.* 111.
Sid. Hederulæ folio. *Park. theat.* 587. *f.* 11.
Glecoma arvenſis. *Lin. ſpec. ed.* 1. 578. *fl. ſuec. n.* 519. *hort. cliff.* 307.
Marrubiaſtrum vulgare. *Tournef. inſt.* 190.
β. Lamium paludoſum belgicum. *Herm. lugdb.* 351. *t.* 353.
Whorls ſix-flowered, leaves cordate obtuſe crenate ſomewhat hairy, ſtem weak.
24. Stachys latifolia. *Broad-leaved Stachys.*
Ait. kew. 2. 303.
Whorls many-flowered ſubſpiked, upper lip biſid with the little ſegments acute, leaves broad cordate wrinkled hairy.

DESCRIPTIONS, *&c.*

1. Root perennial, creeping but not very extenſively. Stems about two feet, or from one to three feet high, upright, little branched, ſquare, hairy, leafy. Leaves cordate-ovate, acute, ſtrongly ſerrate, veiny, hirſute on both ſides, thin and pliable when handled, of a deep dull green; leaf-ſtalks hirſute, lower ones the length of the leaves, but ſhorter upwards and gradually diminiſhing to lanceolate entire bractes. Spike erect, terminating, leafy at the baſe, bracted above, conſiſting of many ſeparate whorls of ſix flowers each. Calyx browniſh, hiſpid, with five large ſharp teeth. Corolla of a deep blood-colour, prettily marbled about the orifice with a darker hue intermixed with white; tube cylindrical, with a ſmall pouch on the under ſide near the baſe, ſimilar to what may be obſerved in ſome ſpecies of Origanum. This herb has a pungent fetid ſmell when rubbed, approaching to that of Black Horehound. Being one of thoſe that powerfully affect the nerves, it might prove ſo contemptible ſtimulant, if judiciouſly uſed[f]. Toads are thought to be fond

[f] Smith brit. Engl. bot. Curtis.

of

of living under its ſhade. Sheep and goats eat it; horſes, cows and ſwine refuſe it. The herb will dye yellow [z].

Frequent in hedges and other ſhady places; flowering in july and auguſt.

2. Root perennial. Stems ſeveral, decumbent at the baſe and then aſcending, ſcarcely a foot high, very hairy. Leaves an inch and half long, remote, veined, hairy on both ſides, with large blunt teeth: petioles hirſute, the lower ones twice as long as the leaves: the floral leaves ſeſſile. Whorls ſubſpiked, approximating. Spike two inches long, hirſute. Bractes cordate, length of the whorls: lower ſerrate, upper quite entire; all terminated by a ſoft ſpinule, as are alſo the ſegments of the calyx. Corolla purple, with the upper lip pubeſcent [k].—According to Desfontaines, pale roſe-colour, the ſame ſize as in St. ſylvatica; with the upper lip quite entire, the lobes of the lower rounded and entire, the middle one double the ſize of the ſide ones: anthers purple. Seeds brown, ovate-three-ſided.

L'Heritier remarks, that it differs from *ſylvatica* in having rounder leaves, crenate not ſerrate, ſomewhat hoary:—from *hirta* in having the upper lip entire.

Found in the mountains Zouwans of Tunis by Desfontaines and Vahl; and in the fiſſures of mount Atlas by the former; flowering in may.

Introduced about 1777, by Meſſrs. Gordon and Græfer. It flowers here from may to july [l].

3. Root perennial, creeping to a great extent; the extremities at the cloſe of ſummer becoming tuberous. Stems two feet high, upright, hollow, four-cornered, the ſides flattiſh, the corners rough with hairs pointing downwards; the joints alſo are hairy and purple. Leaves acute, ſerrulate, ſilky-haired above, woolly beneath, netted-veined and ſomewhat wrinkled, widening at the baſe and embracing; lower on ſhort petioles: a pair of ſmall leaves under each whorl, the uppermoſt quite entire. Spike ſix or eight inches high, formed of many whorls, in each of which, according to Linneus, are ſix flowers; but Curtis ſays ten, eight placed circularly, and one on each ſide above them; (Haller and Pollich ſay, from ſix to twelve; Scopoli ſix, but that he has a variety with ten.) Calyx purpliſh, beſet with fine hairs terminating in ſmall globules, marked with ten raiſed lines, the teeth nearly equal and pointed. Corolla pale reddiſh purple: tube crowned internally with hairs; mouth marked with two prominent dots at the baſe of the upper lip; lower lip beautifully variegated with white and purple. Filaments appearing hairy when magnified, thickeſt in the middle, reddiſh and ſhining: anthers purpliſh black, but the pollen white [m].

Native of Europe in marſhes, on the banks of rivers, in watery places, by road ſides and in corn fields, eſpecially in moiſt ſituations; flowering in july and auguſt. It behoves the farmer to know it, ſays Mr. Curtis, as a very noxious plant in many corn fields, increaſing much by its roots, and alſo by ſeed. If Linneus's information be accurate, that ſwine are fond of the roots, thoſe animals might be turned into fields that abound with this plant, after the crop is off, to great advantage.

4. Root perennial. Colour of the plant duſky. Leaves greeniſh yellow, with the ſerratures dark-cartilaginous at the point: the upper floral ones ovate, with the margin flat and quite entire. Whorls involucred, as in *germanica* and *eretica*. Corollas dull purple, with the upper lip horizontal, not erect as in them: the lower lip alſo is not reflexed at the ſides [i].

Stem often not branched. Leaves ſoft, wrinkled, hirſute, ſerrate, petioled, cut next the petiole; the lower cordate, the upper elliptic-lanceolate. Whorls denſe, but much leſs ſo than in *germanica*, with fewer flowers. Awns of the calyx long. The herb has the ſmell of Baum [n].

Scopoli remarks, that the teeth of the leaves are terminated by a gland; that the whorls have fourteen flowers; and that the calyxes are nerved, rigid and peduncled.

Stem from two to three feet high, erect, ſhining, often livid at the baſe, villoſe, ſlightly grooved. Leaves oblong-cordate, earleted as it were at the baſe, the ſerratures withering and brown at the points; the uppermoſt often quite entire, on ſhort petioles or ſeſſile, not cut out at the baſe, lanceolate; the root-leaves on long firm petioles. Whorls very cloſe involucred with hairy coloured briſtles bent upwards. Calyx erect, hairy at the corners; the teeth awned, hirſute, the two lower longer than the other three. Upper lip of the corolla almoſt incumbent, bifid, ciliate with white hairs within and without: the two ſide ſegments of the lower lip reflexed, the middle ſegment crenulate, not reflexed at the ſides, ſinuate in the middle, all pale purple with one blood-red line running along them [o].

Native of Germany, Switzerland, Carniola, Italy and the South of France. Cultivated in 1759 by Mr. Miller. It flowers from june to auguſt [p].

5. Root perennial. The whole herb remarkably inveſted with a white ſoft ſilky pubeſcence, in which reſpect it is only inferior to the garden *Stachys lanata*, a ſpecies that differs from it beſides in having blunter leaves, with ſtems procumbent at the baſe and taking root at that part. The ſtems of our plant are erect. Leaves ovate, rather pointed, ſharply crenate, reticulated with veins, ſilky above, moſt woolly beneath, the radical ones on long petioles, the reſt ſmaller and nearly ſeſſile: they feel very thick and ſoft like woollen cloth. Whorls axillary, numerous, many-flowered, (forty or fifty *Pollich*; forty *Scopoli*:) the upper ones crowded. Bractes linear; both they and the calyxes very denſely villoſe. Corollas purple within, ſtreaked about the mouth with white; their outſide whitiſh and very downy, eſpecially the upper lip. Stamens hairy. Seeds roundiſh, black [r]. It varies with a white flower, and with narrower leaves [s].

Native of Denmark, Germany, Switzerland, France, England, Auſtria, Carniola, Piedmont, Siberia.—In corn fields and by way ſides, on the limeſtone ſoil of Oxfordſhire, it was long ago obſerved, eſpecially towards Witney, in 1632 by Mr. Buckner, an apothecary of London. Mr. Woodward found it between Bienheim and Ditchley: Dr. *Sibthorp, near* Witney, Stonesfield, and between Woodſtock and Enſtone: and Dr. Goodenough, at Brizenorton. It has alſo been found four miles ſouth of Grantham near the London road, oppoſite Eaſton: and lately by the Rev. Mr. Hemſted, on a hill two miles from Bedford. It flowers in july [t].

6. Native of Carolina. Introduced about 1762. It flowers in june and july. Perennial [u].

7. Root perennial. Stems ſomewhat woody at bottom, whence proceed herbaceous branches or ſtems a foot high or more, four-cornered, little branched, erect, covered with a very thick white wool; as are alſo the leaves on both ſides, the bractes and calyxes. Leaves ovate-oblong, ſharpiſh, three or four inches long, petioled, minutely crenulate, veined. Whorls cloſe, ſhorter than the floral leaves, approaching at top. Calyx ſcarcely angular, divided to one third of the length; ſegments ovate, acuminate, almoſt equal. The whole corolla ſo reſembles that of *St. germanica* as ſcarcely to be diſtinguiſhed from it, except that in the *germanica* the back of the upper lip is bearded with hairs ſtretched beyond it, whereas in this it is only a little hirſute: the colour alſo is ſomewhat deeper. It has not much ſmell. The ſeeds were ſent from Aſtracan [x]. It is a native of Siberia; and was introduced in 1782, by William Pitcairn, M.D. It flowers moſt part of the ſummer [y].

8. This reſembles the *germanica*, but the plant is lurid, and rough-haired without any white wool. The floral leaves are lanceolate, and ſerrate-waved, but not reflexed or arched as in *germanica*.

Native of the iſland of Crete or Candia [z]. Cul-

[z] Withering. [k] Vahl. [l] Hort. kew. [m] Curtis, Smith, Withering. [n] Haller. [o] Hort. kew. [p] Engl. bot. [q] Linn. from Boerh. [r] Smith and Wither. [s] Hort. kew. [t] Jacquin. [u] Hort. kew. [x] Linn. ſpec.

tivated in 1723, in the botanic garden at Chelſea. It flowers from june to auguſt, and is perennial [f].

9. Native of Hiſpaniola [a].

10. This is a little ſhrub, a foot high, very much branched, wholly ſmooth: branches oppoſite, dichotomous at top, four-cornered; the laſt branchlets end in a ſpine. Leaves quite entire, ſomewhat veined; the lower lanceolate, attenuated into the petiole, ſcarcely an inch long: thoſe on the branchlets linear, ſeſſile, length of the interſtices. Peduncles on the upper branches, ſolitary, one-flowered, ſhorter than the leaf, with two linear leaves at top, almoſt the length of the calyx. Teeth of the calyx lanceolate, acute. Corolla villoſe on the outſide [a].

Moriſon ſays that it is annual, a long ſpan in height, branched from the very bottom. Leaves crenate and moderately hairy. Flowers white. The whole plant clammy, with a ſtrong bituminous ſcent. Zanoni obſerved it in Candia.—Cultivated by Mr. Miller in 1759.

11. Stem very much branched. Branches four-cornered, brachiate: branchlets rigid, ending in a ſpine. The whole plant hoary with white hairs preſſed cloſe. The lower leaves attenuated at the baſe, linear-lanceolate, an inch long, quite entire: upper ones linear, ſeſſile. Flowers on the extreme branchlets, axillary, ſolitary or in threes, ſmall. Calyxes pungent [b].

Native of Candia, in the weſtern part of the iſland, in very dry places, among Thyme: it is called by the countrymen there γαιδαρο θυμο or Aſſes Thyme [c].—Cluſius raiſed it from ſeed in 1597. Mr. Miller cultivated in 1768.

12. Stem very hairy. Leaves wrinkled, crenate, very cloſely hairy, ſoft, hoary, the upper ones ſeſſile. Whorls remote, many-flowered. Upper bractes ovate, quite entire. Calyxes very hirſute, aſh-coloured, pungent. Corolla yellow, with the upper lip very hirſute on the outſide [d].

Native of the Levant. Cultivated by Mr. Miller in 1768.

13. Stems ſhrubby, round, white-tomentoſe. Leaves alſo white-tomentoſe, ſoft, not very acute. Calyx ten-cornered. Upper lip of the corolla concave, entire, purple, with a deeper purple line along the edge: lower lip alſo purple, ſpotted with white at the throat: middle lobe larger, concave.

Native of Paleſtine [e]. In the appendix to the Species Plantarum Linneus adds, that the ſpikes are compoſed of ſix-flowered whorls, with ovate, tomentoſe, veined bractes; and acute calyxes. The ſame ſynonym from Volkamer is given both under this ſpecies and *Dracocephalum canescens*.

14. Root perennial. Leaves cordate-oblong, veined. Stem ſuffruticoſe, a ſpan high, erect, pubeſcent. Spike compoſed of interrupted whorls; with bractes the length of the flowers. Whorls ſix-flowered. Calyxes woolly, ſharp, ſcarcely awned. Corollas yellow [f].

Native of the South of Europe, on the coaſt. Cultivated here in 1714. It flowers in july [a].

Reſpecting the colour of the corolla, Dillenius remarks, that the upper lip is paler than the lower, which towards the throat is variegated with ſome ſmall purple ſtreaks and dots; and that the upper lip has an oblong purple ſpot on each ſide near the ſtamens. He will by no means allow *Sideritis heraclea* of Columna to be this plant. Linneus ſays there is a ſimilitude, but the flowers in Columna's plant being purple, it is doubtful whether they are the ſame.

15. Root perennial. The whole plant hairy. Stems annual with oppoſite branches. Leaves oblong-cordate, very bluntly ſerrate, wrinkled, ſometimes ſhorter than the petioles. Flowers on ſhort peduncles and ſolitary, in the axils of the leaves, on the upper part of the branchlets, in form of a looſe ſpike. Calyx cloven half way down into ſetaceous-acuminate ſegments. Corolla incurved, three times as long as the calyx; the upper lip villoſe on the outſide, erect, arched, obovate, entire, the length of the lateral ſegments of the lower lip; the middle ſegment of which is very wide, flat, twice as long as the two ſide ones, and crenate in front [b].

Stem a palm high, erect or diffuſed. Habit of *Lamium purpureum*, ſubhiſpid-hairy. Leaves cordate, deeply and bluntly ſerrate, wrinkled, ſhining, ſubvilloſe, ſhorter than the petioles. Spikes terminating, interrupted, made up of whorls, which have two flowers oppoſite or one on each ſide. Calyx almoſt equal, ſlightly awned. Tube of the corolla curved; upper lip erect, arched, ſhort, villoſe; lower very large and ſtretched out, middle ſegment very wide, flat and crenate, the ſide ones revolute. Stamens ſcarcely longer than the tube, with two-parted anthers [i].

Native of the Cape of Good Hope. Introduced in 1770, by Monſ. Richard. It flowers from april to july [k].

16. Root perennial. Stems proſtrate, four-cornered, hollow, brittle with hairs very thinly ſcattered over them. Leaves petioled, cordate, hairy on both ſides, veined: lower bluntly ſerrate, obtuſe, on longer petioles; upper acute and acutely ſerrate. Flowers in whorls, three on each ſide, without an involucre. Calyx awned. Tube of the corolla ſhorter than the calyx, incurved: upper lip arched, cloven half way, the clefts divaricating and obtuſe; lower very blunt, flat, indiſtinctly three-lobed, with a ſegment ſo ſmall as to be ſcarcely apparent on each ſide of the baſe. At the edge of the baſe of the upper lip, and on the diſk of the baſe in the lower are purple dots [l].

According to Desfontaines it is annual. Stems hirſute and branched. Bractes ovate, longer than the calyx, leafy, mucronate at the tip; the lower crenate, the upper quite entire. Whorls from four to ſix-flowered. Calyx villoſe, bell-ſhaped, with long, awl-ſhaped, almoſt equal teeth, mucronate-ſpiny at the tip. Tube of the corolla ſhorter than the calyx, bowed: upper lip erect, obtuſe, cloven half way: lower three-lobed.

Native of Spain, Italy, the Levant, and Barbary about Tunis.—It was cultivated in the Apothecary's garden at Chelſea in 1725. It flowers from june to auguſt [m].

17. Root perennial, branched. Stems ſeveral, two feet high, aſcending at the baſe and then upright, ſharply four-cornered, green, very hirſute with white hairs. Leaves petioled, cordate, obtuſe, crenate, veined, inodorous, ſoft on both ſides with ſcarcely viſible hairs, on a hirſute petiole: upper ones more oblong and ſharper: uppermoſt lanceolate and very ſharp. Whorls ſix-flowered; flowers ſeſſile, with little and a not unpleaſant ſmell. Calyx ſomewhat villoſe, green; ſegments lanceolate. Corolla roſe-purple: upper lip quite entire; diſk of the lower lip above the throat pale dotted with purple. The fruiting calyx increaſes, and becomes bell-ſhaped with the border ſpreading.

Native of the Canary iſlands, where it was firſt found by Maſſon [n].

18. Stem erect, a ſpan high, ſimple, hirſute. Lower leaves connate at the baſe, upper diſtinct, ſeſſile; all blunt, ſmoothiſh above, ſoftly hairy beneath: floral leaves cordate-ovate, reflexed, ſhorter than the whorls, ſmooth on the inner ſide. Spike the length of the ſtem, compoſed of remote whorls. Calyxes very hirſute: ſegments awl-ſhaped, ſpreading very much, three times as long as the calyx. Corolla purple. It is well diſtinguiſhed by the very long ſpreading ſegments of the calyx.—Native of the Levant [o].

19. Root perennial. Stems ſtiffiſh, with hairs thinly ſcattered over them. Leaves ſubpetioled, cordate, elliptic or often lanceolate, deeply crenate, rugged with thinly ſcattered hairs on both ſides, ſomewhat wrinkled. Spikes terminating, growing out into diſtant whorls, each having about ten flowers. Calyxes ſubſpiny. Flowers yellow [p].

[f] Hort. kew. [a] Swartz. [a] Vahl. [b] Idem. [c] Cluſius. [d] Vahl. [e] Linn. ſyſt. [f] Linn. mant. [g] Hort. kew.

[h] Jacquin. [i] Royen in Linn. mant. [k] Hort. kew. [l] Linn. ſpec. [m] Hort. kew. [n] Jacquin, collect. [o] Vahl from Vaillant's herbarium. [p] Linn. mant.

Native

Native of the South of Europe. Cultivated in 1758 by Mr. Miller. It flowers from june to auguſt [s].

20. This has the air of the preceding. Root perennial. Stems a foot high, rigid, hairy, branched. Leaves hairy, ſomewhat wrinkled, ſhorter than the internodes; lower petioled, middle and upper ſeſſile. Whorls diſtinct, the lower ones more remote. Flowers ſubſeſſile. Bractes ſeſſile, lanceolate-mucronate or cordate-ovate acuminate, pungent at the end, length of the calyxes, quite entire. Calyx very hirſute, with the ſegments lanceolate, almoſt equal, ſpreading, rigid, ſpiny at the end. Corolla purple, villoſe, the ſame ſize as in *St. recta*: tube the length of the calyx, hairy: upper lip erect, emarginate; lower three-lobed, hairy on the outſide, the middle lobe much the largeſt.—It differs from the preceding, to which it is allied, in having the calyxes very hirſute, ſpiny, and twice as big; the whorls ſix-flowered; the corollas purple, with the upper lip emarginate. The leaves in *recta* are acute outwards, not dilated, the awns of the calyx ſoft, the whorls ten-flowered, and the corollas yellow [t].

21. Root annual. Lower leaves ovate, wrinkled, very blunt; middle ones oblong, petioled; thoſe above ſeſſile, lanceolate, three-nerved. Corollas yellow: upper lip recurved, emarginate, with the lateral edges ferruginous: calyxes mucronate but not thorny. The ſtem in mountainous ſituations is upright, in meadows procumbent. The ſtamens reflexed to the ſides indicate the genus [u]. Crantz's deſcription of *Stachys Betonica* belongs to this ſpecies [v].

Native of Germany, Auſtria, Carniola, Switzerland, Piedmont, and France. Cultivated in England in 1713. It flowers in july and auguſt [w].

22. Native of the Cape of Good Hope, where it was found by *Maſſon*; and introduced in 1774: it flowers in july. Shrubby [x].

23. Root ſmall, annual. Stem from a ſpan to a foot in height, among corn upright, but alone weak or procumbent, branched, ſomewhat hairy: branches brachiate. Leaves three-nerved at the baſe, widely crenate, ſomewhat hairy on both ſides, petioled except the uppermoſt. Flowers all in whorls. Calyx hairy, with the teeth ciliate. Corolla ſmall, ſcarcely exceeding the calyx, pale purple or fleſh-coloured: upper lip ſhort, blunt and entire. Filaments white below and purple above: anthers blackiſh; pollen yellow. Seeds greeniſh dotted with black [y].

Authors ſeem to have been at a loſs in what genus to place this humble plant: it does not appear to poſſeſs the ſtriking characters of any, or to afford ſufficient diſtinction for making it a ſeparate genus. As a ſpecies, the ſmallneſs of its flowers, the form of its leaves, and the place of growth, obviouſly diſtinguiſh it from any other Engliſh plant [z].

Native of Europe, in corn fields, in a gravelly or calcareous ſoil: flowering from june to auguſt.

24. Introduced about 1775 by William Pitcairn, M. D. It flowers in june and july. Shrubby.—Native place of growth unknown [a].]

PROPAGATION AND CULTURE.

Moſt of the ſorts are hardy, and may be propagated by ſeeds ſown in march upon a bed of light freſh earth: when the plants come up, ſet them out into beds ſix inches aſunder, watering them till they have taken root, and keeping them clear from weeds. At michaelmas tranſplant them where they are to remain, in an open ſituation, and upon a dry light ſoil, not over rich. The ſummer following theſe plants will flower, and in auguſt their ſeeds will ripen: many of them die ſoon after. Some continue ſeveral years, and may be increaſed by parting the roots.

St. ſylvatica, paluſtris and germanica are wild creeping plants, and ſpread very much where they have liberty.

Annua and arvenſis are annual, the reſt are perennial.

[s] Hort. kew. [t] Desfontaines and Vahl.
[u] Linn. ſpec. and mant. [v] Jacquin. [w] Hort. kew.
[x] Idem. [y] Curtis and Smith. [z] Curtis.
[a] Hort. kew.

Glutinoſa, æthiopica and rugoſa require to be ſheltered in winter in a glaſs caſe or dry ſtove.

[STACHYS. See *Ballota*, *Phlomis*, *Sideritis*.
Stachys italica. See *Sideritis ſyriaca* β.
STÆCHAS. See *Stœchas*.]

STÆHELINA. *(So named from John Henry Stæhelin, and his ſon Benedict, Swiſs phyſicians.)*
Lin. gen. n. 938. *Reich. n.* 1018. *Schreb. n.* 1274. *Juſſ.* 175.
Claſſ. 19. 1. Syngeneſia Polygamia Æqualis.
Nat order of *Compoſitæ Diſcoideæ*. *Cinarocephalæ*, Juſſ.

GENERIC CHARACTER.

CAL. *Common* oblong, cylindric, imbricate: *ſcales* lanceolate, erect, terminated by a ſhorter coloured *ſcalelet*.
COR. *Compound* uniform, tubular. *Corollets* hermaphrodite, equal.
Proper one-petalled, funnel-form: *border* five-cleft, equal, acute, bell-ſhaped.
STAM. *Filaments* to each five, capillary. *Anthers* connate, tailed.
PIST. *Germ* very ſhort. *Style* filiform. *Stigma* double, oblong, obtuſe, erect.
PER. none. *Calyx* unchanged.
SEEDS ſolitary, oblong, very ſhort, four-cornered. *Down* branched or cloven, longer than the calyx.
REC. chaffy, flat. *Chaffs* very ſhort, permanent.

ESSENTIAL CHARACTER.

Anthers tailed. *Down* branched. *Recept.* with very ſhort chaffs.

SPECIES.

1. Stæhelina gnaphaloides.
Lin. ſpec. 1176. *Syſt.* 738. *Reich.* 3. 722. *Berg. cap.* 232. *Pluk. phyt. t.* 302. *f.* 3. (Jacea.)
Leaves filiform tomentoſe, ſcales of the calyx lanceolate membranaceous at the tip and reflexed.
2. Stæhelina dubia.
Lin. ſpec. 1176. *Syſt.* 738. *Reich.* 3. 722. *Gouan monſp.* 430. *Ger. prov.* 190. *t.* 6. *Allion. pedem. n.* 633. *Barr. ic.* 406. (Chamæ-Chryſocome.)
Stœchas odorata purpurea. *Lob. illuſtr. Magn. monſp.* 247. 297.
Stœchadi citrinæ affinis, capitulis longioribus. *Bauh. biſt.* 3. 156.
Elichryſum ſylveſtre flore oblongo. *Bauh. pin.* 265.
Jacea capitata, roſmarini folio. *Tournef. inſt.* 444.
Leaves linear toothletted, ſcales of the calyx lanceolate, ſeed-down twice as long as the calyxes.
[3. Stæhelina arboreſcens.
Lin. ſyſt. 738. *Reich.* 3. 723. *mant.* 111. *Schreb. dec.* 1. *t.* 1.
Centaurea. *Ger. prov.* 187. *n.* 10.
Rhaponticoides fruteſcens, ſtyracis folio. *Vaill. act.* 179.
Jacea arboreſcens ſtyracis folio. *Tournef. inſt.* 445.
Cyanus arb. altera ſtyr. folio. *Alp. exot.* 33. *t.* 32.
Frutex rotundo argenteo folio, cyani flore. *Bauh. pin.* 452.
Leaves oval, ſtem arboreſcent.
4. Stæhelina fruticoſa.
Lin. ſyſt. 738. *Reich.* 3. 723. *Schreb. in nov. act. nat. cur.* 4. 142.
Centaurea fruticoſa. *Lin. ſpec.* 1286.
Cyanus repens. *Lob. ic.* 548.—anguſtifolius. *Bauh. pin.* 274. *Raii hiſt.* 322.
C. minimus repens anguſtif. *Park. theat.* 483. *f.* 6.
Jacea fruteſcens, plantaginis folio, flore albo. *Tournef. cor.* 32.
Rhaponticoides fruteſcens, oleæ folio. *Vaill. act.* 179.
Leaves lanceolate obtuſe, ſtem ſhrubby.
5. Stæhelina ſpinoſa.
Vahl ſymb. 1. 69.
Chryſocoma mucronata. *Forſk. deſcr.* 147.
Conyza ægyptiaca juniperi folio tricuſpide ſæpius auriculato, floribus aureis. *Vaill. act. par.* 1719. 397. ed. in 8vo.
Jacea ægypt. ſpinoſa. *Petiv. herb.*
Leaves awl-ſhaped ſpinoſcent, with a ſpinule at the baſe on each ſide, ſtem ſhrubby.
6. Stæhelina haſtata.
Vahl ſymb. 1. 70.

Chryſocoma ſpathulata. *Forſk. deſcr.* 147.
Leaves baſtate hoary, ſtem ſcrubby.

7. Stæhelina ilicifolia.
Lin. ſyſt. 739. *ſuppl.* 358. *Smith ic. ined.* 3. *t.* 71.
Leaves oppoſite on very ſhort petioles cordate toothed ſhining above tomentoſe beneath, ſtem arboreſcent.

8. Stæhelina corymboſa.
Lin. ſyſt. 739. *ſuppl.* 359.
Leaves wedge-ſhaped præmorſe, flowers corymbed.

9. Stæhelina Chamæpeuce.
Lin. ſyſt. 739. *Reich.* 3. 723.
Serratula Chamæpeuce. *Lin. ſpec.* 1147.
Centaurea. *Lin. hort. cliff.* 421.
Jacea fruticans, pini folio. *Baub. pin.* 271. *Pluk. phyt. t.* 94. *f.* 3.
Chamæpeuce. *Alp. exot.* 77. *t.* 76.
Stœbe capitata, chamæpinus fruticoſa cretica. *Pon. ital.* 75.
S. cretica frutieans, pineæ anguſtis foliis. *Mor. hiſt.* 3. 133. *ſ.* 7. *t.* 26. *f.* 8.
Leaves linear cluſtered very long revolute.

10. Stæhelina imbricata.
Lin. ſyſt. 739. *Reich.* 3. 724. *mant.* 281. *Berg. cap.* 233.
Leaves awl ſhaped erect tomentoſe.]

DESCRIPTION, *&c.*

1. This riſes with a ſhrubby ſtalk about three feet high, and divides into ſeveral branches. Leaves long, taper, woolly, thinly ſet upon the branches. Flowers terminating in ſingle heads, which are pretty large, and have ſcaly calyxes ending in recurved ſpines. The florets are yellow. [Style biſid. Calyx ſcarioſe. Seed-down feathered, connate at the baſe. Anthers tailed[b].

Native of the Cape of Good Hope, whence it was long ſince introduced into the Dutch gardens. Mr. Miller cultivated it in 1759.]

2. This is a biennial plant, with the ſtalks rarely above a foot high. Leaves narrow and very woolly, oppoſite or alternate, having much the appearance of one ſort of *Elichryſum*. Flowers terminating. Calyxes long, with the ſcales ending in acute recurved points: florets a little longer than the calyx. It flowers in july.

[Linneus remarks, that it is a ſingular plant, intermediate as it were between the Serratulas, Gnaphaliums, and Stæhelinas: hence he named it *dubia*.—Seed-down hairy, connate at the baſe. Stem and leaves beneath tomentoſe.

Native of Spain, the South of France, and Italy. Mr. Miller cultivated it in 1759.

3. Calyx imbricate with awnleſs ſcales. Chaffs many-parted. Seed-down branched and feathered. Anthers as in *Inula*, toothed at the baſe. Florets naked, neuter[c].—Leaves petioled, oval, quite entire, ſilky and ſilvery beneath[d].

Root black, with long black fibres. Stem ſimple, erect, ſtriated, ſmooth, almoſt naked. Root-leaves ovate, ſmooth: ſtem-leaves narrower, lanceolate, ſubſerrate, fewer, and only towards the lower part. Flower terminating: ſcales of the calyx lanceolate, naked, blackiſh at the tip; the upper ones pellucid and yellowiſh. Corollas purple[e].

Native of the South of France, and the iſland of Candia.

In alpine ſituations it varies with a ſtem two feet high and more.

4. Native of the Levant.

5. Stem ſhrubby, rigid, very much branched. Branches alternate, round, ſtriated, ſmooth. Leaves alternate, ſeſſile, rigid, pungent, remote, ſpreading very much, ſomewhat ſtriated, having a ſpinule on each ſide at the baſe. Flower ſolitary at the end of the branches, with a pair of ſmall leaflets at the baſe. Calyx before flowering cylindric, but afterwards turbinate, imbricate, ſmooth: ſcales linear-oblong, ending in a dagger-point. Seeds hairy, three-ſided: down length of the calyx, gray, appearing to be very finely

[b] Linn. ſyſt. [c] Schreber. [d] Linn. mant. [e] Ger. prov.

toothed when examined by a magnifier. Receptacle with very ſhort, briſtle-ſhaped chaffs.—Native of Egypt.

6. This is a low ſtiff and very branching ſhrub. Branches round, hoary, blunt. Leaves oblong, ſeſſile, widened on each ſide towards the middle by a ſmall horizontal lobe, very blunt, but acute at the baſe, hoary eſpecially beneath, and ſometimes there is a ſmall toothlet in the axil of the lobules. Flowers towards the end of the branchlets, ſolitary, ſeſſile. Calyx of the ſame form as in *ſpinoſa*, with linear keeled ſcales. Seeds villoſe: down ferruginous, ſimple, very finely toothletted beyond the calyx, and ſomewhat rigid. Receptacle ſcarcely chaffy.—Native of Egypt[f].

7. This is a tree or a ſhrub, with ever-green ſhining leaves, and round, pubeſcent, cloſely leaved branchlets, flowering at the top. Leaves ſpreading, an inch long, cordate-ovate, obtuſe, a little rolled back at the edge, groſsly toothed, netted-veined, very ſmooth and varniſhed as it were above, denſely woolly and white beneath. Petioles thick, pubeſcent, curved in. Panicle terminating, ſubcymed, denſely woolly. Peduncles round. Bractes lanceolate. Calyx hemiſpherical, ſubcylindrical, imbricate or rather calycled: ſcales oblong, very denſely woolly on the outſide, membranaceous and naked above and along the edge, lacerate-ciliate at the tip; after flowering cloſely bent in, permanent. Florets numerous, yellow, funnel-ſhaped, five-cornered, ſmooth: border five-cleft, obtuſe, erect. Filaments capillary, white: anthers included, obtuſe, converging, cloven at the baſe and inſerted laterally into the filament, yellow. Germ oblong, quadrangular, ſmooth: ſtyle a little longer than the ſtamens, cloven at the top: ſtigmas divaricating, obtuſe. Receptacle flattiſh, denſely chaffy: chaffs ſhort, rigid, commonly biſid or triſid. Seeds form of the germ: down ſhorter than the corolla, feathered.

Native of New Granada, where it was found by Mutis[g].

8. This is a ſhrub, with proliferous, hoary, erect branches. Leaves alternate, ſubpetioled, diſtant, wedge-ſhaped or lanceolate, end-bitten and blunt, retuſe or three-toothed, ſomewhat white-tomentoſe beneath. Corymb compound, terminating. Calyx hoary, with very ſhort ſcales. Seed-down white, longer than the calyx.—Native of the Cape of Good Hope[h].

9. Native of the iſland of Crete or Candia.

10. Native of the Cape of Good Hope.]

PROPAGATION AND CULTURE.

1. Plant cuttings in any of the ſummer months, covering them cloſely with a bell or hand-glaſs. When they have made good roots, take them up carefully, and plant them in pots, filled with freſh light earth, not over rich, and place them in the ſhade until they have taken new root; then remove them to a ſheltered ſituation, and in autumn place them in the houſe. They do not require any artificial heat in winter, but ſhould have a dry air; their tender ſhoots being very ſubject to rot with damp.—This ſort does not always ripen its ſeeds in England. Several of the other ſpecies may have the ſame treatment, whenever they ſhall be introduced.

2. Sow the ſeeds upon a warm border of light ground in the ſpring, where the plants are deſigned to ſtand; for unleſs they are careſully tranſplanted when young, they do not bear removal well. The ſecond year they will flower, and if the ſeaſon prove favourable, the ſeeds will ripen, and the plants will decay ſoon after. This ſort will live through the winter in the open air, on a dry poor ſoil, and in a ſheltered ſituation; but in rich ground it becomes luxuriant in ſummer, and is therefore more liable to ſuffer from cold in winter.

[STÆHELINA. See *Athanaſia*.
STÆHELINIA. See *Bartſia*.
STAFF-TREE. See *Celaſtrus*.
STAG'S-HORN TREE. See *Rhus*.]

[f] Vahl. [g] Smith. [h] Linn. ſuppl.

STAPELIA. (*So named by Linnæus, in memory of Bodeus a Stapel, a phyſician of Amſterdam, commentator on Theophraſtus*, 1644.)

Lin. gen. n. 307. *Reich. n.* 334. *Schreb. n.* 432. *Juſſ.* 146. *Jacqu. miſc.* 1. *t.* 3, 4.

Claſſ. 5. 2. Pentandria Digynia.

Nat. order of *Contortæ*. *Apocineæ*, Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* one-leafed, five-cleft, acute, ſmall, permanent.

COR. one-petalled, large, flat, thick, five-cleft beyond the middle: *ſegments* wide, flat, acuminate.

Nectary, five leaflets, ſpreading, linear, grooved, emarginate with a dagger point, oppoſite to the ſegments of the corolla.

Leaflets five others, faſtened alternately with theſe a little higher to the tube of the filaments, and running along it, vertical, bifid: *interior ſegment* erect, with the ſummit bent outwards; *outer ſegment* ſtraight, compreſſed.

STAM. *Filaments* five, united into a ſhort tube. Each *Anther* faſtened internally to the baſe of each vertical leaflet of the nectary, and wider than it, incumbent on the ſtigma, ſhort, two-lobed, two-celled, produced below on both ſides into an *earlet*, contiguous at the margin to each of the neighbouring anthers as far as the tip, and aſcending at the tip. Pollen united into ten corpuſcles, creſcent-ſhaped, flattiſh, aſcending obliquely into the cells of the anther, each on a very ſhort pedicel (with a tranſverſe baſe, incumbent on the upper margin of the earlet,) faſtened by pairs to five ſmall twin coloured tubercles, placed on the apex of the earlets, and adhering to the angles of the ſtigma.

PIST. *Germs* two, ovate, flat inwards. *Styles* none. *Stigma* common to both germs, large, placed on the tube of ſtamens, acutely five-cornered, flat above, obliquely truncate-excavated at the ſides for the reception of the anthers.

PER. *Follicles* two, long, awl-ſhaped, one-celled, one-valved.

SEEDS numerous, imbricate, compreſſed, crowned with a down. Receptacle free.

ESSENTIAL CHARACTER.

Contorted. *Nect.* a double little ſtar covering the genitals.

SPECIES.

1. *Corolla five-cleft, ſegments hairy at the edge.*

[1. Stapelia ciliata. *Ciliate Stapelia.*
Lin. ſpec. ed. Willd. 1. 1277. *Maſſon monogr.* 9. *n.* 1. *t.* 1. *Thunb. prodr.* 46.
Stem four-cornered branched decumbent rooting flowering at top, peduncles ſhorter than the corolla, which is papilloſe at bottom.

2. Stapelia revoluta. *Revolute-flowered Stapelia.*
Lin. ſpec. ed. Willd. 1. 1277. *Maſſon monogr.* 12. *n.* 10. *t.* 10.
Stem four-cornered branched at the baſe erect flowering at top, peduncles ſhorter than the corolla, which is ſmooth, with the ſegments ovate hairy at the edge and revolute.]

3. Stapelia hirſuta. *Hairy Stapelia.*
Lin. ſpec. 316. *Syſt.* 260. *Reich.* 1. 614. *Willd.* 1. 1278. *hort. cliff.* 77. *Jacqu. miſc.* 1. 28. *t.* 3. *Thunb. prodr.* 46. *Ait. kew.* 1. 309. *Desfont. atlant.* 1. 213. *Lamarck illuſtr. t.* 178. *f.* 2. *Mill. fig. t.* 258. *Shaw nat. miſc. t.* 54. *Roef. inſ. muſc. t.* 9. *Kniph. cent.* 2. *n.* 89.
Aſclepias africana aizoides, flore pulchre fimbriato. *Comm. rar. t.* 19. *Bradl. ſucc.* 3. 5. *t.* 23.
Branches aſcending four-cornered flowering at the baſe, peduncles round length of the corolla, which is villoſe at bottom with the ſegments ovate ſharpiſh and villoſe at the edge.

[4. Stapelia ſororia.
Lin. ſpec. ed. Willd. 1. 1278. *Maſſon monogr.* 23. *n.* 39. *t.* 39.
Branches divaricating four-cornered flowering at the baſe, peduncles round longer than the corolla, which is very villoſe at bottom and wrinkled tranſverſely with the ſegments oblong acute villoſe at the edge.

5. Stapelia grandiflora. *Great-flowered Stapelia.*
Lin. ſpec. ed. Willd. 1. 1278. *Maſſon monogr.* 13. *n.* 11. *t.* 11.
Branches erect four-cornered club-ſhaped flowering at the baſe, peduncles thickened at the baſe ſhorter than the corolla, which is villoſe with the ſegments lanceolate-acuminate ciliate at the edge.

6. Stapelia ambigua.
Lin. ſpec. ed. Willd. 1. 1279. *Maſſon monogr.* 13. *n.* 12. *t.* 12.
Branches erect four-cornered club-ſhaped flowering at the baſe, peduncles many-flowered, corollas bifid with the ſegments ovate-lanceolate acute villoſe at the edge.

7. Stapelia pulvinata. *Cuſhioned Stapelia.*
Lin. ſpec. ed. Willd. 1. 1279. *Maſſon monogr.* 13. *n.* 13. *t.* 13.
Stem four-cornered decumbent, branches aſcending flower-bearing, bottom of the corolla raiſed and villoſe, ſegments roundiſh wrinkled acuminate villoſe at the edge.

8. Stapelia Aſterias. *Starry Stapelia.*
Lin. ſpec. ed. Willd. 1. 1280. *Maſſon monogr.* 14. *n.* 14. *t.* 14.
Branches erect four-cornered attenuated flowering at the baſe, peduncles length of the corolla, the ſegments of which are ovate-acuminate wrinkled revolute and villoſe at the edge.

9. Stapelia gemmiflora. *Bud-flowering Stapelia.*
Lin. ſpec. ed. Willd. 1. 1280. *Maſſon monogr.* 14. *n.* 15. *t.* 15.
Branches erect four-cornered flowering at bottom, peduncles length of the corolla, which is rugged with the ſegments ovate acute ciliate at the edge five-nerved above.

10. Stapelia divaricata. *Straddling Stapelia.*
Lin. ſpec. ed. Willd. 1. 1280. *Maſſon monogr.* 17. *n.* 22. *t.* 22.
Branches four-cornered attenuated divaricate-ſpreading flowering in the middle, peduncles longer than the corolla, which is ſmooth with the ſegments lanceolate acuminate rolled back and ciliate at the edge.

11. Stapelia rufa.
Lin. ſpec. ed. Willd. 1. 1281. *Maſſon monogr.* 16. *n.* 20. *t.* 20.
Branches four-cornered erect flowering at the baſe, peduncles ſhorter than the corolla, which is wrinkled and ſtarred at the bottom, with the ſegments lanceolate acuminate ciliate at the edge.

12. Stapelia acuminata.
Lin. ſpec. ed. Willd. 1. 1281. *Maſſon monogr.* 15. *n.* 17. *t.* 17.
Branches four-cornered aſcending flowering in the middle, peduncles ſhorter than the corolla, which is wrinkled, and the ſegments are ovate cuſp-acuminate ciliate at the edge.

13. Stapelia reclinata.
Lin. ſpec. ed. Willd. 1. 1282. *Maſſon monogr.* 19. *n.* 28. *t.* 28.
Branches ſpreading four-cornered flowering above the baſe, peduncles longer than the corolla, which has a raiſed bottom with lanceolate ſegments ciliate at the edge.

14. Stapelia elegans.
Lin. ſpec. ed. Willd. 1. 1282. *Maſſon monogr.* 19. *n.* 27. *t.* 27.
Branches diffuſed oblong roundiſh four-cornered flowering in the middle, peduncles longer than the corolla, which is bifid with a pentagon bottom and lanceolate ſegments ciliate at the edge.

15. Stapelia cæſpitoſa. *Tufted Stapelia.*
Lin. ſpec. ed. Willd. 1. 1282. *Maſſon monogr.* 20. *n.* 29. *t.* 29.
Branches procumbent four-cornered flowering above the baſe, peduncles length of the corolla, the ſegments of which are lanceolate acute revolute and ciliate at the edge.

16. Stapelia arida. *Dry Stapelia.*
Lin. ſpec. ed. Willd. 1. 1283. *Maſſon monogr.* 21. *n.* 33. *t.* 33.
Branches four-cornered erect flowering at the top, peduncles longer than the corolla, which has a circular bottom and oblong acute ſegments ciliate at the top of the margin.

17. Stapelia parviflora. *Small-flowered Stapelia.*
Lin. ſpec. ed. Willd. 1. 1283. *Maſſon monogr.* 22. *n.* 35. *t.* 35.
Branches four-cornered ſpreading flowering in the middle

on the outside of the teeth, peduncles longer than the corolla, the segments of which are lanceolate blantish and ciliate at the edge.

18. Stapelia subulata. *Awl-shaped Stapelia.*
Lin. spec. ed. Willd. 1. 1283. *Forsk. cat. arab.* 108. *n.* 193. *t.* 7.
Branches four-cornered attenuated nodding flowering below the top, corollas nodding, segments oblong acuminate-cusped with the hairs pointing one-way.

19. Stapelia concinna. *Neat Stapelia.*
Lin. spec. ed. Willd. 1. 1284. *Masson monogr.* 15. *n.* 18. *t.* 18.
Stem four-cornered erect branched at top, branches spreading simple flowering at the base, peduncles length of the corolla, corollas bifpid with the segments ovate acute ciliate.

20. Stapelia glandulifera. *Glandular Stapelia.*
Lin. spec. ed. Willd. 1. 1284. *Masson monogr.* 16. *n.* 19. *t.* 19.
Branches spreading four-cornered flowering at the base, peduncles longer than the corolla, which is covered with hairs glandular at the tip, with the segments ovate acute.

2. *Corollas five-cleft, segments smooth at the edge.*

21. Stapelia pedunculata. *Long-peduncled Stapelia.*
Lin. spec. ed. Willd. 1. 1284. *Masson monogr.* 17. *n.* 21. *t.* 21.
Branches four-cornered two or three-toothed at the tip flowering in the middle, peduncles twice as long as the branches, segments of the corolla lanceolate acuminate, at the base surrounded at the edge by pedicelled glands.

22. Stapelia aperta. *Open-flowered Stapelia.*
Lin. spec. ed. Willd. 1. 1285. *Masson monogr.* 23. *n.* 37. *t.* 37.
Branches four-cornered three or two-toothed at the tip flowering at the base, peduncles twice as long as the branches, corollas wrinkled, segments ovate obtuse smooth at the edge.

23. Stapelia Gordoni. *Gordon's Stapelia.*
Lin. spec. ed. Willd. 1. 1285. *Masson monogr.* 24. *n.* 40. *t.* 40.
Branches flowering at the top round tubercles, tubercles spiny, peduncles shorter than the corolla, which is five-toothed flat and wheel-shaped.

24. Stapelia pilifera. *Hairy-tubercled Stapelia.*
Lin. syst. 260. *Willd.* 1. 1286. *suppl.* 171. *Masson monogr.* 17. *n.* 23. *t.* 23. *Thunb. prodr.* 46.
Branches flowering at the top round tubercles, tubercles briftled, flowers feffile, segments ovate cusp-acuminate smooth at the edge.

25. Stapelia caudata. *Tailed Stapelia.*
Lin. spec. ed. Willd. 1. 1286. *Thunb. prodr.* 46.
Stem rough-haired leafy, peduncles shorter than the corolla drooping, segments of the corolla linear acute.

26. Stapelia articulata. *Jointed Stapelia.*
Lin. spec. ed. Willd. 1. 1287. *Ait. kew.* 1. 310. *Masson monogr.* 20. *n.* 30. *t.* 30.
Branches flowering at the top round tubercles, tubercles mucronate, flowers subfeffile, corollas papillofe, segments lanceolate.

27. Stapelia mammillaris. *Prickly Stapelia.*
Lin. syst. 260. *Reich.* 1. 614. *Willd.* 1. 1287. *mant.* 216. *Thunb. prodr.* 46. *Burm. afr.* 27. *t.* 11.
Branches flowering in the middle erect hexagonal tubercled, tubercles spiny, peduncles shorter than the corolla, which is smooth with the segments lanceolate.

28. Stapelia pruinofa. *Frosted Stapelia.*
Lin. spec. ed. Willd. 1. 1287. *Masson monogr.* 24. *n.* 41. *t.* 41.
Branches erect four-cornered flowering in the middle, peduncles shorter than the flower, corollas pubescent, segments ovate acute.

29. Stapelia ramofa. *Branched Stapelia.*
Lin. spec. ed. Willd. 1. 1288. *Masson monogr.* 21. *n.* 32. *t.* 32.
Branches almoft upright four-cornered flowering in the middle on the outside of the teeth, peduncles shorter than the flower, corollas flat, segments lanceolate rolled back at the edge.

30. Stapelia pulla. *Black-flowered Stapelia.*
Lin. spec. ed. Willd. 1. 1288. *Masson monogr.* 21. *n.* 31. *t.* 31.

S. fafciculata. *Thunb. prodr.* 46 ?
Branches erect subhexagonal flowering in the middle on the outside of the teeth, peduncles shorter than the flower, segments of the corolla erect lanceolate-acuminate rolled back at the edge.

31. Stapelia adfcendens.
Lin. spec. ed. Willd. 1. 1288. *Roxb. corom.* 1. 28. *t.* 30.
Stem four cornered afcending flowering at the top, peduncles shorter than the corolla, which is smooth with the segments linear reflexed at the edge and acute.

32. Stapelia quadrangula.
Lin. spec. ed. Willd. 1. 1289. *Forsk. descr.* 52. *t.* 6.
Stem four-cornered, branches divaricating flowering at the top, teeth truncate, flowers feffile.

33. Stapelia incarnata. *Flesh-coloured Stapelia.*
Lin. syst. 260. *Willd.* 1. 1289. *suppl.* 171. *Thunb. prodr.* 46. *Masson monogr.* 22. *n.* 34. *t.* 34. *Burm. afr.* 15. *t.* 7. *f.* 1. (Euphorbium.)
Branches four-cornered ftiff flowering at the top on the outside of the teeth, peduncles shorter than the corolla, the segments of which are lanceolate and acute.

34. Stapelia punctata. *Dotted Stapelia.*
Lin. spec. ed. Willd. 1. 1289. *Masson monogr.* 18. *n.* 24. *t.* 24.
Branches decumbent oblong somewhat four-cornered flowering in the middle, peduncles twice as long as the corolla, which is bell-shaped with the segments spreading lanceolate acute.

35. Stapelia geminata.
Lin. spec. ed. Willd. 1. 1290. *Masson monogr.* 18. *n.* 25. *t.* 25.
Branches decumbent round flowering at the top, peduncles geminate length of the corolla, the segments of which are lanceolate rolled back at the edge.

36. Stapelia decora.
Lin. spec. ed. Willd. 1. 1290. *Masson monogr.* 19. *n.* 26. *t.* 26.
Branches oblong decumbent round obfcurely four-cornered flowering at the base, peduncles longer than the flower, bottom of the corolla five-cornered, segments ovate-lanceolate rolled back at the edge.

37. Stapelia pulchella.
Lin. spec. ed. Willd. 1. 1290. *Masson monogr.* 22. *n.* 36. *t.* 36.
Branches four-cornered decumbent flowering above the base, peduncles many-flowered, bottom of the corolla circular, segments ovate acute.

38. Stapelia vetula.
Lin. spec. ed. Willd. 1. 1291. *Masson monogr.* 15. *n.* 16. *t.* 16.
Branches four-cornered erect flowering at the base, peduncles shorter than the corolla, which is smooth, with the segments ovate acuminate three-nerved above.

39. Stapelia verrucofa.
Lin. spec. ed. Willd. 1. 1291. *Masson monogr.* 11. *n.* 8. *t.* 8.
Branches afcending four-cornered flowering at the base, peduncles longer than the corolla, which is warted, with the segments ovate and acute, and the bottom five-cornered and rugged.

40. Stapelia irrorata.
Lin. spec. ed. Willd. 1. 1291. *Masson monogr.* 12. *n.* 9. *t.* 9.
Branches from erect spreading four-cornered flowering at the base, peduncles longer than the corolla, which is wrinkled, with ovate acuminate segments.

41. Stapelia mixta.
Lin. spec. ed. Willd. 1. 1292. *Masson monogr.* 23. *n.* 38. *t.* 38.
Branches four-cornered afcending flowering at the base, peduncles length of the corolla, which is wrinkled, with a circular raised papillose bottom, and ovate acuminate segments.]

42. Stapelia variegata. *Variegated Stapelia.*
Lin. spec. 316. *Reich.* 1. 614. *Willd.* 1. 1292. *vir. cliff.* 20. *hort. cliff.* 77. *upf.* 53. *Jacqu. misc.*

miſe. 1. 27. *t.* 4. *Thunb. prodr.* 46. *Ait. kew.* 1. 309. *Curt. magaz. t.* 26. *Knorr. del.* 1. *t.* F. 4.

Aſclepias aizoides africana. *Bradl. ſucc.* 3. *p.* 3. *t.* 22. *Mor. biſt.* 3. 610. *ſ.* 15. *t.* 3. *f.* 4.

Apocynum humile aizoides, ſiliquis erectis, africanum. *Herm. lugdb.* 52. *t.* 53. *Stiſſ. bot.* 32.

Fritillaria craſſa promont. bonæ ſpei. *Stap. theophr.* 335.

Branches four-cornered aſcending flowering at the baſe, peduncles longer than the corolla, which is wrinkled, with a circular concave wrinkled bottom, and ovate acute ſegments.

3. *Corolla ten-toothed.*

[43. Stapelia campanulata. *Bell-ſhaped Stapelia.*
Lin. ſpec. ed. Willd. 1. 1293. *Maſſon monogr.* 11. *n.* 6. *t.* 6.

Branches erect four-cornered flowering at the baſe, peduncles three-flowered, ſegments of the corolla larger lanceolate, with a bell-ſhaped bottom.

44. Stapelia barbata.
Lin. ſpec. ed. Willd. 1. 1293. *Maſſon monogr.* 11. *n.* 7. *t.* 7.

Branches moſtly four-cornered erect flowering at the baſe, peduncles ſhorter than the corolla, which is bell-ſhaped with the ſegments larger lanceolate acuminate rugged clubbed and bearded.

45. Stapelia venuſta.
Lin. ſpec. ed. Willd. 1. 1294. *Maſſon monogr.* 10. *n.* 3. *t.* 3.

Stem four or five-cornered erect branched at top, branches flowering at the baſe, peduncles longer than the corolla bent down, corolla ſmooth, ſegments larger ovate-acuminate, bottom concave ſurrounded by an elevated ring.

46. Stapelia guttata.
Lin. ſpec. ed. Willd. 1. 1294. *Maſſon monogr.* 10. *n.* 4. *t.* 4.

Branches ſomewhat ſpreading and four-cornered flowering at the baſe, peduncles length of the corolla, the ſegments of which are larger ovate acute, the bottom concave rugged ſurrounded by an elevated ring.

47. Stapelia humilis.
Lin. ſpec. ed. Willd. 1. 1294. *Maſſon monogr.* 10. *n.* 5. *t.* 5.

Branches four-cornered ſprending flowering at the baſe, peduncles ſolitary ſhorter than the corolla, the ſegments of which are larger lanceolate acute.

48. Stapelia reticulata. *Netted Stapelia.*
Lin. ſpec. ed. Willd. 1. 1295. *Maſſon monogr.* 9. *n.* 2. *t.* 2.

Branches five-cornered ſprending flowering at the baſe, peduncles in pairs ſhorter than the corolla, the ſegments of which are larger ovate acute, the bottom bearded ſurrounded by an elevated ring.

4. *Uncertain, the flowers being not yet known.*

49. Stapelia clavata. *Club-ſhaped Stapelia.*
Lin. ſpec. ed. Willd. 1. 1295. *Patterſon voy.*

Stem ſimple thick club-ſhaped nettedly and obſcurely warted, fruiting at the top.

DESCRIPTIONS, *&c.*

We have a remarkable inſtance in this ſingular genus how much may be accompliſhed by the induſtry of one man. Only two ſpecies of Stapelia were known to Linnæus when he publiſhed his Species Plantarum in 1762; and there are no more than five in Murray's edition of the Syſtema Vegetabilium of 1784. Thunberg in his Prodomus (1794) has eight ſpecies. But Maſſon, in his beautiful monogram upon this genus has deſcribed and figured forty-one ſpecies, to which if we add the *hirſuta* and *variegata* long ſince known; two ſpecies diſcovered by Forſkahl in Arabia Felix; two by Thunberg not mentioned in Maſſon's work; one in the ſplendid work on Eaſt India plants now publiſhing by the Eaſt India Company; and one diſcovered by Colonel Gordon and Captain Paterſon at the Cape of Good Hope; we ſhall have the forty-nine ſpecies recited above. The laſt gentlemen found ſeveral others, but for want of complete figures and deſcriptions they cannot be ſufficiently characterized to be inſerted here. Forſkahl diſcovered five new ſpecies in Arabia Felix, of which two only that he figured well are in our catalogue. Father Loureiro has given two ſpecies, one native of China, the other of Cochin-china. He ſuſpects that it may be the ſame with the *carnoſa*. Ample as the harveſt has been, many probably yet remain undiſcovered. Mr. Maſſon is certain that the Cape countries contain ſeveral that he had not an opportunity of procuring. The whole genus ſeems peculiar to deſerts. Moſt of them are natives of the ſouthern promontory of Africa. The *hirſuta* has been found alſo by Monſ. Deſfontaines near Kerwan in the kingdom of Tunis. Several are natives of Arabia Felix, and one of the Eaſt Indies, as mentioned above.

The deſerts between the ridges of mountains above the Cape of Good Hope are furniſhed with a great variety of theſe and other ſucculent plants, which, ſays Mr. Maſſon, are endowed by nature, as the camel is, with the power of retaining within them water, ſufficient to enable them to ſurvive the long periods of drought which prevail in thoſe regions. The climate there differs very much from that of the Cape itſelf, where the vegetable productions approach more to the nature of Alpine plants.

In the diſtribution of this genus I have followed Willdenow, and have given his ſpecific characters.

1. This is diſtinguiſhed from all the other ſpecies by its procumbent branched rooting ſtem, ſquarroſe toothlets of the leaves, and the corolla (which is of the ſame ſize as in *hirſuta*) being deeply five-cleft, and of a uniform yellow colour[1].

Branchlets erect, ſmooth, an inch long, grooved; the angles toothletted and tuberculed; the toothlets ſpreading, acute. Flowers lateral on the branchlets, erect, large, ſolitary. Peduncle round, erect, ſmooth, one-flowered. Calyx five-leaved: leaflets lanceolate, acute, ſmooth. Corolla wheel-ſhaped, on the outſide ſmooth and purple, within aſh-coloured, papilloſe, rugged, the papillæ rufeſcent at the tip; ſegments ovate, acute, with ſubclavate, ſpreading, ſnow-white ciliæ at the edge. Corolla the ſize of *S. variegata*.

Native of ſouthern Africa, below Buckland Berg; flowering in november and december[2].

2. Branches a foot high, glaucous, with the angles acute and toothed; the teeth ſpreading, remote, in the younger ones acute. Peduncles ſeemingly ſolitary, one-flowered, from the upper part of the branch, round, ſmooth, three lines long. Calyx five-parted; the parts ovate, acute, ſmooth. Corolla even, five-cleft beyond the middle: ſegments ovate, acute, revolute, ciliate at the edge with very fine club-ſhaped hairs: tube ſhort: genitals exſert[3]. Toothlets of the ſtem ſtraight, ſo that it appears as if it were repand. Corolla a little ſmaller than that of the preceding, of a uniform pale violet colour[4].

Native of ſouthern Africa in dry fields under ſhrubs, in the deſert beyond Oliſant's river: flowering in ſeptember and october[5].

3. Root compoſed of many ſtrong fibres, from which ariſe ſeveral ſtalks, which ſend out other branches of the ſame ſhape from their ſide, having indentures at each angle their whole length, the points of which are erect. Stalks or branches deep green, but the angles and points of the indentures inclining to brown, eſpecially if the plants be expoſed to the open air in ſummer. The flowers come out from the ſide of the ſtalks upon long ſtaſſey peduncles. Petal of a thick leathery ſubſtance; the inſide variegated and hairy, and the borders of the ſegments cloſely furniſhed with long brown hairs. In the centre is the double ſtarry nectarium, the points of which are lacerated; it covers the genitals and is of a purple colour. The outſide of the petal is of an herbaceous pale colour and ſmooth[6].

The corolla is yellow with tranſverſe ſtreaks of a dark violet colour; the ſegments violet at the end and along the edge; the bottom pale red, with red nectaries[7].

Native of the Cape of Good Hope. Introduced in 1714, by Profeſſor Richard Bradley. It flowers in june and july[8].

[1] Willdenow. [2] Maſſon. [3] Idem. [4] Willdenow
[5] Maſſon. [6] Mill. fig. [7] Hort. kew. [8] Willdenow.

4. Plant a foot high, branched, purple: branches and branchlets thick: teeth at the angles remote, acute, curved in. Peduncles moſtly ſolitary, from the younger branchlets, three inches long, nodding, brown, turning purple. Calyx deeply five-parted; parts linear, acute. Corolla dark-purple with tranſverſe yellow wrinkles. It differs from *hirſuta* in its whole habit; in having the branches divaricating, deeply five-cornered and ſomewhat reclining, the flowers nodding, and the corolla of one colour [f].

Willdenow remarks, that it reſembles the two next ſpecies in colour, but that it is ſufficiently diſtinct in the peduncle and ſtem. The bottom, centre or eye of the corolla is redder and very villoſe.

Native of the Cape of Good Hope. Maſſon cultivated it there, and it flowered in 1792. He introduced it at Kew, where it alſo flowered in 1797.

5. Plant a foot and half high. Branches club-ſhaped, pubeſcent, teeth at the angles remote and curved in, terminated by a very ſoft ſpinule. Peduncles often three-flowered, from the lower part of the branchlets. Calyx five-parted: parts lanceolate, acute. Corolla large, flat, dark-purple: ſegments towards the end ſmooth, with a tranſverſe wrinkle; the edge is fringed with long diſtich gray hairs [g].

Willdenow remarks that the centre of the corolla and the ends of the ſegments are of a darker colour than the reſt.

Native of ſouthern Africa in hot places, as at Sondags Rivier. It flowered in Maſſon's garden at the Cape in 1792.

6. Plant a foot and half high or more, pubeſcent. Teeth at the angles of the branches curved in. Peduncles three or four-flowered, from the lower part of the branches. Bracte at the baſe of the pedicel. Calyx five-parted: parts lanceolate, acute. Corolla large, flat: ſegments five-nerved, fringed with diſtich hairs [h].

It is ſufficiently diſtinct from the ſpecies moſt nearly allied to it by its many-flowered peduncles. The corolla, which is of the ſame ſize as in *hirſuta*, is hiſpid, of a dark red purple colour, variegated with ſhort tranſverſe wrinkles of an almoſt black purple, and having the edge of the ſegments of a dark violet colour [i].

Native of ſouthern Africa in dry deſerts. It flowered in Maſſon's garden at the Cape in march 1794.

7. Plant a ſpan high. Branches and branchlets many, reclining, rooting; teeth ſubereƈt. Peduncles moſtly ſolitary, round, from the axils of the branches. Corolla large, flat, with the middle raiſed and extremely villoſe; ſegments ſpreading very much, oblong-rounded, ciliate. Before it flowers, the corolla is inflated and five-nerved, concave towards the end of the ſegments. The colour is very dark purple, with whitiſh wrinkles [k].

It is diſtinct from all the other ſpecies in the form of the corolla. The nectaries are very dark violet [l].

Native of ſouthern Africa; at Camies Berg among ſhrubs. It is called by the inhabitants *Arabiſch Roſe*; and flowered in Maſſon's garden at the Cape in 1792 [m].

8. Branches many, a ſpan and more in height, with ſmall ereƈt teeth, a little curved in with a point. Peduncles often ſolitary, from the younger branchlets, round, pubeſcent, two inches long. Calyx five-parted: parts linear, acute. Corolla large, purple with pale yellow tranſverſe bands, deeply five-cleft, wrinkled, ſpreading: ſegments lanceolate, oblique, ciliate: tube none [n].

The nectaries or ſtar in the middle are white; the bottom is very dark purple [o].

Native of the deſerts of ſouthern Africa. It flowered in Maſſon's garden at the Cape in 1792.

9. Plant a ſpan high: branches many, ſmooth, with ſubereƈt teeth terminated by a ſpinule. Peduncles two or three, from the axil of the teeth, round, ſmooth, two inches long. Calyx five-parted, with the ſegments lanceolate, acute. Corolla large, dark, flat, tubercled, rugged: ſegments ovate-lanceolate. There is a variety, in which the corolla has golden dots ſcattered over it [p].

The corolla is of a duſky purple colour or almoſt black, with ſmall tranſverſe ſtripes of a paler hue; the bottom is very dark ſtudded with minute yellow dots. It is ſufficiently diſtinct from all the other ſpecies in having the ſegments of the corolla five-nerved above, and the outſide of it yellow dotted with purple, whereas in the reſt it is almoſt always pale and of one colour [q].

Native of ſouthern Africa, in dry places among ſhrubs beyond Platte Kloof. It flowered in the royal garden at Kew in 1796 [r].

10. Branches and branchlets a ſpan long, very ſmooth, with remote ſmall blunt teeth. Peduncles one to three, from the younger branches, round, ſmooth, an inch long. Calyx five-parted: ſegments linear, acute. Corolla very ſmooth, ſhining: ſegments ſpreading: fleſh-coloured [s]: double the ſize of Borage flowers, with orange-coloured nectaries [t].

Native of ſouthern Africa. It flowered in Maſſon's garden at the Cape in 1792.

11. Plant a hand high, rufous. Teeth at the angles of the branches ereƈt, obtuſe. Peduncles commonly two or three, ſhort, round, purple. Calyx five-parted: ſegments linear, acute. Segments of the corolla triangular, colour rufous [u]: the ſize of *Periploca græca* or a little larger, of a dark violet colour variegated with tranſverſe ſtreaks of a very dark purple, with the bottom ſtellate and of a uniform rufous colour. Nectaries variegated [w].

Native of ſouthern Africa, in hot places beyond Platte Kloof. It flowered in Maſſon's garden at the Cape in 1793.

12. Plant a hand high. Branches many, ſmooth, ſubereƈt, toothed. Peduncles four or five, ſhort, round, ſmooth. Calyx five-parted, with ovate acute ſegments. Corolla flat, ſmooth, aſh-coloured, very dark purple towards the ends of the ſegments, which are narrow, tailed and very ſharp-pointed [x].—The corolla is a little larger than in the preceding, variegated with dark-purple tranſverſe waved ſtreaks, very finely fringed with white at the edge [y].

Native of ſouthern Africa, in Namaqualand. It flowered in Maſſon's garden at the Cape in 1791.

13. Plant a hand high and ſmooth. Branches cluſtered, reclining; with ſpreading, acute teeth. Peduncles moſtly ſolitary, ſeldom branched, round, ſmooth, an inch long, from the younger branchlets. Calyx five-parted: parts lanceolate-acute. Corolla dark-purple, with the middle recurved, and the ſegments ſpreading, wheel-ſhaped, folded back, fringed at the edge [z].

Corolla the ſame ſize as in *S. rufa*, uniformly dark-purple, with yellow nectaries. It is diſtinct from the two preceding ſpecies in having the branches ſpreading and reclining, with larger teeth; the corolla of one colour, with lanceolate ſegments, and the bottom raiſed by an impreſſion from without, and longer peduncles [a].

Native of ſouthern Africa.

14. This is a low plant: branches abundant, cluſtered, ſmooth, preſſed to the ground, rooting, with recurved acute teeth. Peduncles two or three, from the lower branchlets, half an inch long. Calyx five-parted: ſegments triangular, acute. Corolla five-cornered, ſlightly recurved, dark-purple: ſegments triangular, acute, hiſpid, folded back and fringed at the edge [b].

Corolla leſs than that of the preceding, very dark violet with a rufeſcent bottom; and yellow nectaries [c].

Native of ſouthern Africa.

15. This is a dwarf plant: branches numerous, cluſtered, ſmooth; with ſpreading acute teeth. Peduncles two or three, from the lower part of the branchlets, round, ſmooth, purple, three lines long. Calyx five-parted: parts lanceolate, acute. Corolla

[f] Maſſon. [g] Idem. [h] Idem. [i] Willdenow.
[k] Maſſon. [l] Willdenow. [m] Maſſon. [n] Idem.
[o] Willdenow.
[p] Willdenow. [q] Maſſon. [r] Willdenow. [s] Maſſon.
[t] Willdenow. [u] Maſſon. [w] Willdenow. [x] Maſſon.
[y] Willdenow.

five-cornered, recurved in the middle: segments ſpreading, narrowed, folded back and ciliate. Colour dark-purple [a]. Size nearly that of the preceding; with the bottom circular, greeniſh, and the nectaries yellow [b].

Native of ſouthern Africa under ſhrubs. It flowered in Maſſon's garden at the Cape in 1793.

16. Plant a hand high. Teeth of the branches ſpreading, acute. Peduncles erect, ſolitary, on the upper part of the branches. Calyx five-parted: parts lanceolate, acute. Corolla ſmall, yelloWiſh-white: ſegments ovate-lanceolate, flat, dotted, ſetaceous towards the tip [c].—The ſize as in *Aſclepias Vincetoxicum*, pale yellow dotted at the baſe, hairy and ſubciliate at the tip, with a yellow bottom, and whitiſh nectaries [d].

Native of ſouthern Africa, in Kanna Land. Found by Maſſon in 1792.

17. Plant a foot high, ſmooth, upright, branched: teeth recurved. Peduncles on the upper part of the branches, two ſeldom three, nodding. Calyx five-parted: parts ſmall, acute. Corolla ſmall: ſegments linear-lanceolate, wrinkled, flat, ſpreading. Colour of the plant purpliſh; of the corolla greeniſh-yellow [e].

Flowers the leaſt in this genus, the ſize of *Cynanchum erectum*, dotted with purple, very finely ciliate. Nectaries orange-coloured. Peduncles not from the axils of the teeth, but from a callus between them: *incarnata* and *ramoſa* flower in the ſame manner [f].

Native of ſouthern Africa, in Namaqua Land.

18. Flower of the ſame ſize as in *S. arida*. Segments of the corolla beſet at the tip with hairs all directed one way.—Native of Arabia Felix [g].

19. Plant a hand high and very ſmooth: branches and branchlets toothed; teeth erect, acute. Peduncles commonly two, from the lower part of the branchlets, round, ſmooth, purple, an inch long. Calyx five-parted: ſegments linear, acute. Corolla flat, aſh-coloured with whitiſh briſtles: ſegments ovate-lanceolate, wrinkled, hiſpid [h].—Size of *Anemone nemoroſa*, aſh-coloured with tranſverſe brown ſtreaks and covered with white briſtles; bottom of a uniform brown colour [i].

Native of ſouthern Africa. It flowered in Maſſon's garden at the Cape in 1794.

20. Plant a ſpan high: branches many, almoſt upright, toothed, acute. Peduncles two or three, axillary, two inches long, round, purpliſh. Calyx five-parted: parts linear, acute, rough-haired. Corolla flat: ſegments ovate-lanceolate, ſpreading, having blood-red dots ſcattered over them, and being covered with club-ſhaped hyaline hairs: colour ſulphureous [k]. Size the ſame as in the preceding: nectaries orange and black [l].

Native of ſouthern Africa, in the deſerts about Nord Oliſant's River. It flowered in Kew garden, october 1796 [m].

21. Plant a hand high, very ſmooth, glaucous. Branches divaricating, obſcurely toothed; teeth very blunt. Peduncles four or five, in bundles from the lower part of the branchlets, round, ſmooth, twice as long as the branches. Calyx five-parted, acute. Segments of the corolla obſcurely wrinkled; fringed at the angles, dotted with gray beneath, rolled back at the edge. Colour purpliſh-brown, varying to yellow [n].

This ſpecies is very diſtinct from the reſt, in the length of the peduncle, and the ſtructure of the flower and branches. The peduncles are five inches long. The corolla is the ſize of *Cineraria lanata*: the baſe is aſh-coloured dotted with brown, and has a bundle of pedicelled glands; the bottom is blackiſh [o].

Native of ſouthern Africa in Camies Berg. It flowered in Maſſon's garden at the Cape in 1792.

22. Plant half a hand high, ſmooth, glaucous. Branches many, divaricating, with very blunt teeth. Peduncles ſolitary? Corolla flat: ſegments wrinkled, five nerved [p]. It reſembles the preceding in the peduncle and branches; but the flower is very different. Branches obſcurely toothed, obtuſely three or two-toothed at the tip. Peduncles three inches long and more, ſpreading. Corolla of a dirty duſky purple, wrinkled with very ſhort darker ſtains: bottom circular, aſh-coloured dotted with black. The flower is ſmaller than in the preceding [q].

Native of ſouthern Africa, in Namaqua Land, near Kok Fontein [r].

23. Branches thick, erect, ſet with tubercles which have a ſpine in the middle. Corolla one of the largeſt in this genus, being near three inches in diameter, repand and five-toothed, with wide very ſhort roundiſh very ſhortly acuminate teeth. Colour yellowiſh brown with a whitiſh centre, and black nectaries. It differs abundantly from all he other ſpecies in the ſingular form of the corolla, inſomuch that it might be doubted whether it belongs to this genus.

Native of the Cape of Good Hope in Groot Namaqua Land toward Orange River [s]. Maſſon had this ſpecies from Gordon.

24. Plant a ſpan high or more. Branches erect, round, grooved, tubercled: tubercle briſtly. Flowers ſolitary, between the tubercles, on the upper part of the branches. Calyx five-parted: parts lanceolate, acute. Corolla dark-purple, with a ſmall, raiſed, red circle in the middle, ſurrounding the genitals.

Native of ſouthern Africa, on very dry hills, under ſhrubs; as below Roggeveldt Bergen. It is eaten by the Hottentots, who call it Guaap [t].

25. Native of ſouthern Africa, where it was found by Thunberg.

26. This is a low ferruginous plant. Branches purpliſh, divaricating, oblong, netted: net hexagonal, convex: ſpinules of the teeth minute. Peduncles ſolitary. Flowers at the top of the branches, dark-coloured: ſegments triangular, papilloſe above [u].

Corol a the ſame ſize as in *piliferа*. The branches are not unlike the female ſpikes of Zea Mays [v].

Native of ſouthern Africa at Roggeveldt. The Hottentots eat the ſtalks raw, and the Dutch pickled with vinegar [w]. Introduced in 1774, by Maſſon [x].

27. Flower ſmall. Suſpected by Maſſon to be the ſame with the *articulata*, but it appears from Burman's figure, and ſeveral marks to be different [y]. Introduced in 1774 by Maſſon [z].

28. Plant a foot and half high, purpliſh: branches almoſt erect, with recurved teeth. Flowers from the upper part of the younger branches, dark-purple with white hairs. Peduncles two or three, ſhort, round. Calyx five-parted: parts ovate, acute. Corolla ſmall: ſegments flat, covered with very ſmall white hairs, as if with a hoar froſt. The ſame ſize as in *S. piliferа*.

Native of ſouthern Africa, in Namaqua Land among ſhrubs. It flowered in the Kew garden, in june 1797 [a].

29. Plant a foot high or more, extremely branched and very ſmooth: angles of the branches very bluntly toothed. Flowers aggregate on the upper part of the branchlets, on ſhort peduncles. Calyx five-parted: parts ſmall, acute. Corolla dark-purple [b]: ſize of the preceding, with the bottom circular, whitiſh. The flower proceeds from a callus on the outſide of the teeth [c].

Native of ſouthern Africa, beyond Platt Kiooſ, near the hot baths. It flowered in Maſſon's garden at the Cape in auguſt 1792.

30. Plant a ſpan high. Teeth at the angles of the branches ſpreading, prickly. Flowers aggregate, three or four, on very ſhort peduncles. Calyx five-parted: parts ſmall, acute. Corolla dark-purple, deeply five-cleft [d].

Diſtinct from the preceding by its hexagonal acuminate-toothed branches, and flowers a little larger, growing on the outſide of the teeth but not placed on a callus, with the ſegments erect [e].

Native of ſouthern Africa, in hot ſandy places in the deſert. It flowered in march, in Maſſon's paſſage from the Cape to St. Helena [f]. He introduced

[a] Maſſon. [b] Willdenow. [c] Maſſon. [d] Willdenow. [e] Maſſon. [f] Willdenow. [g] Idem. [h] Maſſon. [i] Willdenow. [k] Idem. [l] Maſſon. [m] Willdenow. [n] Maſſon. [o] Idem. [p] Willdenow. [q] Maſſon. [r] Willdenow. [s] Maſſon.

[a] Willdenow. [b] Maſſon. [c] Willdenow. [d] Maſſon. [e] Idem. [f] Willdenow. [g] Maſſon. [h] Hort. kew. [i] Willdenow. [k] Hort. kew. [l] Maſſon. [m] Idem. [n] Willdenow. [o] Maſſon. [p] Willdenow. [q] Maſſon.

it in 1774 at Kew, and it flowered there in auguſt and ſeptember [r].

31. Stems ſeveral, a foot or two high, at the baſe reſting on the ground and ſtriking root; above erect, with blunt notched angles. Branches erect like the ſtems. Leaves alternate, ſeſſile, on the angles of the branches, lanceolate, very minute. Flowers axillary, about the extremities of the branches, generally ſingle, erect, ſmall, variegated with dark purple and yellow. Calyx five-cleft to the bottom: diviſions lanceolate. Corolla tube ſcarcely any: border flat. Follicles erect, as thick as a gooſe quill, four or five inches long.

This plant is not very common in the Eaſt Indies, of which it is a native: it grows among buſhes, on high dry barren ground; flowering during the wet ſeaſon. The natives eat the moſt ſucculent tender branches raw, although they are bitter and ſalt to the taſte [s].

Willdenow remarks, that the flower is of the ſame ſize with that of *Periploca græca*; yellow with violet tips.—The Telingas name it *Car-allum*.

32. Angles of the ſtem ſomewhat toothed. It is of a duſky green, a foot and half high and branched; the ſides half an inch wide. Flowers cluſtered, ſmall, terminating, yelloviſh-green. Calyx five-toothed, permanent. Follicles two inches, and often a ſpan long. Seeds downy. Juice not milky but watery.—Native of Arabia Felix [t].

33. Plant a foot high or more, ſmooth. Branches erect, with ſpreading, acute, callous teeth at the angles. Flowers ſubſeſſile, moſtly ſolitary at the ends of the branches. Calyx five-parted: parts lanceolate acute. Corolla flat, ſmooth, fleſh-coloured varying to white [u].

The flowers are ſmall, (the ſize of *S. pilifera*.) The tender branches are eaten by the Hottentots [v].

Native of ſouthern Africa, in dry ſandy fields.

34. This is a procumbent plant: joints oblong, ſmooth, with ſharp teeth thickened at the baſe. Peduncles three or four, from the axils of the teeth, an inch and half long, round, ſmooth, purpliſh. Calyx five-parted: ſegments lanceolate, acute, purple. Corolla whitiſh, with blood-red dots [w]. Size as in *S. rufa*.

Native of ſouthern Africa, in Namaqua Lands. It flowered in Maſſon's garden at the Cape in 1790.

35. This is a low plant: branches very abundant, preſſed to the ground and rooting, oblong, ſomewhat four-cornered, ſmooth, having ſmall ſharp teeth. Peduncles in pairs, round, ſmooth. Calyx five-parted: parts lanceolate, acute. Corolla orange-coloured with blood-red dots: diviſions narrow, ſpreading, glandular [x]. The ſize of the preceding; from which it differs, in not having the bottom of the corolla bell-ſhaped, in the peduncles being geminate not aggregate, and the branches round with four rows of very minute diſtant toothlets [y].

Native of ſouthern Africa, in hot places under ſhrubs. It flowered in Maſſon's garden at the Cape, in february 1794.

36. Branches many, ſmooth, compoſed of oblong roundiſh joints, with ſmall acute teeth. Peduncles two, round, ſmooth, purple. Calyx five-parted: parts lanceolate, acute. Corolla yellow mixed with black, narrowed, lanceolate, ſpreading, rugged above, rolled back at the edge. Perhaps a variety of the preceding [z]: from which however it differs in having ſmaller joints, ſtouter teeth, and the corolla a little bigger, rugged with dark-purple dots [a].

Native of ſouthern Africa. It flowered in Maſſon's garden at the Cape in 1794.

37. This is a ſmooth branching plant: branches and branchlets reclining, with acute and ſomewhat ſpreading teeth. Peduncles from the axils of the branchlets, reclining. Calyx five-parted, lanceolate, acute. Corolla an inch in diameter, pale with blood-red dots: ſegments triangular, acute, dotted: a ſmall ring ſurrounds the genitals [b].

Corolla the ſame ſize as in *S. concinna*. The ſegments at the tip and the circular bottom are browniſh [c].

[r] Hort. kew. [s] Roxburgh. [t] Forſk. in Willdenow. [u] Maſſon. [v] Linn ſuppl. [w] Maſſon. [x] Idem. [y] Willdenow. [z] Maſſon. [a] Willdenow. [b] Maſſon. [c] Willdenow.

Native of ſouthern Africa. It flowered in Maſſon's garden at the Cape of Good Hope in 1793.

38. Plant a hand high, very much branched, ſmooth. Teeth of the branches erect, curved in at the top. Peduncles two or three, from the lower part of the branches; the younger ones round and ſmooth. Calyx five-parted: parts lanceolate, acute. Corolla dark-purple, flat, deeply five-cleft, ſmooth: ſegments lanceolate, obtuſe, three-nerved; with wrinkled tranſverſe bands: tube none [d]. Size rather leſs than that of *S. variegata*, (n. 42.) deep violet, with ſhort tranſverſe very dark violet bands, and a very dark purple bottom: but it is ſufficiently diſtinguiſhed by the ſegments being three-nerved above [e].

Native of ſouthern Africa on mountains near Hex River.

39. Branches many, cluſtered, ſuberect, toothed: branchlets decumbent: toothlets of the branches decuſſated, acute, ſomewhat ſpreading. Peduncles one or two, from the lower part of the branchlets, an inch long, round, ſmooth. Calyx ſmall, five-parted: parts ovate, acute. Corolla flat, warted, pale yellow with blood red dots, a little raiſed into a pentagon form in the middle, and there rugged and ſurrounding the genitals [f]. Size of *S. variegata*, at the ends of the ſegments and round the bottom browniſh [g].

Native of ſouthern Africa, in dry places; flowering in ſeptember and october.

40. Branches many, a hand high, cluſtered, toothed, ſmooth, ſuberect; branchlets decumbent; toothlets of the branches acute, ſomewhat ſpreading, decuſſated. Peduncles often ſolitary, round, ſmooth, an inch long. Calyx ſmall, five-parted: parts ovate, acute. Corolla large, flat, pale yellow with blood-red dots, without any ring [h].

It differs from the preceding in having no warts or pentagon ring to the corolla; the branches from upright ſpreading; and the colour of the corolla ſulphureous with bloody dots and a blood-red bottom [i].

Native of ſouthern Africa, in dry places; flowering in ſeptember and october.

41. Branches many, diffuſed, reclining, rooting, teeth ſubrecurved, acute. Peduncles moſtly ſolitary: nodding, three inches long, purpliſh. Corolla large, ſmooth, purple with tranſverſe yellow wrinkles: ring yellow, with purpliſh papillæ [k].

It is ſo like the next ſpecies that it might be taken for a variety; but it differs in the form of the toothlets on the branches, in the ſize of the flower which is double of that, with the ſegments acuminate, and a raiſed papilloſe centre, in the colour and eſpecially the form of the nectary. The corolla is duſky violet wrinkled with tranſverſe yellow ſtreaks; the bottom yellow with red papillæ [l].

Native of ſouthern Africa. It flowered in Kew garden in 1796 [m].

42. Branches many, the ſize of a man's finger, four or five inches long, having ſeveral protuberant indentures on their ſides which ſpread open horizontally, and ending in acute points: theſe branches ſpread on the ground and emit roots from their joints; they are angular, and of a deep green colour in ſummer, but in winter change to purpliſh; they abound with a viſcous juice of a naſeous taſte. From the ſide of the branches towards the bottom comes out the peduncle, at one of the ſinuſes; it is ſhort, and ſuſtains one flower. Corolla large and thick, cut half way, and ſpreading open flat; greeniſh on the outſide, but yellow within, having a circle of purple round the nectaries, which are prominent and of a vivid colour: the whole corolla is finely ſpotted with purple, reſembling the belly of a frog. The flower when blown has a very fetid odour like that of carrion; ſo that the common fleſh fly depoſits its eggs on it, which frequently are hatched, but wanting proper food, die ſoon after. After the flowers are paſt, the double germ changes into four taper pods (follicles) joined at their baſe, near a ſpan long, and almoſt as thick as a man's finger.

[d] Maſſon. [e] Willdenow. [f] Maſſon. [g] Willdenow. [h] Maſſon. [i] Willdenow. [k] Maſſon. [l] Willdenow. [m] Willdenow.

[Corolla fulphur-coloured, with tranſverſe wrinkles, variegated with duſky purple irregular ſpots, and a paler circular bottom. It differs from *verrucoſa* and *vetula*, in its wrinkled corolla, circular bottom, and the whole habit [v].

Native of ſouthern Africa, on rocks, into the crevices of which it ſtrikes the fibres of its roots. Introduced in 1690, by Mr. Bentick. It flowers in june and july [x].

43. Branches many, erect, four-cornered, or ſometimes, but rarely, five-cornered, clouded with purple: teeth ſpreading, acute. Peduncles from the lower part of the branchlets, branched: branches two or three, one-flowered. Calyx five-parted to the baſe; ſegments lanceolate, acute. Corolla bell-ſhaped, without a ring, ten-cleft, five of the diviſions longer, five ſhorter, ſpreading: tube bearded within, with club-ſhaped hairs. Colour fulphureous, the whole ſurface having rugged raiſed purple dots ſcattered over it. Genitals in the bottom of the tube [y].

It is ſufficiently diſtinct from the following ſpecies; the corolla being ſpotted not only within, but on the outſide alſo; the bottom bell-ſhaped; and the peduncles many-flowered [z].

Native of ſouthern Africa.

44. Branches many, cluſtered, ſmooth, four or five-cornered: toothlets ſomewhat ſpreading, acute. Peduncles moſtly three, from the lower part of the branchlets, purple, three lines long, one-flowered. Calyx five-parted: parts linear-lanceolate, acute. Corolla bell-ſhaped, without a ring, rugged within, bearded with club-ſhaped hairs, whitiſh with rugged purple dots ſcattered over it: five ſegments ſhorter, acute, five longer, almoſt tailed, ſomewhat ſpreading. Genitals in the bottom of the corolla [a].

Corolla bell-ſhaped, with the ſegments ſpreading, not with the bottom only bell-ſhaped, and the border flat, of a whitiſh yellow colour, with raiſed dark-purple dots, and club-ſhaped hairs [b].

Native of ſouthern Africa. It flowered in Maſſon's garden at the Cape, in march 1794.

45. Branches a ſpan long, ſmooth, quadrangular or ſometimes but ſeldom quinquangular: branchlets divaricating: toothlets of the branches ſpreading, acute. Peduncles commonly two in the axils of the teeth, round, ſmooth, an inch long, pendulous, one-flowered. Calyx five-parted: parts ovate, acute. Corolla large, fulphur-coloured with blood-red dots; with five ſegments longer, and five ſhorter ſpreading, a little acute: tube ſmooth, gradually widening into a ring. Genitals in the bottom of the tube [c].

This differs from the reſt in having the ſtem erect, branched at top, and the peduncles hanging down [d].

Native of ſouthern Africa; in Karro.

46. Branches many, cluſtered, four-cornered, (the younger ones often five-cornered,) a hand long, ſmooth: toothlets acute, ſpreading. Peduncles three or four, from the lower part of the branchlets, one-flowered, divaricating, bracted at the baſe. Calyx five-parted: parts linear, lanceolate, acute. Corolla fulphur-coloured with blood-red dots: five of the ſegments longer five ſhorter acute ſpreading: tube rugged within, bell-ſhaped, gradually widening into a ring [e].

The figure of the corolla as in the preceding, but the bottom rugged: the ſtem alſo is different [f].

Native of ſouthern Africa.

A new ſpecies is figured in Mr. Curtis's magazine, (t. 506.) which in the ſhape and colour of the corolla agrees very well with this; but the flowers in that ſit on longer peduncles, which ariſe from the baſe of the ſtalk, the ſtalks are undivided, and the tubercles are not hooked. It is named *Stapelia lentiginoſa* or Freckled Stapelia. It was introduced into the royal garden at Kew by Mr. Maſſon, and flowered in the collection of E. D. Woodford, Eſq. at Vauxhall, in 1801.—The ſtems are branched at top; the branches are five-cornered, ſpreading, and tubercled, the tubercles hooked. The corollas are ten-toothed, with the ſegments alternate and indiſtinct, the bottom concave girt with a raiſed ring.

47. Branches many, half a hand high, almoſt upright, four or five-cornered; branchlets ſpreading: teeth of the branches ſpreading, acute. Peduncles ſolitary, three lines long, round, ſmooth, one-flowered. Calyx five-parted: parts linear-lanceolate, acute. Corolla about an inch wide: five of the ſegments longer, five ſhorter acute ſpreading: tube bell-ſhaped, widening into a ring; which is of a dark purple colour with white waved ſpots; ſegments fulphur-coloured with purple dots. Genitals in the bottom of the tube [g].

It differs from the other ten-toothed ſpecies, in the ſhortneſs of the ſtem, the ſmallneſs of the flower, and the peduncles being invariably ſingle [h].

Native of ſouthern Africa.

48. Branches many, cluſtered, clouded with purple: angles acute, with acute very ſpreading or recurved teeth. Peduncles two or three, round, ſmooth, one-flowered. Bractes three or four, at the baſe of the peduncles. Calyx five-parted: parts linear, acute. Corolla ten-angled: five of the angles ſhorter, five longer, ſpreading a little, acute: tube bell ſhaped, bearded within, gradually widening into a raiſed ring. Colour of the corolla dark-purple, with white lines like the meſhes of a net. Genitals in the bottom of the tube.

Native of ſouthern Africa, in hollows of rocks towards Olifant's Rivier; flowering in ſpring and autumn [i].

49. This ſpecies is yet obſcure, the fruit only having been figured by Captain Paterſon.

Native of ſouthern Africa, in ſandy fields beyond Kopper-berg [k].]

PROPAGATION AND CULTURE.

They are propagated here very eaſily during the ſummer months, by taking off any of the ſide branches, which, when planted, put out roots very freely. The branches ſhould be ſlipped off from the plants to the bottom, where being joined by a ſmall ligature, they will not occaſion a great wound, the joints at the place where they are connected being almoſt cloſed round; for if they are cut through the branch, the wound will be ſo great as to occaſion their rotting when planted: theſe ſhould be laid in a dry place under cover for eight or ten days, that the wounded part may dry and heal over, otherwiſe they will rot; then they ſhould be planted in pots filled with freſh ſandy earth, mixed with lime rubbiſh and ſea ſand; and if the pots are plunged into a very moderate hot-bed, it will promote their taking root; they ſhould be now and then ſprinkled with water, but it muſt be given them ſparingly; and as ſoon as they have taken root, they muſt be inured to the open air. If theſe plants are kept in a very moderate ſtove in winter, and in ſummer placed in an airy glaſs-caſe, where they may enjoy much free air, but be ſcreened from wet and cold, they will thrive and flower very well; for although they will live in the open air in ſummer, and may be kept through the winter in a good green-houſe, yet thoſe plants will not flower ſo well as thoſe managed in the other way. They muſt have little water given them, eſpecially in winter.

The *birſuta* and *variegata* only were cultivated in Mr. Miller's time, but the reſt are to be increaſed and treated in the ſame manner. In upwards of forty years that Mr. Miller cultivated the *variegata*, he never ſaw it produce pods but three times; and that was when the plants were plunged into the tan-bed in the ſtove, into which the branches had put out long roots, and thereby became very luxuriant. Of the *birſuta* he never ſaw any pods produced in England.

[STAPHISAGRIA. See *Delphinium*.]

STAPHYLEA. (*Abbreviated by Linnæus from* Staphylodendrum. *From* σταφυλη, *a raceme or bunch, that being the inflorescence of this ſhrub.*)

Lin. gen. n. 374. *Reich. n.* 404. *Schreb. n.* 507. *Gærtn. t.* 69. *Juſſ.* 377. Staphylodendron. *Tournef. t.* 386.

[a] Willdenow. [b] Hort. kew. [c] Maſſon. [d] Willdenow. [e] Maſſon. [f] Willdenow. [g] Maſſon. [h] Willdenow. [i] Maſſon. [k] Willdenow.

Claſſ. 5. 3. Pentandria Trigynia.
Nat. order of *Tribilatæ*. *Rhamni*, Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* five-parted, concave, roundiſh, coloured, almoſt as big as the corolla.

COR. *Petals* five, oblong, erect, like the calyx.
Nectary from the receptacle of the fructification, in the bottom of the flower, concave, pitcher-ſhaped.

STAM. *Filaments* five, oblong, erect, length of the calyx. *Anthers* ſimple.

PIST. *Germ* thickiſh, three-parted. *Styles* three, ſimple, much longer than the ſtamens. *Stigmas* obtuſe, contiguous.

PER. *Capſules* three, inflated, flaccid, united longitudinally by a ſuture, opening inwards by the acuminate apexes.

SEEDS two, bony, globular, with an oblique point and an orbicular excavation by the ſide of the apex.

OBS. *The ternary number of the piſtil and pericarp, in* S. pinnata *becomes binary.*

ESSENTIAL CHARACTER.

Cal. five-parted. *Pet.* five. *Capſ.* inflated, connate. *Seeds* two, globular with a wart.

SPECIES.

[1. Staphylea occidentalis.
Lin. ſpec. ed. Willd. 1. 1497. *Swartz prodr.* 55. *deſcr.* 1. 566. *Sloan. jam.* 2. *t.* 220. *f.* 1. (Pruno affinis.) *Pluk. phyt. t.* 269. *f.* 1. (Arbor jamaicenſis.)
Leaves doubly-pinnate, capſules three-cornered, ſeeds ſolitary, ſtem arboreous.]

2. Staphylea pinnata. *Five-leaved Bladder-nut.*
Lin. ſpec. 386. *Reich.* 1. 739. *Willd.* 1. 1497. *hort. cliff.* 112. *upſ.* 69. *Hudſ. angl.* 131. *Wither. arr. ed.* 3. 317. *Smith brit.* 337. *Gærtn. fruct.* 1. 335. *Hoffm. germ.* 210. *Roch. germ.* 1. 137. 2. 368. *Hall. helv. n.* 831. *Læers herborn. n.* 231. *Krock. ſilef. n.* 480. *Allion. pedem. n.* 1625. *Du Roi harbecc.* 2. 439. *Willd. arb.* 376. *Knorr. del. hort.* 2. *t.* S. 1.
Staphylodendron. *Dalech. hiſt.* 102. *Matth.* 274. *Camer. epit.* 171. *Baub. hiſt.* 1. 274. *Raii hiſt.* 1681. *ſyn.* 468. *Duham. arb.* 1. *Heſt. eyſt. vern. frut. t.* 8. *f.* 1.
S. pinnatum. *Scop. carn. n.* 374.
Piſtacia ſylveſtris. *Baub. pin.* 401.
Nux veſicaria. *Ded. pempt.* 818. *Ger.* 1249. *emac.* 1437. *Park. theat.* 1418.
Leaves pinnate, ſtyles and capſules two.

3. Staphylea trifolia. *Three-leaved Bladder-nut.*
Lin. ſpec. 368. *Reich.* 1. 739. *Willd.* 1. 1498. *hort. cliff.* 112. *Cold. noveb.* 62. *Du Roi harbecc.* 2. 441. *Willd. arb.* 376.
Staphylodendron triphyllum vaſculo tripartito. *Gron. virg.* 34.
S. virginianum trifoliatum. *Herm. lugdb.* 230. *Duham. arb.* 3.
Piſtachia virginica ſylveſtris trifolia. *Mor. blæſ.* 295.
Leaves ternate, ſtyles and capſules three.

DESCRIPTIONS, *&c.*

[1. This is a tree from twenty to thirty feet high, with a ſmooth unarmed trunk, and round, ſmoothiſh, ſhining branches. Leaves petioled, alternate: pinnas two or three pairs with an odd one, petioled, ovate, acuminate, ſerrate, ſmooth, ſhining: petioles both general and partial roundiſh, ſmooth. Stipules in pairs between the pinnas, minute, curved in. Panicles terminating, erect, looſiſh; with oppoſite decuſſated branches, and three-flowered pedicels. Flowers white odorous. Calyx five-leaved[1]; the two inner leaflets the ſize of the petals. Capſule the ſize of a Cherry, ſmooth not inflated, three-celled.

Native of Jamaica; flowering there in ſpring and autumn[1].]

2. This has ſeveral ſhrubby ſtalks ariſing from the ſame root, and growing ten or twelve feet high, covered with a ſmooth bark, and dividing into ſeveral branches, which are ſoft and pithy. The leaves are compoſed of two pairs of ovate leaflets terminated by an odd one: theſe differ greatly in ſize, according to the ſtrength and vigour of the ſhrubs; ſome being more than two inches long, and an inch and half broad; but on old weak ſhrubs they are much ſmaller: they are ſmooth, entire, and of a light-green colour, ſtanding upon pretty long foot-ſtalks. The flowers come out upon long ſlender pendulous peduncles, from the axils of the ſtalks near their extremity, in oblong bunches. The petals are white, and expand in form of a roſe. The flowers appear in may, and are ſucceeded by inflated capſules, compoſed of three cells, one or two of which have a roundiſh, ſmooth, hard ſeed, and the other is barren. [Læers ſays, that the ſtyles are ſometimes two, but moſtly three; that the capſule is three-celled; and that the ſeeds are conſtantly two in the larger cells, that in the third being abortive. According to Smith, the capſules are two, very ſeldom three, membranaceous, ventricoſe, commonly two-ſeeded. Seeds globular, brown, ſhining, hard.

Gærtner deſcribes the capſule as compoſed of two joined together, ovate, twin, membranaceous, inflated, veined, two-celled, opening inwards by its acuminate apexes. Receptacle a thick nerve in the middle of the partition, putting forth on each ſide very ſhort umbilical chords nearly oppoſite, changing when ripe into broad umbilical fungous areas. Seeds ſix to ten in each cell, of which one or two only ripen; theſe are ſubglobular, bony, very ſmooth, ſhining, brownish-yellow, contracted towards the baſe, and ending in an oblique point; but there truncate as it were, and marked with a wide umbilical area.

It is a low branching ſmooth ſhrub, ſomewhat like a dwarf Aſh. Leaves alternate: leaflets ovate, (or varying to lanceolate, but always pointed,) ſerrulate. Racemes terminating, compound, nodding. Bractes briſtle-ſhaped, membranaceous. Flowers bell-ſhaped, whitiſh, or yellowiſh-white[a].

Native of the South of Europe. It is found in England, in hedges, but is ſcarcely indigenous with us. Gerarde ſays that in his time it grew at the houſe of Sir Walter Culpepper, near Flinmewell in the Weald of Kent, as alſo in the Fryer-yard without St. Paul's gate in Stamford, and about Spalding Abbey, and in the garden of the Right Hon. the Lord Treaſurer his very good lord and maſter, and by his houſe in the Strand. Alſo in his own garden, and in the garden hedges of Sir Francis Carew, near Croydon.—Parkinſon ſays, it groweth in many places of this land, as at Aſhford in Kent, and at Milton near Cambridge. According to Ray, it is found in hedges about Pontefract in Yorkſhire, but ſcarcely in ſufficient plenty to be deemed certainly wild.]

Mr. Miller affirms, that it is found in woods in ſeveral parts of England.

It is cultivated as a flowering-ſhrub, and makes a variety, when intermixed with others, though the flowers are not very beautiful. The nuts being hard and ſmooth are ſtrung for beads by the Roman Catholics in ſome countries; and the children of the poor inhabitants eat the nuts, though they have a diſagreeable taſte.

3. This has a more ſubſtantial ſtem than the preceding, the bark of the old branches and ſtalks is ſmooth and of a gray colour; that of the young ones is of a light green and very ſmooth. The leaflets are ovate, ending in a point, and ſerrate on the edges: the largeſt three inches long and two broad; but in old plants they are not much more than half the ſize. The flowers are produced from the ſide of the branches in longer bunches than thoſe of the former ſort, but their peduncles are much ſhorter; the flowers are of a clearer white, and their petals are ſomewhat larger; as are alſo the bladder capſules; the ſeeds are larger, and ripen better.

Native of North America; and now as common in the nurſery-gardens as the other ſort. [It was introduced before 1640, by Mr. John Tradeſcant, ſenior[a].]

[1] Swartz.

[a] Smith. [a] Hort. kew. from Parkinſon.

PROPA-

PROPAGATION AND CULTURE.

2, 3. Both theſe ſorts are uſually propagated by ſuckers from the root, which the ſecond ſends out in plenty; theſe ſhould be taken from the old plants in autumn, and their roots trimmed, then planted in a nurſery, in rows at three feet diſtance, and one foot aſunder in the rows; in this nurſery the plants ſhould ſtand one or two years according to their ſtrength, and then be tranſplanted to the places where they are to remain.

The plants which are propagated in this manner from ſuckers, are more ſubject to put out ſuckers in greater plenty from their roots, than thoſe which are raiſed from ſeeds, or propagated by layers or cuttings, ſo are not to be choſen when the others can be had; therefore thoſe who propagate them for their own uſe, ſhould prefer the other methods. If they are propagated by layers, the young branches ſhould be laid down in autumn, in the ſame manner as is practiſed for other trees and ſhrubs; theſe will have put out roots the following autumn, when they may be taken from the old plants and planted in a nurſery, where they may grow one or two years to get ſtrength, and then may be removed to the places where they are to ſtand.

When theſe are propagated by cuttings, it ſhould be the ſhoots of the former year, and if they have a ſmall piece of the two years wood at the bottom, they will more certainly ſucceed; for as the young ſhoots are ſoft and pithy, ſo they are very ſubject to rot, when they have no part of the old wood to them. They ſhould be planted in autumn on a ſhady border, but muſt not have too much wet.

They may alſo be propagated by ſowing their ſeeds early in autumn, in beds of light freſh earth, and when the plants are come up, they muſt be carefully kept clear from weeds, and in very dry weather, if they are now and then refreſhed with water, it will greatly promote their growth; in theſe beds they may remain until October following; at which time they ſhould be carefully taken up and planted in a nurſery, placing them in rows three feet aſunder, and the plants one foot diſtance in the rows; and, if the following ſpring ſhould prove very dry, it will be convenient to give them a little water to encourage their taking root; after which they will require no farther care but to keep the ground clear from weeds in ſummer, and every ſpring to prune off irregular branches, and dig the ground between the rows to looſen the earth, that their roots may the more eaſily extend. In this nurſery they may remain two years, by which time it will be proper to tranſplant them out where they are to remain, either in wilderneſs quarters, or in clumps of various trees, where they will add to the diverſity. The beſt ſeaſon for tranſplanting theſe trees is in autumn, with other deciduous trees. When theſe ſeeds are ſown in the ſpring, the plants ſeldom come up till the following year.

[STAPHYLINUS. See *Daucus*.

STAPHYLODENDRON. See *Dodonæa*, *Royena* and *Staphylea*.

STAR APPLE. See *Chryſophyllum*.]

—— FLOWER. See *Ornithogalum*.

[—— HEADED CHICKWEED. See *Callitriche*.

—— HYACINTH. See *Scilla*.

—— OF BETHLEHEM. See *Ornithogalum*.

—— THISTLE. See *Centaurea*.]

STARWORT. See *After* [and *Callitriche*.

———— American. See *Tridax*.]

STATICE (*of Pliny.* Στατικη, *from* ἱστημι, *ſtatuo*; *perhaps from its uprightneſs.*)

Lin. gen. n. 388. *Reich. n.* 418. *Schreb. n.* 527. *Tournef. t.* 177. *Juſſ.* 92. *Gærtn. t.* 44. Limonium. *Tournef. t.* 177.

Claſſ. 5. 5. Pentandria Pentagynia.

Nat. order of *Aggregatæ*. *Plumbagines*, Juſſ.

GENERIC CHARACTER.

CAL. *Perianth common* of a different ſtructure in the ſeveral ſpecies.

Perianth proper one-leafed, funnel-form: *tube* narrowed: *border* entire, plaited, ſcarioſe.

COR. funnel-form. *Petals* five, united at the baſe, narrowed below, above wider, obtuſe, ſpreading.

STAM. *Filaments* five, awl-ſhaped, ſhorter than the corolla, inſerted into the corolla by their claws. *Anthers* incumbent.

PIST. *Germ* very minute. *Styles* five, filiform, diſtant. *Stigmas* acute.

PER. *Capſule* oblong, ſomewhat cylindrical, membranaceous, five-cuſped, one-celled, valveleſs.—*Proper calyx* contracted at the neck, expanded in the border, cheriſhing the capſule when the corolla withers.

SEED ſingle, oblong, hanging from a long cord.

OBS. Statice *of authors with the common calyx threefold, compoſes a roundiſh flower.*

Limonium *of authors with the common calyx imbricate exhibits florets in an oblong row.*

S. monopetala *ought not to be diſtinguiſhed generically, ſince in the other ſpecies which are pentapetalous the filaments are inſerted into the very claws of the petals.*

ESSENTIAL CHARACTER.

Cal. one-petalled, entire, plaited, ſcarioſe. *Pet.* five. *Seed* one, ſuperior.

SPECIES.

1. Statice Armeria. *Thrift* or *Sea Gilliflower.*
Lin. ſpec. 394. *Reich.* 1. 753. *Willd.* 1. 1522. *hort. cliff.* 115. *Fl. ſuec. n.* 269. *Hudſ. angl.* 132. *Wither. arr. ed.* 3. 319. *Smith brit.* 341. *engl. bot. t.* 226. *Light. ſcot.* 173. *Relh. cant. ed.* 2. *n.* 284. *Dickſ. hort. ſicc.* 219. *Gron. virg.* 150. *Hall. helv. n.* 835. *Gunn. norv. n.* 113. *Hoffm. germ.* 111. *Roth. germ.* 1. 141. 2. 374. *Pollich pal. n.* 317. *Krock. ſileſ. n.* 491. *Scop. carn. n.* 379. *Villars dauph.* 2. 553. *Allion. pedem. n.* 1605. *Aſſo arag. n.* 283. *Pallas it.* 3. 33. *Kniph. cent.* 5. *n.* 85.
S. polyanthemum. *Neck. gallob.* 160.
Limonium aphyllocaulon gramineum globoſum. *Mor. hiſt.* 3. 601. *ſ.* 15. *t.* 1. *f.* 29.
Caryophyllus montanus major, flore globoſo. *Bauh. pin.* 211. *Raii hiſt.* 1037.
C. mediterraneus. *Leb. ic.* 452. *Ger.* 482. 2. *emac.* 602. 2.
Caryophylleus flos aphyllocaulos, vel junceus major. *Bauh. hiſt.* 3. 336. 1.
Gramen marinum mediterraneum majus, Statice quibuſdam. *Park. theat.* 1279. 11.
Gr. polyanthemum majus. *Dod. pempt.* 564. *f.* 2.
β. Statice montana. *Mill. dict. n.* 2.—item, maritima. *n.* 3. S. mont.—minor. *Raii ſyn.* 203. *Petiv. brit. t.* 72. *f.* 8.
Caryophyllus montanus minor. *Bauh. pin.* 211.
C. marinus minimus. *Lob. obſ.* 242. 1. *ic.* 452. *Ger.* 482. 1. *emac.* 602. 1.
Caryophylleus flos aphyllocaulos vel junceus minor. *Bauh. hiſt.* 3. 336. 2.
Gramen marinum minus. *Park. theat.* 1279. *f.* 13.
Gr. polyanthemum minus. *Dod. pempt.* 564. *f.* 1.
Scape ſimple headed, leaves linear flat obtuſe.

[2. Statice juniperifolia. *Juniper-leaved Thrift.*
Lin. ſpec. ed. Willd. 1. 1522. *Vahl ſymb.* 1. 25.
S. ceſpitoſa. *Cavan. ic.* 1. 38. *Quer. hiſp.* 6. 334. *t.* 15. *f.* 1.
S. maritima humillima, folio capillaceo rigido. *Tournef. inſt.* 341.
Scape ſimple headed, leaves linear three-ſided rigid pungent.

3. Statice alliacea.
Lin. ſpec. ed. Willd. 1. 1523. *Cavan. ic.* 2. 6. *t.* 109.
Scape ſimple headed, leaves linear-lanceolate acute flat.

4. Statice cephalotes. *Large ſimple-ſtalked Thrift.*
Ait. kew. 1. 383. *Lin. ſpec. ed. Willd.* 1. 1523.
S. Pſeud-armeria. *Lin. ſyſt.* 300. *Desfont. atlant.* 273.
S. Armeria major. *Jacqu. hort.* 1. 16. *t.* 42.
Scape ſimple headed, leaves oblong flat acuminate attenuated at the baſe.

5. Statice graminifolia. *Graſs-leaved Thrift.*
Ait. kew. 1. 383. *Lin. ſpec. ed. Willd.* 1. 1523.
Scape panicled, branches three-ſided, leaves linear channelled.]

6. Statice Limonium. *Sea Thrift* or *Sea Lavender.*
Lin. ſpec. 394. *ſyſt.* 300. *Reich.* 1. 753. *Willd.* 1. 1523. *mat. med.* 90. *hort. cliff.* 115. *fl. ſuec. n.* 270.

n. 270. *Hudſ. angl.* 132. *Wither. arr. ed.* 3. 320. *Smith brit.* 341. *engl. bot. t.* 102. *Relh. cant. ed.* 2. *n.* 285. *Gærtn. fruct.* 1. 210. *Fl. dan. t.* 315. *Hoffm. germ.* 111. *Roth. germ.* 1. 147. 2. 375. *Scop. carn. n.* 380. *Krock. ſilef. n.* 492. *Allion. pedem. n.* 1607. *Desfont. atlant.* 273. *Gron. virg.* 150. *Blackw. t.* 481. *Kniph. cent.* 4. *n.* 86. *Plenck, ic. t.* 246.

Limonium vulgare. *Mill. dict. n.* 1.—item, narbonenſe. *n.* 2.

Limonium. *Camer. epit.* 721. *Matth.* 980. *Lob. ic.* 295. *Tabern. ic.* 430. *Ger. emac.* 411. 1. *Raii hiſt.* 395. *ſyn.* 201.

L. majus vulgatius. *Park. theat.* 1234. 1.

L. maritimum majus. *Baub. pin.* 192. *Mor. hiſt. ſ.* 15. *t.* 1. *f.* 1. *Tournef. inſt.* 341.

L. majus multis, aliis Behen rubrum. *Baub. hiſt.* 3. 876. 3.

Valerianæ rubræ ſimilis pro Limonio miſſa. *Dod. pempt.* 351. 2.

β. Limonium minus. *Raii ſyn.* 202.

L. parvum. *Ger. emac.* 411. 2.

γ. L. humile. *Mill. dict. n.* 4.

L. anglicum minus, caulibus ramoſioribus, floribus in ſpicis rarius ſitis. *Raii hiſt.* 3. 247. *Dill. in Raii ſyn.* 202.

Scape panicled round, leaves oblong obtuſe ſmooth nerveleſs, with a ſharp point under the tip, waved at the edge.

[7. Statice Gmelini.

Lin. ſpec. ed. Willd. 1. 1524. *Gmel. ſib.* 2. 220. *t.* 90.

Limonium elatius, floribus parvis denſe congeſtis azureis. *Amm. ruth.* 128.

Scape panicled angular, leaves oblong-ovate emarginate flat cartilage-edged, mucronate-beneath.

8. Statice ſcoparia.

Lin. ſpec. ed. Willd. 1. 1524.

Scape panicled round, leaves oblong-ovate coriaceous mucronate dotted beneath.

9. Statice latifolia. *Broad leaved Sea Lavender.*

Smith in Linn. tranſ. 1. 250. *Lin. ſpec. ed. Willd.* 1. 1524.

S. Coriaria. *Pallas ind. fl. taur.*

Limonium folio Enulæ ſtabellis tenuiſſimis ramoſiſſimis, floribus parvis cæruleis. *Gerber MSS. herb. Linn.*

Scape panicled very much branched rugged, leaves pubeſcent with hairs in ſtellated bundles.]

10. Statice oleæfolia. *Olive-leaved Sea Lavender.*

Lin. ſpec. ed. Willd. 1. 1525. *Scop. inſubr.* 1. 24. *t.* 10. *Cavan. ic.* 1. 38.

Limonium parvum oleæfolium. *Lob. adv.* 123. *Raii hiſt.* 395.

L. maritimum minus oleæ folio. *Baub. pin.* 192.

L. minus oleæ folio polycladon. *Barr. ic.* 65. *n.* 689. *t.* 790.

L. oleæfolium. *Mill. dict. n.* 3.

Scape panicled, branches angular-winged, leaves lanceolate mucronate-cuſped cartilaginous at the edge.

[11. Statice incana. *Hoary Sea Lavender.*

Lin. ſyſt. 300. *Reich.* 1. 754. *Willd.* 1. 1525. *mant.* 59. 513. *Vahl ſymb.* 1. 25.

S. ſpecioſa. *Forſk. ægypt.* 65. *n.* 192.

Scape panicled, leaves lanceolate three-nerved ſomewhat waved mucronate at the tip, branches of the panicle three-ſided.

12. Statice auriculæfolia. *Auricula-leaved Sea Lavender.*

Lin. ſpec. ed. Willd. 1. 1525. *Vahl ſymb.* 1. 25.

Limonium luſitanicum auriculæ urſi folio. *Tournef. inſt.* 342.

Scape ſimple round, ſpikes lateral and terminating directed one way, leaves ſpatulate acute.]

13. Statice cordata. *Heart-leaved Sea Lavender.*

Lin. ſpec. 394. *ſyſt.* 301. *Reich.* 1. 754. *Willd.* 1. 1526. *Sauv. monſp.* 15. *Allion. pedem. n.* 1608. *Desfont. atlant.* 273. *Aſſo arag. n.* 284.

Limonium cordatum. *Mill. dict. n.* 10.

L. maritimum minus, foliis cordatis. *Baub. pin.* 192. *prodr.* 99. *Baub. hiſt.* 3. *app.* 877. *Park. theat.* 1234. *n.* 4. *Raii hiſt.* 395.

L. minimum cordatum, folio retuſo. *Barr. ic. t.* 805.

Scape panicled, leaves ſpatulate retuſe.

[14. Statice ſcabra. *Rough-branched Sea Lavender.*

Lin. ſpec. ed. Willd. 1. 1526. *Thunb. prodr.* 54.

Leaves radical obovate oblong obtuſe, branches rugged.

15. Statice tetragona. *Square-ſtalked Sea Lavender.*

Lin. ſpec. ed. Willd. 1. 1526. *Thunb. prodr.* 54.

Scape panicled four-cornered, leaves obovate.]

16. Statice reticulata. *Matted Sea Lavender.*

Lin. ſpec. 394. *Reich.* 1. 754. *Willd.* 1. 1526. *Hudſ. angl.* 133. *Wither. arr. ed.* 3. 320. *Smith brit.* 342. *engl. bot. t.* 328. *Hill. ſt. brit. t.* 25. *f.* 2. *Relh. cant. ed.* 2. *n.* 286. *Sauv. monſp.* 15.

Limonium reticulatum ſupinum. *Bocc. ſic.* 82. *t.* 44. *Raii hiſt.* 396.

L. minus, virgulis retiformiter ſe invicem implicatis. *Pluk. phyt. t.* 42. *f.* 4.

L. reticulatum. *Mill. dict. n.* 9.

[β. Statice dichotoma. *Cavan. diſſ.* 1. 37. *t.* 50.

γ. St. foliis lineari-cuneiformibus acutiuſculis, ramis glabris. *Willd. ſpec.*

Scape panicled proſtrate flexuoſe, lower branches barren, leaves wedge-ſhaped awnleſs.]

17. Statice echioides. *Rough-leaved Sea Lavender.*

Lin. ſpec. 394. *ſyſt.* 301. *Reich.* 1. 754. *Willd.* 1. 1527. *Desfont. atlant.* 274. *Gouan monſp.* 230. *illuſtr.* 22. *t.* 2. *f.* 4. *Sauv. monſp.* 15.

Limonium echioideum. *Mill. dict. n.* 11.

L. minus annuum, bullatis foliis, vel Echioides. *Magn. monſp.* 157. *ic.*

Scape panicled round jointed, leaves rugged.

[18. Statice ſpecioſa. *Plaintain-leaved Sea Lavender.*

Lin. ſpec. 395. *Reich.* 1. 755. *Willd.* 1. 1527. *hort. upſ.* 71. *Gmel. ſib.* 3. 221. *t.* 91. *f.* 1. (Limonium.)

Limonium floribus elegantiſſimis. *Raii hiſt.* 397.

L. elatius, plantaginis foliis, &c. *Amm. ruth.* 129.

Scape branched round, branches ancipital winged, flowers imbricate, leaves obovate-cuſped mucronate cartilaginous at the edge.]

19. Statice tatarica. *Tartarian Sea Lavender.*

Lin. ſpec. 395. *Reich.* 1. 755. *Willd.* 1. 1527. *Gmel. ſib.* 2. 223. *t.* 92.

Limonium tataricum. *Mill. dict. n.* 5.

L. orientale, plantaginis folio, floribus umbellatis. *Tournef. cor.* 25. *Boerh. lugdb.* 1. 76. *t.* 76.

L. elatius plantaginis foliis, &c. floribus ſpicatis. *Amm. ruth.* 130.

Scape branched divaricating, branches three-ſided, flowers diſtant, leaves lanceolate-obovate mucronate.

[20. Statice Echinus.

Lin. ſpec. 395. *Reich.* 1. 755. *Willd.* 1. 1528.

Limonium orientale frutеſcens, caryophylli folio in aculeum rigidiſſimum abeunte. *Tournef. cor.* 25.

L. ceſpitoſum, foliis aculeatis. *Buxb. cent.* 2. 18. *t.* 10.

β. L. græcum, juniperi folio. *Tournef. cor.* 25.

Echinus ſ. Tragacantha altera. *Alp. exot.* 57. *t.* 56.

Scape panicled, leaves ſubulate mucronate.

21. Statice flexuoſa.

Lin. ſpec. 395. *Reich.* 1. 756. *Willd.* 1. 1528. *Gmel. ſib.* 2. 217. *t.* 89. *f.* 1.

S. roſea. *Pallas it.* 3. 260. *in nota.*

Scape dichotomous corymb-faſtigiate, ſpikes headed, flowers imbricate, leaves lanceolate wedge-ſhaped obtuſe mucronate three-nerved.

22. Statice purpurata.

Lin. ſyſt. 301. *Reich.* 1. 756. *Willd.* 1. 1528. *mant.* 59. *Thunb. prodr.* 54.

S. peregrina. *Berg. cap.* 80.

Stem ſomewhat leafy, leaves obovate-cuneate three-nerved mucronate.

23. Statice longifolia.

Lin. ſpec. ed. Willd. 1. 1529. *Thunb. prodr.* 54.

Stem panicled rugged erect, leaves obovate-linear.

24. Statice minuta.

Lin. ſyſt. 301. *Reich.* 1. 756. *Willd.* 1. 1529. *mant.* 59. *Desfont. atlant.* 275.

Limonium maritimum minimum. *Baub. pin.* 192. *prodr.* 99. *Bocc. ſic.* 26. *t.* 13. *f.* 3. *Tournef. inſt.* 342.

L. fruticoſum minimum glabrum. *Pluk. phyt. t.* 200. *f.* 3.

L. ſiculum folio cordato. *Bocc. ſic.* 64. *t.* 34.

Stem ſuffruticoſe leafy, leaves cluſtered wedge-ſhaped ſmooth awnleſs, ſcapes few-flowered.

25. Statice pectinata. *Triangular-ſtalked Sea Lavender. Ait. kew.* 1. 385. *Lin. ſpec. ed. Willd.* 1. 1529.

Stem and branches panicled three-ſided, leaves obovate petioled, ſpikes directed one way.

26. Statice ſuffruticoſa. *Narrow-leaved ſhrubby Sea Lavender.*

Lin. ſpec. 369. *Reich.* 1. 756. *Willd.* 1. 1529. *Gmel. ſib.* 2. 216. *t.* 88. *f.* 2, 3.

Stem ſhrubby naked and branched at top, heads ſeſſile, leaves lanceolate ſheathing.]

27. Statice monopetala. *Broad-leaved ſhrubby Sea Lavender.*

Lin. ſpec. 396. *Reich.* 1. 757. *Willd.* 1. 1530. *hort. cliff.* 116. *Kniph. cent.* 8. *n.* 91. *Deſfont. atlant.* 277.

Limonium ſiculum. *Mill. dict. n.* 7.

L. lignoſum. *Boc. ſic.* 34, 35. *t.* 16, 17. *Raii hiſt.* 396.

L. foliis Halimi. *Tournef. inſt.* 342.

L. fruteſcens, Portulacæ marinæ folio. *Dodart icones.*

Stem ſhrubby leafy, flowers ſolitary, leaves lanceolate ſheathing.

[28. Statice axillaris. *Axil-flowering Sea Lavender.*

Lin. ſpec. ed. Willd. 1. 1530. *Vahl ſymb.* 1. 26. *t.* 9. *Forſk. deſcr.* 58.

Stem ſhrubby leafy, panicles ſpiked axillary, leaves lanceolate ſheathing.

29. Statice cylindrifolia. *Cylinder-leaved Sea Lavender.*

Lin. ſpec. ed. Willd. 1. 1530. *Vahl ſymb.* 1. 26. *t.* 10. *Forſk. deſcr.* 59.

Limonium galliſerum, foliis cylindricis. *Shaw afr.* 369.

Stem ſhrubby leafy dichotomous, leaves round ſheathing.

30. Statice liniifolia. *Flax-leaved Sea Lavender.*

Lin. ſyſt. 301. *Willd.* 1. 1530. *ſuppl.* 187. *Thunb. prodr.* 54.

Stem ſhrubby proſtrate, flowers panicled directed one way, leaves linear.

31. Statice aurea. *Golden-cupped Sea Lavender.*

Lin. ſpec. 396. *Reich.* 1. 757. *Willd.* 1. 1531. *Gmel. ſib.* 2. 218.

Limonium montanum humile, ephedræ facie, calycibus florum aureis. *Amm. ruth.* 132. *t.* 18. *f.* 2.

Stem ſhrubby leafy branched, leaves awl-ſhaped.

32. Statice ferulacea. *Cut-leaved Sea Lavender.*

Lin. ſpec. 396. *Reich.* 1. 757. *Willd.* 1. 1531. *Pallas it.* 3. 314. *Deſfont. atlant.* 276.

Limonium ferulaceo folio. *Griſ. luſit. Mor. hiſt.* 3. *ſ.* 15. *t.* 1. *f.* 23. *Pluk. phyt. t.* 28. *f.* 4.

L. hiſpanicum multifido folio. *Tournef. inſt.* 342.

Stem ſhrubby branched, branchlets imbricate with chaffs terminated by a hair.

33. Statice pruinoſa. *Froſty Sea Lavender.*

Lin. ſyſt. 301. *Reich.* 1. 757. *Willd.* 1. 1531. *mant.* 59. *Vahl ſymb.* 1. 26.

S. aphylla. *Forſk. deſcr.* 60.

Stem flexuoſe branched ſcurfy.]

34. Statice ſinuata. *Scallop-leaved Sea Lavender.*

Lin. ſpec. 396. *Reich.* 1. 758. *Willd.* 1. 1531. *hort. cliff.* 116. *upſ.* 71. *Gron. orient.* 96. *Deſfont. atlant.* 276. *Kniph. cent.* 2. *n.* 90. *Curt. magaz. t.* 71.

Limonium ſinuatum. *Mill. dict. n.* 6.

L. peregrinum, foliis Aſplenii. *Bauh. pin.* 192. *Tournef. inſt.* 342.

L. rauwolfii. *Cluſ. cur. t.* 33. *Park. parad.* 250.

L. quibuſdam rarum. *Bauh. hiſt.* 3. *app.* 877.

L. peregrinum Rauwolfii. *Park. theat.* 1235.

L. folio ſinuato. *Ger. emac.* 412. 3. *Raii hiſt.* 397.

L. ſyriacum Aſplenii folio. *Dodart. icones.*—inciſo folio, Bugloſſi flore. *Barr. ic. t.* 1124.

Limonii ſpecies. *Rauw. itin.* 313. *t.* 314.

Elegans genus Limonii. *Daleeb. app.* 35. *ic.*

β. Limonium africanum, caule alato, foliis integris hirſutis, petalo pallide flavo, calyce amoene purpureo. *Mart. cent. t.* 84.

L. africanum. *Mill. dict. n.* 8.

γ. Limonium caulibus alatis, Aſplenii foliis minus aſperis, calycibus acutioribus flaveſcentibus. *Shaw afr.* 363.

Stem herbaceous oncipital, root-leaves lyrate, ſtem-leaves linear.

[35. Statice lobata.

Lin. ſyſt. 301. *Willd.* 1. 1532. *ſuppl.* 187.

Leaves ſinuate, ſtems round leafleſs.

36. Statice ſpicata.

Lin. ſpec. ed. Willd. 1. 1532. *Gmel. ſib.* 2. 224. *t.* 91. *f.* 2.

Stem round leafleſs, ſpikes alternate cylindrical, leaves ſinuate.

37. Statice mucronata. *Curled Sea Lavender.*

Lin. ſyſt. 301. *Willd.* 1. 1532. *ſuppl.* 187. *L'Herit. ſtirp. nov.* 25. *t.* 13. *Ait. kew.* 1. 386. *Deſfont. atlant.* 275.

Limonium peregrinum appendicibus criſpis adauctum. *Pluk. alm.* 221.

L. africanum elatius & humile. *Park. theat.* 1235. *f.* 6.

Stem curled, leaves elliptic entire, ſpikes directed the ſame way.

38. Statice globulariæfolia.

Deſfont. atlant. 274.

S. ramoſiſſima. *Poiret. itin.* 2. 142.

Limonium medium, Globulariæ folio majus. *Barr. ic.* 793. & 794.

Leaves acuminate horizontal, panicle looſe, racemes terminating directed one way.

39. Statice ſpathulata.

Deſfont. atlant. 275.

Leaves radical ſpatulate obtuſe glaucous quite entire on long petioles, ſcape round, branches panicled, flowers racemed, directed one way.

DESCRIPTIONS, *&c.*

1. Common Thrift has a perennial woody root, bearing many thick tufts of lax, linear, channelled, ſmooth, entire leaves. Scapes erect, ſimple, pubeſcent, varying much in height (from two to eight inches or even a foot,) terminated by a globular head of many flowers, encompaſſed by a many-leaved involucre, the baſe of which is attached to a ſingular cylindrical membranous ſheath, about an inch long, and inveſting the top of the ſcape, its lower end being looſe and lacerated, ſo that it ſeems to have been torn off from the root, and carried up with the young growing ſtem. Calyx ſmall, erect. Corolla roſe-coloured or pink, (varying to deep red, ſcarlet and white.) Petals obovate, clawed. Crown of the ſeed fringed.

Native of Europe and North America. Common in England, Wales and Scotland, both on the ſea ſhores and on the higheſt mountains. Its favourite maritime ſoil is in the mud or ouze. It grows well in gardens, even within the ſmoke of London, and probably derives its Engliſh name from its readineſs to thrive in any ſituation. It flowers from june to auguſt*.]

Mr. Miller makes three ſpecies of this, two growing on the Alps and other mountains, and the third in ſalt marſhes. The firſt, which he names *Statice Armeria* or great mountain Pink, has the leaves about four inches long, and half an inch broad in the wideſt part. The ſcapes are about a foot high; and the flowers are pale red, varying to white: they appear in june.

The ſecond, which is alſo a native of mountains, ſeldom riſes more than two inches high, but when planted in gardens, becomes much larger. The leaves are narrow, and three-cornered at the baſe. The ſcapes are about ſix inches high; and the corollas are of a pale purpliſh colour, appearing in may, and continuing the greater part of june.

There is a variety of this with bright red flowers, commonly called Scarlet Thrift. The flowers make a much better appearance than thoſe of the other.

This, which Mr. Miller names *Statice montana*, or ſmaller mountain Thrift, was formerly in great eſteem for edgings on the ſides of borders in flower-gardens. But it requires to be tranſplanted every year, to keep it within due bounds; and where a plant fails, as is frequently the caſe, it leaves a large unſightly gap.

* Smith brit. & engl. bot.

The third ſort, which he names *Statice maritima*, or leaſt Sea Pink; and grows naturally in ſalt marſhes, where the ſea flows over it frequently, has very narrow, ſhort, flat leaves, the ſcapes ſeldom riſe more than three or four inches high; the heads of flowers are ſmall, and of a pale fleſh colour. It flowers later in the ſeaſon than either of the former.

[2. Tufted, ſmooth. Leaves half an inch long, with a white dagger point. Scape twice as high as the leaves, ſtriated. Head, flowers, &c. as in St. Armeria. If it be a variety of that, it is certainly a remarkable one; retaining its habit after being cultivated ſeveral years in a garden; and not having been remarked any where on the coaſt of the Mediterranean except in Spain and Portugal [y].

3. This is very like the firſt ſpecies, but the leaves are twice the width, ſhorter, acute, and narrowed at the baſe.—Native of Spain, on the mountains of Enguera, and at the foot of the mountain Montduber and Oroſpeda [z].

4. Leaves broad-lanceolate, ſometimes elliptic, ſmooth, quite entire, nerved, for the moſt part mucronate, on a channelled petiole ſheathing at the baſe. Scape round, ſtriated, erect. Sheath reflexed, membranaceous, toothed at bottom, involving the ſcape at top. Bractes ſcarioſe, oblong, obtuſe. Calyx membranaceous, funnel-ſhaped. Petals roſe-coloured, obtuſe [a].]

This ſeems to be the ſpecies, which Mr. Miller ſays was ſome years paſt in the Engliſh gardens, and came from Portugal. He deſcribes the ſtalk as thick and perennial, becoming ſhrubby by age, and riſing to a foot and half in height; the leaves like thoſe of the firſt ſort, but much larger; the ſcapes a foot and half long, terminated by one large globular head of flowers, of a pale red colour. All the plants in England were deſtroyed by the ſevere froſt in the beginning of the year 1740. [It was introduced again in 1775, by Joſ. Nich. de Jacquin, M.D.; and is a native of Algarbia [b] in Portugal: alſo of Spain, about Cadiz, &c. Desfontaines found it in ſands near La Calle in Barbary.

5. This was introduced in 1780, by Mr. William Malcolm, but from what place is unknown. It flowers in june and july [c].

6. Sea Lavender, as it is commonly called, though it has ſcarcely any reſemblance to Lavender, and none of its aromatic quality, has a ſtrong, perennial, woody root. This plant varies much as to luxuriance, being ſometimes found with leaves ſcarcely an inch long, and not more than ſix or eight flowers in a panicle, and at other times much larger, with the flowers far more abundant. The bright blue colour diſtinguiſhes it at a diſtance, and that colour is tolerably permanent. Though leſs magnificent than ſome of the foreign ſpecies, it is a beautiful plant [d]. The leaves are obovate-lanceolate and quite entire. The ſcape is alternately branched, with the branchlets corymbed [e]. Capſule covered by the calyx and corolla, oblong, roundiſh, membranaceous, five-cuſped at the top. Seed ſmooth, ſomewhat of a ruſt colour [f].]

Mr. Miller ſeparates the Limoniums from the Statice; and makes three ſpecies of this. 1. Our common Sea-Lavender, (Limonium vulgare, which grows in ſalt-marſhes in ſeveral parts of England: the roots of which are thick, of a reddiſh colour, and an aſtringent taſte, ſending out many ſtrong fibres, which ſtrike deep in the ground: from the upper part of this come out ſeveral ſmooth ſtiff leaves, of a pretty thick conſiſtence, and a dark or glaucous green, from four to five inches long, and more than two inches broad in the middle. Stalks naked, more than a foot high, dividing into many branches, which are ſubdivided into others ſmaller towards the top; the latter are terminated by ſlender ſpikes of pale blue flowers, ranged on one ſide the ſtalk above each other, coming out of narrow covers like ſheaths. Theſe appear in july; and are ſucceeded by oblong ſeeds, incloſed in the calyx, and ripening in autumn.

[y] Vahl. [z] Willdenow. [a] Desfontaines.
[b] Hort. kew. [c] Idem. [d] Engl. bot.
[e] Smith brit. [f] Gærtner.

2. L. narbonenſe, or large late-flowering Sea Lavender of Narbonne; growing naturally on the ſea coaſt of the South of France. The leaves are ſix inches long, and three broad. The ſtalk riſes fifteen or ſixteen inches high. It ſeldom flowers till the end of auguſt, and never produces any good ſeeds in England.

3. L. humile, or ſmalleſt Engliſh Sea-Lavender, (n. 4.) Leaves lanceolate, about three inches long, and an inch broad in the middle, leſſening gradually to both ends. Stalk four or five inches high, dividing into many ſpreading branches, which are very thick ſet with ſhort ſpikes of whitiſh-blue flowers. Theſe appear in auguſt, and the ſeeds ripen in octobor.

[In Dillenius's edition of Ray's ſynopſis, three Engliſh ſpecies of Limonium or Sea Lavender are diſtinguiſhed. 1. The common ſort, which is larger in ſalt marſhes, ſmaller on cliffs and in the fiſſures of rocks. 2. L. minus, obſerved in England by Plukenet; near Harwich by Doody, and near Ramſgate by Dale. Doody, who obſerved it in flower in the royal garden at St. James's, ſays it differs not only in its ſmallneſs, but in having the leaf decurrent along the petiole to the very root. 3. Smaller Sea Lavender, with more branching ſtalks, and flowers more thinly ſet. The leaves are longer and more pointed, and it flowers later. Dale found it on the ſea banks by the tide mill at Walton in Eſſex, and between Heybridge and Maldon. Mr. Sherard and Mr. Rand found it at the mouth of the river that runs from Chicheſter.

Both varieties are on the Lancaſhire coaſt at Low Furneſs, and on the weſt ſide of Milnthorpe ſands in Weſtmoreland. *Mr. Gough* [g].

Mr. Woodward remarks, that there are two varieties on the Suffolk coaſt, much ſmaller than the common, and which differ in having no regular footſtalk, but only a continuation of the leaf: the one has the leaves ſhort and blunt, the other has them longer and more pointed. The ſharp point at the end of the leaf marks them as belonging to this ſpecies [h].

7. This reſembles the preceding very much, but the leaves are firmer, and not plaited and waved about the edge; their obovate form, the more diſtant point, the flowers only half the ſize and more cluſtered, and the different habit of the whole ſcape, proclaim this to be a diſtinct ſpecies.

Native of Siberia, in ſalt places from the Jaick to Angara.

8. Very like the next ſpecies but not hairy; leaves ſmaller; and the ſcapes almoſt as in St. Limonium. The margin of the leaves appears to be crenate, but on a nicer inſpection it is very fine waved. The lower ſurface is covered with ſmall raiſed dots, viſible only with a magnifier. The trivial name was given it by Pallas from the uſe to which the ſcapes are applied.—Native of Siberia [i].

9. Leaves all radical, oblong, a foot or more in length, entire, ſlightly waved, ſometimes emarginate, pubeſcent and ſoft to the touch, being ſprinkled all over with little ſtellated bundles of ſoft ſhort hairs. Stalks very much branched, and ſpreading in every direction, covered with the ſame kind of pubeſcence as the leaves, but rather more harſh; branches roundiſh, alternate, terminating in ſimple horizontal racemes. Bractes ſmall, concave, acute, two together at each diviſion of the panicle, one of which is placed on the outſide of the branch at its baſe, and the other in its axil. Flowers moſtly two together, emerging from two ſmall bractes, like thoſe on the ſtalk; but furniſhed alſo with two larger and more obtuſe bractes, with a large membranous margin. Calyx tubular, membranous, five-toothed, whitiſh with five green angles. Corolla longer than the calyx, blue. Anthers yellow.

Firſt gathered by Gerber in Ruſſian Tartary, on the banks of the river Don, near Aſoph. It flowered in the Duke of Northumberland's garden at Sion in 1788. Communicated by Mr. Hoy his Grace's gardener [k].

10. Root perennial, woody. Leaves radical, entire, flat, running down into the petiole, margined,

[g] Withering. [h] MSS. [i] Willdenow.
[k] Smith in Linn. tranſ.

acuminate with a ſmall ſtiffiſh point. Stems tough, upright, dichotomous, ſomewhat flexuoſe, round, ſmooth, naked or having a ſingle leaf near the baſe. Flowers on the extreme branches in cloſe ſpikes, all on one ſide upwards, three together; the middle one flowering firſt, next one of thoſe on the ſide, and then the other. A bracte under each ſide flower. Calyx funnel-ſhaped, membranaceous above the middle, permanent, five-cleft; clefts ovate; greeniſh at the baſe, and rayed with five raiſed reddiſh lines. Corolla red, conſiſting of five petals, but cohering ſo as to appear to be one-petalled: the claws ſeem as it were connate into a tube longer than the calyx; but the borders are ovate and emarginate. The ſtamens do not riſe above the corolla. Anthers ſagittate, yellowiſh with a white pollen. Styles briſtle-ſhaped, white, longer than the calyx. Seed brown, ſtriated, ſubovate, covered with the baſe of the dry corolla.—Raiſed from ſeeds ſent by Profeſſor Allione of Turin [d].]

This has ſmall, oval, obtuſe leaves about two inches long and an inch broad, of a lighter green than the common Limonium, on pretty long foot-ſtalks, which are bordered or winged with a membrane which runs cloſe to and partly embraces the upper part of the root. The ſtalk riſes a foot and half high, ſending out branches alternately on each ſide; the lower ones are long, and the others gradually diminiſh to the top, forming a looſe kind of pyramid; they all point upwards, and towards their ends ſend out ſpikes of pale-blue flowers, which are erect. It flowers late in auguſt, and never perfects ſeeds in England. It grows naturally in Narbonne and Provence. [Italy and Spain. Cultivated by Mr. Miller in 1759. Willdenow warns us not to confound it with the reticulata.

11. Root perennial. Leaves radical elliptic-lanceolate, three-nerved, hoary, ſomewhat waved, mucronate at the point. Scape round, with triangular branches. Calyx white, ſurrounded with five acute green ſtreaks; and having three or four, awl-ſhaped, ſpreading, ſhort bractes. Flowers white [e]. Vahl deſcribes the bractes as ovate-acuminate, embracing, and membranous at the edge: with four glumes which are oblong, acuminate, unequal, concave, ſpreading at the top, membranous at the edge, the inmoſt trifid: ſegments linear, acute.—Native of Egypt and Siberia.

12. Leaves all radical, thick, nerveleſs, terminated by a rigid point, half an inch long. Scape erect, even, a ſpan high. Branches none but ſimple peduncles, round, ſpreading, lateral and terminating. Spikes ſolitary or ſometimes two together, oblong, peduncled, ſpreading. Flowers very much cluſtered, directed one way, erect, in a double row, four incloſed in as many bractes. Bractes unequal: two outer ſhorter, ovate; two inner larger, all of a browniſh glaucous colour, with a membranaceous ſhining margin and a marginal purpliſh line. Beſides there are two very tender bractes at the baſe of each floret.—Native of the coaſt of Barbary.

Brouſſonet ſent another plant gathered in Spain, with wider ſhorter leaves, the ſcape a finger's length, and faſtigiate peduncles, but ſcarcely differing ſpecifically from this. It differs from the *cordata*, which has the leaves rounded at the tip or retuſe without a point, the ſcape branched, the ſpikes alternate, erect, round, many on one common peduncle, the flowers alternate, ſolitary within the ſcales. It is allied to Scopoli's *oleæfolia*, but different [f].

13. Leaves wedge-ſhaped, emarginate at the end, and ſometimes quite entire, rigid, running down into the petiole. Leaves varying in ſize, according to the ſoil [g].

Leaves ſpatulate, ſcarcely retuſe. Flowers numerous, blue, imbricate, one-ranked [h].]

Leaves many thick fleſhy ſpatulate ſmooth grayiſh, growing next the root and ſpreading on the ground. Stalks naked about ſix inches high, dividing towards the top into many ſmaller branches, which are terminated by ſhort crooked panicles of ſmall pale-red flowers. Theſe appear in auguſt, but never produce ſeeds in this country. It grows naturally near the ſea, about Marſeilles, Leghorn, [the maritime rocks of Piedmont, Spain, &c. and in Barbary.—It was cultivated in 1752, by Mr. Miller [i].

14. 15. Natives of the Cape of Good Hope, where they were found by Thunberg [k].

16. Root ſtrong, woody and perennial, bearing thick tufts of ſmall narrow obovate ſpatulate or wedge-ſhaped leaves, ſlightly pointed but not awned, and entire. Scapes proſtrate, very much branched; the branches flexuoſe, matted and entangled with each other, having an ovate ſharp membranous bracte at each divarication: many of the branches are barren, and thoſe often reflexed, but not always. Flowers few together in ſimple terminating ſpikes or bundles, erect, each enveloped in three or four larger blunt bractes. The ribs of the calyx, and the petals, are of a bright purpliſh blue, which turns white in drying [l].

Native of the South of France and Malta. Wheeler obſerved it in Greece. It is alſo found on the Eaſt coaſt of England, particularly in Norfolk, where it covers many acres of muddy ſalt-marſhes with its blue flowers in july and auguſt, eſpecially about Wells, Cley and Holkham. Mr. Woodward obſerved it abundant about Wells; Meſſrs. Crowe and Pitchford at Blakeney, Wells, Cley and Brancaſter; Mr. Sutton at Holme by the ſea. Mr. Hemſted found it below Wiſbeach, and Mr. Skimſhire in Tydd marſh, Cambridgeſhire.] Mr. Miller, in the ſeventh edition of his Dictionary, 1759, ſays it was found on the coaſt of Norfolk by Mr. Scott, a gardener, now (1759) reſiding at Weybridge in Surry; and in the eighth edition (1768) he adds, that it has been ſince found in plenty in Lincolnſhire, by Joſeph Banks, Eſq. [now the Right Hon. Sir Joſeph Banks.—Hill, in his Flora Britanica (1780) ſays that it was found near Wells in Norfolk by Dr. Warſon, afterwards Sir William Watſon. In the firſt edition of Hudſon's Flora Anglica (1762) it is ſaid to grow on our ſea coaſts, but without mention of any particular place.

Dr. Smith remarks, that Plukenet's figure moſt reſembles S. echioides; and that Boccone's is too imperfect to be of any ſervice.

β. Root woody. Leaves all radical, imbricate-patulous, ſpatulate, quite entire. Stem a foot and half high, flexuoſe, round, leafleſs; branches alternate, with a ſcale at the baſe of each, which is embracing, ſhort, acute: theſe are ſubdivided, and are many times dichotomous: the lower ſterile, the upper flowering in corymbs. Flowers in ſeveral rows, oblong, ſubimbricate, one-ranked, erect. Calyx turbinate, with a white, ſcarioſe, five-cleft border. Corolla pale blue.

Native of Spain: abundant near the Convent of Santa Barbara, by Rivar, two miles from Madrid: flowering in june and july. It ſeems to be intermediate between the *reticulata* and *echioides*. The ſtem is upright in this, whereas in *reticulata* it is proſtrate: the leaves are ſpatulate, and not tubercled as in *echioides*; the petals alſo are united at the baſe [m].

According to Willdenow, this differs from the *reticulata* only in its ſmoothneſs, and in having the radical leaves larger.

The ſame author ſuſpects that the variety γ may be a diſtinct ſpecies. The leaves are linear-cuneiform ſharpiſh at the point; the flowers are larger and more diſtant.—It is a native of Siberia.

17. Leaves tongue-wedge-ſhaped, bluntiſh, not perfectly even. Panicle bifarious, jointed; joints divaricating, ſubtubercled: branchlets dichotomous. Calyxes ſmall, acute. Petals emarginate, pale blue with a purpliſh ſtreak [n].

Leaves radical, ſpreading in a roſe, obovate, tubercled, ſometimes ſpatulate, quite entire; on a broadiſh petiole. Scape ſlender, upright, branched at top. Branches filiform, panicled. Flowers diſtinct, ſolitary, ſeſſile, ſpreading, looſely racemed. Calyx thin, ſomewhat bowing, involved in an elongated, acute, tubercled bracte. Petals very narrow, ſcarcely longer than the calyx [o].]

[d] Scop. inſubr. [e] Linn. mant. [f] Vahl. [g] Desfontaines. [h] Alſo. [i] Hort. kew. [k] Thunb. prodr. [l] Engl. bot. & Smith brit. [m] Cavanilles. [n] Linn. ſyſt. [o] Desfontaines.

It

It is an annual plant, (rather biennial) with long narrow leaves, which are ſet with rough tubercles, like thoſe of Viper's Bugloſs. Stalks about eight inches high, dividing into two or three ſmall branches, which are terminated by ſhort reflexed ſpikes of pale-blue flowers, coming out late in auguſt, and ſeldom perfecting ſeeds in England.

[Native of the South of Europe, and in Barbary near Maſcar, in the cleſts of rocks. Cultivated in 1752, by Mr. Miller[p].

18. Radical leaves many, oblong, ſmooth, curled, ending in a ſharp point. Stems a foot high, branched, round, firmer than in the other ſpecies, ſometimes winged, three or four ſpreading round the bottom, where there is abundance of very elegant flowers which are larger than thoſe of the common Limonium and white, forming a handſome ſilvery head. The whole plant has a bitteriſh ſalt taſte[q].

Linneus remarks, that the root is biennial, and the calyxes undivided.

Native of Ruſſia. Introduced in 1776, by Chevalier Murray. It flowers in july and auguſt[r].]

19. Leaves about four inches long, and three quarters of an inch broad in the middle, diminiſhing gradually to both ends. The ſtalks riſe about five or ſix inches high, dividing into ſeveral ſpreading branches, which are again divided into ſmaller; theſe are terminated by ſpikes of pale-blue flowers ranged on one ſide the foot-ſtalk; the whole, when growing, being ſpread wide, has ſomewhat the appearance of an umbel of flowers. Theſe come out in auguſt, but never ripen ſeeds here. It was diſcovered by Tournefort in the Levant, whence he ſent the ſeeds to the royal garden at Paris.

[Native of Ruſſia. Cultivated by Mr. Miller in 1731. It flowers in june[s].

20. Leaves imbricate, flat above, rugged about the edge, mucronate-ſpiny at the end; the lower ones reflexed.—Native of Greece and the deſerts of Media.

21. Native of Siberia[t].

22. Leaves radical, obovate-lanceolate, even, petioled, obtuſe, with a terminating point: ſtem-leaves few. Scape almoſt naked, branched. Calyxes purpliſh, with five blood-red rays. Corollas purpliſh. It reſembles S. Limonium very much, but the leaves are blunter; the flowers are twice as large and coloured; and there are a few leaves on the ſcape above the root. Native of the Cape of Good Hope[u].

23. Native of the Cape of Good Hope.

24. Plant ſcarcely the length of a finger. Flowers pale red[x].

Stems ſhrubby, forming a cloſe tuft. Leaves very ſmall, obcordate, glaucous, rigid, perennial. Scape almoſt filiform, upright, branched. Flowers in a ſmall looſe panicle[y].—Native of the ſhores of the Mediterranean.

25. Native of the Canary iſlands, where it was found by Maſſon, and introduced in 1780. It flowers in ſeptember and october[z].

26. Native of Siberia, where it was found by Gmelin[a].—Introduced in 1781, by Meſſrs. Lee and Kennedy. It flowers moſt part of the ſummer[b].]

27. Stalk ſhrubby, about two feet high, dividing into ſeveral woody branches, which ſpread out on every ſide; the lower part of theſe are cloſely furniſhed with gray leaves, like thoſe of the Sea Purſlain, and of a thick conſiſtence. The branches are terminated by panicles of blue flowers, coming out ſingly at a diſtance from each other, having one funnel-ſhaped petal, with a long tube, and dividing into five ſpreading ſegments at top. It flowers from june till autumn, but never produces ſeeds in England.

Native of Sicily, where there is a variety which bears galls like thoſe upon the Oak; but the plants in England have no appearance of theſe.

[Leaves alternate, glaucous, rigid, rough, twiſted, perennial; with ſheathing petioles. Flowers axillary, ſolitary. Corolla one-petalled, five-cleft: tube incloſed in an obliquely truncate ſheath. The branches frequently bear galls.

Native of Barbary in wet ſand and ſalts near Kerwan[c]. Cultivated in 1732, by Mr. Miller[d].

28. Stem upright, round, covered with ſcales at bottom, branched. Leaves alternate, cluſtered, quite entire, obtuſe, ſmooth, thick, gradually leſſening to the baſe, an inch long, of the ſame form with thoſe of *St. monopetala*. Common peduncle round, longer than the leaves: pedicels flexuoſe, flattiſh on one ſide. Flowers minute. Glume four-valved: valves oblong, ſmooth, membranaceous and blunt at the edge. It has quite the ſame ſtructure as the preceding, but with an axillary inflorescence.—Native of Arabia.

29. Stem upright, round, the thickneſs of a gooſe quill, covered all over with imbricate, ovate, obtuſe, dry ſcales. Leaves towards the ends of the branches, cluſtered, cylindrical, ſometimes a little curved in, placed on brown ſheathing ſcales, even, coriaceous and ſolid, very blunt, mucronate, unequal, often an inch long. Spikes panicled. Flowers cluſtered. Common peduncle from the uppermoſt axils, two or three inches long, flexuoſe. Glume three valved, involving the calyx: valves unequal, concave, membranous at the edge, ſhorter than the calyx: the inner ones oblong, the outer one roundiſh. Calyx ſmooth, whitiſh, with five brown rays[e].—Native of Arabia and northern Africa.

30. Found by Thunberg at the Cape of Good Hope.

31. Native of Dauria in mountainous paſtures.

32. Stems round, ſomewhat woody, naked with alternate chaffs, panicled. Branchlets very much ſubdivided, in bundles, filiform, imbricate with very minute chaffs, terminated by a little briſtle. Flowers ſubimbricate, aſcending, directed one way, yellow[f].—Native of Spain, Portugal and Barbary.

33. Branches alternate, ſhorter than the ſtem. Under each branch a lanceolate-ſubulate, ſmoother ſtipule. Branches like the ſtem, with two obtuſe jointed branchlets. Linneus had not ſeen the radical leaves, nor the fructification[g].

The ſtem and branches are jointed: the joints under the branches end in an oblong, brown, ſmooth ſcale, membranous at the edge. Branchlets from the axils of the branches, having a ſimilar ſcale at the baſe. Spikes panicled from the end of the branches[h]. Native of Paleſtine.]

34. This is a biennial plant. The lower leaves, which ſpread on the ground, are indented almoſt to the midrib; theſe indentures are alternate and blunt. The ſtalks riſe a foot and half high, dividing upwards into ſeveral branches, having at each joint three narrow leaves ſitting cloſe to the ſtalks, from whoſe baſe proceeds a leafy membrane or wing which runs along on both ſides the ſtalk; theſe are rough and a little hairy. The ſtalks are terminated by panicles of flowers, which ſit upon winged peduncles, each ſuſtaining three or four flowers of a light blue colour, which continue long without fading. It flowers in july and auguſt, but unleſs the ſummer is warm and dry, the ſeeds do not ripen in England.

[Root-leaves decumbent, hirſute, running down into the petiole, widening gradually from the baſe upwards, obtuſe, lyrate-ſinuate; with the lobe obtuſe, often reverſed: ſtem-leaves in threes, narrow-lanceolate. Stem upright, dichotomous, with four or five leafy, ſtiffiſh, ſubhirſute, and ſometimes toothed wings. Flowers glomerate, corymbed, terminating, ſeſſile, ſenced with membranous, concave bractes, mucronate at the tip. Calyx funnel-form, with a blue, toothletted, widened border, reſembling a corolla. Petals five, pale yellow, ſhorter than the calyx, with an oblong blunt border[i].

This is one of thoſe few plants whoſe calyx is of a more beautiful colour than the corolla, which it does not loſe in drying. The flowers therefore, in a dried ſtate, are an ornament to the houſe in winter[k].

[p] Hort. kew. [q] Ray hiſt. [r] Hort. kew.
[s] Idem. [t] Linn. ſpec. [u] Linn. mant.
[x] Idem. [y] Deſfontaines. [z] Hort. kew.
[a] Linn. ſpec. [b] Hort. kew.
[c] Deſfontaines. [d] Hort. kew. [e] Vahl.
[f] Linn. ſpec. [g] Linn. mant. [h] Vahl.
[i] Deſfontaines. [k] Curtis.

Native of Sicily and the Levant. Cultivated by Mr. Miller in 1731[t].—But this ſingular ſpecies of Statice was long ſince an inhabitant of our gardens, for Parkinſon, in his Paradiſus ſays, "it hath been "ſent us out of Italy many years before either Guil-"laume Boel found it in Cales, or Cluſius in Ma-"lacca."

Since his time it appears to have been confined to few gardens: the nurſerymen have lately conſidered it as a newly-introduced ſpecies, and ſold it accordingly[u].

By what is ſaid above, it appears to be a native of Spain; and Deſfontaines found it in Barbary, on ſandy coaſts.

β. Mr. Miller makes a diſtinct ſpecies of the ſame plant, or a variety of it, which comes from Africa. He deſcribes it as] a biennial plant, with the lower leaves few, ſpear-ſhaped, hairy, ſlightly ſerrate, about two inches long, and half an inch broad. The ſtalk riſes about fifteen inches high, and at each joint has three narrow leaves, ending in acute points; from the baſe of theſe leaves is continued a leafy membrane, running along the ſtalk on each ſide; theſe ſtalks branch out but little, and are terminated by ſhort panicles of flowers, the peduncles of which are not winged: each peduncle ſuſtains two or three flowers of a bright blue colour, out of the middle of which ariſes another ſmall flower of a pale yellow colour. It flowered in july and auguſt 1757, but did not ripen ſeeds. It was raiſed by Mr. Miller in Chelſea garden, from ſeeds which were brought him from Africa.

[γ. Another variety was found by Dr. Shaw in Africa, with the wings of the ſtems membranaceous entire, and the bractes obtuſe and ſmooth, not ſharp and hiſpid. In β the leaves are leſs ſinuate.—In α the ſtem and branches are round below and not winged[v].

35. The plant is ſmaller than the *ſinuata*, but the ſtems and branches are round. The bractes are like thoſe of the *ſinuata*. The calyxes are white, and the corollas blue.—Native of Africa[w].

36. Root tuberous. Calyx and petals whitiſh.—Native of Perſia[x].

37. Root perennial, branched, fibrous, fragrant. Stems a cubit high, branched, diffuſed, winged with leafy triple decurrent margins, interrupted at each joint, waved, curled, the ſame colour and ſubſtance with the leaf, triangular at the lower baſe, green. Branches axillary, alternate, ſolitary or many, ſpreading. Leaves alternate, ſpreading: the radical ones ovate-lanceolate acute larger: the ſtem-leaves ſpatulate or obovate, ſharply acuminate narrowed at the baſe into the petiole, entire or ſcarcely toothletted, waved, one-nerved, veinleſs, ſqualid with white atoms, glaucous-green, permanent, from twelve to fifteen lines in length, and from ſix to nine in breadth. Petioles width, half-embracing, channelled on one ſide, angular on the other, the length of the leaf. Panicle terminating, compoſed of ſpikes, diſtich, diffuſed, with leaves ſometimes intermixed, four or five inches long. Spikes alternate, peduncled, the lower ones at the apex of the extreme branchlets from the axil of the upper leaf, bracted, directed the ſame way, halved, reflexed. Flowers ſeſſile, two from each glume, directed one way, aſcending, very cloſe, purple. Bractes double to each flower, imbricate, erect: outer alternate, ſeſſile, ovate, acute, concave, obſcurely coloured, with membranous edges: inner or proper glume two-flowered, larger, two-leaved; the outmoſt roundiſh, emarginate, compreſſed, with a green diſk and membranous ſides; the inmoſt oppoſite, minute, linear, membranaceous, pellucid. It differs from *ſinuata* in having entire leaves, frondeſcent and very curled ſtems.

Native of Morocco.—In the time of Guy de la Broſſe, the firſt prefect of the Paris garden, it was cultivated there; and a beautiful figure of this very elegant plant is extant among his inedited plates. It has ſince been introduced again by Profeſſor Louis Guillaume Le Monnier from African ſeeds[y].—It was introduced at Kew in 1784, by Mr. Francis Maſſon[z].

38. Leaves radical ſpatulate or ſpatulate-lanceolate, quite entire, narrowed to both ends, running into the petiole. Scape erect, with ſpreading branches; and a ſmall ovate acute ſcalelet preſſed cloſe to the baſe of the branches. Flowers racemed, directed one way, from the apexes of the branchlets. Border of the calyx and petals white. The leaves vary in ſhape.—Native of Barbary, by hot ſprings near Bone.

39. Leaves radical, glaucous, hoary, ſpatulate, obtuſe, rigid, quite entire, erect, running into a long petiole. Scape erect, round, firm, panicle-branched at top. Flowers in racemes, directed one way, from the top of the branches.—Native of Barbary, on rocks near La Calle[a].]

PROPAGATION AND CULTURE.

1. Thrift may be propagated by parting the roots in autumn, that the plants may take good root before froſt comes on, and that they may flower ſtronger than if they were planted in the ſpring. If they are permitted to ſtand long unremoved, they are ſubject to rot and decay, eſpecially in good ground.

6. The common Sea Lavender, and moſt of the other ſorts, are abiding plants, and will thrive in the open air. The Engliſh ſorts may be eaſily procured from the places where they grow. They may all be tranſplanted at almoſt any time of the year, provided they are carefully taken up, preſerving ſome earth to their roots, and in hot weather ſhaded till they have taken new root; after which time they will require no other culture but to keep the ground clean from weeds, and in the ſpring to ſtir up the ground between them to looſen it. As theſe plants do not require much culture, or take up much room, a few of each ſort may be allowed to have a place in gardens, where there is room, for the ſake of variety. Theſe plants do not propagate very faſt in gardens, ſo the roots need not be removed oftener than every third or fourth year, at which time they may be ſlipped to increaſe them; the beſt time for this is in the autumn, that the plants may be well rooted before the ſpring, otherwiſe they will not flower very ſtrong the following ſummer. They ſhould be planted in a loamy ſoil, on an eaſt aſpected border, where they may enjoy the morning ſun, but ſcreened from the great heat in the middle of the day; in ſuch a ſituation the roots will continue ſeveral years, and flower as well as in their native ſoil.

Theſe plants may alſo be propagated by ſeeds, ſo that ſuch of them as do not grow naturally in England, may be obtained by procuring their ſeeds from abroad. Theſe ſhould be ſown upon a border expoſed to the morning ſun, and on a ſoft loamy ſoil, early in the ſpring, for the ſeeds lie a conſiderable time in the ground before the plants come up; therefore the ground muſt be kept entirely clean from weeds, and if the ſeaſon ſhould prove very dry, the border ſhould be watered two or three times a week, otherwiſe the ſeeds will lie a whole year before they vegetate; when the plants come up, they muſt be kept clean from weeds, and in very dry weather watered, and in the autumn they may be tranſplanted where they are deſigned to remain.

34. This and another ſpecies or two (17. 18.) are biennial plants, and rarely perfect their ſeeds in England, ſo that unleſs freſh ſeeds can be procured from warm countries, where they ripen well, it will be very difficult to continue the ſorts. If the ſeeds of theſe can be obtained time enough to ſow them in the autumn, the plants will come up the following ſpring; but when they are ſown in the ſpring, they ſeldom grow the ſame year. Theſe ſeeds ſhould be ſown on a border of loamy earth, not ſtiff or moiſt, and expoſed to the ſouth; but when the ſun is warm, the border ſhould be ſhaded with mats, to prevent the earth from drying too faſt. When the plants come up, they muſt be kept clean from weeds; and if they are too cloſe, ſome of them ſhould be carefully taken out as ſoon

[t] Hort. kew. [u] Curtis. [v] Linn. ſpec. [w] Linn. ſuppl. [x] Gmelin. [y] L'Heritier. [z] Hort. kew. [a] Deſfontaines.

as they are fit to remove, and planted in ſmall pots, placing them in the ſhade till they have taken new root; then they may be placed where they may enjoy the morning ſun till autumn, when they ſhould be put into a hot-bed frame, where they may be ſcreened from hard froſt, but enjoy the free air in mild weather; and thoſe plants which are left in the border where they were ſown, muſt be covered with mats in hard froſt; for though they will often live through the winter in mild ſeaſons, yet hard froſt will always deſtroy them. The following ſummer the plants will flower, and if the ſeaſon proves warm and dry, they will ripen ſeeds, and the roots ſoon after decay.

[The common practice in treating *Statice* Limonium, is to conſider it as a greenhouſe plant; and indeed it appears to the greateſt advantage in a pot; it is much diſpoſed to throw up new flowering-ſtems; hence by having ſeveral pots of it, ſome plants will be in flower throughout the ſummer. On this account, and for the ſingularity of its large blue calyx, it is a plant that merits attention. Though in a manner a biennial, it may be often increaſed by parting its roots. It ſometimes produces ſeeds in England, but ſparingly[1]. The *echioides* (n. 17.) is alſo a greenhouſe plant: but the *ſpecioſa* is ſufficiently hardy.]

25. 26. 27. Statice pectinata, ſuffruticoſa, and monopetala are ſhrubby plants, which are too tender to live through the winter in the open air in England, ſo the plants muſt be removed into ſhelter in the autumn, but they only require protection from hard froſt: theſe plants may be placed with Myrtles, Oleanders, and other hardy green-houſe plants, where they often continue to flower great part of winter, and make a pretty variety. Theſe ſorts are eaſily propagated by cuttings, which, if planted in july on a ſhady border, and duly watered, will take root in ſix or ſeven weeks, when they ſhould be taken up and planted into pots filled with light loamy earth, placing them in the ſhade till they have taken root; then they may be expoſed till october, at which time they muſt be removed into ſhelter.

[STAVE'SACRE. See *Delphinium Staphiſagria*.

STELIS. See *Loranthus*.

STELLA. See *Aſtragalus Stella*.

STELLARIA. (*From the ſtar-like form of the flowers.*)
Lin. gen. n. 568. *Reich. n.* 617. *Schreb. n.* 773. *Juſſ.* 301. *Gærtn. t.* 130. Alſine. *Tournef. t.* 126.
Claſſ. 10. 3. Decandria Trigynia.
Nat. order of *Caryophylli. Caryophylleæ*, Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* five-leaved: *leaflets* ovate-lanceolate, concave, acute, ſpreading, permanent.
COR. *Petals* five, two-parted, flat, oblong, ſhrivelling.
STAM. *Filaments* ten, filiform, ſhorter than the corolla: alternately longer and ſhorter. *Anthers* roundiſh.
PIST. *Germ* roundiſh. *Styles* three, capillary, ſpreading. *Stigmas* obtuſe.
PER. *Capſule* ovate, covered, one-celled, ſix-valved.
SEEDS very many, roundiſh, compreſſed.
OBS. St. radians *has the petals five-parted.*

ESSENTIAL CHARACTER.

Cal. five-leaved, ſpreading. *Pet.* five, two-parted. *Capſ.* ſuperior, one-celled, many-ſeeded, ſix-toothed at top.

SPECIES.

1. Stellaria nemorum. *Wood Stitchwort.*
Lin. ſpec. 603. *Fl.* 422. *Reich.* 2. 356. *Willd.* 2. 710. *Fl. ſuec. n.* 391. *Hudſ. angl.* 190. *Wither. arr. ed.* 3. 417. *Smith brit.* 473. *engl. bot. t.* 92. *Lightf. ſcot.* 228. *Fl. dan. t.* 271. *Hoffm. germ.* 152. *Roth. germ.* 1. 190. 2. 485. *Scop. carn. n.* 532. *Krock. ſilef. n.* 668. *Laers herborn. n.* 328. *Neck. gallob.* 196. *Villars dauph.* 3. 617. *Allion. pedem. n.* 1719. *Knipb. cent.* 10. *n.* 86.
Myoſotis. *Hall. helv. n.* 886. *a.*
Alſine nemorum. *Schreb. ſpicil.* 30.
A. altiſſima nemorum. *Baub. pin.* 250.
A. hederacea montana maxima. *Col. ecphr.* 290. *f.* 2. *Park. theat.* 762. 1.
A. nemoroſa maxima montana. *Raii hiſt.* 1029.
A. montana, folio Smilacis inſtar, flore laciniato. *Mor. hiſt. ſ.* 5. *t.* 23. *f.* 2. *Raii ſyn.* 347.
β. A. montana latifolia, flore laciniato. *Baub. pin.* 250. *Rupp. jen.* 109.
Lower leaves cordate petioled, upper ovate ſeſſile, panicle dichotomous.
2. Stellaria dichotoma. *Dichotomous Stitchwort.*
Lin. ſpec. 603. *Reich.* 2. 356. *Willd.* 3. 710. *Pall. it.* 1. 72. *ic.* 3. 343. *Smith ic. ined.* 1. *t.* 14.
Alſine petalis emarginatis, foliis ex cordato-ovatis acutis. *Gmel. ſib.* 4. 149.
Leaves ovate ſeſſile, ſtem dichotomous, flowers ſolitary, fruiting peduncles reflexed.
3. Stellaria radians. *Ray-flowered Stitchwort.*
Lin. ſpec. 603. *Fl.* 422. *Reich.* 2. 356. *Willd.* 2. 710.
Alſine foliis ſalignis margine ſcabris, petalis ſemiquinquefidis. *Gmel. ſib.* 4. 146.
A. ſaxatilis, anguſto & oblongo ſalicis folio, flore albo tenuiſſime laciniato. *Amm. ruth.* 83. *t.* 10.
Leaves lanceolate ſerrulate, petals five-parted.
4. Stellaria bulboſa. *Bulbous Stitchwort.*
Lin. ſpec. ed. Willd. 2. 711. *Jacqu. collect.* 3. 21. *ic. rar.* 3. *t.* 468. *Hoffm. germ.* 153.
Leaves ovate-lanceolate veinleſs beneath, ſtem ſomewhat branched, peduncle one-flowered, root filiform creeping bulbiferous.
5. Stellaria Holoſtea. *Greater Stitchwort.*
Lin. ſpec. 603. *Fl.* 422. *Reich.* 2. 357. *Willd.* 2. 711. *Gærtn. fruct.* 2. 228. *Hudſ. angl.* 190. *Wither. arr. ed.* 3. 417. *Smith brit.* 474. *engl. bot. t.* 511. *Curt. lond.* 2. *t.* 30. *Lightf. ſcot.* 229. *Relh. cant. ed.* 2. *n.* 369. *Sibth. oxon. n.* 408. *Dickſ. hort. ſicc.* 7. 6. *Fl. dan. t.* 698. *Hoffm. germ.* 152. *Roth. germ.* 1. 191. 2. 486. *Pollich pal. n.* 420. *Neck. gallob.* 196. *Scop. carn. n.* 534. *Krock. ſilef. n.* 670. *Villars dauph.* 3. 618. *Allion. pedem. n.* 1721. *Gmel. ſib.* 4. 145. *Knipb. cent.* 10. *n.* 85. *Mill. illuſtr.*
Alſine foliis lanceolatis. *Lin. hort. cliff.* 172. *fl. ſuec. n.* 392. *Hall. helv. n.* 884. *Scop. carn. ed.* 1. 497. *n.* 4.
Caryophyllus holoſteus arvenſis glaber flore majore. *Baub. pin.* 210. *Raii hiſt.* 1027. *ſyn.* 346. *Petiv. brit. t.* 58. *f.* 1.
Gramen. *Fuchſ. hiſt.* 136.—leucanthemum. *Ger.* 43. *emac.* 47. *Park. theat.* 1325. *ic. Dod. pempt.* 563. *Baub. hiſt.* 3. 361.
Leaves lanceolate ſerrulate, petals bifid, calyx nerveleſs.
6. Stellaria graminea. *Leſſer Stitchwort.*
Lin. ſpec. 604. *Fl.* 422. *Reich.* 2. 357. *Willd.* 2. 711. *Hudſ. angl.* 190. *Wither. arr. ed.* 3. 419. *Smith brit.* 475. *engl. bot. t.* 803. *Relh. cant. ed.* 2. *n.* 370. *Sibth. oxon. n.* 409. *Fl. dan. t.* 698. *Roth. germ.* 1. 191. 2. 487. *Pollich pal. n.* 421. *Laers herborn. n.* 330. *Krock. ſilef. n.* 671. *Neck. gallob.* 195. *Scop. carn. n.* 535. *Villars dauph.* 3. 619. *Allion. pedem. n.* 1722. *Knipb. cent.* 10. *n.* 84.
S. arvenſis. *Hoffm. germ.* 152. *Ehrh. herb.* 126.
Alſine foliis lincaribus. *Lin. lapp. n.* 187. *ſuec. n.* 372. *hort. cliff.* 172.
A. pratenſis gramineo folio anguſtiore. *Tournef. inſt.* 243.
Caryophyllus holoſteus arvenſis glaber flore minore. *Baub. pin.* 210. *Raii hiſt.* 1027. *ſyn.* 346. *Pet. brit. t.* 58. *f.* 3.
Gramen leucanthemum alterum. *Ger.* 43. 2.
Gr. leuc. minus. *Park. theat.* 1325. *n.* 2.
Gr. floridum minus. *Tabern. ic.* 232.
Gramini Fuchſii leucanthemo affinis & ſimilis herba. *Baub. hiſt.* 3. 361. 3.
β. St. dilleniana. *Moench. haſſ. n.* 364. *t.* 6. *Flor. dan. t.* 414. *Hoffm. germ.* 152. *Roth. germ.* 1. 191. 2. 489.
Leaves linear-lanceolate quite entire, panicle terminating divaricating, calyx three-nerved equal, or nearly ſo, to the petal.

7. Stellaria

[1] Curtis magaz.

7. Stellaria glauca. *Glaucous Marſh Stitchwort.*
Wither. arr. ed. 3. 420. Smith brit. 475. Relh. cant. ed. 2. n. 371.
Stellaria media. *Sibth. oxon. n. 410. Abbot bedf. n. 323.*
St. paluſtris. *Heſſm. germ. 152. Willd. ſpec. 2. 710.*
St. graminea β. *Lin. ſpec. 604. Reich. 2. 357. Hudſ. angl. 190.*
Alſine folio gramineo anguſtiore paluſtris. *Dill. app. 69.*
A fol. gramineis, petalis bipartitis. *Gmel. ſib. 4. 145. t. 61. f. 2.*
Caryophyllus holoſteus arvenſis medius. *Raii ſyn. 347.*
Leaves linear-lanceolate quite entire glaucous, peduncles erect, calyx three-nerved ſhorter than the petals.
8. Stellaria craſſifolia. *Thick-leaved Stitchwort.*
Lin. ſpec. ed. Willd. 2. 712. Ehrh. beitr. 3. 60. Timm. prodr. n. 299. Heſſm. germ. 153.
Leaves oblong-lanceolate thickiſh glaucous, peduncles one-flowered ſolitary axillary, petals bigger than the calyx, ſtem upright.
9. Stellaria uliginoſa. *Bog Stitchwort.*
Curt. lond. 6. t. 28. Withe. arr. ed. 3. 420. Smith brit. 476. engl. bot. 1074. Relh. cant. ed. 2. n. 372. Sibth. oxon. n. 411. Roth. germ. 1. 191. 2. 489. Villars dauph. 3. 616.
St. Alſine. *Lin. ſpec. ed. Willd. 2. 713. Heſſm. germ. 153. t. 5.*
St. fontana. *Jacqu. collect. 1. 327.*
St. aquatica. *Pollich pal. n. 422.*
St. dilleniana. *Dzers herborn. n. 331.*
St. hypericifolia. *Wiggers holſat. 34. Allion. pedem. n. 1720.*
St. graminea γ. *Lin. ſpec. 604. Reich. 2. 357. Fl. ſuec. n. 393. Hudſ. angl. 190. Fl. dan. t. 415.*
St. lateriflora. *Krock. ſileſ. n. 673. t. 4.*
Alſine. *Hall. helv. n. 881. Ger. prov. 403. 2.*
A. aquatica media. *Bauh. pin. 251. Tournef. inſt. 243. Mor. hiſt. ſ. 5. t. 23. f. 8.*
A. longifolia, uliginoſis proveniens locis. *Bauh. hiſt. 3. 365. 2. Raii hiſt. 1030. ſyn. 347. Petiv. brit. t. 58. f. 4.*
A. fontana. *Ger. 490. 9. emac. 613. 8.*
Leaves elliptic-lanceolate quite entire calleus at the tip, flowers ſubpanicled lateral, petals ſhorter than the calyx.
10. Stellaria undulata. *Wave-leaved Stitchwort.*
Lin. ſyſt. 422. ſpec. ed. Willd. 2. 713. Thunb. jap. 185.
Leaves oblong waved, ſtem angular, flowers axillary.
11. Stellaria ceraſtoides. *Alpine Stitchwort.*
Lin. ſpec. 604. Reich. 2. 358. Willd. 2. 714. fl. ſuec. n. 394. Smith brit. 477. engl. bot. t. 911. ic. ined. 1. t. 15. Withe. arr. ed. 3. 421. Hull 97. Dickſ. in Linn. tranſ. 2. 290. hort. ſicc. 2. 11. Retz. obſ. 1. 18. Fl. dan. t. 92. Gunn. norv. n. 951. t. 6. f. 2. Alt. hafn. 10. t. 3. f. 12. Vahl ſymb. 3. 59.
Ceraſtium refractum. *Allion. pedem. n. 1728.*
C. trigynum. *Villars dauph. 3. 645. t. 46.*
Myoſotis. *Hall. helv. n. 890.*
Leaves elliptic-oblong obtuſe, ſtem ſubbiflorous, calyxes one-nerved pubeſcent.
12. Stellaria multicaulis. *Many-ſtalked Stitchwort.*
Lin. ſpec. ed. Willd. 2. 714.
St. ceraſtoides. *Jacqu. collect. 1. 254. t. 19.*
Leaves lanceolate ſmooth, branches upright quite ſimple, peduncles ſubſolitary terminating, petals bigger than the calyx.
13. Stellaria humifuſa. *Procumbent Stitchwort.*
Lin. ſpec. ed. Willd. 2. 714. Swartz nov. act. holm. 1789. p. 111. t. 4. f. 1. Roth. act. hafn. 10. 447. t. 4. Fl. dan. t. 978. Retz. prodr. ſcand. ed. 2. n. 550.
Leaves ovate weſtly on one ſide ſeſſile, ſtems procumbent four-cornered, peduncles ſolitary abbreviated.
14. Stellaria biflora. *Two-flowered Stitchwort.*
Lin. ſpec. 604. ſyſt. 422. Reich. 2. 358. Willd. 2. 715. fl. ſuec. n. 395. Swartz nov. act. holm. 1788. p. 36. t. 1. f. 1.
Sagina ramis erectis biforis. *Lin. lapp. n. 158. Fl. dan. t. 12. Roth. act. hafn. 10. t. 3. f. 11.*
Leaves awl-ſhaped, branches two-parted, petals emarginate, calyxes ſtriated.
15. Stellaria groenlandica. *Groenland Stitchwort.*
Lin. ſpec. ed. Willd. 2. 715. Retz. prodr. ſcand. ed. 2. n. 552.
Stems decumbent ſubbiflorous, leaves linear ſubciliate at the baſe, petals emarginate, fruits globular.
16. Stellaria Arenaria. *Sandwort Stitchwort.*
Lin. ſpec. 604. Reich. 2. 358. Willd. 2. 716.
Leaves ſpatulate, ſtem erect bifid, branches alternate, petals emarginate.
17. Stellaria ſcapigera. *Scape-bearing Stitchwort.*
Lin. ſpec. ed. Willd. 2. 716.
Stemleſs, leaves linear-lanceolate three-nerved, peduncles radical one-flowered.

DESCRIPTIONS, *&c.*

1. Root perennial, ſmall, creeping. Stems ſeveral, weak and lax, three feet high, branched, hollow, round, leafy, with hairs ſcattered here and there on it, chiefly in the upper part. Leaves oppoſite, pale green, brittle and ſomewhat ſucculent, quite entire, a little hairy. The numerous ſtar-like flowers are viſible at a diſtance, and of a delicate ſtructure when cloſely examined. They are white and upright, in a terminating, dichotomous, many-flowered, divaricating, pubeſcent panicle, having a pair of ſmall leaves at each of the forkings. Calyx hairy at the baſe, the leaflets ſcarioſe-white at the edge. Petals ſpreading very much, cloven almoſt to the baſe, the ſegments linear-elliptic and divaricating. Styles conſtantly three. Fruiting calyxes turned downwards. Capſule elliptic, with a ſix-toothed mouth [a].

According to Dr. Withering, it is from five to twelve inches high; the ſtems very brittle; the whole plant hairy; the leaves rather ſtiff, underneath hairy only on the veins and midrib; the lateral fruitſtalks ſolitary, the terminating ones forming a kind of leafy panicle, widely ſtraddling, and rather turned down after flowering.

Linnæus, in his Flora Lapponica (n. 186.) confounded this plant with Alſine media and Ceraſtium aquaticum. The former may be known in all its numerous varieties, from this and every other plant of its natural order, by the hairy line on one ſide of its ſtem, firſt pointed out by Mr. Curtis. The latter is diſtinguiſhed from this Stellaria by being viſcid, and much more hairy; its flowers much leſs conſpicuous; calyx more oval and leſs membranous; panicle more leafy; and eſpecially by all the ſtem-leaves being ſeſſile, neither are they lengthened out into ſo long a point; not to mention its five ſtyles, which are conſtant [z], as are the three ſtyles of this.

Native of Europe, in woods. In Britain, it is confined to moiſt woods and borders of clear ſhaded ſprings, in the northern counties of England, and the low-lands of Scotland; flowering in may. Found by Caſterton mill near Kirkby Lonſdale, &c. in Weſtmoreland, by Dr. Smith, near Kendal by Mr. Gough, near Darlington by Mr. Robſon [y]; formerly by Dr. Richardſon in Bingley pariſh [x]. In Scotland, about Broomholm and Langholm in Eſkdale, and at Springkeld and Hoddam-Caſtle, in Annandale abundantly: obſerved alſo by Dr. Parſons, at Meavis-Bank [a].

2. Root annual. Stem round, pubeſcent, very much branched, ſpreading every way, many times dichotomous, leafy, many-flowered. At each diviſion of the ſtem is a pair of leaves, which are acute and pubeſcent. The flowers come out ſingly from the diviſions of the ſtem, on round pubeſcent peduncles, an inch long, upright when in flower, but bent back as if broken when in fruit. Calyx pubeſcent, with acute leaflets, ſcarcely ſtriated, a nerve running along the middle, the margin white and ſcarioſe. Corolla white: petals length of the calyx, obovate, two-lobed at the end but not deeply divided; lobes obtuſe. Filaments nearly equal, a little ſhorter than the petals. Germ globular. Styles divaricating a little, length of the ſtamens. Stigmas obtuſe, recurved. Capſule ovate,

[a] Smith brit. & engl. bot. [x] Engl. bot.
[y] Engl. bot. and With. [z] Ray ſyn. [a] Lightfoot.

ſmooth,

ſmooth, five-valved, opening at top. Seeds angular, rugged, collected into a ball.

Linnæus had it from Gmelin, and it is a native of the mountains of Siberia. It has been confounded with a variety of the preceding. Haller deſcribes ſuch an one as the *dichotoma*, and then ſays that the two ſpecies do not differ. The true *dichotoma* is not known to be a native of Switzerland [b].

Introduced about 1774 at Kew. It flowers in july [c].

3. Native of Siberia, in bogs.

4. This plant at firſt ſight very much reſembles *Trientalis europæa*. The ſtem ſometimes has a branch or two. The leaves are veined above, but veinleſs beneath. Peduncles one-flowered, long, moſtly terminating, but ſometimes there is an axillary one or two.—Native of the mountains of Carinthia, in moiſt ſhady places [d].

5. Root perennial, creeping, weak, ſlender, jointed, ſending down fibres to a conſiderable diſtance. Stems ſeveral, growing thick together, about a foot high, decumbent at the baſe, ſlender and very delicate, then upright, ſupporting themſelves among buſhes or graſs, otherwiſe the leaſt breath of wind would lay them proſtrate; they are ſquare, jointed, rugged at the angles immediately under the joints, leafy, brittle, but with a ſtrong woody ſtructure in their inner part, as is the caſe with moſt of this tribe. Leaves in pairs at each joint, ſeſſile, long, acuminate, a little revolute and finely ſerrulate at the edge, or rather ſet with briſtles or fine prickles, the midrib ſharp and alſo ſet with ſmall prickles; above ſmooth, ſlightly glaucous, with a groove running along the middle. Flowers on very long, erect, rugged peduncles, from the axils of the upper pair of leaves, forming a ſort of dichotomous panicle. Calyx-leaves lanceolate, nerveleſs, a little membranous at the edges. Corolla white; petals obcordate, cloven about half way down. Filaments ſhorter than the corolla; five alternate ones furniſhed at bottom with a yellowiſh gland. Capſule globular, containing ſix or ſeven, kidney-ſhaped brown ſeeds [e].—According to Curtis, it is ſix-valved, and for the moſt part has five or ſix largiſh ſeeds, of a deep orange-colour and beautifully notched, like that of Chickweed (Alſine media) but larger. Gærtner deſcribes the capſule as globular, thin, ſubdiaphanous, ſix-valved, opening down to the baſe. Seeds about twelve, biggiſh, globular-reniform, beautifully muricated with pointed tubercles in diſtinct parallel rows, of a yellow-rufeſcent colour. Receptacle ſhort, free, in the bottom of the capſule, compoſed of ſmall fungous tubercles, among which filiform umbilical chords go to the upper ſeeds.

Native of Europe. Very frequent in woods, among buſhes, and about dry hedge bottoms in England; flowering in may and june. Its large brilliant white ſtarry bloſſoms render it conſpicuous in the ſpring.

6. Root perennial creeping. The whole habit much like that of the preceding, but ſmaller and of a graſs-green not glaucous colour. Stem and flower-ſtalks perfectly ſmooth. Leaves entire, and ſcarcely even rugged at the edge. Panicle divaricated. Calyx-leaves pale, with three acute green ribs, which, as Dr. Stokes obſerves, are not to be found in *S. heloſtea*. Petals about as long as the calyx or longer, very deeply divided. Anthers of a pale reddiſh hue.

Native of Europe. The white ſtarry bloſſoms of this delicate plant prettily beſpangle furze-buſhes, heath, and low broom, on a gravelly or ſandy ſoil; and its herbage being concealed by the buſhes or graſs, and the ſtalks of the panicle very ſlender, the flowers ſeem ſuſpended in air. They are principally obſervable in june and july [f].

7. Very nearly allied to the preceding, but the leaves glaucous, and quite ſmooth about the edge. The ſtem alſo is ſmooth. Peduncles erect, axillary and terminating, alternate, ſometimes panicled. Flowers almoſt twice as large as in the preceding. Calyx acuminate, leſs acutely three-nerved. Petals obcordate, almoſt twice as long as the calyx. Anthers pale red [g].

Native of Germany and England. Flowering in june and july.—Mr. Stoneſtreet found it in the Iſle of Ely. Dr. William Sherard near Oxford, and Dr. James Sherard in Peckham fields. Ray found it abundantly on the fen banks of the Iſle of Ely [h]. Mr. Relhan, between Ely and Stuntney, on Bottiſham Load, Gamlingay bogs, and Bardolph fen near Wiſbeach. Dr. Sibthorp on Otmore, in Oxfordſhire. Dr. Abbot on Ampthill bogs, and in Ford-end ditches, Bedfordſhire. Dr. Withering, about Falmouth.

8. Leaves ſeſſile, quite entire, ſmooth. Peduncles from the forks, upright when in flower, reflexed when in fruit. Calyx-leaves ovate-lanceolate, much ſhorter than the petals. Annual.—Native of Germany, in moiſt meadows [i].

9. Root annual, ſmall and fibrous. Herb weak and ſlender, ſmooth, of a pale and ſomewhat glaucous green. Stems branched, quadrangular, leafy. Leaves rather elliptical, furniſhed with many parallel veins, entire but waved on the margin, tipped with a ſmall callous point. Flower-ſtalks axillary and terminating, ſpreading, generally three together, of which two are three-cleft and three-flowered, the remaining one ſingle-flowered, all furniſhed with membranous lanceolate bractes. Flowers ſmaller than in any other Britiſh ſpecies. Calyx-leaves three-nerved, the outermoſt fringed. Petals greeniſh-white, ſhorter than the calyx. Dr. Stokes has obſerved that the ſtyles vary from three, the natural number, to four or five. The peculiar inflorescence, the ſhort petals, the form and ſtructure of the leaves, mark this ſpecies with ſufficient preciſion [k].

Mr. Curtis remarks, that the leaves are united at the bottom, above half an inch in length, and two or three lines in breadth, frequently growing to one ſide of the ſtalk, and bending towards each other ſo as almoſt to touch at the points, and that the tips are conſpicuouſly brown and callous: alſo, that the flowers would be terminating, did not a new ſhoot, rather than a continuation of the ſtem, proceed from the panicle. Seeds numerous, minute, roundiſh, flattened, wrinkled, of a reddiſh brown colour.

Native of Europe, on the ſides of ſprings, rivulets, ditches and wet ſpringy meadows. In England not uncommon. It flowers in june and july.

10. Stem decumbent, herbaceous, tender. Branches angular, erect, a little ſubdivided, weak, ſmooth, a hand in length. Leaves oppoſite, ſeſſile, acute, ſmooth, length of the internodes. Flowers axillary and terminating, two or three together, on capillary one-flowered peduncles, longer than the leaves. Calyx ſmooth.—Native of Japan, by way ſides; flowering there in april [l].

11. Root perennial, creeping. Stems diffuſe, branched at the bottom, leafy, marked with a ſlender alternate hairy line, as in the common Chickweed. The flower-ſtalks, which grow about two together at the extremity of the ſtem, are downy in every part. Leaves oppoſite, lanceolate or ſomewhat ſpatulate, blunt, entire, ſmooth, often leaning to one ſide. Flowers erect, white. Calyx-leaves obtuſe, ſingle-ribbed, downy and viſcid at the baſe, membranous in the margin. Petals about twice as long as the calyx, cloven half way down, narrow. Styles ſometimes four or five; teeth of the capſule double their number. Seeds rough, pale brown. Linnæus, after publiſhing an excellent deſcription in his Flora Suecica, confounded other plants with it.

Native of the mountains of Lapland, Norway, Switzerland, France, Piedmont and Scotland. Mr. Dickſon firſt made it known as a Britiſh native. He found it on Ben Nevis in 1789. Mr. Mackay alſo gathered it there and on the mountains to the north of Invercauld. It flowers in june [m].

12. This is very different from the preceding. Root creeping, filiform. Branches or ſtems quite ſimple erect numerous from the root. Leaves ſmooth. Peduncles terminating, one, two or three together; erect. It differs from the next above chiefly in the ſmoothneſs of the leaves, and its peduncles being terminating,

[b] Smith ined. [c] Hort. kew. [d] Willdenow. [e] Smith brit. and engl. bot. Curt. lond. and With. [f] Engl. bot. [g] Smith brit.

[h] Ray ſyn. [i] Ehrhart and Willdenow. [k] Engl. bot. [l] Thunberg. [m] Engl. bot.

whereas that produces two peduncles which are upright below the top of a procumbent ſtem: the habit alſo is very different.—Native of the mountains of Carinthia.

13. This is an annual plant, with the petals a little larger than the calyx.—Native of Sweden and Norway [a].

14. This is a ſmall plant, with the appearance of a *Sagina*. Leaves radical, awl-ſhaped, collected into a tuft. Stem a finger's length, filiform, for the moſt part naked; cloven at top into two peduncles, with a pair of leaves under each, and another peduncle in the middle, with two leaflets [c]. The petals are only ſlightly emarginate, and therefore very near thoſe of *Arenaria*; of the ſame ſize with the calyx.—Native of the mountains of Lapland. Perennial [e].

15. This alſo is a ſmall plant, with the leaves ſomewhat fleſhy, and ſome of thoſe on the ſtem ciliate at the edge with long hairs. Flowers large in proportion to the plant. Calyxes naked: leaflets ovate, obtuſe. Petals by no means bifid; ſcarcely emarginate.—Native of Groenland [g].

16. Root annual, fibrous. Stem round, a ſpan high, pubeſcent and ſomewhat clammy with ſpreading hairs. Branches alternate, almoſt the length of the ſtem. Leaves ſeſſile, ovate at the top, linear and narrower towards the baſe, hairy beneath and along the edge, but ſcarce apparently ſo above. The firſt flower comes from the forking of the ſtem; the reſt alternately from the axils of the branches: all of them biggiſh. Peduncles ſtraight, longer than the leaves. Calyx clammy, like the whole plant, purpliſh at the tip, as are alſo the floral leaves. Corolla bell-ſhaped, longer than the calyx, white, very blunt, with the petals ſcarce manifeſtly emarginate. Stamens white, the ſame length with the calyx. Anthers blueiſh. Germ globular. Styles three, the length of the ſtamens.—Native of Spain [i].

17. Leaves cluſtered at the root, half an inch long, acuminate, very ſlightly three-nerved, rugged at the edge. Peduncles radical, upright, an inch and half long, filiform, one-flowered. Calyx-leaves lanceolate, ſomewhat membranous at the edge, acute, three-nerved. Petals linear, cloven to the very baſe, of the ſame length with the calyx. Stamens ſhorter than the petals. Germ globular. Styles three, filiform. Flower of the ſame ſize as in *St. graminea*. Perennial. Native country unknown [k].

PROPAGATION AND CULTURE.

See ARENARIA.

STELLARIA. See *Alchemilla*, *Alſine*, *Arenaria*, *Callitriche*, *Ceraſtium*, *Spergula*.

STELLARIS. See *Ornithogalum*.

STELLERA. (*So named by Gmelin, in memory of Georg. Wilh. Steller, adjunct of the Academy at Peterſburgh, who died in Siberia in* 1746. *For plants collected by him in Kamtſchatka, ſee* Amoen. acad. 2. 337.)

Lin. gen. n. 488. *Reich. n.* 529. *Schreb. n.* 667. *Gærtn. t.* 39. *Juſſ.* 77. Chamæjaſme. *Amm.*

Claſſ. 8. 1. Octandria Monogynia.

Nat. order of *Vepreculæ*. *Thymeleæ*, Juſſ.

GENERIC CHARACTER.

CAL. none.

COR. one-petalled, funnel-form, permanent: *tube* filiform, long: *border* four or five-cleft, with the lobes ovate.

STAM. *Filaments* eight or ten, very ſhort. *Anthers* oblong, alternately in the middle of the tube, and within the throat.

PIST. *Germ* ſubovate. *Style* very ſhort, permanent. *Stigma* headed.

PER. none.

SEED one, ſhining, beaked. *Nut.*

OBS. S. Paſſerina *has eight, and* Chamæjaſme *ten ſtamens.*

ESSENTIAL CHARACTER.

Cal. none. *Cor.* four-cleft. *Stam.* very ſhort. *Nut* one, beaked.

SPECIES.

1. Stellera Paſſerina. *Flax-leaved Stellera.*
   Lin. ſpec. 512. *ſyſt.* 373. *Reich.* 2. 197. *Willd.* 2. 429. *amoen.* 1. 400. *Hall. helv. n.* 1028. *Hoffm. germ.* 137. *Roth. germ.* 1. 171. 2. 446. *Pollich pal. n.* 381. *Krock. ſilef. n.* 601. *Sauv. monſp.* 69. *Villars dauph.* 3. 519. *Allion. pedem. n.* 1997. *Jacqu. collect.* 1. 65. *Gærtn. fruct.* 1. 186.
   Paſſerina. *Baub. hiſt.* 3. 456. *Fuchſ. hiſt.* 535. *Guett. ſtamp.* 25.
   Lithoſpermum linariæ folio germanicum. *Baub. pin.* 259.
   Linaria altera botryoides montana. *Col. ecphr.* 1. 82. *t.* 80.
   Lingua paſſerina. *Tabern.* 828. *Trag.* 535.
   Leaves linear, flowers axillary ſeſſile four-cleft.
2. Stellera Chamæjaſme. *Siberian Stellera.*
   Lin. ſpec. 513. *Reich.* 2. 197. *Willd.* 2. 429. *amoen.* 1. 400. *Gmel. ſib.* 3. 27.
   Chamæjaſme radice mandragoræ. *Amm. ruth.* 16. *t.* 2.
   Leaves lanceolate, flowers terminating racemed naked five-cleft.

DESCRIPTIONS, *&c.*

1. This is an annual plant, reſembling *Thoſium alpinum*. Root ſlender, fuſiform, ſcarcely branched, yellow on the outſide, white within. Stem upright, from a hand or half a foot to a foot in height, very much branched from the very bottom. Leaves alternate, ſeſſile, acute, quite entire, ſmooth, ſpreading and bending down, ſhaped like a ſparrow's tongue, whence its old name, which Linneus has adopted as a trivial. The ſtem and branches are terminated by long looſe interrupted leafy ſpikes. The flowers are ſeſſile, three, four or five together, in the axils of two or rather three leaves, of which the two ſide ones are ſhorter, and may be conſidered as bractes. Corollas ſmall, greeniſh with yellow tips; permanent, diſtended into a ball by the growing ſeed, and involved in wool at the baſe [c]. Seed a ſmall ſuperior nut, ovate-beaked, with a membranous coat, and wrapped up in the corolla. Rind or epidermis very thin, pale, eaſily ſeparating. Shell thin, brittle, dark, ſmooth, ſhining, ending in a beak which is ſlightly curved inwards, and marked on one ſide with a raiſed line; one-celled, valveleſs. Seed adapted to the cavity of the ſhell, whitiſh [e].

Native of Germany, Switzerland, France and Italy. It flowers in july and auguſt.

This plant is acrid, bitter and purgative. Gmelin ſays, that the Ruſſians require half a drachm or two ſcruples for a purge; whereas twelve grains are ſufficient for other people. This difference he thinks to be occaſioned by the free uſe of ſpirits among the Ruſſians, which deſtroys the tone of the ſtomach [e].

2. Perennial. Native of Siberia [f].

STEMODIA.

Lin. gen. n. 777 *Reich. n.* 839. *Schreb. n.* 1043. *Gærtn. t.* 52. *Juſſ.* 118. Stemodiacta. *Brown. jam. t.* 22. *f.* 2. *Jacqu. amer.* 181.

Claſſ. 14. 2. Didynamia Angioſpermia.

Nat. order of *Perſonatæ*. *Scrophulariæ*, Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* one-leafed, five-parted, erect, equal, permanent.

COR. one-petalled, irregular: *tube* length of the calyx: *border* ſubbilabiate, almoſt upright; *upper lip* ovate, entire; *lower* three-parted, with the parts rounded and equal.

STAM. *Filaments* four, almoſt equal, length of the tube, all bifid. *Anthers* eight, each placed on an arm of the filaments.

PIST. *Germ* bluntiſh. *Style* ſimple, length of the ſtamens. *Stigma* bluntiſh.

PER. *Capſule* oblong, ovate, two-celled, two-valved: *partition* contrary.

SEEDS numerous, globular. *Receptacle* ſubcylindrical.

[a] Willdenow. [b] Linn. ſpec. [c] Willdenow. [d] Idem. [e] Linn. ſpec. [f] Willdenow. [g] Gærtner. [h] Villars. [i] Pollich, Krocker. [k] Gmelin.

ESSENTIAL CHARACTER.

Cal. five-parted. *Cor.* two-lipped. *Stam.* four, each filament bifid, two-anthered. *Capf.* two celled.

SPECIES.

1. Stemodia maritima.
Lin. ſpec. 881. *ſyſt.* 573. *Reich.* 3. 182. *amoen.* 5. 399.[a] *Jacqu. amer.* 181. *t.* 174. *f.* 66. *pict.* 90. *t.* 261. *f.* 48. *Swartz obſ.* 242.
Stemodiacra. *Brown. jam.* 261. *t.* 22. *f.* 2.
Seordium maritimum fruticoſum procumbens. *Sloan. jam.* 1. 175. *t.* 110. *f.* 2.
Leaves oppoſite half embracing, flowers ſeſſile ſolitary.
2. Stemodia durantifolia.
Swartz obſ. 240.
Capraria durantifolia. *Lin. ſpec.* & *Diſt. noſtr.*
Leaves ternate and connate, flowers ſubtern ſubſeſſile.
3. Stemodia viſcoſa.
Roxb. corom. 2. 33. *t.* 163.
Leaves oppoſite embracing, flowers peduncled ſolitary.
4. Stemodia ruderalis.
Retz. obſ. 5. 25. *n.* 66.
Leaves ovate ſerrate petioled.

DESCRIPTIONS, *&c.*

1. Root long, round, with lateral horizontal fibres. Stem from one to three feet high, erect, four-cornered, hirſute, ſometimes in hedges near the ſea-coaſt in a manner ſcandent. Branches numerous, ſhorter, ſcattered, alternate, oppoſite, three or four together, quadrangular, leafy, hirſute. Leaves ſmall, ſeſſile, ovate-lanceolate, obtuſe, ſerrate, thickiſh, hirſute: with ſmaller leaves in the axils of the larger. Flowers few, axillary, among the terminating leaves, ſmall, white or blue. Border of the corolla almoſt equal, four-cleft: upper ſegment a little wider, almoſt upright, ſpreading, emarginate; the two ſide ones and the lower ſegment equal, roundiſh, entire, convex. Capſule oblong, acuminate. Seeds roundiſh, minute [a].

Jacquin ſays it is perhaps a biennial plant, two or three feet high: the ſtems hirſute, moſtly hexagonal, but ſometimes pentagonal. Leaves acute, viſcid. Stipules ovate, entire, length of the calyx, two under each flower. Corolla blue and ſoon falling.

Native of Jamaica, and very common by the ſea-ſide, in all the ſouthern parts of the iſland: it has a pleaſant aromatic ſmell, with a bitteriſh taſte, and will probably prove an excellent ſtomachic and aperitive [a].

2. Stem herbaceous, a foot high, erect, branched, leafy, quadrangular at bottom, but the angles are rounded towards the top, hirſute, viſcid. Branches ſimple. Leaves ſeſſile, ternate, wider at the baſe and connate, toothlet-ſerrate, ſpreading, nerved, pubeſcent. Flowers on very ſhort peduncles, axillary, in threes, ſolitary. Corollas blue, ſmall. Calyx almoſt five-leaved: ſegments awl-ſhaped, permanent, ſhorter than the corolla, hirſute. There are two leaflets, very like the ſegments of the calyx, at the baſe among the others; ſo that the calyx is as it were ſeven-leaved. Corolla almoſt equal, a little bellying at the baſe, more contracted in the middle: border four-cleft; upper lip erect wider, obtuſely bifid, ſhorter; the three lower ſpreading, flat, blunt at the top; throat ſquare, marked with lines, on the outſide below the ſegments yellow, compreſſed. Stigma a little curved in, widened, funnel-form, equal. Capſule oblong-conical, five-cornered, compreſſed at the top, two-celled, with a large, ovate, acute, contrary partition, four-valved.—Native of Jamaica [b].

3. This is a ſmall annual herbaceous plant, with a pleaſant aromatic ſmell. Stem generally bent to one ſide, with many ſpreading branches from its baſe, four-ſided, hairy, viſcous, from ſix to twenty-four inches high. Leaves linear, below oblong, above cordate, ſerrate, hairy, viſcous. Flowers axillary, ſmall, violet-coloured. Two lanceolate bractes preſs on the calyx. Tube of the corolla compreſſed, longitudinally wrinkled, twice the length of the calyx: upper lip broad, emarginate; under lip three-parted. Stamens within the tube.

[a] Swartz. [b] Browne. [c] Swartz.

Native of Coromandel: found on dry paddy fields, after the crop has been cut. The Telingas call it Boda-ſarum [c].

4. Native of the Eaſt Indies. Found by Koenig.

STEMODIACRA. See *Stemodia.*

STEMONITIS. See *Clathrus.*

STERBECKIA. (*So named in memory of Francis van Sterbeeck, author of* Theatrum Fungorum, *Antv.* 1675. 4°. *and* Citricultura, *Antv.* 1682 & 1712. 4°.)
Lin. gen. Schreb. n. 909. Singana. *Aubl.* 230. *Juſſ.* 275.
Claſſ. 13. 1. Polyandria Monogynia.
Nat. order of *Guttiferæ*, Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* three or five-leaved: *leaflets* roundiſh, concave, acute.
COR. *Petals* three or five, roundiſh, crenate, clawed, longer than the calyx.
STAM. *Filaments* very many, capillary, inſerted into the receptacle. *Anthers* roundiſh.
PIST. *Germ* ovate, ſuperior. *Style* long, curved in at the top. *Stigma* headed, concave.
PER. *Capſule?* cylindrical, long, corticoſe, one-celled, not opening.
SEEDS many, large, angular, incumbent on each other, neſtling in the pulp.

ESSENTIAL CHARACTER.

Cal. three or five-leaved. *Cor.* three or five-petalled. *Capſ.* corticoſe, not opening, legume-ſhaped, many-ſeeded. *Seeds* imbricate, neſtling in pulp.

SPECIES.

1. Sterbeckia lateriflora.
Lin. ſpec. ed. Willd. 2. 1177.
Singana guianenſis. *Aubl. guian.* 1. 574. *t.* 230.

DESCRIPTION, *&c.*

This is a ſcandent ſhrub. Leaves ſuboppoſite, petioled, elliptic, acuminate, quite entire, veined, ſmooth. Peduncles many-flowered, very ſhort, lateral. Flowers white, ſmall.

Native of Guiana, in woods [a].

STERCULIA. (*From* Stercus. *So named on account of its fetid ſmell.*)
Lin. gen. n. 1086. *Reich. n.* 1185. *Schreb. n.* 828. *Cavan.* 284. *t.* 141—145. *Juſſ.* 278. Ivira. *Aubl.* 279.
Claſſ. 11. 1. Dodecandria Monogynia.
Nat. order of *Tricoccæ. Malvaceæ*, Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* one-leafed, very large, coriaceous, flat, coloured, deciduous, five-parted: *parts* lanceolate, acute.
COR. none: but a *Nectary* placed on a cylindric column, bell-ſhaped, ſmall, five-toothed: teeth ſubtrifid.
STAM. *Filaments* ten or about fifteen, very ſhort, two or three on each tooth of the nectary. *Anthers* ovate.
PIST. *Germ* globular, five-grooved, in the bottom of the nectary. *Style* filiform, curved in. *Stigma* club-ſhaped, bifid or five-lobed.
PER. *Capſules* five, ovate-reniform, from ſpreading reflexed, one-celled, opening by the interior angle.
SEEDS many, oval, faſtened to the ſuture.

ESSENTIAL CHARACTER.

Cal. five-parted. *Cor.* none. *Nect.* bell-ſhaped, five-toothed, ſtaminiferous, faſtened to the column of the germ. *Germ* pedicelled. *Capſ.* five, one-celled, opening by the inner ſide, many-ſeeded.

SPECIES.

1. Sterculia lanceolata. *Lance-leaved Sterculia.*
Lin. ſpec. ed. Willd. 2. 872. *Cavan. diſſ.* 5. 287. *t.* 144. *f.* 1.
Leaves lanceolate, capſules oblong.
2. Sterculia Balanghas.
Lin. ſpec. 1430. *Reich.* 4. 195. *Willd.* 2. 872. *Fl. zeyl. n.* 350. *Forſk. prodr. n.* 358. *eſcul.* 55. *n.* 22. *Cavan. diſſ.* 5. 286. *t.* 143.
Clompanus minor. *Rumph. amb.* 3. 169. *t.* 107.
Cavalam. *Rheed. mal.* 1. 89. *t.* 49. *Raii hiſt.* 1754.
Leaves ovate-lanceolate, capſules obovate.

[a] Roxburgh. [b] Willdenow.

3. Sterculia crinita.
Lin. ſpec. ed. Willd. 2. 872. *Cavan. diſſ.* 5. 285. *t.* 142.
S. Ivira. *Swartz prodr.* 98.
Ivira prurïens. *Aubl. guian.* 2. 694. *t.* 279.
Leaves ovate or three-lobed, capſules crinite at the baſe.

4. Sterculia cordifolia. *Heart-leaved Sterculia.*
Lin. ſpec. ed. Willd. 2. 873. *Cavan. diſſ.* 5. 286. *t.* 144. *f.* 2.
Leaves cordate obſoletely three-lobed, capſules acuminate tomentoſe.

5. Sterculia colorata. *Coral Sterculia.*
Lin. ſpec. ed. Willd. 2. 873. *Roxb. corom.* 1. 26. *t.* 25.
Leaves five-lobed, lobes acuminate, calyxes cylindric-club-ſhaped, capſules oblong ſmooth coloured.

6. Sterculia urens.
Lin. ſpec. ed. Willd. 2. 873. *Roxb. corom.* 1. 25. *t.* 24.
Leaves five-lobed, lobes acuminate, calyxes bell-ſhaped, capſules ovate hiſpid.

7. Sterculia plataniſolia. *Maple-leaved Sterculia.*
Lin. ſyſt. 866. *Willd.* 2. 873. *ſuppl.* 423. *Cavan. diſſ.* 5. 288. *t.* 145. & *diſſ.* 6. 352. *Vahl ſymb.* 1. 80. *L'Herit. ſtirp. nov.* 2. *t.* 43. *Ait. kew.* 3. 378.
Firmiana. *Marſil. in act. patav.* 1. 106. *t.* 1, 2.
Colhamia. *Forſk. deſcr.* 96.
Hibiſcus ſimplex. *Lin. ſpec.* 977.
Outoin-chu. *Le Comte mem. de la Chine.* 1. 241. *ic.*
Ou tong chu. *Du Halde chin.* 2. 149. *ic. ad. t.* 154.
Leaves palmate-five-lobed, calyxes wheel-ſhaped reflexed.

8. Sterculia fœtida. *Fetid Sterculia.*
Lin. ſpec. 1431. *Reich.* 4. 195. *Willd.* 2. 874. *ſt. zeyl. n.* 349. *Cavan. diſſ.* 5. 284. *t.* 141. *Forſt. prodr. n.* 359. *eſcul.* 23. *Lour. cochinch.* 586. *ed. Willd.* 719. *Sonnerat itin.*
Nux zeylanica folio multifido digitato. *Pluk. phyt. t.* 208. *f.* 3. *Burm. zeyl.* 169.
Clompanus major. *Rumph. amb.* 3. 168. *t.* 107.
Karil. *Rheed. mal.* 4. 75. *t.* 36. *Raii hiſt.* 1564.
Leaves digitate.

DESCRIPTIONS, &c.

1. This, from the figure given by Cavanilles, ſeems to be a tree of moderate ſize, with ſmooth, veined, lanceolate leaves; the fruit appears to conſiſt of five rather large ovate capſules diſpoſed in a ſtellated direction on the footſtalk; they are of a red colour and contain three or four large black round ſeeds in each. Native of China.

Cavanilles appears to doubt whether it be truly diſtinct from the following ſpecies or not: the figure he gives is from a Chineſe drawing, in which it is uncertain whether the painter intended it for a diminiſhed repreſentation or of the natural ſize.

2. This is a tall tree, with a ſtem of two feet in diameter, thick branches, covered with a thick aſh-coloured bark, and furniſhed with alternate, ſmooth, veined, lanceolate leaves: the leaves however are only produced at the upper part of the ſhoots; and are in general about nine inches long and three broad: the flowers are produced in ſparſe faſcicles at the tips of the ſhoots: the capſules are rather large, ſmooth, ovate, and ſtand by fives in a ſtellated direction; each capſule containing ſix, ſeven, or eight moderately large round ſeeds.—Native of Malabar, Amboina, &c.

According to Rumphius the ſeeds are conſidered as eſculent by the inhabitants of Amboina, who roaſt them for this purpoſe, while the capſules are burned for the preparation of the pigment called *Caſſomba*.

3. A tree of ſixty feet high, branching in a ſpreading manner at the top: leaves alternately ſcattered, and on long footſtalks: they are ſmooth above, downy beneath, where they are alſo of a reddiſh caſt; the flowers are borne on panicles, the footſtalks of which have each a ſtipule at the baſe: the capſules are reniform, with pointed tips, and are diſpoſed in a circular direction: their interior ſurface is covered with a pungent villus: the down of the germ gradually lengthens as the fruit advances, and at length runs into innumerable long briſtly hairs ſurrounding the footſtalks of the capſules. Some of the capſules are apt to fail. The general number of ſeeds is five in each. Native of Guiana, in the woods of Sinemare, and near the river Galibien.

4. Stem arboreſcent: leaves alternate, approximate, and towards the tip obſcurely trilobate: capſules oblong, ſubreniform, with pointed tips; they are downy on the outſide, and covered within by a white membrane beſet with innumerable ſhort roſeſcent hairs: ſeeds ſeveral, hanging from the internal edges of the capſules, and covered with briſtly hairs.—Native of Senegal*.

5. Trunk erect, growing to a very great ſize. Bark aſh-coloured, and a little ſcabrous. Branches numerous, ſpreading irregularly; bark as on the trunk, but ſmoother. Leaves alternate, about the extremities of the branchlets, petioled, conſiderably broader than long, five-nerved, ſoft and a little downy; generally, when full grown, from nine to twelve inches broad, and from ſix to nine inches long. Petiole round, a little downy, about nine inches long. Stipules two, erect, lanceolate, inſerted into the petiole near its baſe. Panicles terminating, ſmall, numerous, red like coral, covered with many red ſtellated hairs. Flowers numerous, about an inch long. Calyx inferior, funnel-form, five-toothed at the mouth, covered on the outſide with red ſtellated hairs, withering. Filaments ſcarcely any. Anthers about thirty, kidney-form, ſeſſile round the border of the extremity of the receptacle. Receptacle of the piſtil cylindric, bent a little, length of the calyx, round, ſmooth, bearing five oval germs on its top. Styles ſhort, recurved. Stigmas acute. Capſules from one to five coming to maturity, leguminous, pedicelled, pendulous, leathery, one-celled, one-valved, opening on the outſide long before the ſeeds are ripe. Seeds two, one adhering to each margin of the gaping capſule alternate, about the ſize and ſhape of a Kidney bean.

This tree caſts its leaves during the cold ſeaſon. It flowers in april, and then appears as if entirely covered with fine ramifications of red coral. Soon after the leaves make their appearance.

Native of the mountainous parts of the Rajahmundry Circar. Called by the Telingas Caraka.

6. Trunk erect, very ſtraight, with the top large and ſhady. Bark aſh-coloured, very ſmooth; its outer coat thin, tranſparent, covered with a farinaceous ſubſtance, and peeling off like the pellicle of the birch-bark; inwardly it is fibrous and netted. Leaves about the extremities of the branches, alternate, petioled, five-nerved; very downy, from nine to twelve inches each way. Petiole nearly as long as the leaf, round, downy. Panicles terminating, pretty large; every part covered with a glutinous, farinaceous, yellow down. Bractes lanceolate. Flowers ſmall, numerous, yellow, male and hermaphrodite mixed, but with a ſmall proportion of the latter. The hermaphrodite flowers have an inferior calyx, bell-ſhaped, five-toothed, the diviſions acute; on the inſide of each diviſion near the baſe is an inverſe-hearted hairy gland. Filaments ten, ſhort, alternately longer, united below into a thin ſheath, which girds the baſe of the germs. Anthers large, two-lobed, alternately larger. Germs five, placed on a thick ſhort pedicel. Style ſhort, thick. Stigma five-lobed. Capſules five, leguminous, united in form of a ſtar, one-celled, one-valved, opening lengthwiſe, on the outſide covered with yellow down, and many ſtiff ſtinging hairs. Seeds from three to five, oblong, cheſtnut-coloured, inſerted alternately into the margins of the capſules. The calyx, ſtamens, and columnar receptacle, are the ſame in the male flowers: but the piſtil has the rudiments of germs only, without any appearance of a ſtyle.

This is a very large tree, chiefly a native of the mountainous countries of the coaſt of Coromandel; it caſts the leaves about the end of the wet ſeaſon, and flowers during the cold ſeaſon; the leaves come out with the fruit about the beginning of the hot ſeaſon. The wood is ſoft and ſpongy; towards the centre of large trees it is reddiſh. It ſeems to be applied to

* Cavanilles.

little

little uſe, except to make Hindoo guitars. The water in which green branches were kept for examination became thick like a clear glutinous jelly. The bark is exceedingly aſtringent, and tinges the ſaliva reddiſh. The ſeeds are roaſted to be eaten by the natives, and taſte very like parched Peas. The Telingas call the tree Cavallie [f].

7. This is a very lofty tree. Leaves large, alternate, cluſtered at the end of the branches, on long petioles, cordate, quite entire, three-lobed or five-lobed, with the ſinuſes rounded and bluntiſh; quite ſmooth, five-nerved. Panicle large, woody, ſomewhat mealy. Flowers hermaphrodite, the ſame ſize as in the *fœtida*. Segments of the calyx hoary without, ſmooth within, yelloviſh. Column of ſtamens ſhorter than the calyx, terminated by numerous ovate anthers, which cover the baſe, although they are placed upon the column. Germ angular, hoary. Style filiform, hoary. Stigma emarginate [g]. The pericarp is ſingular. When ripe it parts longitudinally into five cells, which become ſo many horizontal capſules, like the follicles of the *Aſclepias*, and open longitudinally by the upper future; the ſeeds are faſtened to the ſides of the future in a ſingle row.

Native of Japan and China. Linneus had the leaves in his herbarium, under the name of *Hibiſcus ſimplex*. He referred them to that genus, never having ſeen the flowers. Chevalier Murray communicated it to the younger Linneus, from the Padua garden, where it flowered every year in the open air.—It was cultivated in 1757, by Hugh Duke of Northumberland [h].

Hibiſcus ſimplex of *Lin. ſpec.* and of our Dictionary, *n.* 13. muſt therefore be expunged, being the ſame with this.

8. This is a tree above the middle ſize, with ſpreading unarmed branches. Leaves on a very long petiole: leaflets lanceolate, quite entire, ſeven or nine, ſmooth, glaucous, placed in a ring, and ſeſſile. Flowers monoecous, fetid, in ſubterminating racemes. Calyx five-parted, ſmooth, large, ſpreading, of a cinereous-glaucous colour. Stamens about fifteen, connected. Style one. Germ pedunculed. Capſule roundiſh-ventricoſe, ſubcompreſſed, corticoſe, ſmooth, five-celled, two-valved. Seeds numerous, oblong-ovate, each on its proper pedicel hanging from each valve, as in a legume.

Native of the Eaſt Indies, Cochinchina, &c. The wood is pale, laſting and does not ſplit; it is therefore very proper for the turner, and being well varniſhed makes handſome vaſes, &c. It has nothing of the ill ſmell which the flowers have. The leaves and eſpecially the bark are aperient, repellent, diuretic and diaphoretic. The ſeeds are oily, and are not eaten in Cochinchina; on the contrary if they are ſwallowed incautiouſly, they bring on nauſea and vertigo [i]. This happens probably when eaten raw.

It was cultivated in 1690, in the royal garden at Hampton-court [k].

Theſe plants were originally placed in the claſs Monoecia; from thence they were removed into the claſs Monadelphia, and finally they are placed in that of Dodecandria.

PROPAGATION AND CULTURE.

Propagated by ſeed; and treated in the ſame way as Sida.

STERIS. See *Hydrolea*.

STEWARTIA. See *Stuartia*.

STICHWORT. See *Stellaria*.

STICKADORE. See *Stoechas*.

STILAGO.

Lin. gen. Reich. n. 1106. *Schreb. n.* 1381.

Claſſ. 20. 2. Gynandria Triandria—*potius* Dioecia di-triandria.

GENERIC CHARACTER.

CAL. *Perianth* one-leafed, hemiſpherical, almoſt entire three-lobed.

COR. none.

STAM. *Filaments* three, placed on the germ, ſpreading, longer than the calyx.

PIST. *Germ* ſuperior, roundiſh. *Style* cylindrical, permanent, ſhorter than the ſtamens. *Stigma* warted.

PER. *Drupe* globular.

SEED. *Nut* globular.

OBS. *Male and Female on ſeparate trees.*

ESSENTIAL CHARACTER.

Cal. one-leafed, pitcher-ſhaped. *Cor.* none.

FEM. *Stigmas* ſeſſile. *Drupe* with a two-celled nut.

SPECIES.

1. Stilago Bunius.
Lin. ſyſt. 820. *Reich.* 4. 44. *mant.* 122.
Bunius ſativus. *Rumph. amb.* 3. 204. *t.* 151. *Burm. ind.* 16.
Noeli-tali. *Rheed. mal.* 4. 115. *t.* 56.

2. Stilago diandra.
Roxb. corom. 2. 35. *t.* 166.

DESCRIPTIONS, *&c.*

1. This is a tree, with the leaves alternate, petioled, ſimple, ovate-oblong, quite entire, ſmooth. Spikes alternate, naked, very long. Flowers ſmall, ſcattered, ſeſſile [l].—Native of the Eaſt Indies. Dr. Smith refers it to the genus Antideſma [m]: which ſee. It was introduced here about 1757, by Hugh Duke of Northumberland; and flowers in auguſt [n].

2. Leaves alternate, on ſhort petioles, nearly bifarious or two-faced, oval, entire, ſmooth, from two to four inches long, and from one to two broad. Stipules lanceolate. Spikes filiform, terminating, many-flowered. Bractes minute, one-flowered. Flowers very ſmall, approximated.—In the Male tree; perianth inferior, cup-form, obtuſely four-toothed. Corolla none. Filaments two, four times longer than the calyx. Anthers thin, ſingly oval.—In the Female; calyx inferior, cloſely embracing three fourths of the germ, four or five-toothed. Corolla none. Nectary, a yellow fleſhy ring, ſurrounding the baſe of the germ. Germ obliquely ovate. Styles two, ſpreading; one of them always two-cleft. Stigmas ſimple. Drupe minute, ſucculent, one-celled. Nut one-celled, very ſmall.

It is a large tree, native of mountainous parts of the Circars, and flowers in june.

The fruit, when ripe, is eaten by the natives. The wood ſerves for various uſes [o].

STILBE. (Στιλβη, *nitor, ſplendor: from the ſhining appearance of the ſeeds.*)

Lin. gen. Reich. n. 1277. *Schreb. n.* 1600. *Juſſ.* 418. *D. Bergii.*

Claſſ. 23. 2. Polygamia Dioecia.

GENERIC CHARACTER.

* *Hermaphrodite.*

CAL. exterior: *Perianth* three-leaved (ſetting aſide the four exterior ones:) *leaflets* lanceolate, ſpreading and mucronate.—Interior: *Perianth* one-leafed, five-toothed, cartilaginous, to be hardened.

COR. one-petalled, funnel-form: *tube* length of the calyx: *border* five-parted: parts linear.

STAM. *Filaments* four, awl-ſhaped, placed on the throat, longer. *Anthers* cordate, obtuſe.

PIST. *Germ* ſuperior, ovate. *Style* filiform, length of the ſtamens. *Stigma* acute.

PER. none: but the interior calyx incloſing, hardened, deciduous.

SEED one.

* *Male*, on a diſtinct individual.

CAL. exterior as in the Hermaphrodite. Interior none.

COR. as in the Hermaphrodite; but the tube membranaceous.

STAM. as in the Hermaphrodite.

PER. and SEED none.

HERM. *Cal. exterior* three-leaved. *Interior* five-toothed, cartilaginous. *Cor.* funnel-form, five-cleft. *Stam.* four. *Seed* one, calyptred with the interior calyx.

MALE ſimilar. *Cal. interior* none. *Fruit* none.

(*The ſex on a diſtinct plant.*)

SPECIES.

1. Stilbe pinaſtra.
Lin. ſyſt. 919. *Reich.* 4. 359.
S. veſtita. *Berg. cap.* 30. *t.* 4. *f.* 6.

[f] Roxburgh. [g] Linn. ſuppl. [h] Hort. kew.
[i] Loureiro. [k] Hort. kew.
[l] Linn. mant. [m] Juſſ. gen. [n] Hort. kew.
[o] Roxburgh.

Selago pinastra. *Lin. spec.* 876.
Valeriana africana fruticans, foliis longis & anguſtiſſimis. *Comm. hort.* 2. 219. *t.* 110.
Spikes hirſute, leaves in fixes linear.

2. Stilbe ericoides.
Lin. ſyſt. 919. *Reich.* 4. 360. *mant.* 305.
Selago ericoides. *Lin. mant.* 87. *Burm. prodr.* 15.
Spikes ſmooth, leaves in fours lanceolate.

3. Stilbe cernua.
Lin. ſyſt. 919. *ſuppl.* 441.
Spikes drooping, leaves in fours.

DESCRIPTIONS, *&c.*

Juſſieu deſcribes theſe as ſhrubs reſembling a Phylica or a very ſmall Fir. Leaves linear, cluſtered, in whorls or ſpirally imbricate; flowers in cloſe ſpikes, either along a tomentoſe terminating axis, or in the forkings of the branches. Allied to *Protea*, but having a corolla; to *Phylica*, but one-petalled and one-ſeeded; perhaps more nearly allied to *Globularia* or *Selago*[b]: with which laſt Linneus formerly united it.

1. Branches alternate, ſtiff, rugged with the remaining baſes of the leaves. Leaves whorled in cluſters, acute, ſmooth. Spikes oblong, terminating, ſeſſile, imbricate; with bractes the length of the flowers. Glumes two-valved, ſeſſile, compreſſed, acute, one-flowered. Perianth cartilaginous, very ſhort, with a five-toothed mouth, deciduous with the ſeed, ſo ſmooth that it can ſcarcely be held. Corollas woolly on both ſides; tube filiform; border with five, almoſt equal, linear, hirſute ſegments. Filaments filiform, almoſt equal, length of the corolla, with incumbent anthers.—Native of the Cape of Good Hope, by rivulets[c].

2. Stature of an *Erica* or Heath. Leaves lanceolate, acute, even, more convex beneath, as it were two-keeled, with the keels remote and blunt. Spike terminating, ſeſſile, growing out. Corollas even.—Native of the Cape of Good Hope[c].

3. This is very like the firſt ſpecies, but the branchlets with the head hang down.—Native of the Cape of Good Hope, where it was found by Thunberg[d].

STILLINGIA. (*So named by Alexander Garden*, (ſee Walter carol. 239.) *in honour of Benjamin Stillingfleet, Eſq. author of* The Calendar of Flora, *and* Obſervations on Graſſes, *publiſhed, with ſeveral Treatiſes tranſlated from the* Amœnitates Academicæ, *under the title of* Miſcellaneous Tracts relating to Natural Hiſtory, &c. ed. 1. 1759.—2, 1762.—3, 1775. Lond. 8°.)
Lin. gen. Reich. n. 1187. *Schreb. n.* 1470. *Juſſ.* 390.
Claſſ. 21. 8. Monoecia Monadelphia.
Nat. order of *Tricoccæ*. *Euphorbiæ*, Juſſ.

GENERIC CHARACTER.

* *Male* flowers digeſted in an amentaceous ſpike.
CAL. *Perianth* many-flowered (ſeven-flowered), coriaceous, hemiſpherical, pitcher-ſhaped, quite entire; with two goblet-ſhaped glands.
COR. one-petalled, fiſtular-funnelform, widening gradually, much narrower than the calyx: *mouth* undivided, torn, ciliate.
STAM. *Filaments* two, filiform, twice as long as the corolla, divaricating at the top, very ſlightly united at the baſe. *Anthers* twin-reniform.
* *Female* flowers few, at the baſe of the ſame ſpike.
CAL. *Perianth* one-flowered: the reſt as in the Males.
COR. ſuperior.
PIST. *Germ* roundiſh, between the calyx and corolla. *Style* filiform. *Stigmas* three, diſtinct, recurved.
PER. *Capſule* tricoccous, ſubturbinate, ſubtrigonal, three-celled, ſurrounded at the baſe by the widened calyx.
SEEDS ſolitary, oblong, ſubtrigonal, with a tranſverſe ſcar on the inner ſide.

ESSENTIAL CHARACTER.

MALE. *Cal.* hemiſpherical, many-flowered. *Cor.* tubular, eroſe.
FEM. *Cal.* one-flowered, inferior. *Cor.* ſuperior. *Style* trifid. *Capſ.* tricoccous.

SPECIES.

1. Stillingia ſylvatica.
Lin. ſyſt. 866. *Reich.* 4. 197. *mant.* 126.

[b] Juſſ. gen. [c] Linn. ſpec. [d] Linn. mant. [e] Linn. ſuppl.

DESCRIPTION, *&c.*

This is a ſhrub, with many upright, round, milky ſtems, three feet high, terminated by a ſpike. Two branches commonly ſpring out at the baſe of the ſpike. Leaves alternate, petioled, remote, elliptic, ſerrulate, ſhining, ſpreading. Spike or ament terminating, ſeſſile. Flowers ſmall, yellow. It is accounted a ſpecific in Siphilis[a].

Native of Carolina in pine woods. Found there by Dr. Garden. Introduced in 1787, by Thomas Walter, Eſq.[a]

STIPA.
Lin. gen. n. 90. *Reich. n.* 96. *Schreb. n.* 121. *Juſſ.* 30.
Claſſ. 3. 2. Triandria Digynia.
Nat. order of *Gramina*, *Graminæ* or *Graſſes*.

GENERIC CHARACTER.

CAL. *Glume* one-flowered, two-valved, lax, acuminate.
COR. two-valved: *outer valve* terminated at the tip by a very long twiſted awn, jointed at the baſe and ſtraight: *inner valve* length of the outer, awnleſs, linear.
Nectary two-leaved: *leaflets* linear-lanceolate, membranaceous, gibbous at the baſe.
STAM. *Filaments* three, capillary. *Anthers* linear.
PIST. *Germ* oblong. *Styles* two, hirſute, united at the baſe. *Stigmas* pubeſcent.
PER. none. *Glume* adnate.
SEED one, oblong, covered.

ESSENTIAL CHARACTER.

Cal. two-valved, one-flowered. *Cor.* outer valve with a terminating awn, jointed at the baſe.

SPECIES.

1. Stipa pennata. *Soft Feather-graſs.*
Lin. ſpec. 115. *Reich.* 1. 218.[c] *Willd.* 1. 440. *Huds. angl.* 29. *Wither. arr. ed.* 3. 163. *Smith brit.* 138. *Hall. helv. n.* 1514. *Hoffm. germ.* 38. *Roth. germ.* 1. 34. 2. 94. *Pollich pal. n.* 120. *Jacqu. vind.* 15. *Krock. ſileſ. n.* 173. *Scop. carn. n.* 122. *Villars dauph.* 2. 138. *Allion. pedem. n.* 2172. *Deſfont. atlant.* 97. *Lamarck illuſtr. n.* 783. *t.* 41. *f.* 1. *Gmel. ſib.* 1. 114. *n.* 50. (Feſtuca.)
Gramen ſparteum pennatum. *Bauh. pin.* 5. *theat.* 70. *Barrel. n.* 46. *Raii ſyn.* 393. *Mont. prodr.* 57. *t.* 68.
Gr. pennatum, aliis Spartum. *Bauh. hiſt.* 2. 512. 2. *Raii hiſt.* 1260.
Gr. ſpicatum ariſtis pennatis. *Tournef. inſt.* 518. *Scheuch. gram.* 153. *t.* 3. *f.* 13. *b.*
Gr. plumeum. *Munting. t.* 173.
Spartum auſtriacum. *Ger. emac.* 42. 6.—pennatum. *Cluſ. hiſt.* 2. 221. 3.
Avena capillacea auſtriaca, ariſtis longiſſimis pennatis. *Mor. hiſt. ſ.* 8. *t.* 7. *f.* 9. *opt.*
Awns woolly.

2. Stipa juncea. *Ruſh-leaved Feathergraſs.*
Lin. ſpec. 116. *ſyſt.* 121. *Reich.* 1. 218. *Willd.* 1. 440. *Scop. carn. n.* 123. *Krock. ſileſ. n.* 174. *Villars dauph.* 2. 138. *Deſfont. atlant.* 98. *t.* 28. *Reliqu. Rudb. t.* 19. *f.* 3.
Feſtuca junceo folio. *Bauh. pin.* 9. *prodr.* 19. *theatr.* 145. *Scheuch. gram.* 151. *Raii hiſt.* 1291. 15.
Awns naked ſtraight, calyxes longer than the ſeed, leaves ſmooth within.

3. Stipa capillata. *Capillary Feather-graſs.*
Lin. ſpec. 116. *Reich.* 1. 219. *Willd.* 1. 441. *Hall. helv. n.* 1513. *Hoffm. germ.* 38. *Roth. germ.* 1. 34. 2. 95. *Pollich pal. n.* 121. *Krock. ſileſ. n.* 175. *Villars dauph.* 2. 139. *Allion. pedem. n.* 2173. *Pallas it.* 1. 267.
Feſtuca longiſſimis ariſtis. *Bauh. pin.* 10. *theat.* 153. *Raii hiſt.* 1290.
Awns naked curved, calyxes longer than the ſeed, leaves pubeſcent within.

4. Stipa Ariſtella. *Short-awned Feather-graſs.*
Lin. ſyſt. 121. *Reich.* 1. 219. *Willd.* 1. 441. *Gouan illuſtr.* 4.
Awns naked ſtraight ſcarcely twice as long as the calyx, germs woolly.

[a] Linn. mant. [a] Hort. kew.

5. Stipa paleacea. *Chaffy Feather-graſs.*
Lin. ſpec. ed. Willd. 2. 441. *Vahl ſymb.* 2. 24. *Poiret. itin.* 2. 101.
Awns half naked, panicle ſimple, leaves convoluted awl-ſhaped pubeſcent within.

6. Stipa tenaciſſima. *Tough Feather-graſs.*
Lin. ſpec. 116. *Reich.* 1. 219. *Willd.* 1. 442. *amoen.* 4. 266. *Loſt. it.* 118. *Deſfont. atlant.* 99. *t.* 30. *Lamarck illuſtr. n.* 788. *t.* 41. *f* 2.
Gramen ſparteum panicula comoſa. *Baub. pin.* 5.
Spartum herba Plinii. *Cluſ. hiſt.* 2. 219. *t.* 220.
Awns hairy at the baſe, panicle ſpiked, leaves filiform.

7. Stipa capenſis. *Cape Feather-graſs.*
Lin. ſpec. ed. Willd. 1. 442. *Thunb. prodr.* 19.
Awns hairy at the baſe, panicle ſpiked, leaves enſiform.

8. Stipa ſpicata. *Spiked Feather-graſs.*
Lin. ſyſt. 121. *Willd.* 1. 442. *ſuppl.* 111. *Thunb. prodr.* 20.
Awns hairy at the baſe, raceme ſpiked directed to one ſide.

9. Stipa bicolor. *Two-coloured Feather-graſs.*
Lin. ſpec. ed. Willd. 1. 442. *Vahl ſymb.* 2. 24.
Awns naked, ſeeds obovate bearded at the baſe.

10. Stipa avenacea. *Oat Feather-graſs.*
Lin. ſpec. 116. *Reich.* 1. 219. *Willd.* 1. 442. *Gron. virg.* 133. (Andropogon.)
Awns naked, calyxes equalling the ſeed.

11. Stipa membranacea. *Membranaceous Feather-graſs.*
Lin. ſpec. 116. *ſyſt.* 121. *Reich.* 1. 220. *Willd.* 1. 443. *mant.* 326.
Pedicels dilated membranaceous.

12. Stipa barbata. *Bearded Feather-graſs.*
Deſfont. atlant. 97. *t.* 27.
Leaves rigid ſtriated on one ſide, panicle lax elongated, awns very long bearded from the baſe to the tip.

13. Stipa parviflora. *Small-flowered Feather-graſs.*
Deſfont. atlant. 98. *t.* 29.
Leaves radical ſtiffiſh filiform, panicle diffuſed, awns naked capillaceous.

14. Stipa tortilis. *Twiſted-awned Feather-graſs.*
Deſfont. atlant 99. *t.* 31. *f.* 1.
Panicle ſpiked rolled in at the baſe, inner calyx villoſe, awns twiſted villoſe at bottom.

DESCRIPTIONS, *&c.*

1. Root perennial, fibrous, tufted. Culms ſimple, a foot high, upright, ſlender, round, very ſmooth, without knots, clothed entirely with the ſheaths of the leaves. Leaves rolled in and briſtle-ſhaped, mucronate, glaucous, ſomewhat rugged on the edges: ſheaths very long and much widened, embracing, ſtriated, ſmooth, ſhining within. Stipule lanceolate, growing to the leaf. Panicle ſimple, few-flowered, lying within the ſheath of the upper leaf. Flowers very large, from four to ſix. Calyx-glumes nearly equal, lanceolate, ſcarioſe, concave, nerved, ſmooth, narrowed into a membranaceous very tender awn, longer than the valves. Floret awl-ſhaped, round, nerveleſs, ſhorter than the calyx, ſilky-briſtly at the baſe. Awn from a joint at the tip of the outer glume, the longeſt of any, being from ſix to twelve inches in length, or even more, nodding and curved in, acute, angular, twiſted at the baſe, clothed almoſt the whole length with very fine white ſoft pellucid ſilky diverging hairs, and at length falling together with the permanent hardened corolla, inveſting the ripe ſeed, and ſcattered round the fields and rocks, to produce a new progeny [a].

The feathered awns are a beautiful and remarkable feature, at once diſtinguiſhing this from all our other graſſes [b].

Cluſius firſt obſerved this elegant graſs near Baden, and in ſeveral parts of Auſtria and Hungary. It has ſince been found in ſeveral places in Germany, France, Italy, Spain, Barbary and Siberia. In Dillenius's edition of Ray's ſynopſis it is ſaid, that Dr. Richardſon found it, in company with Thomas Lawſon, on the lime-ſtone rocks hanging over a little valley, called Long Sleadale, about ſix miles north of Kendal in Weſtmoreland.——Hudſon gives no other place of growth; but in the ſecond edition of Dr. Withering's botanical arrangements, Mr. Alderſon is mentioned as having found it near Kendal: but Mr. Gough, who lives there, has never found it, nor has he heard of any perſon who found it, except thoſe above mentioned: there is therefore reaſon to fear that it has been exterminated [c].

Johnſon, the editor of Gerarde's herbal, ſays it was nouriſhed for the beauty in ſundry of our Engliſh gardens; and that it was worn by ſundry ladies and gentlewomen inſtead of a feather, which it exquiſitely reſembles.

2. Root perennial, (or biennial.) Leaves convoluted, even, rigid, round, almoſt filiform. A torn acute white little membrane (ſtipule) crowns the ſheath. Culm erect, ſlender, jointed at bottom. Panicle lax, elongated. Peduncles capillary, long, angular, rough, few-flowered: flowers pedicelled. Calyx-glumes membranaceous, lax, awl-ſhaped, twice as long as the corolla; which is round, coriaceous, truncate, ſlender, with the glumes cloſe rolled in, villoſe at the baſe. Awn terminating, twiſted at bottom, pubeſcent. Seed ſlender, elongated [d].

Native of France, Switzerland, Sileſia, Carniolia, Barbary. Haller and Scheuchzer unite it with the next ſpecies. It was introduced in 1772, by Monſ. Richard; and flowers in July [e].

3. This reſembles the preceding ſpecies very much, but the leaves are not round with a longitudinal groove; but ſtiffer, ſhorter, leſs rugged, more unfolded and ſomewhat pubeſcent on the upper ſide. Calyx not whitiſh but bay coloured. Awns ſhorter, and when more advanced variouſly curved [f].

Culms many, about two feet high, hard and ſolid, ſurrounded with ſtiff ſtraight leaves like a ruſh at their baſe; they are villoſe on the upper ſurface, principally at their baſe. Stem-leaves one or two, forming a ſheath round the ſtem, contrary to the ſun's apparent motion, and rendering it thick at that place. The panicle remains compreſſed near the ſheath, from which iſſue brown membranous flowers, compoſed of a two-valved calyx, terminated by two awns half an inch long or more; and a two-valved corolla, as ſhort again as the calyx, the outer valve lengthened into an awn which is ſtraight at firſt, but afterwards bends back as if it were broken in the middle: this awn is ſimple and not feathered.—The ſynonym from Ray and Vaillant, in Reichard's and Willdenow's editions of Species Plantarum, belongs to *Avena pratenſis* [g].

Native of France, Germany, Switzerland and Italy. Perennial.

4. Root perennial. Culms two feet high. Leaves narrow. Panicle ſubſpiked, with two or three-flowered peduncles. Calyx length of the ſeed. Seed round, pubeſcent with few villoſe hairs. Awn length of the the calyx.—Native of the country about Montpelier [h].

5. This has the appearance of the *juncea*. Culms many, a foot and half high, quite ſimple, erect, ſheathed with leaves. Root-leaves abundant, awl-ſhaped, rigid, two inches long: on the culm three, longer, the uppermoſt ſheathing, higher than the culm. Sheaths ſtriated, bearded at the mouth, ciliate at the edge. Panicle a ſpan long. Spikelets many at each tooth of the common peduncle. Calyx very much attenuated, three times as long as the ſeed, ſmooth. Outer valve of the corolla hairy, ciliate. Awn a hand length, beyond the middle twiſted very much and hairy.

Forſkahl's plant differs only in having the ſheaths and radical leaves pubeſcent even on the outſide.—Stipa tenaciſſima differs in having the panicle contracted, with the awns three times ſhorter, leſs twiſted; the leaves more rigid, longer, quite ſmooth on both ſides; the ſheaths very finely ſtriated, the uppermoſt not ſpathaceous, the mouth of the ſheaths woolly [i].

Found by Vahl every where about Tunis, and by Forſkahl in Egypt.

6. Habit of *Avena*. Culm erect, jointed. Leaves hard, ſmooth, convoluted. Flowers panicled, approximating, numerous. Panicle erect, contracted, yel-

[a] Smith brit. [b] Withering.

[a] Idem. [b] Deſfontaines. [c] Hort. kew. [d] Villars. [e] Linn. [f] Vahl. [g] Linn. ſpec.

lowiſh.

lowiſh. Calyx-glumes concave, elongated, acute, almoſt equal, membranaceous at the edge and tip. Corolla ſhorter, elongated, round, coriaceous, with white villoſe hairs; the outer glume cloſely involving the other. Awn jointed, below twiſted and villoſe, above naked. Seed ſlender, elongated. It grows in a cloſe tuft. The inhabitants make ropes, baſkets and mats of it [c].—Native of Spain and Barbary, on ſandy hills.

7. Native of the Cape of Good Hope.

8. Root perennial, creeping, producing many culms. Leaves even, on the upper part of the culm ſhort. Culm even, a foot and half high. Spike narrow, ſcarcely the length of a finger. Flowers ſeſſile, ſcarcely pubeſcent, villoſe at the baſe. Awn terminating, ſcarcely a finger's length, twiſted, ſomewhat hairy, beyond where it is twiſted even.—Native of the Cape of Good Hope [b].

9. Culm a foot and half high, erect, ſtriated, ſheathed, ſmooth: ligule or ſtipule membranaceous. Panicle branched, ſpreading. Pedicels capillary, ſeveral to each tooth. Calyx-valves a little longer than the ſeed, ending in a point, ſharp at both ends, duſky purple at the baſe, from the middle to the tip membranaceous. Outer valve of the corollas obovate, bearded at the baſe, with fulvous hairs, muricate at the tip. Awn two inches long, variouſly bent, bearded at the baſe, below ſlightly pubeſcent, ſomewhat rugged backwards, pale yellow. Inner valve rigid, awl-ſhaped, incloſed by the outer.—Native of Braſil, on monte Video. Found by Thouin [i].

10. Culms ſlender. Upper leaf ventricoſe, length of the panicle, which is compoſed of conjugate one-flowered peduncles. Calyx-glume one-flowered, pale, two-valved, equal. Awn of the corolla terminating, twiſted, jointed at the baſe, naked, length of the peduncles. This graſs is ſmaller than Avena ſativa.—Native of Virginia [k].

11. This graſs is ſcarcely a foot high, with the appearance of an Avena. Culm even, the thickneſs of a ſmall thread. Panicle ſimple ſcarcely ſubdivided, lax, weak. Pedicels membranaceous, ancipital, bluntiſh. Awn of the calyx and corolla of the ſame length.—In the mantiſſa it is ſaid to be a raceme, with the peduncles one-flowered, depreſſed, margined ſo as to be in a manner membranaceous. One valve of the calyx the length of the ſeed; the other very ſhort, both acuminate. Awn of the ſeed terminating, flexuoſe, a little longer than the ſeed. The laſt flower but one ſeſſile. Native of Spain, where it was obſerved by Loefling [l].

12. This differs from the firſt ſpecies in having rigid, glaucous, flattiſh leaves, ſtriated on one ſide, wider, ſerrate, with a very long awn hirſute on every ſide from the baſe to the tip.—Native of Barbary about Maſcar and Tlemſen.

13. Roots perennial, fibrous, flexuoſe, long. Culms many from the ſame head, ſlender, erect. Leaves ſmooth, convoluted, ſhort. Panicle elongated, bowed. Peduncles long, many from the ſame knot, capillary, unequal, many-flowered: flowers pedicelled, thin, elongated. Calyx one-flowered: glumes unequal, membranaceous, channelled, narrow, acute. Corolla ſhorter, ſlender, ſmooth, round: glumes coriaceous, cloſely involuted. Awn capillary, naked, twiſted at the baſe. Seed thin, elongated, ſmooth.

Native of dry hills near Maſcar, and in the kingdom of Tunis.

14. Culms erect, many from the ſame head. Leaves ſmooth, convoluted; the radical ones almoſt capillary. Panicle yellowiſh, wrapped at the baſe in a ſheathing leaf. Branchlets preſſed cloſe. Flowers deciduous. Calyx-glumes awl-ſhaped, membranaceous, white, ſhining, acute, almoſt equal, lax. Corolla deciduous, round, villoſe on the outſide; with the glumes cloſely convoluted. Awn villoſe at the baſe, twiſted, ſmooth above, when the ſeed is ripe, knee-jointed and terminating. Seed elongated, thin, with a longitudinal groove on one ſide.

The flowers are deciduous and very numerous, ſtick to the clothes of paſſengers, and incommode them by tickling and pricking them.—It is an annual graſs, native of Barbary in fields [a].

STIPHELIA. See *Epacris*.

STITCHWORT. See *Stellaria*.

STOCK GILLIFLOWER. See *Cheiranthus*.]

STOEBE. (Στοιβὴ *of Dioſcorides*. Stoebe *of Pliny*. *Herba qua in extruendis, ſtibadiis & toris utebantur, quaque tomenti loco culcitras farciebant. Uſed formerly in ſtuffing cuſhions and pillows.*)

Lin. gen. n. 1001. *Reich. n.* 1086. *Schreb. n.* 1357. *Gærtn. t.* 167. *Juſſ.* 180.

Claſſ. 19. 5. Syngeneſia Polygamia Segregata.

Nat. order of *Nucamentaceæ*. *Corymbiferæ*, Juſſ.

GENERIC CHARACTER.

CAL. *Common* roundiſh, imbricate: *ſcales* awl-ſhaped, covering the univerſal receptacle on every ſide. *Perianth* partial one-flowered, five-leaved, ſolitary within each ſcale of the common calyx, conſiſting of linear, acute, equal, erect *leaflets*.

COR. proper one-petalled, funnel-form: *border* five-cleft, patulous.

STAM. *Filaments* five, capillary, ſhort. *Anthers* cylindrical, five-toothed.

PIST. *Germ* oblong. *Style* filiform, length of the ſtamens. *Stigma* acute, bifid.

PER. none. *Calyx* unchanged.

SEEDS ſolitary, oblong. *Down* feathered, long.

REC. proper, naked.

ESSENTIAL CHARACTER.

Cal. one-flowered. *Cor.* tubular, hermaphrodite. *Recept.* naked. *Down* feathered.

SPECIES.

1. Stoebe æthiopica.
Lin. ſpec. 1315. *Juſſ.* 1001. *Reich.* 3. 948. *mant.* 481. *hort. cliff.* 390. *Gærtn. fruct.* 2. 416.
Conyza africana frateſcens, foliis ericæ hamatis & incanis. *Tournef. inſt.* 455.
Helichryſoides juniperi creberrimis aduncis foliis, floribus in ramulorum cymis. *Vaill. act.* 1719. 393.
Leaves recurve-hooked naked.

[2. Stoebe ericoides.
Lin. ſyſt. 798. *Reich.* 3. 948. *mant.* 574. *Berg. cap.* 339.
Eupatorium ericoides cap. b. ſpei. *Bryn. cent.* 140. *t.* 9. *Mor. hiſt.* 3. 97. *ſ.* 7. *t.* 18. *f.* 10.
Leaves recurved hoary, corollas two-flowered differm.

3. Stoebe proſtrata.
Lin. ſyſt. 798. *Reich.* 3. 948. *mant.* 291.
Leaves reſupine tomentoſe on one ſide, ſtems proſtrate.

4. Stoebe gnaphaloides.
Lin. ſyſt. 798. *Reich.* 3. 949.
S. gomphrenoides. *Berg. cap.* 336.
Seriphium corymbiferum. *Lin. mant.* 119.
Gnaphalium niveum. *Lin. ſpec.* 1192.
G. incanum, folio lineari, caule accumbente. *Burm. afr.* 215. *t.* 77. *f.* 1.
Elichryſum æthiopicum, tenuiſſimis ſtoechadis citrinæ foliis confertis, ramoſiſſimum, comis argenteis. *Pluk. mant.* 67. *Raii ſuppl.* 171.
Leaves imbricate preſſed cloſe.

5. Stoebe gomphrenoides.
Lin. ſyſt. 798. *ſuppl.* 391. *Berg. cap.* 336.
Leaves lanceolate imbricate preſſed cloſe, head terminating ſeſſile.

6. Stoebe ſcabra.
Lin. ſyſt. 798. *ſuppl.* 391.
Leaves twiſted preſſed cloſe linear rugged with tubercles on the outſide tomentoſe within, flowers in racemes.

7. Stoebe reflexa.
Lin. ſyſt. 798. *ſuppl.* 391.
Procumbent, leaves linear, ſpikes ovate, branches aſcending.

8. Stoebe Rhinocerotis.
Lin. ſyſt. 798. *ſuppl.* 391.
Leaves three-ſided preſſed cloſe, branchlets tomentoſe drooping, racemes proliferous.

9. Stoebe diſticha.
Lin. ſyſt. 798. *ſuppl.* 391.
Leaves in bundles recurved, ſpikes bifarious.

[a] Deſfontaines. [b] Linn. ſuppl. [c] Vahl. [k] Linn. ſpec. [l] Linn. ſpec. & mant.

[i] Deſfontaines.

DESCRIPTIONS, &c.

1. This, like all the reſt, is a ſhrubby plant. Leaves awl-ſhaped, rolled in, bowed backwards, rigid, pungent, like thoſe of Juniper, even except at the baſe *. In ſtrictneſs, according to Gœrtner, the partial calyx is not ſuch, but the chaffs neareſt to the florets are inſtead of one.

The ſtem riſes two or three feet high, ſending out ſlender branches from the ſides. Leaves ſhort, linear, for the moſt part hooked, of a grayiſh colour, and placed irregularly round the branches. The flowers are produced in ſingle heads at the end of the branches, and are of a pale yellow colour. The florets are ſingle, and peep out between the ſcales of the calyx. It flowers in auguſt, but ſeldom produces good ſeeds in England.

[2. This is a diſtorted little ſhrub, like Heath. Leaves cluſtered, linear, ſharp. Flowers terminating, ſeſſile. Common calyx ſubſquarroſe:—partial imbricate (ten), cylindric, two-flowered; one floret tubular, hermaphrodite, the other ligular, neuter. Corolla hemiſpherical. Germ inferior: two ſtigmas. Down ſeſſile, feathered. Receptacle tomentoſe.

3. Stems filiform, ſomewhat woody, decumbent, determinately branched, aſh-coloured at the end, the ſize of wild Thyme. Leaves alternate, ſeſſile, elliptic, very ſharp, the ſize of Herniaria, white-tomentoſe above, naked beneath, recurved, and turned upſide down ſo that the tomentoſe ſurface is the lower. Heads ſimple, terminating, ſeſſile, the ſize of peas.

4. Stems ſhrubby, proliferous, rod-like, a foot and half high; with filiform branches, covered with preſſed-cloſe leaves. Leaves ovate-lanceolate, ſeſſile, ciliate, naked without, tomentoſe within, erect, and preſſed cloſe to the branches. Heads terminating, hemiſpherical, white, compoſed of many calyxes. Flowers ſeſſile, in bundles. Calyxes ſmooth, white, with lanceolate-ſubulate ſcales without a ray. Corollet ſingle, white. Stamens white. Seed crowned with ſix feathered briſtles. It has the habit of Xeranthemum capenſe *.

In Syſtema Vegetabilium it is remarked, that the common calyx is ſubpentaphyllous and many-flowered, bell-ſhaped, and collected into a ball.

5. This reſembles the preceding very much, but differs in having the leaves unarmed not cuſped; and the flowers in heads, not umbelled. Both are ſingular for their lanceolate leaves preſſed cloſe, without convex and ſmooth, within channelled and white-tomentoſe.

6. This has the habit of a Heath in the herb.

7. This and the preceding were firſt obſerved at the Cape by Thunberg.

8. This forms the principal food of the Rhinoceros, whence it bears the ſame name among the inhabitants of the Cape.

9. This, with all the preceding ſpecies, is a native of the Cape of Good Hope *.]

PROPAGATION AND CULTURE.

Theſe ſhrubby plants may be propagated by cuttings or ſlips, planted in july upon a bed of ſoft loam, and covered cloſe down with a bell or hand-glaſs, ſhading them from the ſun till they have taken root; then gradually inure them to the open air, and afterwards take them up, and plant them in pots, placing them in the ſhade till they have taken new root: then place them in a ſheltered ſituation with other tender exotic plants, and in autumn remove them into the dry ſtove.

[STOEBE. See *Catananche*, *Centaurea*, *Polerium*, *Seriphium*, *Serratula*, *Stæbelina*.

STOECHADI AFFINIS. See *Stæbelina*.

STOECHAS. See *Gnaphalium*, *Lavandula*, and *Stæbelina*.

STOERCKIA. See *Dracæna*.

STOKESIA. (*So named by Monſ. L'Heritier, in honour of Jonathan Stokes, M.D. who very ably aſſiſted Dr. Withering, in his Botanical Arrangements of Britiſh Plants.*)

L'Herit. ſert. angl. 27. *t.* 38. *Juſſ.* 450.

Claſſ. 19. 1. Syngeneſia Polygamia Æqualis.

* Linn. mant. † Idem. ‡ Linn. ſuppl.

GENERIC CHARACTER.

CAL. *Common* leafy, ſubimbricate.

COR. Floſcular, two-formed: corollets hermaphrodite regular in the diſk; in the outer circumference irregular, conſtituting a ray.

STAM. *Filaments* five in each. *Anther* cylindric.

PIST. *Germ* (in the regular florets) four-cornered: (in the irregular) three-cornered. *Style* filiform. *Stigma* two-parted, awl-ſhaped.

PER. none.

SEED down filamentoſe, deciduous, equal to the corollet, four in the regular, three in the irregular florets.

REC. naked.

ESSENTIAL CHARACTER.

Corollets in the ray funnel-form, longer, irregular. *Down* four-briſtled. *Recept.* naked.

SPECIES.

1. Stokeſia cyanea. *Blue-flowered Stokeſia.*

L'Herit. ſert. angl. 28. *t.* 38. *Ait. kew.* 3. 149.

Carthamus lævis. *Hill kew.* 57. *t.* 5.

DESCRIPTION, &c.

This plant has a corolla reſembling that of the common Blue-bottle (Centaurea Cyanus), with almoſt the calyx of Carthamus, to which genus it is allied *.

Native of South Carolina. Introduced about 1766, by Mr. James Gordon. It flowers in auguſt †.]

STONE-CROP. See *Sedum*.

——— TREE. See *Chenopodium*.

[STONE FERN. See *Oſmunda criſpa*.

STONEWORT. See *Chara*.

STORAX. See *Styrax*.]

STOVES or Hot-houſes are buildings erected for preſerving ſuch tender exotic plants, as will not live in the reſpective countries where they are introduced, without artificial warmth in winter.

Though there is a great variety of theſe Stoves, yet they are reducible to two, the dry Stove and the bark Stove. [They are both comparatively of modern invention; the firſt not having been in uſe above one hundred and twenty years, and the latter being much poſterior to that.

Gerarde and Parkinſon, who wrote in the times of Queen Eliſabeth and King James the firſt, frequently uttered complaints that they were not able to retain many of the plants which they have taken the pains to introduce, during the ſeverity of our winters.

The former, under the article Cucumbers, in his Herbal printed in 1597, gives full directions for making a hot-bed, or as he calls it, "a bed or bank of hot and new horſe dung, taken forth of the ſtable, and not from the dunghill, wherein to ſet or ſow Cucumbers, Muſke melons, and other cold ſeedes, as alſo whatſoever ſtrange ſeedes are brought unto us from the Indies or any other hot regions. The which bancke you ſhall cover with hoopes and poles, that you may the more conveniently cover the whole bed or bancke with mats, old painted cloth, ſtrawe or ſuch like," &c. p. 764.

One cannot but ſmile to read in Parkinſon's *Paradiſus Terreſtris* or Garden of pleaſant Flowers, publiſhed in 1629, that the Laurel, which was then a curioſity, and called the Bay Cherry, was "defended from the bitterneſſe of the weather in winter, by caſting a blanket over the toppe thereof." P. 401.

It was cuſtomary at that time to place tender plants during winter in a cellar, to protect them from froſt. Of the *Canna indica*, or Indian flowering Reed, the ſame author ſays, "it "doth not abide the extremities of our winters, eyther abroade or under covert, unleſſe it meete with a ſtove or hot-houſe, ſuch as are uſed in Germany, or ſuch other like place: for neyther houſe nor cellar will preſerve it, for want of heate." p. 376. We are not to conclude from hence that what we now call Stoves or Hot-houſes, were at that time known in England; but only that German ſtoves were ſometimes introduced into rooms, to warm them.

The uſe of bell-glaſſes for covering Melons came in between the times of Gerarde and Parkinſon. The latter recommends a hot-bed to be made in the ſame

* L'Heritier. † Hort. kew.

manner as directed by Gerarde for raiſing the ſeeds, and alſo ridges whereon to tranſplant them, "at the leaſt two yards in ſunder, every one as it were in a hole, with a circle of dung about them, which upon the ſetting, being watered with water that hath ſtood in the ſunne a day or two, cover them with ſtrawe—ſome uſe great hollow glaſſes like unto bell heads," &c. p. 466.

"If any be deſirous," ſays Parkinſon, "to keepe the Orenge tree, he muſt ſo provide for it, that it be preſerved from any cold, either in the winter or ſpring, and expoſed to the comfort of the ſunne in ſummer. And for that purpoſe ſome keepe them in great ſquare boxes, and lift them to and fro by iron hooks on the ſides, or cauſe them to be rowled by trundels, or ſmall wheeles under them, to place them in an houſe, or cloſe gallerie for the winter time: others plant them againſt a bricke wall in the ground, and defend them by a ſhed of boardes, covered over with ſeare-cloth in the winter, and by the warmth of a ſtove, or other ſuch thing, give them ſome comfort in the colder times: but no tent or meane proviſion will preſerve them." p. 584.—See the account of Sir Francis Carew's Orange trees under *Citrus*.

In this ſtate, the means of protecting exotic plants continued during the greater part of the ſeventeenth century. Little or nothing ſeems to have been done in the time of the Commonwealth, when a general attention was paid to ſubjects of more immediate utility, ſuch as the introduction of Turneps and Clover, and the improvement of our huſbandry on the Flemiſh model.

More care was beſtowed upon the luxury of plants, as it may be called, after the Reſtoration; but I do not know that any Stove or Hot-houſe, properly ſo called, was erected before the year 1684.

Sir Hans Sloane, in a letter to Mr. Ray, dated November 11, that year, informs him that Mr. Watts (gardener at the Apothecaries garden at Chelſea) had a new contrivance, at leaſt in this country; viz. he makes under the floor of his greenhouſe a great fire-plate, with grate, aſh-hole, &c. and conveys the warmth through the whole houſe, by tunnels; ſo that he hopes, by the help of weather-glaſſes within, to bring or keep the air at what degree of warmth he pleaſes, letting in upon occaſion the outward air by the windows. He thinks to make, by this means, an artificial ſpring, ſummer and winter.

In a ſecond letter, dated Dec. 20, he ſays, that he was yeſterday at Chelſea garden to ſee how the plants were preſerved there in the cold weather, and found, that in the day-time they put no fire into their furnaces, and that in the night they not only put in ſome fire, but cover the windows where they ſtand with pitch'd canvaſs, taking this off, and opening them as much as the air or wind permits.

In a third letter dated march 7, 1684-5, Sir Hans again ſays, that he was the other day at Chelſea, and found that the artifices uſed by Mr. Watts had been very effectual for the preſervation of his plants, inſomuch that the winter, which was ſevere enough, had killed ſcarce any of his fine plants[s].

This converſion however of the Greenhouſe into a Stove does not ſeem to have become common. Mr. Evelyn, in his *Kalendarium Hortenſe* or Gard'ner's Almanac recommends, "if the ſeaſon proves exceeding piercing, to kindle ſome charcoals, and when they have done ſmoaking, to put them in a hole ſunk a little into the floor of your Greenhouſe, about the middle of it: unleſs it have a *ſubterranean Stove*, which moderately, and with judgment tempered, is much to be preferr'd." In the mean time he wiſhes that ſome curious perſon would make trial of a greenhouſe and furnace, with earthen pipes to introduce warm freſh air, of which he gives a detailed deſcription accompanied with figures[t].

Mr. Bradley, in his New Improvements of Planting and Gardening, ſays that "Greenhouſes, as they are commonly built, ſerve more for ornament than uſe; their ſituation to receive the ſouth ſun being the only thing that ſeems to be regarded towards the health of the plants they are to ſhelter. It is rare to find one that will keep a plant well in the winter, either by reaſon of their ſituation in moiſt places, their want of glaſſes enough in the front, the diſproportion of the room within them: and ſometimes where it happens that a Greenhouſe has been well conſidered in theſe points, all is confounded by the flues under it, which convey the heat from the Stoves."

He then proceeds to inform us, that "beſide a Greenhouſe, it has been cuſtomary to provide Glaſs-caſes of ſeveral kinds, and Stoves for the preſervation of plants brought from different countries." But he condemns theſe as unneceſſary expenſes; and affirms that "a good Greenhouſe, well contrived, will do all that is required for the welfare of any plant in the winter." He deſcribes ſuch a Greenhouſe, and thinks that it may protect plants from all climates, by diſpoſing them judiciouſly, thoſe from the parts near the line in the warmer, and the others in the cooler parts of the houſe, introducing charcoal fires occaſionally in ſevere weather; or one of the new invented chimnies ſo judiciouſly improved by Mr. Deſaguliers, and deſcribed by him in his book called *Fires Improved*[u].

This idea of having one houſe for ſheltering plants of all climates, may ſerve to ſhew how imperfectly the ſubject was underſtood at this time.

At the end of this book, Bradley gives the deſcription of a Greenhouſe, accompanied with plan, elevation and ſections, contrived by Galilei, with a cupola in the middle, and a room at each end, having chimneys, to warm the rooms, and to convey warm air to the plants.

The ſame author, in his general treatiſe of Huſbandry and Gardening for the month of july 1724, p. 178. deſcribes a Stove or Conſervatory lately built (1721) by Mr. Fairchild at Hoxton, with flues and every thing in the modern form of a Dry Stove. It was ten or twelve feet in depth, and about forty feet in length: and had frames covered with glaſs in front, for tender bulbs and flowers.

Having thus brought down the hiſtory of dry Stoves to a period within the recollection of ſome perſons now living, we may proceed to Mr. Miller's account of their ſtructure and uſe.]

The Dry Stove may be either built with upright and ſloping glaſſes at the top; or elſe the front glaſſes, which ſhould run from the floor to the cieling, may be laid ſloping at an angle of 45°, the better to admit the rays of the ſun in ſpring and autumn, when the ſun declines. The latter method was formerly followed by many; but where I have had the contrivance of Stoves of this kind, I have always built them, after the model of the Bark Stove, with upright glaſſes in front, and ſloping glaſſes over them, becauſe this will more readily admit the ſun at all the different ſeaſons; for in ſummer, when the ſun is high, the top glaſſes will admit the rays to ſhine almoſt all over the houſe; and in winter, when the ſun is low, the front glaſſes will admit its rays; whereas when the glaſſes are laid to any declivity in one direction, the rays of the ſun will not fall directly on them above a fortnight in autumn, and about the ſame time in ſpring, and during the other parts of the year they will fall obliquely; and in ſummer, when the ſun is high, the rays will not reach above five or ſix feet from the glaſſes. Beſides, the plants placed towards the back part of the houſe, will not thrive in the ſummer ſeaſon for want of air; whereas when there are ſloping glaſſes at the top, which run within four feet of the back of the houſe, theſe, by being drawn down in hot weather, will let in air perpendicularly to all the plants; and of how much ſervice this is, every one who has had an opportunity of obſerving the growth of plants in a Stove, will eaſily judge; for when plants are placed under cover of a cieling, they always turn themſelves towards the air and light, and thereby grow crooked; and if, in order to preſerve them ſtraight, they ſhould be turned

[s] Ray's letters. 172. 173. 176.
[t] Edit. 9. 1699. pp. 130. 153.
[u] P. 197. ed. 3. 1719.

every week, they will ſtill be feeble, and look pale and ſickly.

If the ſituation be dry, the floor of the Stove need not be raiſed more than four feet above the level of the ground; but if it be wet, it will be proper to raiſe it three feet, eſpecially if the flues are to be carried under the floor. For if theſe be placed upon the ſurface, they will not draw ſo well as when they are more raiſed. The furnace muſt be placed at one end of the houſe; and the ſize of it muſt be directed by the kind of fuel intended to be burnt: if for coals or wood, it may be made according to the common method for coppers, only much larger, becauſe as the fire is to be continued chiefly during the night, if there be not room to contain a conſiderable quantity of fuel, it will want frequent attendance, and conſequently there will be great hazard of its being neglected. But if the fuel intended be turf, then the furnace may be the ſame as will be directed for the bark ſtove.

The flues are either carried under the pavement of the floor, or along the back of the houſe, over each other, and are returned ſix or eight times the whole length of the Stove, according to the height. If they are under the pavement, they may be carried ſtraight, or in a waving line; which latter, ſome think, will draw better, and they may be ſo much turned, as to reach almoſt from the back to the front of the houſe.

The depth of them ſhould not be leſs than eighteen inches, and the width nearly equal, which will prevent their being choaked up with ſoot, as is often the caſe when the flues are made too ſmall. The ſpaces between the flues ſhould be filled up either with dry brick rubbiſh, lime or ſand, from which little moiſture will ariſe; and the flues ſhould be cloſely plaſtered with loam both within and without, and the upper part covered with a coarſe cloth under the floor, to prevent the ſmoke from getting into the houſe. When the flue is carried from the furnace to the end of the houſe, it may be returned in the back above the floor twice in ſtraight lines, which may be contrived to appear like a ſtep or two, by which means the ſmoke will be continued in the houſe until all its heat is ſpent, which will conſequently warm the air of the houſe better: and the chimneys through which the ſmoke is to paſs off, may be either at both ends, or in the middle, carried up in the thickneſs of the brick work of the flues, ſo as not to appear in ſight within the houſe. The flues ſhould be firſt covered with broad tiles ſixteen inches long, and then a bed of ſand laid over them about two inches thick, upon which the other tiles ſhould be laid to correſpond with the reſt of the floor. This thickneſs of cover will be full enough to prevent the too ſudden riſe of the heat from the flues.

But if the furnace be placed under the floor, the thickneſs of ſand between the brick arch which covers it and the floor, ſhould not be leſs than four or ſix inches, ſo that the bottom of the furnace ſhould be ſunk the lower; and if from the fire-place to the end of the houſe the flues be laid a little riſing, it will cauſe them to draw the better; but this riſe muſt be allowed in the placing them lower under the floor next the fire, becauſe the floor muſt be laid perfectly level, otherwiſe it will appear unſightly.

In this Stove there ſhould be a ſtand or ſcaffold erected for placing ſhelves above each other, that the plants may be diſpoſed ſo as to make a handſome appearance in the houſe: but theſe ſhelves ſhould be made moveable, ſo as to be raiſed or ſunk, according to the various heights of the plants, otherwiſe it will be very troubleſome to raiſe or ſink every particular plant according to their heights, or every year as they advance in their growth. In placing the feet of this ſtand you muſt be careful not to ſet them too near the fire, nor directly upon the top of the flue, eſpecially that end next the fire; leſt by the conſtant heat of the tiles the wood ſhould take fire. The ſtand ſhould be in the middle of the houſe, leaving a paſſage about two feet and a half in the front, and another of the ſame width in the back, the more conveniently to paſs round the plants in order to water them, and that the air may freely circulate about them. In diſpoſing the plants, the talleſt ſhould be placed behind, and the ſhorteſt in front, ſo that there will not be occaſion for more than five or ſix ſhelves in height at moſt; but the ſcaffold ſhould be ſo contrived, that there may be two ſhelves in breadth laid upon every riſe, whenever there may be occaſion for it, which will ſave much trouble in diſpoſing the plants.

[Bark Stoves were of later introduction, as was obſerved above, than theſe Dry Stoves, which were only an improvement upon the old Greenhouſe, by adding more glaſs, and a furnace with flues. It ſeems probable that the culture of Ananas firſt gave riſe to the introduction of the Bark Stove. See TAN, or TANNER'S BARK.

Mr. Bradley, in his general treatiſe of Huſbandry and Gardening, for June 1724, p. 161, ſays, that "beſides the hot-bed commonly made of horſe-litter, there is another ſort frequently uſed in Holland, made of Tanner's bark; and that one of the beſt examples in England of this ſort is that of Mr. Henry Telende, gardener to Sir Matthew Decker at Richmond, for the propagating of the Ananas or Pine Apple, which has never been brought to perfection in Europe, till of late years Mr. Le Cour of Leyden found out their way of management with ſo much judgment, that he has ſeldom fewer than ſix or ſeven hundred plants in a ſummer, which bring perfect ripe fruit. To this gentleman's curious diſcovery we are at preſent obliged; for by imitating his method of cultivating this delicious fruit, we find there are like to ripen forty fruit-trees, this autumn in the garden at Richmond, which I have mentioned above; and I doubt not but in a few years we ſhall find them in like perfection in many of our Engliſh gardens."

In the ſame volume, for the month of July, p. 206, &c. Mr. Bradley gives a deſcription of the Pine Apple, the introduction of it into Holland by Mr. Le Cour, and its culture at Sir Matthew Decker's. He ſays that there were, in the Amſterdam gardens about two hundred plants, chiefly from Surinam and Curaçao, but ſome from the Dutch factories in the Eaſt Indies, which were in good health; but the art of bringing them to fruit was not known till Mr. Le Cour took them in hand. He thus deſcribes the hot-bed and frame, "for the education and ripening this fruit. His frame is made of whole deal, cloſely jointed: the length eleven feet, divided equally into four lights; the width ſeven feet and a half; three feet high at the back, and about ten inches in the front. The pit is ſomewhat more than five feet deep in the ground; the ſides are lined with brick, and the bottom is covered with pebbles. About the middle of february, he puts in as much hot dung or horſe-litter, as will raiſe the bed about a foot high, and then lays on the tanners bark as equally as poſſible, till the caſe of brick-work is filled, beating down the tan gently with a prong, or preſſing it down eaſily with a board. A bed of this kind will take up three hundred buſhels of tan, and if it be well made, will heat in about fifteen days, provided the frame and glaſſes are ſet over it. When the bed breaths a right heat, which we are to judge of by a thermometer, the plants are brought from the ſtove to it, either to have their pots quite plunged into the bark; or, if upon opening the holes for them, the bark be found too hot, then to be ſet in only half way, laying a few pebbles under the bottom of each pot, that the water may paſs freely through them. Care muſt be taken not to remove the pots in froſt or ſnow; and to examine the bed from time to time, whether the bark grows mouldy, muſty, or dry, which it will often do in the ſummer: in ſuch caſe, it muſt be watered to recover its heat. A bed thus prepared and managed will maintain a conſtant degree of heat, ſufficient to give theſe plants the utmoſt vigour they require, from the end of februaary to the end of octtober; and then the plants muſt be again removed into the ſtove or conſervatory. In exceſſive heats the glaſſes are tilted up at the back of the frame; and when the evenings are cool, the bed muſt be carefully covered with ſubſtantial mattreſſes of ſtraw. A bed of this kind ſinks about a foot, which is convenient, for otherwiſe the plants would

would be too tall for the frame, before the time of housing them."

"By the same method of culture, all such plants as are natives of climates as hot as Jamaica, the Caribbee islands, and two or three degrees more south, would prosper here as well as the Pine Apple. The Guava for instance, the Banana, Plantains, and even the Mango, with all the Spices." Experience has not justified this assertion of Professor Bradley's.

"The Stove used was that with iron plates over the flues; which, for greater warmth, was covered thick with thatch, and the glasses were well guarded with shutters; and that the fire might be constant, he burnt only such turf as is commonly used in Holland, agreeable to Mr. Le Cour's method."

"The thermometer used by Mr. Telende, had a tube twenty-four inches long, and one-eighth of an inch in diameter. When the spirit rose only to fifteen inches, he accounted the air cold for his plants; at sixteen and a half temperate; at eighteen warm, which was his standard for Pine Apple heat; at twenty inches, hot air; and at twenty-one inches, sultry."

In vol. 3 of the same work, for the month of july 1722, p. 51. Mr. Bradley says, that "the late instance of bringing the Ananas or Pine Apple to perfection in England, by the ingenuity of Mr. Telende at Sir Matthew Decker's, has so far gained upon the curious, that already many of our nobility have undertaken the same improvement; and 'tis not to be doubted but a year or two more will make this undertaking much more general."

In the same volume, for august, &c. p. 133. it is said, that "Mr. Telende's extraordinary success has encouraged many to undertake the culture of the Anana.—And that the new frame at the Physick Garden at Chelsea, wherein only the use of the Tanners Bark has been try'd this summer, 1723, by Mr. Miller the curious gardener there, is an instance, that it is not impossible to bring plants of the latitude of 18 or 20 degrees to the utmost perfection. About the beginning of august he observed the Sensitive plants there, about seven feet high, in blossom, and the Humble plants preparing to put forth their flowers. The Flower-Fence (Poinciana), so much esteemed in Jamaica, and some other plants of the same country, were said to be in greater strength than in Jamaica itself, considering the time of their growth from seed."

"As for Pine Apples, we have instances of their being brought to extraordinary perfection at the garden of the right honourable Spencer Compton, Speaker of the House of Commons, at Chiswick; and at that curious gentleman's Mr. John Warner, at Rotherhith. There are several Stoves now built by curious gentlemen on this account; but as they have not yet been proved, I shall forbear to mention them particularly, only to take notice, that that which was erected this summer in the gardens of William Parker, Esq. near Croydon in Surrey, commands the admiration of all the judges that have seen it, for just architecture, and good contrivance; the design of it, besides the keeping of tender plants during the rigour of our winters, and the restoring of sick plants, which is common to most stoves, is likewise to ripen some fruits, which have been ripened in other stoves here, as well as in Holland, and to make new experiments on others that have not been try'd; 'tis therefore endeavoured to make this stove capable of being heated differently in different parts of it, in order to imitate in some sort different climates, which may be regulated according to different heights of the thermometer. For these purposes it is so contrived, that in the summer time it may be useful by means of tanners bark only, and in the winter, both bark and fire may be used together, or fire alone."

"I observe," says he, "in a Stove, which Mr. Fairchild has built this year in his garden at Hoxton, for Pine Apples and the most tender plants, that he has raised his fire-flues above the surface of the floor of the stove: by which means he avoids all danger from damps."

The above account is accompanied with a plan and elevation of a Stove, with a pit for tanners bark, from a draught by Mr. Rogers of Shoe-lane, a very ingenious architect.

John Cowell, in his Curious and Profitable Gardener, Lond. 1730, oct. p. 27, gives the same account with Mr. Bradley of the cultivation of the Ananas or Pine Apple in Holland, and by Sir Matthew Decker in England; "where," says he, "they were so extremely well managed, that all gentlemen who had eat of them abroad, allowed them to be as good and as large as they found in the West Indies. This soon encouraged many of our nobility and gentry to build stoves and glass-cases for the culture of the Pine Apple, and they are now (1730) found in almost every curious garden."

"When I say," adds Mr. Cowell, "the first that were cultivated in England, were in Sir Matthew Decker's gardens at Richmond, I mean the first that were cultivated with success, were in those gardens; for long before we had plants of them brought to us, but had not before that time conveniences for bringing them to fruit, or even of keeping the plants alive."

Having thus ascertained the introduction of Bark Stoves, and established their use, let us proceed to Mr. Miller's account of their structure and management.]

The other sort of Stoves are commonly called bark Stoves, to distinguish them from the dry Stoves already mentioned. These have a large pit, nearly the length of the house, three feet deep, and six or seven feet wide, according to the breadth of the house, which pit is filled with fresh tanners bark to make a hot-bed, and in this bed the pots of the most tender exotic trees and herbaceous plants are plunged. The heat of this bed being moderate, the roots of the plants are always kept in action, and the moisture detained by the bark, keeps the fibres of their roots in a ductile state, which in the dry Stove, where they are placed on shelves, are subject to dry too fast, to the great injury of the plants. In these Stoves, if they are rightly contrived, may be preserved the most tender exotic trees and plants, which, before the use of the bark was introduced, were thought impossible to be kept in England; but, as there is some skill required in the structure of both these Stoves, I shall not only describe them as intelligibly as possible, but also annex plans of both Stoves hereto, by which it is hoped every curious person will be capable of directing his workmen in their structure.

The dimension of these Stoves should be proportioned to the number of plants intended to be preserved, or the particular fancy of the owner, but their length should not exceed forty feet for one fire-place; but where there are two fires it will be proper to make a partition of glass in the middle, and to have two tan-pits, that there may be two different degrees of heat for plants from different countries (for the reasons before given in the account of dry Stoves;) and were I to erect a range of Stoves, they should be all built in one, and only divided with glass partitions, at least the half way toward the front, which will be of great advantage to the plants, because they may have the air in each division shifted by sliding the glasses of the partitions, or by opening the glass door which should be made between each division, for the more easy passage from one to the other.

These Stoves should be raised above the level of the ground, in proportion to the dryness of the place, for if they are built on a moist situation, the whole should be placed upon the top of the ground, so that the brick-work in front must be raised three feet above the surface, which is the depth of the bark-bed, whereby none of the bark will be in danger of lying in water; but if the soil be dry, the brick-work in front need not be more than one foot above ground, and the pit may be sunk two feet below the surface. Upon the top of this brick-work in front must be laid the plate of timber, into which the wood-work of the frame is to be mortised; this should be of sound Oak felled in winter, without sap, the dimension one foot wide, and six inches deep, and the upright timbers in front must be placed four feet asunder, or somewhat more,

which is the proportion of the width of the glaſs doors or ſaſhes; theſe ſhould be about ſix feet and a half, or ſeven feet long, and placed upright; their dimenſion ſhould be nine inches by ſix, of yellow Fir; but from the top of theſe ſhould be ſloping glaſſes, which ſhould reach within three feet of the back of the Stove, where there ſhould be a ſtrong crown-piece of timber placed, in which there ſhould be a groove made for the glaſſes to ſlide into; the dimenſion of the ſloping timbers ſhould be ten inches by nine of yellow Fir, and the crown-plate one foot by nine or ten inches of the ſame timber. The wall in the back part of the Stove ſhould be at leaſt thirteen inches thick, but eighteen or twenty-two inches, which is two bricks and a half, will be better, for the greater thickneſs there is in the back wall, the more heat will be thrown to the front, whereby the air of the Stove will be better warmed, and the building will be ſo much ſtronger; for to this back wall the flues, through which the ſmoke is to paſs, muſt be joined. This back wall ſhould be carried up about ſixteen or twenty feet high, or more for tall Stoves, that they may be of a proper height to ſupport the timbers of the back roof, which covers the ſhed behind the Stove. The roof is faſtened into the crown-piece before-mentioned, which in tall Stoves ſhould be about thirty feet above the ſurface of the tan-bed, which will give a ſufficient declivity to the ſloping glaſſes to carry off the wet, and be of a reaſonable height for containing many tall plants. The back roof may be ſlated, covered with lead, or tiled, according to the fancy of the owner; but the manner of the outſide building is better expreſſed by the annexed plan, than is poſſible to be deſcribed in words.

In the front of the houſe, before the tan-bed, there ſhould be a walk, about two feet wide, for the conveniency of walking; next to which the bark-pit muſt be placed, which ſhould be in width proportionable to the breadth of the houſe. If the houſe is fourteen feet wide, which is a due proportion, the pit may be eight feet wide, and behind the pit ſhould be a walk two feet wide, to paſs, in order to water the plants, &c. then there will be two feet left next the back wall to erect the flues, which muſt be all raiſed above the level of the bark-bed. Theſe flues ought to be one foot wide in the clear, that they may not be too ſoon ſtopped with the ſoot, as alſo for the more conveniently cleaning them; the lower flue, into which the ſmoke firſt enters from the fire, ſhould be two feet deep in the clear; this ſhould be covered with broad tiles, which ſhould be a foot and a half ſquare, or one foot by a foot and a half long, that they may be wide enough to extend over the wall in front of the flues, and to take ſufficient hold of the back wall; over this the ſecond flue muſt be returned back again, which may be twenty inches deep, and covered on the top as before; and ſo in like manner the flues may be returned over each other ſix or eight times, that the heat may be ſpent before the ſmoke paſſes off. The thickneſs of the wall in front of theſe flues need not be more than four inches, or three will do very well if they are carefully carried up, but it muſt be well jointed with mortar, and pargitered within ſide to prevent the ſmoke from getting into the houſe: the outſide ſhould be faced with mortar, and covered with a coarſe cloth, to keep the mortar from cracking, as is practiſed in ſetting up coppers. If this be carefully done, there will be no danger of the ſmoke entering the houſe, which cannot be too carefully guarded againſt, for there is nothing more injurious to plants than ſmoke, which will cauſe them to drop their leaves, and, if it continue long in the houſe, will entirely deſtroy them.

The fire-place muſt be made at one end, where there is but one; but, if the Stove is ſo long as to require two, they ſhould be placed at each end of the ſhed, which muſt be made the length of the Stove, that the fires and the back of the flues may not ſuffer from the outer air; for it will be impoſſible to make the fires burn equally, where the wind has full ingreſs to it, and it will be troubleſome to attend the fire in wet weather, where it is expoſed to the rain.

The contrivance of the furnace muſt be according to the fuel which is deſigned to burn, but as turf is the beſt firing for Stoves, where it can be had cheap, many prefer it, becauſe it laſts longer than any other ſort of fuel, and ſo requires leſs attendance. I ſhall deſcribe a proper ſort of furnace for that purpoſe.

The whole of this furnace ſhould be erected within the houſe, which will be a great addition to the heat, and the front-wall on the outſide of the fire-place, next the ſhed, ſhould be three bricks thick, the better to prevent the heat from coming out that way. The door of the furnace, at which the fuel is put in, muſt be as ſmall as conveniently may be to admit of the fuel; and this door ſhould be placed near the upper part of the furnace, and made to ſhut as cloſe as poſſible, ſo that there may be but little of the heat paſs off through it. This furnace ſhould be about twenty inches deep, and ſixteen inches ſquare at bottom, but may be ſloped off on every ſide, ſo as to be two feet ſquare at the top, and under this furnace ſhould be a place for the aſhes to fall into, which ſhould be about a foot deep, and as wide at the bottom of the furnace; this ſhould alſo have an iron door to ſhut as cloſe as poſſible, but juſt over the aſh hole, above the bars which ſupport the fuel, ſhould be a ſquare hole about four or ſix inches wide to let in air to make the fire burn: this muſt alſo have an iron frame, and a door to ſhut cloſe when the fire is perfectly lighted, which will make the fuel laſt longer, and the heat will be more moderate.

The top of this furnace ſhould be nearly equal to the top of the bark-bed, that the loweſt flue may be above the fire, ſo that there may be a greater draught for the ſmoke, and the furnace ſhould be arched over with bricks. The beſt materials for this purpoſe are what the bricklayers call Windſor bricks, which ſhould be laid in loam of the ſame kind as the bricks are made with, which, when burnt by the fire, will cement the whole together, and become like one brick; but you ſhould be very careful, wherever the fire is placed, that it be not too near the bark-bed, for the heat of the fire will, by its long continuance, dry the bark, ſo that it will loſe its virtue, and be in danger of taking fire; to prevent which, it will be the beſt method to continue a hollow, between the brick-work of the fire and that of the pit, about four or five inches wide, which will effectually prevent any damage ariſing from the heat of the fire; nor ſhould there be any wood-work placed near the flues, or the fire-place, becauſe the continual heat of the Stove may in time dry it ſo much as to cauſe it to take fire, which ſhould be very carefully guarded againſt.

The entrance into this Stove ſhould be either from a green-houſe, the dry Stove, or elſe through the ſhed where the fire is made, becauſe in cold weather the front-glaſſes muſt not be opened. The inſide of the houſe ſhould be clean and white-waſhed, becauſe the whiter the back part of the houſe is, the better it will reflect the light, which is of great conſequence to plants, eſpecially in winter, when the Stove is obliged to be ſhut up cloſe.

Over the top ſliding-glaſſes there ſhould be either wooden ſhutters, or tarpaulins fixed in frames to cover them in bad weather, to prevent the wet from getting through the glaſſes, and to ſecure them from being broken by ſtorms of hail, and theſe outer coverings will be very ſerviceable to keep out the froſt; and if in very ſevere cold there is a tarpaulin hung before the upright glaſſes in the front, it will be of great ſervice to the Stove, for then much leſs fire will preſerve a heat in the houſe.

In the warmeſt of theſe houſes or diviſions ſhould be placed the moſt tender exotic trees and plants. Theſe, being natives of very warm countries, ſhould be plunged in the bark-bed, and over the flues may be a conveniency made to ſet the Melon Thiſtle, the tender ſorts of Cereuſes, and Euphorbiums, with other very tender ſucculent plants, which require to be kept dry in winter.

As in this Stove are placed the plants of the hotteſt parts of the Eaſt and Weſt Indies, the heat ſhould be kept up equal to that marked Anana upon the botanical thermometers, and ſhould never be ſuffered to

be above eight or ten degrees cooler at moſt; nor ſhould the ſpirit be raiſed above ten degrees higher in the thermometer during the winter ſeaſon, both which extremes will be equally injurious to the plants.

But in order to judge more exactly of the temper of the air in the Stove, the thermometer ſhould be hung at a good diſtance from the fire; nor ſhould the tube be expoſed to the ſun, but, on the contrary, as much in ſhade as poſſible; becauſe, whenever the ſun ſhines upon the ball of the thermometer but one ſingle hour, it will raiſe the liquor in the tube conſiderably, when perhaps the air of the houſe is not near ſo warm, which many times deceives thoſe who are not aware of this.

In the management of the plants placed in the bark-bed, there muſt be a particular regard had to the temper of the bark, and the air of the houſe, that neither be too violent; as alſo to water them frequently, but ſparingly in cold weather, becauſe when they are in continual warmth, which will cauſe them to perſpire freely, if they have not a proper ſupply to anſwer their diſcharge, their leaves will decay, and ſoon fall off. As to the farther directions concerning the culture of the particular plants, the reader is deſired to turn to their ſeveral articles, where they are diſtinctly treated of.

In the erection of theſe Stoves, it will be of great ſervice to join them all together with only glaſs partitions between them, as was before obſerved: and where ſeveral of theſe Stoves and green-houſes are required in one garden, then it will be very proper to have the green-houſe in the middle, and the Stoves at each end, either placed obliquely or carried on in one ſtraight front. See the plan and elevation of the Conſervatory and Stoves, under *Conſervatory*, in the article GREENHOUSE.

By this contrivance in the ſtructure of theſe houſes, a perſon may paſs from one to the other of them, without going into the open air; which, beſides the pleaſure to the owner, is alſo of great uſe, becauſe there will be no occaſion to make a back-way into each of them, which otherwiſe muſt be, ſince the front glaſſes of the Stove ſhould not be opened in cold weather, if it can poſſibly be avoided on any account, otherwiſe the cold air ruſhing in, will greatly prejudice the very tender plants.

But beſides the Stoves here deſcribed, and the green-houſe, it will be very neceſſary to have a glaſs-caſe or two, wherever there are great collections of plants. Theſe may be built exactly in the manner already deſcribed for the Stoves, with upright glaſſes in front, and ſloping glaſſes over the top of them, which ſhould run within four feet of the back of the houſe. The height, depth, and other dimenſions, ſhould be conformable to that of the Stoves, which will make a regularity in the building. Theſe may be placed at the end of the range on each hand beyond the Stoves; and if there be a flue carried along round each of theſe, with an oven to make a fire in very cold weather, it will ſave a great deal of labour, and prevent the froſt from ever entering the houſe, be the winter ever ſo ſevere; but the upper glaſſes of theſe houſes ſhould have either ſhutters of wood, or tarpaulins in frames to cover them in froſty weather; and if there is a contrivance to cover the upright glaſſes in froſt, either with mats, ſhutters, or tarpaulins, it will be of great uſe in winter, otherwiſe the flue muſt be uſed when the froſt comes on, which ſhould only be done upon extraordinary occaſions; becauſe the deſign of theſe houſes is, to keep ſuch plants as require only to be preſerved from froſt, and need no additional warmth; but at the ſame time, require more air than can conveniently be given them in a greenhouſe. In one of theſe houſes may be placed all the ſorts of Aloes, Meſembryanthemums, African Sedums, Cotyledons, and other ſucculent plants from the Cape of Good Hope. In the other the ſeveral kinds of Arctotis, Oſteoſpermum, Royena, Lotus, and other woody or herbaceous plants from the ſame country, or any other in the ſame latitude.

Thus by contriving the greenhouſe in the middle, and one Stove and a glaſs-caſe at each end, there will be a conveniency to keep plants from all the different parts of the world, which can be no otherwiſe maintained but by placing them in different degrees of heat, according to the places of their native growth.

The Stoves before deſcribed are ſuch as are uſually built to maintain exotic plants, which will not live in England, unleſs they enjoy a temperature of air, approaching to that of the ſeveral countries from whence they are brought; and whoever is inclinable to preſerve a large collection of plants from different countries, muſt contrive to have two or three of theſe Stoves, each of which ſhould be kept in a different temperature of warmth; and the plants ſhould be adapted to the ſeveral degrees of heat required to preſerve them; but as the far greater number of Stoves which have been erected in England, are deſigned for the culture of the Ananas only, I ſhall add a deſcription of two ſorts of Stoves, of the leaſt expenſe in building for this purpoſe; ſo that whoever is inclinable to erect a Stove for ripening Ananas, may, by attending to the plans and deſcriptions, direct the building and contriving ſuch Stoves as they are deſirous to have, or according to the number of fruit propoſed to be ripened annually.

The firſt ſort of Stove is that which is deſigned for the plants, which produce the fruit the ſame year; for as the plants do not generally fruit until the ſecond year from their being taken from the old plants, whether they are ſuckers from the ſide of the plants or crowns taken from the fruit, if they fruit the ſucceeding year, the fruit will be ſmall; therefore when they are properly managed, they will not produce their fruit until the ſecond year, by which time they will have obtained ſtrength to produce large fruit, in which their greateſt value conſiſts; for although there are ſeveral varieties of this fruit, which differ in degrees of goodneſs, as in moſt other fruits, yet they may all of them be improved in their ſize, without diminiſhing their excellence in taſte; though I know there are ſome perſons of a contrary opinion, and who believe that the ſmall fruit are always better flavoured than the large; but from long experience I can aſſert, that the larger and better nouriſhed this fruit is, the higher will be its flavour, ſuppoſing the ſorts are the ſame; therefore every perſon who cultivates this fruit, ſhould endeavour to have it improved to the greateſt perfection; in order to which it will be proper to have a ſmall Stove, in which the young plants may be placed to bring them forward for fruiting, and the following autumn they ſhould be removed into the larger Stove for ripening: but I ſhall return to the deſcription of the larger Stove. The length of this muſt be proportionable to the quantity of fruit deſired in one ſeaſon, for as to the width, that ſhould not be much varied; the tan-bed ſhould never be narrower than ſix, nor ſhould it be more than ſeven feet wide; for when it is more, there will be difficulty in reaching thoſe plants which are in the middle of the bed, to water or clean them; and if there is room enough on each ſide of the bed for a walk a foot and half broad, it will be ſufficient for perſons to water and do every thing which is neceſſary to the plants; and as theſe places are not deſigned for walking in, it is to no purpoſe to have broad walks; and the fires muſt be larger, in proportion to the ſpace of the houſe, otherwiſe the air cannot be kept in a proper temperature of warmth. If the Stove is made thirty-ſix feet long in the clear, then the tan-bed may be thirty-three feet long, and a walk left at each end a foot and half wide, which will be ſufficient to walk round the bed to water and attend the plants; and ſuch a tan-bed will contain eighty fruiting plants very well if the bed is ſeven feet wide, and this Stove may be very well warmed with one fire; but if the Stove is built much larger, there muſt be two fire-places contrived, one at each end, otherwiſe the air of the houſe cannot be kept in a proper temperature of heat. The quantity of fuel which will be wanting for a Stove of thirty-ſix feet long in the clear, is about three chaldron and a half of coals, or in ſuch proportion for any other ſort of fuel; when coals can be had reaſonable, it is the beſt kind of fuel; and the pit or Scotch coal is preferable to the Newcaſtle

coal, becauſe the latter is very ſubject to melt or run into clinkers when the oven is very hot, which the pit coal never does, but always burns away with a white aſh, making but little ſoot; ſo that the flues will not require to be ſo often cleaned, as when the other coal is uſed. The next beſt fuel for Stoves is peat, where it can be procured good, but the ſcent of this fuel is diſagreeable to many people. There are ſome perſons who burn wood in their Stoves, but this fuel requires much greater attendance than any other, therefore is not very proper for this purpoſe; but in the building of the Stoves, the ovens muſt be contrived for the ſort of fuel which is to be uſed in them.

The Stoves deſigned for ripening the fruit of the Ananas ſhould have upright glaſſes in their front, which ſhould be high enough to admit a perſon to walk upright under them on the walk in the front of the houſe; or where this cannot be admitted, the front walk may be ſunk one foot lower than that on the back of the tan-bed, ſo that the ſurface of the bed will be a foot above the walk, which will be rather an advantage, as the plants will be ſo much nearer the glaſs; and a perſon may with great eaſe water and attend the plants when they are thus raiſed above the walk; therefore, when a Stove is ſo ſituated, as that the raiſing of it high above ground might be attended with inconvenience, the walks quite round the tan-bed may be ſunk a foot or eighteen inches below the top of the bed, which will admit of the Stove being built ſo much lower; for if there is height for a perſon to walk under the glaſſes, it will be as much as is required; but as the flues, when returned four times againſt the back wall will riſe near ſeven feet, ſo the bottom of the lower flue ſhould be on the ſame level with the walk, to admit room enough for the whole under the roof. Over the upright glaſſes there muſt be a range of ſloping glaſſes, which muſt run to join the roof, which ſhould come ſo far from the back wall as to cover the flues, and the walk behind the tan-pit; for if the ſloping glaſſes are of length ſufficient to reach nearly over the bed, the plants will require no more light; therefore theſe glaſſes ſhould not be longer than is abſolutely neceſſary, that they may be the more manageable.

The other Stove (commonly called the Succeſſion Houſe), which is deſigned for raiſing young plants until they are of a proper ſize to produce fruit, need not be built ſo high as the former, the frames therefore may be made in one ſlope, without any upright glaſſes in front: many perſons have formerly made tan-beds, with two flues running through the back wall, and covered with glaſſes, made in the ſame manner as thoſe for common hot-beds, only larger. But thoſe, having no paſſage into them, the glaſſes muſt be taken off when the plants want water, &c. The damps alſo often riſe in winter, when the glaſſes are cloſely ſhut. And there is danger of the tan taking fire, where great care is not taken that it does not lie near the flues. So that although the ſmall Stove (or ſucceſſion houſe) here propoſed, is more expenſive in building, yet being greatly preferable to thoſe pits, and the after expenſe being the ſame, it has become more general wherever this fruit has been cultivated.

Where there is no danger of the wet ſettling in winter about the tan, the bark-pit may be ſunk two feet deep in the ground, and raiſed one foot above the ſurface. The only walk which is neceſſary in theſe Stoves, is at the back of the bed, and that may be on a level with the ſurface of the ground, ſo that the tan-bed will be more than a foot above the walk; and the flues beginning from the level of the walk, there will be room to return them three times, which will warm the air much more with the ſame fire than when they are carried but twice the length of the Stove.

But in wet land the tan-bed ſhould be wholly raiſed above the level of the ground, in order to preſerve the tan from being chilled by moiſture; and in ſuch places the walk at the back ſhould be raiſed near two feet above the level of the ground, becauſe the tan-bed ſhould not riſe much more than one foot above the walk; for if it is higher, it will be more difficult to reach the plants when they require water. The brick wall of the pit, on the ſide next the walk, need not be more than four inches thick, ſo far as riſes above the walk, but below that it ſhould be nine inches thick: the reaſon for reducing the wall above, is to gain room for the walk, which would otherwiſe be too much contracted; and if there is a kirb of Oak laid on the top of the four inch wall, it will ſecure the bricks from being diſplaced, and ſufficiently ſtrengthen the wall, which being but one foot above the walk, will not be in any danger of falling; and on this kirb there may be two or three upright iron bars fixed with claws, to ſupport the crown-piece of timber, which will ſecure it from hanging in the middle. There may be more or fewer of theſe bars according to the length of the Stove; but if they are about ten feet aſunder, it will be near enough. If theſe iron bars are one inch ſquare, they will be ſtrong enough to anſwer the deſign.

[Hot-houſes and Pine-Stoves are frequently infeſted with red ſpiders, ants and other inſects. A kind of bellows has been invented, and is ſold in the ſhops, by which the fumes of burning tobacco are applied to the plants; or when the houſe is deeply infected, it may be filled entirely by means of a hole made in the door big enough to admit the pipe of the bellows; the ſmoke being kept in for ſeveral hours. This muſt be repeated two or three times, according to the condition the plants are in; but if ſome few only are infected, they may be removed into a ſmall room and fumigated there. This operation is found to anſwer well in forcing-frames, hot-beds, on Melon-plants, &c. The inventor Mr. Green, at the royal garden at Kew, received a premium from the Society for the encouragement of Arts, &c. for this invention.

Matches alſo, moiſtened with a tincture of Aſſa-fœtida, and then rolled in a powder of brimſtone and Scotch ſnuff in equal quantities, have been recommended to be burnt in the houſes cloſe ſhut up. The walls alſo, with the frames, &c. to be well waſhed with four ounces of ſublimate diſſolved in two gallons of water. This waſh may be uſed on old garden walls, and to the roots of trees infeſted with ants, if made weaker[1].

Forcing Stoves are a modern invention for bringing forward before the natural ſeaſon all ſorts of elegant flowers and delicate fruits. They differ in no wiſe from thoſe which are deſcribed above in their ſtructure and manner of being heated, but only in their application.

The bark forcing Stove has a tan-pit, in which pots of Roſes, Pinks, Narciſſuſes and other bulbs, and various choice flowers are plunged, in order to have them early in the ſpring. Tender annual flowers may alſo be raiſed in this pit. And pots of Strawberries, dwarf Cherries, Kidney Beans, &c. may either be ſet in the pit, on the ſides of it, or on ſhelves nearer to the glaſſes. If the Stove be big enough, there may be a border of earth next the back wall, and a ſmall one in front, in which fruit-trees, ſuch as Cherries, Peaches, Nectarines, and Apricots, may be planted in the full ground. Vines alſo, planted on the outſide in front, may be trained in, along the frames of the upper ſaſhes. This Stove has a furnace with flues, and gentle fires muſt be made in this when the nights are cold, and even in the day time occaſionally, when the weather is very ſevere, to keep a uniform heat.

The dry forcing Stove has no pit, but furnace and fire-flues only; and is intended chiefly for forcing fruit-trees, as Peaches, Nectarines, Vines, Figs, early Cherries, and the beſt ſorts of Apricots and Plums, together with Gooſeberries, Currants, Raſpberries, Strawberries, &c.—The whole area is filled with rich earth two feet deep, in which the trees are planted to remain, having been firſt trained in the open ground, till they are in a ſtate for bearing. They are planted

[1] Weſton's Tracts, ed. 2. p. 296. and Ailway in Tranſ. Arts, vol. 5.

in ſtraight or oblique lines from the back to the front, the talleſt behind; and are trained againſt the back wall and front to a trellis, and in the area as eſpaliers. Pots of Strawberries and Kidney-Beans are placed upon ſhelves near the glaſſes, and Vines are trained in from without along the frames, or on trellis-work over the upper glaſſes.

Theſe Stoves begin to be worked in january or early in february. When the fruiting ſeaſon is paſt, the upper glaſſes are removed, to admit air and ſhowers, to ſtrengthen the annual ſhoots of the trees; and ſo continue till winter.

It is obvious, that in ſuch a Stove, crouded with fruit-trees of different kinds, that require different management, and ſome more warmth to force them than others, all the trees will not ſucceed equally well; and the Vines trained along the upper glaſſes will be apt to ſhade the trees in the area below too much. Curious and opulent noblemen and gentlemen therefore have a diſtinct Stove conſtructed for each ſort of fruit; taking its name from the ſpecies of fruit which it is deſigned to bring forward: as the Peach-houſe, Vinery, &c. But ſince there is nothing peculiar in the ſtructure of theſe Stoves, and they differ chiefly in the uſe to which they are applied, it is not neceſſary to deſcribe them.

Stoves upon various plans, according to the fancy of the owner or the builder, have been conſtructed, but as in general there is little to recommend them, and the common ones are the beſt for uſe, it would be loſing time to enter farther upon the ſubject.

Forcing-Frames are much uſed by the nurſery-men near London for bringing forward or forcing early flowers, tender annuals, dwarf fruit-trees, Strawberries, Kidney-beans, &c. Theſe are from five to fifteen feet wide, from five to ten feet high, and of any length at pleaſure; a wall of brick behind, and a front of glaſs, either in one ſlope, or with upright glaſſes before, and ſloping ones above. Dung, bark, or fire may be applied to heat theſe forcing-frames. If the firſt, it is placed chiefly againſt the back wall and ends, which are then moſtly formed of thick planks. If bark or fire be uſed, the ſtructure and application are much the ſame as in the Bark and Dry Stoves deſcribed above.

Hot-walls are forcing-frames worked by fire, and intended to bring forward choice fruits. If it is propoſed to have only a ſingle row of trained trees, a border of from four to ſix feet in width will be ſufficient. The back wall muſt be eight or ten feet high, with flues running the whole length. In front is a wall a foot high, with a plate on it; upon which are ſloping glaſs-frames, to the top of the back wall; theſe are moſt convenient in two ranges, the upper range made to ſlide. The trees are trained on a trellis, within five or ſix inches of the wall. Along the bottom may be ſet in the border Strawberries, dwarf Kidney-beans, frame Peas, Roſes, or any flowers or fruits, that do not grow ſo high as to ſhade the trees. Such a frame may be worked with one furnace, if it be not more than forty or fifty feet long.

Larger forcing-frames differ in nothing from the Forcing Dry Stove deſcribed above.

For Hotbeds, ſee the article in its proper place, and under Cucumis.]

Frames covered with oiled paper inſtead of glaſs, are ſometimes uſed for protecting Melons, &c. They may be made either like the cover of a waggon, or like the roof a houſe. They have a frame of wood at the baſe, to which, in the former, broad hoops are faſtened bent over circularly. The width of the frame ſhould be from five to ſix feet. The diſtance between the hoops ſhould not be more than a foot; and there ſhould be two rows of ſtrong packthread or rope yarn on each ſide of the arch, running from hoop to hoop, to keep the oiled paper from ſinking down with wet. The length of each frame ſhould not be much more than ten feet, that being about the ſize of a three-light frame; and if they are longer, they will be ſo heavy as to be troubleſome to move.

The other ſort of frame may be made of pantile laths, or ſlips of deal of ſhoſe dimenſions, faſtened into a ridge-tree at the top, and the baſe-frame at the bottom. The lights may have hinges alternately on each ſide, that they may be raiſed to give air occaſionally, on the ſide from the wind, or on both ſides when the weather is warm.

When the frames are quite dry, the paper is paſted on. The beſt paper for this purpoſe, is what they call Dutch wrapper; for it is ſtrong, and when oiled over becomes pellucid. After the paſte is well dried, the paper ſhould be oiled over on the outſide, which if well done with linſeed oil will be ſufficient. The oil ſhould be dry before the frames are expoſed to the wet, otherwiſe the paper will tear. In paſting the paper on the frames care ſhould be taken to ſtretch it out very ſmooth; and to paſte it to all the ribs of the frames, and alſo to the packthreads, to prevent the wind from raiſing the paper.

If the frames are well painted over with the following compoſition, they will laſt a long time.—To every ſix pounds of melted pitch, add half a pint of linſeed oil, and a pound of brickduſt; mix them well together, and uſe them warm. This is the beſt pigment for all timber expoſed to the weather, for no moiſture can penetrate through it.

The covers here deſcribed muſt not be kept too cloſe down over the plants, leſt they be drawn up too weak: but air ſhould always be admitted, when it can be done with ſafety.

Theſe covers of oiled paper are uſeful not only for Melons, but for covering cuttings of exotic plants, and for many other purpoſes. The paper will ſeldom laſt longer than one ſeaſon; but if the frames be well made, and when out of uſe, carefully laid up under ſhelter, they will laſt ſeveral years; eſpecially if a band of ſtraw be laid round the bed, for the frames to reſt upon, during the time they are in uſe.

Stramonioides and Stramonium. See *Datura.*

STRATIOTES. (Στρατιωτης *of Dioſcorides. From* στρατος, *an army.*)

Lin. gen. n. 687. *Reich. n.* 744. *Schreb. n.* 1541. *Gærtn. t.* 14. *Juſſ.* 67. *v. Bergen diſſ. Linn. comm. gotting.* 4. 426. *t.* 9. 10. Aloides. *Boerh. lugdb.* 2. 172.

Claſſ. 22. 10. Dioecia Dodecandria. —Polyandria Hexagynia. *Lin. gen.*

Nat. order of *Palmæ. Hydrocharides,* Juſſ.

GENERIC CHARACTER.

* *Male.*

Cal. *Spathe common* two-leaved, three or five-flowered: *leaflets* boat-ſhaped, compreſſed, obtuſe, converging, keeled, almoſt equal, permanent. Proper (of the lateral flowers one-leafed, membranaceous, channelled at the back, oppoſite to the leaflets of the common ſpathe, and hidden by them.

Cor. *Petals* three, obcordate, from erect ſpreading, twice as large as the perianth.

Nectaries twenty, anther-ſhaped, linear-lanceolate, acute, in a ring, inſerted into the receptacle.

Stam. *Filaments* twelve, filiform, ſhorter than the nectaries, inſerted into the receptacle. *Anthers* linear, erect.

* *Female.*

Cal. *Spathe* two-leaved, one-flowered: *leaflets* boat-ſhaped, compreſſed, obtuſe, converging, unequal, permanent.

Perianth as in the Male, ſuperior.

Cor. as in the Male.

Nectaries as in the Male, a little larger.

Pist. *Germ* inferior, ovate-hexangular, compreſſed. *Styles* ſix, two-parted. *Stigmas* ſimple, recurved.

Per. *Berry* ovate, narrowed to both ends, ſix-ſided, ſix-celled: with a pellucid pulp.

Seeds very many, oblong, cylindrical.

Obs. *Nectaries commonly twenty-one or twenty-two. Stamens eleven or twelve.* Willdenow.—*According to Roth, Nectaries thirty-one, Stamens commonly thirteen.*

ESSENTIAL CHARACTER.

Spathe two-leaved. *Perianth* ſuperior, trifid. *Petals* three. *Berry* ſix-celled.

SPECIES.

1. Stratiotes aloides.
Lin. ſpec. 754. *ſyſt.* 506. *Reich.* 2. 623. *fl. lapp.* 222. *ſuec. n.* 479. *hort. cliff.* 221. *Gertn. fruct.* 1. 48. *Hudſ. angl.* 236. *Wither. arr. ed.* 3. 496. *Smith brit.* 579. *engl. bot. t.* 379. *Relh. cant. ed.* 2. *n.* 449. *Dickſ. hort. ſicc.* 17. 11. *Fl. dan. t.* 337. *Kreck. ſileſ. n.* 844. *Gmel. ſib.* 1. 2. *Bergen in nov. act. nat. cur.* 1. 150. *Mill. illuſtr.*
S. foliis aloes, ſemine longo. *Gundelſh. ap. Jebren. Raii ſyn.* 290. *Petiv. brit. t.* 71. *f.* 5.
S. f. Militaris aizoides. *Lob. hiſt.* 904. *Park. theat.* 1249. 1.
Militaris aizoides. *Lob. ic.* 1. 375. 2. *Ger.* 677. *emac.* 825. *Raii hiſt.* 1324.
Aloe paluſtris. *Baub. pin.* 286.—ſ. Aizoon paluſtre. *Baub. hiſt.* 3. 787. 1.
Sedum aquatile. *Dod. pempt.* 589. 1.
Leaves enſiform-triangular aculeate-ſerrate.
[2. Stratiotes acoroides.
Lin. ſyſt. 506. *ſuppl.* 268.
Acorus marinus. *Rumph. amb.* 6. 191. *t.* 75. *f.* 2.
Leaves enſiform flat very ſmooth, ſpathe bearded at the point.
3. Stratiotes aliſmoides.
Lin. ſpec. 754. *ſyſt.* 506. *Reich.* 2. 623. *mant.* 405. *fl. zeyl. n.* 223. *Forſk. egypt.* 4. 101.
Ottel-ambel. *Rheed. mal.* 11. 95. *t.* 46.
Leaves cordate.

DESCRIPTIONS, *&c.*

1. Leaves all radical, forming a ſtar-like tuft, as in the Aloes and Sedums: their ſubſtance is rigid, brittle, vaſcular and pellucid; their teeth and points very ſharp; the keel alſo ſharp. Peduncles ſeveral, ſhorter than the leaves, upright, ſomewhat compreſſed, ſmooth; each bearing one upright white flower, ariſing from a two-leaved ſheath. Stamens ſhort, with awl-ſhaped anthers. Germ above the ſheath, but much below the calyx. Styles ſix, cloven, riſing a little above the ſtamens[a]. Berry ovate, beaked, drooping, fleſhy: cells with a double membrane, very thin, ſeparate lengthwiſe, full of a cryſtalline pulp. Seeds from ten to twelve in each cell, ovate, ſomewhat angular, of a pale, brownish red, neſtling in the pulp, and faſtened to the rind of the berry, near the external angles of the cells. The pulp in its natural ſtate is clear, like the vitreous humour of the eye; in ſpirits of wine it becomes opaque and white, like the white of an egg when boiled; plunged into water it becomes clear again[b].

The Stratiotes, Water Aloe or Water Soldier, is a ſtoloniferous plant, and truly perennial, though each root flowers but once, as in ſome ſpecies of Saxifraga, Sempervivum, &c. The parent plant, rooted in the mud at the bottom of the ditch after flowering, ſends out buds of leaves at the end of long runners, which riſe to the ſurface, form roots, flower, and then ſink to the bottom, where they take hold of the mud, ſometimes ripen their ſeeds, and always become in their turn the parents of another race of young offſets.

Linneus quotes Bergen, Zinn and Fabricius, as having found the flowers dioicous; (he ſays alſo that Schreber ſent him a male flower, and obſerved that in the hermaphrodite flower the anthers were barren: accordingly he has placed this plant in the claſs Dioecia.) Linneus however always obſerved them to be hermaphrodite. The ſtamens are apparently imperfect in ſome flowers, and the ſtyles in others. The genus is very near akin to Hydrocharis, and perhaps ought to be united with it[c].

Native of ſome parts of Europe, and of Siberia. In England, it occurs plentifully in the fen ditches of the Iſle of Ely. In Lincolnſhire and Norfolk very frequent. In Cheſhire and Yorkſhire. Flowering in july. In ſpring the offſets riſe and float on the ſurface, ſometimes eight or ten in a circle, and ſo thick, as entirely to fill up the ſurface of the ditches, and prevent all other plants from growing in it. A great variety of inſects are nouriſhed by this plant; ſome of them purſue it down to the bottom of the water, and devour the leaves[a].

2. Root creeping, little branched, jointed as in Acorus. Leaves radical, cluſtered, linear, margined, rounded at the point, quite entire, ſubſerrate towards the point, ſomewhat coriaceous, four feet long: margin raiſed, blunt, very ſmooth: ſheaths membranaceous, very tender, growing to the leaves. Scape among the leaves, quite ſimple, ſolitary, erect, filiform, thickened towards the flower, ſmooth, naked, three or four feet high, one-flowered. Spathe linear, compreſſed, browniſh green, two-leaved: leaflets membranaceous, ſpreading, folded together, blunt, with the keel bearded with fibrils towards the point. Flower ſuperior. Perianth three-leaved, ſhorter than the corolla: leaflets concave, membranaceous, duſky green with blood-red ſpots. Petals three, linear, acute, waved with tranſverſe plaits, flaccid, white ſtained with red, eſpecially at the points. Filaments ſcarcely any. Anthers twelve, linear, acuminate, compreſſed, alternately ſhorter, without dotted blood-red, on the inner ſide green, hirſute. Germ inferior, linear, compreſſed, imbricate on all ſides with fringed ſcales, green yelloviſh at the baſe. Fruit an ovate drupe, compreſſed, hirſute with fibres, the ſize of a hen's egg, four or ſix-celled. Seeds fourteen or more.—Native of the Ceyloneſe iſlands. Found by Koenig[a].

3. Spathe one-leaſed, with five, membranaceous, longitudinal angles[b]. According to Forſkahl, the flowers have only ſix ſtamens; ſtyles ſix, bifid.—Native of the Eaſt Indies and Egypt.]

PROPAGATION AND CULTURE.

1. Young plants muſt be procured in ſpring, when they firſt riſe on the ſurface of the water, and placed in canals, ponds or large tubs or ciſterns, where they will ſtrike down their roots, and increaſe without farther care.

[STRATIOTES. See *Achillea*, *Hottonia*, *Hydrocharis*, *Piſtia*.

——— aliſmoides. See *Damaſonium*.

STRAWBERRY. See *Fragaria*.

——— BLITE and STRAWBERRY SPINACH. See *Blitum*.

——— TREE. See *Arbutus*.

STRELITZIA. (*So named by Sir Joſeph Banks in honour of Charlotte Queen of Great Britain, of the family of Mecklenburgh Strelitz, an illuſtrious patroneſs of the ſcience of Botany.*)
Ait. kew. 3. 508. *Lin. gen. ed. Schreb. n.* 1737. 2. *p.* 796.
Claſſ. 5. 1. Pentandria Monogynia.
Nat order of *Scitamineæ*. *Muſæ*, Juſſ.

GENERIC CHARACTER.

CAL. *Spathe univerſal* terminating, one-leaſed, channelled, acuminate, from ſpreading declining, many-flowered, involving the baſe of the flowers. *Partial Spathes* lanceolate, ſhorter than the flowers. *Perianth* none.
COR. irregular. *Petals* three, lanceolate, acute: the loweſt boat-ſhaped; the two upper bluntly keeled. *Nectary* three-leaved. *The two lower leaflets* a little ſhorter than the petals, from a broad baſe awl-ſhaped, waved at the edge, folded together, including the genitals, towards the tip behind augmented with a thick appendix, in form of half an arrow head. *The loweſt leaflet* ſhort, ovate, compreſſed, keeled.
STAM. *Filaments* five, filiform, placed on the receptacle: three in one leaflet of the nectary; two with the ſtyle incloſed in the other leaflet. *Anthers* linear, erect, commonly longer than the filaments, included.
PIST. *Germ* inferior, oblong, obtuſely three-cornered. *Style* filiform, length of the ſtamens. *Stigmas* three, awl-ſhaped, higher than the petals, erect, at the beginning of flowering time glued together.
PER. *Capſule* ſubcoriaceous, oblong, obtuſe, indiſtinctly three-cornered, three-celled, three-valved.
SEEDS numerous, adhering in a double row to the central conceptacle.

[a] Engl. bo [b] Gaertner. [c] Engl. bot.

[a] Withering. [b] Linn. ſuppl. [c] Linn. mant.

ESSENTIAL CHARACTER.

Spathes univerſal and partial. *Cal.* none. *Cor.* three-petalled. *Neft.* three-leaved, involving the genitals. *Capſ.* three-celled: cells many-ſeeded.

SPECIES.

1. Strelitzia Reginæ. *Canna-leaved Strelitzia.*
Ait. kew. 1. 285. *t.* 2. *Lin. ſpec. ed. Willd.* 1. 1190. *Thunb. prodr.* 45. *Curt. magaz. t.* 119. 120. *Meen exot. pl. t.* 1.
Heliconia Bihai. *Joh. Mill. ic. t.* 5. 6.
Leaves parallel-ribbed.
2. Strelitzia auguſta.
Lin. ſpec. ed. Willd. 1. 1190. *Thunb. prodr.* 45.
Leaves ribbed netted-veined.

DESCRIPTIONS, *&c.*

1. All the leaves radical, petioled, oblong, quite entire, with the margin at bottom waved and curled, very ſmooth, glaucous beneath, coriaceous, a foot long, permanent. Petioles ſomewhat compreſſed, three feet long and more, the thickneſs of the thumb, ſheathing, erect, ſmooth. Scape the length and thickneſs of the petioles, erect, round, covered with alternate, remote, acuminate ſheaths, green with a purple margin. General ſpathe a ſpan long, green on the outſide, purple at the edge; partial ſpathes whitiſh. Petals yellow, four inches long. Nectary blue[a].

The ſpathe, ſays Mr. Curtis, contains about ſix or eight flowers, which becoming vertical as they ſpring forth, form a kind of creſt, which the glowing orange of the corolla, and fine azure of the nectary, render truly ſuperb.

The ſpecific character of Heliconia alba in Linneus's Supplement (p. 157.) belongs to that plant, but the trivial name, to another African ſpecies, not yet to be met with in the gardens of Europe[b].

The name of Thunberg's prodromus (p. 45) belongs to this ſpecies; but not the ſpecific character. It is deſcribed in the Supplement under the name of Heliconia Bihai[c].

Native of the Cape of Good Hope. Introduced in 1773, by the Right Hon. Sir Joſeph Banks. It flowers here in april and may. John Miller's figure was drawn from a plant that flowered in the Pine-ſtove of Bamber Gaſcoyne, Eſq. Mr. Curtis's figure was taken from another plant which flowered in the bark ſtove of the garden at Cheliea, belonging to the Apothecaries Company[d].

2. The ſpecific character in Thunberg's prodromus, of his Strelitzia auguſta; and of Heliconia alba in Linneus's Supplement, do not belong to this plant. But the diagnoſis of Heliconia Bihai in the latter work does.

The leaves of Strelitzia, Heliconia, Muſa, and the plants of the Scitamineæ order are not properly nerved, but have parallel ribs.

Native of the Cape of Good Hope[e].

PROPAGATION AND CULTURE.

It may be propagated by ſeeds or by the roots; but ſeeds do not ripen readily in England, and it increaſes very ſlowly here by the roots. It has been uſually plunged in the tan-pit in a ſtove: but when the roots are thus confined, the plant rarely or never flowers. When the roots have by accident extended into the rotten tan, it has readily thrown up flowering ſtems; the beſt practice therefore is to let the roots have plenty of earth to ſtrike into. Being a Cape plant, it may probably be found to ſucceed beſt in the dry ſtove or conſervatory[f].

STREPTIUM. (*From* ἕλειτον, *verto, flecto, torqueo: whence* ἑλειτὸς, *verſatilis, flexilis, tortilis: flexible or twiſting.*)
Roxb. corom. t. 146.
Claſſ. 14. 2. Didynamia Angioſpermia.

GENERIC CHARACTER.

CAL. *Perianth* one-leafed, oblong, bellied, five-angled, five-grooved, five-toothed, covered with ſtiff white hairs, permanent, cloſing and enlarging with the fruit, which it entirely covers.

COR. one-petalled: tube cylindric, rather longer than the calyx, twiſted near the apex, a little curved: border five-parted; diviſions obovate, equal.

STAM. *Filaments* four, in the upper bent part of the tube: two longer and two ſhorter. *Anthers* round, two-lobed, approaching by pairs.

PIST. *Germ* ſuperior, four-lobed. *Style* length of the tube. *Stigma* large, two-lipped: the upper very ſhort; the under long, broad, recurved.

PER. *Drupe* dry, two-lobed, hid in the withered inflated cloſed calyx, nut-like, laterally echinate: each lobe bipartile.

SEEDS one in each diviſion of the nut, oblong, tapering towards the end, a little bent.

ESSENTIAL CHARACTER.

Cal. five-toothed. *Stigma* two-lipped. *Drupe* two-lobed, each lobe bipartile.

SPECIES.

1. Streptium aſperum.
Roxb. corom. 2. 25. *t.* 146.

DESCRIPTION, *&c.*

Stem woody perennial, ſhort, irregular. Branches oppoſite, exactly four-ſided, rough. The height of the whole plant is from two to four feet. Leaves oppoſite, petioled, cordate, ſerrate, covered with ſtiff-hooked hairs, from one to three inches long, and from one to two broad. Petiole channelled, rough. Raceme terminating, or in the cleft of the exterior branchlets, erect, very long, rachis four-ſided, rough. Bractes ſolitary, one-flowered. Flowers towards the bottom of the raceme, remote; above approximated, ſmall, white.

Found by Dr. Roxburgh only in the vicinity of Samuleottah, on the terraces of old walls of pagodas. It flowers during the wet and cold ſeaſons, and while young it is a fair looking plant. The Telingas call it Obeera[g].

STRIZOLOBIUM. See *Dolichos.*

STROBUS. See *Pinus.*

STRUMPFIA. (*So named by Jacquin, in memory of Chriſtoph. Car. Strumpff, Profeſſor of Chemiſtry and Botany at Hall in Magdeburgh; editor of Linneus's genera in* 1752. *He died young.*)
Lin. gen. n. 1002. *Reich. n.* 1088. *Schreb. n.* 1360. *Jacqu. amer.* 218. *Juſſ.* 436.
Claſſ. 19. 6. Syngeneſia Monogamia.
Nat. order of *Compoſitæ Nucamentaceæ.*

GENERIC CHARACTER.

CAL. *Perianth* one-leafed, five-toothed, ſuperior, very ſmall, permanent.

COR. *Petals* five, oblong, obtuſe, ſpreading.

STAM. *Filaments* none. *Anthers* five, united into an ovate body.

PIST. *Germ* inferior, roundiſh. *Style* awl-ſhaped, erect, commonly longer than the ſtamens. *Stigma* ſimple, obtuſe.

PER. *Berry* crowned with the calyx, roundiſh, one-celled.

SEED one, roundiſh.

ESSENTIAL CHARACTER.

Cal. five-toothed, ſuperior. *Cor.* five-petalled. *Berry* one-ſeeded.

SPECIES.

1. Strumpfia maritima.
Lin. ſpec. 1316. *Juſſ.* 799. *Reich.* 3. 952. *Willd.* 1. 1152. *Jacqu. amer.* 218. *pict.* 107.]
Daphne americana. *Mill. dict. n.* 9.
Thymelæa fruteſcens, roſmarini folio, flore albo. *Plum. ſpec.* 17. *t.* 251. *f.* 1.

DESCRIPTION, *&c.*

[This is an upright ſhrub, three feet high. Branches round, ſomewhat aſh-coloured, appearing to be compoſed of ſhort joints from the fallen leaves, becauſe the leaves together with the ſtipules take their riſe from a common ſheath, which ſurrounds the branch and is permanent. The leaves are in threes, and very much reſemble thoſe of Roſemary. Stipules ſmall, acute and blackiſh, alternate with the leaves. Common peduncles axillary and only half the length of

[a] Hort. kew. [b] Idem. [c] Willdenow. [d] Curt. magaz. [e] Willdenow. [f] Curtis. [g] Roxburgh.

the leaves, ſuſtaining about five ſmall flowers, with white petals, and on ſhort peduncles. Berries ſoft and white, the ſize of a pea. The whole plant has an unpleaſant ſmell.—Native of Curaçao, on rocks by the coaſt [k].]

Mr. Miller ſays that he had it from Antigua, and that it grows naturally in many iſlands of the Weſt Indies. According to him it riſes to the height of four or five feet. He cultivated it before 1759.

PROPAGATION AND CULTURE.

It muſt be preſerved in the bark ſtove, and will not bear tranſplanting; ſeveral plants that were raiſed from ſeeds, thriving very well while they continued in the pot where they were ſown, but decaying when they were tranſplanted.

[Thymelæa humilior, foliis acutis atrovirentibus. *Sloan. jam.* 2. 93. *t.* 189. *f.* 1, 2. which Linneus and Jacquin refer to this ſhrub, belongs to Ernodea littoralis of Swartz [l], which ſee.

STRUTHIA. See *Gnidia*.

STRUTHIOLA. (*Dimin. from* Στρουθιον, *a ſparrow.*)
Lin. gen. Reich. n. 170. *Schreb. n.* 216. *Juſſ.* 77.
Claſſ. 4. 1. Tetrandria Monogynia.
Nat. order of *Vepreculæ*. *Thymelææ*, Juſſ.

GENERIC CHARACTER.

CAL. none, unleſs the corolla be taken for it.
COR. one-petalled, ſhrivelling. *Tube* filiform, elongated. *Border* four-parted, flat, ſhorter than the tube: *ſegments* ovate.
Noctary eight glands, ovate, placed round the throat, ſurrounded with their proper pencil.
STAM. *Filaments* four, very ſhort, concealed within the tube. *Anthers* linear.
PIST. *Germ* ovate. *Style* filiform, length of the tube. *Stigma* capitate.
PER. coriaceous, ovate, one-celled.
SEED one ſharpiſh.
OBS. *Allied to* Paſſerina.

ESSENTIAL CHARACTER.

Cor. none. *Cal.* tubular, with eight glands at the mouth. *Berry* juiceleſs, one-ſeeded.

SPECIES.

1. Struthiola virgata.
Lin. ſyſt. 164. *Reich.* 1. 344. *Willd.* 1. 691. *Thunb. prodr.* 76.
S. pubeſcens. *Lin. mant.* 41. *Retz. obſ.* 3. 26. *Burm. afr.* 127. *t.* 47. *f.* 1. (Thymelæa.)
β. Flowers yellow.
Leaves lanceolate ſtriated, the upper ones ciliate, branches pubeſcent.

2. Struthiola nana.
Lin. ſyſt. 163. *Willd.* 1. 692. *ſuppl.* 128. *Thunb. prodr.* 76.
Leaves linear obtuſe hairy, flowers terminating in bundles tomentoſe.

3. Struthiola juniperina.
Lin. ſpec. ed. Willd. 1. 692. *Retz. obſ.* 3. 26.
Leaves linear acute ſpreading, corollas and calyxes naked.]

4. Struthiola erecta.
Lin. ſyſt. 164. *Reich.* 1. 344. *Willd.* 1. 692. *Thunb. prodr.* 76. *Ait. kew.* 1. 165. *Curt. magaz.* 222.
S. glabra. *Lin. mant.* 41.
S. tetragona. *Retz. obſ.* 3. 25.
Paſſerina dodecandra. *Lin. ſpec.* 513. *amoen.* 4. 271. *Burm. afr. t.* 47. *f.* 1.
P. filiformis. *Mill. dict.*
Nectandra tetrandra. *Berg. cap.* 133.
Leaves linear ſmooth, branches ſmooth four-cornered.

[5. Struthiola ovata.
Lin. ſpec. ed. Willd. 1. 693. *Thunb. prodr.* 76.
S. lanceolata. *Retz. obſ.* 3. 26.
Leaves ovate ſmooth, branches ſmooth wrinkled.

DESCRIPTIONS, *&c.*

1. This is a ſhrub with long rod-like branches, and four-cornered branchlets. Leaves oppoſite, naked, ciliate at the edge, a little patulous. Bractes ſimilar, but narrower. Flowers ſeſſile, ſolitary, long, coriaceous, red, ſilky-tomentoſe without. Calyx ciliate-bearded, coloured, length of the third part of the tube. Anthers white with brown tips in the throat [m].

According to Linneus, the ſtem is proliferous, with ſimple ſubvilloſe branches. Leaves acuminate, ſmooth, channelled. Flowers axillary, the length of the leaf, purpliſh on the outſide.

β. It varies with yellow flowers, in whitiſh membranaceous calyxes, and yellowiſh anthers dark yellow at the tips [n]. Alſo with longer and ſhorter leaves [o].

It is remarked by Mr. Dryander, that *Paſſerina ciliata*, as it ſtands in Reichard's edition of the Syſtema Plantarum, contains at leaſt three different plants. As there is no ſpecimen in Linneus's herbarium with this name, the plant which he meant can only be aſcertained by Cliffort's herbarium, from which he originally deſcribed it. The paper there which repreſents Paſſerina 2. Hort. Cliff. has four Cape plants paſted on it; but that to which the deſcription in Hort. Cliff. applies, is *Struthiola virgata*. Linneus adds, that the ſynonyms which he has given are doubtful, on account of the imperfection in the figures and deſcriptions.—Among theſe doubtful ſynonyms is Sanamunda 1. Cluſii, on the authority of which Spain is given as the native place of this plant: this wrong ſynonym and falſe *locus natalis* have no doubt led the Spaniſh botaniſts to look for *Paſſerina ciliata* in their country. The ſpecimen in Sir Joſeph Banks's herbarium ſent from Spain by Profeſſor Ortega, under this name, has not properly ciliated leaves, but they are thinly covered with hairs. Whether Rauwolff's plant in Gronovii Flora Orientalis be the ſame as the Spaniſh plant, can only be determined by thoſe who have an opportunity of examining Rauwolff's herbarium at Leyden. Bergius's plant, from the deſcription is evidently different from either of thoſe above mentioned [p]. See *Paſſerina ciliata*.

2. The bractes in this are blue [q].

3. This is a ſmall ſhrub, ſmooth all over: branches ſlender, round; with four-cornered branchlets. Leaves like thoſe of Juniper and ſpreading. Flowers from the middle of the branchlets almoſt to the top, between the bractes, which are like the leaves, oppoſite and ſeſſile. Calyx ſmooth, length of the tube of the corolla. Corolla a little longer than the bracte, ſmooth and white, with ſharp ſegments. Stamens placed below the widened throat, ſo that the tips of the blackiſh-brown anthers do not reach the aperture of the throat.

4. This alſo is a ſmall ſhrub, ſmooth all over, with round branches, and four-cornered branchlets. Leaves oppoſite, imbricate as it were four ways, with the tips only ſpreading, ſomewhat wider than thoſe of Juniper. Flowers at the top of the branchlets, lateral, ſeſſile, ſolitary, within bractes ſimilar to the leaves but narrower. Calyx ſmooth, half the length of the tube. Corollas ſmooth, red on the outſide. Anthers in the throat, almoſt ſeſſile, cloſing the aperture with their apexes, brown, yellow on their inner ſurface where they pour out the pollen [r].

According to Linneus, the leaves are lanceolate-ſubulate, and ſmooth, as are alſo the ſtem and flowers. Cultivated by Mr. Miller in 1758. It flowers from june to auguſt [s].

5. Branches ſtiff, round, naked, with four-cornered branches. Leaves quite entire, acute, ſomewhat fleſhy or rather coriaceous, patulous. Flowers oppoſitely heaped at the tops of the branches, each ſeſſile within a bracte narrower than the leaves. Calyx pubeſcent, one-fourth of the length of the tube. Tube of the corolla long; border linear, both naked, ruſeſcent. Colour and ſituation of the anthers as in the preceding ſpecies [t].

This and all the preceding are natives of that inexhauſtible magazine of ſhrubby plants, the ſouthern promontory of Africa. They may be increaſed by cuttings.

STRUTHIOPTERIS. See *Oſmunda*.

STRUTHIUM. See *Gypſophila*.

[k] Jacquin. [l] Swartz obſ. 316.
[m] Retzius. [n] Idem. [o] Willdenow.
[p] Linn. tranſ. 2. 234. [q] Linn. ſuppl. [r] Retzius.
[s] Hort. kew. [t] Retzius.

STRYCHNOS. (Strychnon *of Pliny.* Στρυχνος *of Dioscorides.*)

Lin. gen. n. 253. *Reich. n.* 270. *Schreb. n.* 339. *Gærtn. t.* 179. *Juff.* 149.

Claſſ. 5. 1. Pentandria Monogynia.

Nat. order of *Luridæ. Apocineæ*, Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* five-parted, very ſmall, deciduous.

COR. one-petalled: *tube* cylindric; *border* ſpreading, five-cleft, acute.

STAM. *Filaments* five, length of the corolla. *Anthers* ſimple.

PIST. *Germ* roundiſh. *Style* ſimple, longer than the ſtamens. *Stigma* thickiſh.

PER. *Berry* brittle, globular, ſmooth, very large, one-celled, full of pulp.

SEEDS orbicular, depreſſed, villoſe, radiant with villoſe hairs towards the periphery.

ESSENTIAL CHARACTER.

Cor. five-parted. *Berry* one-celled, with a woody rind.

SPECIES.

1. Strychnos Nux vomica. *Poiſon-nut.*
   Lin. ſpec. 271. *Reich.* 1. 522. *Willd.* 1. 1052. *fl. zeyl. n.* 91. *mat. med.* 67. *Woodv. med. bot.* 2. 29. *t.* 223. *Roxb. corom.* 1. 8. *t.* 4. *Wach. ultraj.* 32. *Lour. cochinch.* 125. *ed. Willd.* 154. *Gærtn. fruct.* 2. 476. *Plenck, ic.* 117.
   Nux vomica officinarum. *Bauh. pin.* 511. *Raii hiſt.* 1814. *Burm. zeyl.* 171. *Blackw. t.* 395. *Ger. emac.* 1546. 1. *Park. theat.* 1601.
   Colubrini ligni tertium genus in malabar. *Bauh. pin.* 301.
   Caniram. *Rheed. mal.* 1. 67. *t.* 37. *Raii hiſt.* 1661.
   Leaves ovate, ſtem unarmed.
2. Strychnos colubrina.
   Lin. ſpec. 271. *ſyſt.* 227. *Reich.* 1. 523. *ſuppl.* 149. *mat. med.* 67. *amoen.* 2. 119. *Wach. ultraj.* 32. *Retz. obſ.* 2. 12. *n.* 22. *Plenck, ic.* 118.
   Clematis indica ſpinoſa, foliis luteis. *Bauh. pin.* 301.
   Fructus orbicularis major fuſcus ſtriatus. *Bauh. pin.* 405.
   Modira-caniram. *Rheed. mal.* 7. 10. *t.* 5. *Burm. ind.* 58.
   Lignum colubrinum. *Raii hiſt.* 1807. *Blackw. t.* 403.
   Arbor ligni colubrini. *Rumph. amb.* 2. 46. *t.* 37.
   Leaves ovate acute, tendrils ſimple.
3. Strychnos potatorum.
   Lin. ſyſt. 227. *Willd.* 1. 1053. *ſuppl.* 148. *Roxb. corom.* 1. 9. *t.* 5?
   S. Tetankotta. *Retz. obſ.* 2. 12.
   S. Titou-cote. *Gærtn. fruct.* 2. 1053.
   Leaves oppoſite ovate acute quintuple-nerved veined, cymes axillary.

DESCRIPTIONS, &c.

1. This is a middling ſized tree, with the trunk ſhort and crooked, but pretty thick, and the branches irregular: both are covered with a ſmooth aſh-coloured bark. Leaves oppoſite, on ſhort petioles, round-oval, ſhining, ſmooth on both ſides, entire, three-five-nerved, differing in ſize, from one and a half to four inches long, and from an inch to three inches broad. Stipules none. Flowers ſmall, greeniſh white, collected in ſmall terminating umbels. Calyx permanent. Filaments ſcarcely any or very ſhort, inſerted into the diviſions of the corolla. Anthers half within the tube and half out. Style length of the tube. Berry the ſize of a pretty large Apple, covered with a ſmooth ſomewhat hard ſhell, of a rich beautiful orange-colour when ripe, filled with a ſoft jelly-like pulp. Seeds from two to five, immerſed in the pulp *.—They are thus deſcribed by Gærtner: orbicular, compreſſed-flat, or very ſlightly concavo-convex, but always ſwelling a little about the edge, and ſurrounded in the periphery itſelf with a narrow edge or a filiform annular ſtreak; in the middle on both ſides is a ſmall hole; they are of a whitiſh ſtraw-colour with a ſilky brightneſs intermixed: the umbilicus is a tubercle in the margin of the ſeed.

Native of the Eaſt Indies. Common in almoſt every part of the coaſt of Coromandel; flowering during the cold ſeaſon. The wood is hard and durable, and is uſed for many purpoſes by the natives. It is exceeding bitter, particularly that of the root, which is uſed to cure intermitting fevers, and the bites of venomous ſnakes, when that of Naga-muſadie cannot be had. The ſeeds are employed in the diſtillation of country ſpirits, to render them more intoxicating. The pulp of the fruit ſeems perfectly innocent, being eaten greedily by many ſorts of birds *.

The ſeed of the fruit is the officinal nux vomica: it is about an inch broad, and near a quarter of an inch thick, gray, covered with a kind of woolly matter, and internally tough and hard like horn; to the taſte extremely bitter, but having no remarkable ſmell. It conſiſts chiefly of a gummy matter, which is moderately bitter; the reſinous part is very inconſiderable in quantity, but intenſely bitter; hence rectified ſpirit has been conſidered as its beſt menſtruum.

Nux vomica is reckoned amongſt the moſt powerful poiſons of the narcotic kind. It proves fatal to dogs in a very ſhort time. It has been found to poiſon hares, wolves, foxes, cats, rabbets, rats, and even ſome birds, as crows and ducks; and Loureiro relates that a horſe died within a quarter of an hour after taking an infuſion in wine of the ſeeds in an half roaſted ſtate. The effects appear to be rather uncertain, and not always in proportion to the quantity given. With ſome animals it produces the effects almoſt inſtantaneouſly; with others not till after ſeveral hours, when laborious reſpiration, followed by torpor, tremblings, coma, and convulſions, uſually precede the fatal ſpaſms or tetanus, with which this drug commonly extinguiſhes life.

From four caſes related of its mortal effects upon human ſubjects, we find that the ſymptoms correſponded nearly with thoſe which have been mentioned above of brutes; and diſſections both of the human ſubject and of dogs, not ſhowing any injury done to the ſtomach or inteſtines, prove that the Nux vomica acts upon the nervous ſyſtem, and deſtroys life by the virulence of its narcotic influence.

The quantity neceſſary to produce this effect upon a ſtrong dog, need not be more than a ſcruple. A rabbet has been killed by five, and a cat by four grains. Of the four perſons before alluded, one was a girl ten years of age, to whom fifteen grains were given in two doſes for the cure of an ague. Loſs however tells us, that he took one or two grains of it in ſubſtance, without diſcovering any bad effect; and that a friend of his ſwallowed a whole ſeed without injury.

In Britain, where phyſicians ſeem to obſerve the rule *ſaltem non nocere*, more ſtrictly than in many other countries, the Nux vomica has been rarely if ever employed as a medicine. On the Continent, and eſpecially in Germany, they have been guided more by the axiom, "what is incapable of doing much harm, is equally unable to do much good." The truth of this remark was fully exemplified by the practice of Baron Stoerck; and is farther illuſtrated by the medicinal character given of Nux vomica, which from the time of Geſner till that of a modern date, has been recommended by a ſucceſſion of authors, as an antidote to the plague, as a febrifuge, as a vermifuge, and as a remedy in mania, hypochondriaſis, hyſteria, rheumatiſm, gout, and canine madneſs.

In Sweden it has of late years been ſucceſsfully uſed in dyſentery; but Bergius, who tried its effects in this diſeaſe, ſays that it ſuppreſſed the flux for twelve hours, but that afterwards it returned again. A woman, who took a ſcruple of this drug night and morning, two ſucceſſive days, is ſaid to have been ſeized with convulſions and vertigo, notwithſtanding which the dyſenteric ſymptoms returned, and the diſorder was cured by other medicines; but a pain in the ſtomach, the effect of the Nux vomica, continued afterwards for a long time. Bergius therefore thinks it ſhould only be adminiſtered in the character of a tonic and anodyne in ſmall doſes (from five to ten grains) and not till after proper laxatives have been employed.

Loureiro recommends it as a valuable internal me-

* Roxburgh.

* Idem.

dicine in fluor albus, for which purpoſe he roaſts it till it becomes perfectly black and friable, which renders its medicinal uſe ſafe without impairing its efficacy[f].

This plant was introduced in 1778, by Patrick Ruſſel, M. D.[a]

There is a tree, but exceeding rare on the coaſt of Coromandel, which the Telingas call Naga Muſadie. The leaves are oppoſite, ſhort-petioled, obtuſe, lanceolate, three-nerved, about two or two and a half inches long, by three quarters broad; the petioles connected at their inſertions by a membrane, as in the natural order of Rubiaceæ. Hence it is probable that there is a ſpecies different from the Nux vomica tree, which yields the real Lignum Colubrinum. The wood of the root of this ſort is eſteemed by the Telinga phyſicians an infallible remedy for the bite of the Naga, (Cobra de Capella or Coluber Naja) as well as for that of every other venomous ſnake: it is applied externally, and at the ſame time given internally: it is alſo given in ſubſtance for the cure of intermitting fevers[b].

2. The Indian botaniſts contend that this is not a different ſpecies from the preceding[b]. The ſpecimens ſent by Koenig had ovate, three-nerved ſhining leaves: flowers in peduncled cymes at the end of the branches, even within, with a large peltate ſtigma[c].

Many different woods are ſent to Europe under the name of Lignum colubrinum. Native of the Eaſt Indies.

3. This is a tree with oppoſite branches. Leaves very ſhort, petioled, quite entire, ſmooth. Panicles at the upper joints of the branches, from four to ſix, in whorls, ſmall, few-flowered, peduncled, ſimple. Pedicels interſperſed with ſmall awl-ſhaped bractes. Flowers ſmall, nodding. Perianth five-toothed. Corolla funnel-form: border flat, five-parted, with the throat cloſed by long white villoſe hairs. Berry the ſize of a Cherry, dark red, one-ſeeded. Seed ſmooth. The flowers are very white, fragrant, pleaſant and aromatic. The fruit at firſt taſtes ſweet, but afterwards bitter and aſtringent[d].

According to Retzius, the leaves are ovate-lanceolate, veined and darker. Flowers in ſeſſile umbels by the ſides of the branches, very hirſute within, extremely ſweet when freſh, with a ſimple ſtigma[e].

Dr. Roxburgh remarks, that the leaves cannot be ſaid to be five-nerved; that the ſtipules are entire and connecting; the panicles from the extremities of the laſt year's ſhoots, round the baſe of this year's, bearing a few ſmall, erect, fragrant, greeniſh yellow flowers; the filaments rather longer than in Nux vomica; the berry ſhining, black when ripe.

From the circumſtance of Roxburgh's plant not being five-nerved, Willdenow conjectures that it may be a new ſpecies; for the ſpecimen ſent him by Koenig had certainly five-nerved leaves, with the middle, and the two lateral ones on each ſide horizontally veined.

This grows to be a larger tree than the firſt ſpecies, and is much ſcarcer, being only found among mountains, and in woods of great extent. It flowers during the hot ſeaſon. The wood is hard and durable, and uſed for various economical purpoſes. The pulp of the fruit, when ripe, is eaten by the natives, but the taſte is rather diſagreeable.

The ripe ſeeds are dried and ſold in every market, to clear muddy water. Hence the Engliſh name of Clearing-nuts. The natives never drink clear well water, if they can get pond or river water, which is always more or leſs impure. One of the ſeeds is rubbed very hard for a minute or two round the inſide of the veſſel containing the water, which is generally an unglazed earthen one, and the water left to ſettle: in a very ſhort time the impurities fall to the bottom, leaving the water clear, and perfectly wholeſome. Theſe nuts are conſtantly carried about by the more provident part of our officers and ſoldiers, in time of war, to enable them to purify their water: they are eaſier to be had than alum, and are probably leſs hurtful to the conſtitution[f].

[a] Woodville. [b] Linn. ſuppl. [c] Hort. kew. [d] Retzius. [e] Retzius. [f] Roxburgh. [g] Linn. ſuppl.

STRYCHNOS. See *Ignatia*.]

STUARTIA. (If. Lawſon, Ehret. tab. *This genus was named by Linneus in honour of the late Lord Bute, and a figure was publiſhed by Dr. If. Lawſon from a drawing by Ehret.*—" Icon planta manu Ehretii confecta eſt ab Iſaco Lawſono Medico Londinenſi ſecundum arborem florentem in horto Comitis Stewartii juxta Londinum; dicta etiam fuit ab eodem illuſtriſſimo D. Stewart plantarum exoticarum amatore & cultore ſummo." *Linn. Act. upſ.* 1741.)

Lin. gen. n. 847. *Reich. n.* 912. *Schreb. n.* 1142. *Cavan. diſſ.* 5. 303. *t.* 159. *Juſſ.* 292.

Claſſ. 16. 6. Monadelphia Polyandria.

Nat. order of *Columniferæ*. *Tiliaceæ*, Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* one-leafed, half-five-cleft, ſpreading; *ſegments* ovate, concave, permanent.

COR. *Petals* five, obovate, ſpreading, equal, large.

STAM. *Filaments* numerous, filiform, united into a cylinder below, ſhorter than the corolla, connecting the petals at the baſe. *Anthers* roundiſh, incumbent.

PIST. *Germ* roundiſh, hirſute. *Style* ſimple, filiform, length of the ſtamens. *Stigma* five-cleft.

PER. *Pome* juiceleſs, five-lobed, five-celled, ſoluble into five cloſed parts.

SEEDS ſolitary, ovate, compreſſed.

ESSENTIAL CHARACTER.

Cal. ſimple. *Style* ſimple, with a five-cleft ſtigma. *Pome* juiceleſs, five-lobed, one-ſeeded, opening five ways.

SPECIES.

1. Stuartia Malacodendron.

Lin. ſpec. 982. *Willd.* 2. 840. *L'Herit. ſtirp.* t. 153. *t.* 73. *Act. upſ.* 1741.

Stewartia Virginica. *Cavan. diſſ.* 5. *p.* 303. *t.* 159. *f.* 2.

Flowers lateral ſubbinate, calyxes ovate obtuſe, ſtyles conjoined.

[2. Stuartia pentagyna.

Willd. ſpec. 840. *L'Herit. ſtirp.* 1. 155. *t.* 74.

Malachodendron ovatum. *Cavan. diſſ.* 5. *p.* 302. *t.* 158. *f.* 2.

Malachodendron. *Mitch. gen.* 16.

Flowers ſolitary, axillary, calyxes calyculate and lanceolate; ſtyles diſtinct.]

DESCRIPTIONS, *&c.*

1. This ſhrub grows naturally in Virginia, where it riſes with ſtrong ligneous ſtalks, to the height of ten or twelve feet, ſending out branches on every ſide covered with a brown bark, and garniſhed with oval ſpear-ſhaped leaves, about two inches and a half broad: they are ſawed on the edges, are pretty much veined, and ſtand alternately: the flowers are produced from the wings of the ſtalk: they are white, with one of the ſegments of a yelloviſh tinge: it flowers in the latter end of may.

[2. This is deſcribed by Heritier as an elegant ſhrub riſing to the height of about a fathom and half: the root is woody and branching: the ſtem erect, branched, and covered with a chinky aſh-coloured bark: the branches are alternate, ſpreading, and not much bent; the young ſhoots of a reddiſh colour: the leaves are alternate, petioled, acuminate, laxly ſerrate, often revolute on the margin, ſlightly wrinkled, paler, and ſomewhat villoſe beneath. The flowers are axillary, ſolitary, ſcarcely peduncled, of a ſnow-white colour, tinged on the outſide with a reddiſh and greeniſh caſt: they are very ſweet-ſcented, and conſiſt of ſeven or eight unequal petals.

Native of Virginia: appears to have been formerly confounded by Linneus with the preceding ſpecies.]

PROPAGATION AND CULTURE.

Sow the ſeeds, which frequently fail when brought to England, either from not being properly impregnated, or duly ripened. When the plants come up, they are very difficult to maintain while young; for if they are expoſed to too much ſun, they will ſoon be

deſtroyed, nor do they thrive when expoſed to the open air. The ſeeds therefore ſhould be ſown under glaſſes, and the ſurface of the ground between the plants ſhould be covered with moſs to keep it moiſt; and the glaſſes ſhould be conſtantly ſhaded when the ſun is bright. With this management the plants will grow, but not make any great progreſs.

[STYLOSANTHES. See *Hedyſarum*.]

STYRAX. (Στύραξ of *Theophraſtus and Dioſcorides*.)

Lin. gen. n. 595. *Reich. n.* 599. *Schreb. n.* 753. *Tournef. t.* 369. *Juſſ.* 156. *Gærtn. t.* 59.

Claſſ. 10. 1. Decandria Monogynia.

Nat. order of *Bicornes*. *Guaiacanæ*, Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* one-leafed, cylindric, erect, ſhort, five-toothed.

COR. one-petalled, funnel-form: *tube* ſhort, cylindric, length of the calyx: *border* five-parted, large, ſpreading; *ſegments* lanceolate, obtuſe.

STAM. *Filaments* ten, erect, in a ring, ſcarcely united at the baſe, awl-ſhaped, inſerted into the corolla. *Anthers* oblong, ſtraight.

PIST. *Germ* ſuperior, three-celled, many-ſeeded. *Style* ſimple, length of the ſtamens. *Stigma* truncate.

PER. *Drupe* roundiſh, one-celled.

SEEDS. *Nuts* one or two, roundiſh, acuminate, convex on one ſide, flat on the other.

OBS. *Number of ſtamens varies, but the natural number is ten.*

ESSENTIAL CHARACTER.

Cal. inferior. *Cor.* funnel-form. *Drupe* two-ſeeded.

SPECIES.

1. Styrax officinale. *Officinal Storax.*
   Lin. ſpec. 635. *ſyſt.* 409. *Reich.* 2. 701. *Willd.* 2. 623. *Ait. kew.* 2. 75. *Cavan. diſſ.* 6. 338. *t.* 188. *f.* 2. *Gærtn. fruct.* 1. 284. *Woodv. med. bot.* 197. *t.* 71. *Plenck, it. t.* 341. *Allion. pedem. n.* 497.
   Styrax. *Lin. hort. cliff.* 187. *upſ.* 122. *mat. med.* 116. *Sauv. monſp.* 306. *Gron. orient.* 147. *Mill. fig. t.* 260. *Regnault bot.*
   Styrax. *Camer. epit.* 48. *Matth.* 89. *Lob. ic.* 151. *Tournef. inſt.* 598.
   S. arbor, Ger. 1342. *emac.* 1526. *Raii hiſt.* 1680.—vulgaris. *Park. theat.* 1530.
   S. folio Mali cotonei. *Baub. pin.* 452.
   Leaves ovate villoſe beneath, racemes ſimple ſhorter than the leaf.

[2. Styrax grandifolium. *Large-leaved Storax.*
   Ait. kew. 2. 75. *Lin. ſpec. ed. Willd.* 1. 623.
   S. officinale. *Walt. carol.* 140.
   Leaves obovate villoſe beneath, lower peduncles axillary ſolitary one-flowered.

3. Styrax Benzoin. *Benzoin Storax*, or *Benjamin-tree.*
   Dryand. in act. angl. vol. 77. 2. 307. *t.* 12. *Woodv. med. bot.* 200. *t.* 72. *Lin. ſpec. ed. Willd.* 1. 623. *Plenck, ic. t.* 342.
   Benjui. *Garc. ab Horto in Cluſ. exot.* 155.
   Arbor Benzoini. *Grim in ephem. acad. nat. cur. dec.* 2. *ann.* 1. *p.* 370. *f.* 31. *Sylvius in Valentini hiſt. ſimpl.* 487.
   Benzuin. *Radermacher in act. ſoc. Bataviæ. vol.* 3. *p.* 44.
   Benjamin or Benzoin. *Marſden Sumatra, p.* 123.
   Laurus Benzoin. *Houttuyn in act. Harlem. vol.* 21. *p.* 265. *t.* 7.
   Leaves oblong acuminate tomentoſe beneath, racemes compound length of the leaves.

4. Styrax lævigatum. *Smooth Storax.*
   Ait. kew. 2. 75. *Lin. ſpec. ed. Willd.* 1. 624.
   S. octandrum. *L'Herit. ſtirp. nov.* 2. *t.* 17.
   S. glabrum. *Cavan. diſſ.* 6. 340. *t.* 188. *f.* 1.
   S. læve. *Walt. carol.* 140.
   S. americana. *Lamarck encycl.* 1. 81.
   Leaves oblong ſmooth on both ſides, peduncles axillary one-flowered ſolitary or two together.]

DESCRIPTIONS, &c.

1. The officinal Storax-tree riſes twelve or fourteen feet high: the trunk is covered with a ſmooth grayiſh bark, and ſends out many ſlender branches on every ſide. Leaves about two inches long, and an inch and half broad, of a bright green on their upper ſide, but hoary on their under; they are entire, and placed alternately on ſhort footſtalks. The flowers come out from the ſide of the branches, upon peduncles ſuſtaining five or ſix flowers in a bunch; they are white, and appear in june.

[In the Syſtema Vegetabilium it is remarked, that the germ is altogether ſuperior; that the natural number of ſtamens is ten; and that it is different from Haleſia.

The fruit is a juiceleſs drupe, of an ovate-globular form, terminated by the permanent ſtyle, pubeſcent with a hoary nap: rind thin, coriaceous: ſhell bony, brittle, box-coloured, before it is ripe conſtantly three-celled, but afterwards one-celled and valveleſs. Receptacle columnar, fungous, length of half the ſhell, accompanied by four or five eggſets in each cell, but it is moſtly quite obliterated when ripe. Ripe ſeeds, three, two, or moſt frequently one only; thoſe variouſly angular, this ovate-globular, like an Almond, pale or ruſeſcent [g].

Native of Italy and the Levant. Cultivated in 1597, by Gerarde [h]; who ſays, I have two ſmall trees of it in my garden, the which I have recovered of ſeed.

Although the Storax-tree is indigenous to many of the ſouthern parts of Europe, yet the reſinous drug which it produces is only to be obtained in perfection from Aſiatic Turkey. The Storax iſſues in a liquid ſtate from inciſions made in the bark of the trunk or branches; and as it was formerly the cuſtom to collect this gum-reſin in reeds, it obtained the name of Styrax calamita. But the only kinds now to be found in the ſhops are the pure and the common Storax: the firſt is uſually in irregular compact maſſes, free from impurities, of a yelloviſh or reddiſh brown appearance, and interſperſed with whitiſh tears, ſomewhat like Gum Ammoniac or Benzoin; it is extremely fragrant, and upon the application of heat, readily melts. This has been called Storax in the lump, red Storax, and the ſeparate tears, Storax in the tear.

The common Storax is in large maſſes, very light, and bears no external reſemblance whatever to the former; but ſeems almoſt wholly compoſed of dirty ſawduſt merely caked together by the reſinous matter; and though much leſs eſteemed than the purer kind, yet we are told that when it is freed from the woody part it poſſeſſes more fragrance, and is ſuperior to the other. Rectified ſpirit, the common menſtruum of reſins, readily diſſolves the Storax, which may be inſpiſſated to a ſolid conſiſtence, as directed for the *Styracis purificatio* in the London Pharmacopœia, without ſuſtaining any conſiderable loſs of its ſenſible qualities.

Common Storax, infuſed in water, imparts to the menſtruum a gold yellow colour, ſome ſhare of its ſmell, and a ſlight balſamic taſte. It impregnates water conſiderably in diſtillation, and ſtrongly diffuſes its fragrance when heated, though it ſcarcely yields any eſſential oil. The ſpirituous ſolution, gently diſtilled off from the filtered reddiſh liquor, brings over with it very little of the fragrance, and the remaining reſin is more fragrant than the fineſt Storax in the tear. The pure reſin diſtilled without addition, yields along with an empyreumatic oil, a portion of ſaline matter, ſimilar to the flowers of Benzoin: ſometimes alſo a ſubſtance of the ſame nature may be extracted by boiling it in water.

Storax, with ſome of the ancients, was a familiar remedy as a reſolvent, and particularly uſed in catarrhal complaints, coughs, aſthmas, menſtrual obſtructions, &c. and from its affinity to the balſams it was alſo preſcribed in ulcerations of the lungs, and other ſtates of pulmonary conſumption. Our pharmacopœias formerly directed the *pilulæ e ſtyrace*; but this odoriferous drug has now no place in any of the officinal compounds; and though a medicine which might ſeem to promiſe ſome efficacy in nervous debilities, yet by modern practitioners it is almoſt totally diſregarded [i].

Old Gerarde ſays, of this gum there are made ſundry excellent perfumes, pomanders, ſweet waters, ſweet

[g] Gærtner. [h] Hort. kew. [i] Woodville and Lewis.

bags, sweet washing balls, and divers others sweet chains and bracelets.

2. Native of South Carolina, where it was observed by Mr. John Cree. Introduced in 1765. It flowers in june and july *.

3. The Benzoin, or as it is corruptly called, the Benjamin tree, is of quick growth, and rises to a considerable height: it sends off many strong round branches, which are covered with a tomentose or whitish downy bark. Leaves, alternate, acuminate, veined, smooth above, tomentose beneath, a hand in length. Petioles, round, striated, channelled, tomentose, very short. Flowers in axillary compound racemes or bunches, nearly the length of the leaves, and hanging mostly to one side. The common pedunckes are tomentose; the partial ones are alternate, spreading and tomentose; the pedicels are very short. Calyx bell-shaped, very obscurely five-toothed, tomentose on the outside, more than a line in length. Petals five, perhaps connate at the base, linear, obtuse, ash-coloured on the outside with a very fine nap, four times as long as the calyx. Filaments ten inserted into the receptacle, a little shorter than the petals, united below into a cylinder the length of the calyx, above under the anthers ciliate. Anthers linear, fastened longitudinally to the filaments, and shorter by half than them. Germ superior, ovate, tomentose. Style filiform, longer than the stamens. Stigma simple.

The above description was made from dried specimens procured from Sumatra by Mr. Marsden, at the request of Sir Joseph Banks.

Though Garcias, Grim and Sylvius were acquainted with the real tree from which Benzoin is collected, their descriptions are so imperfect, that succeeding botanists have fallen into many errors concerning it; and it is remarkable that although this drug was always imported from the East Indies, most of the later writers on the Materia Medica have conceived it to be collected from a species of Laurus, native of Virginia, to which from this erroneous supposition, they have given the trivial name of Benzoin.

This error was first detected by Linneus, but he substituted another in its place; for in his second Mantissa (p. 297.) he seems to think that the drug is furnished by a shrub which he there describes under the name of Croton Bentzoe; and afterwards in the Supplementum Plantarum (p. 434.), he describes the same plant again by the name of Terminalia Benzoin. Jacquin, who had been informed that this shrub was called by the French *Bienjoint*, supposes, with reason, that the similar sound of that word to *Benjoin*, which is the French name for Benzoin, or what we corruptly call Benjamin, may have occasioned this mistake.

Since that period Dr. Houttuyn has described the Benzoin Tree of Sumatra; but for want of good specimens, has mistaken the genus to which it belongs †. And thus it remained, till the year 1787, when Mr. Dryander first fully and publicly ascertained it to be a Styrax.

This tree is deemed in Sumatra, which is its native country, to be of sufficient age in six years, or when the trunk is about seven or eight inches in diameter, to afford the Benzoin: the bark is then cut through longitudinally, or somewhat obliquely, at the origin of the principal lower branches, from which the drug exudes in a liquid state, and by exposure to the sun and air soon concretes, when it is scraped off from the bark with a knife or chissel. The quantity which one tree affords never exceeds three pounds; nor are the trees found to sustain the effects of these annual incisions longer than ten or twelve years. The Benzoin which issues first from the wounded bark is the purest, being soft, extremely fragrant, and very white; that which is less esteemed, is of a brownish colour, very hard, and mixed with various impurities. In Arabia, Persia, and other parts of the East the coarser sort is consumed in fumigating and perfuming the temples, and in destroying insects.

The Benzoin which we find here in the shops is in large brittle masses, composed partly of white, partly of yellowish or light brown, and often also of darker coloured pieces: that which is clearest, and contains the most white matter, is accounted the best. This resin has very little taste, impressing on the palate only a slight sweetness: its smell, especially when rubbed or heated, is extremely fragrant and agreeable. It totally dissolves in rectified spirit, the impurities excepted, into a deep yellowish-red liquor, and in this state discovers a degree of warmth and pungency, as well as sweetness. It imparts, by digestion, to water also a considerable share of its fragrance, and a slight pungency: the filtered liquor, gently exhaled, leaves, not a resinous or mucilaginous extract, but a crystalline matter, seemingly of a saline nature, amounting to one tenth, or one eighth, of the weight of the Benzoin. Exposed to the fire in proper vessels, it yields a quantity of a white saline concrete, called flores benzoes, of an acidulous taste, and grateful odour, soluble in rectified spirit, and in water by the assistance of heat.

As the trees which afford Benzoin and Storax are congeners, and as their resinous products are very similar in their external appearances, and not widely different in their sensible qualities, it is reasonable to suppose that they are analagous in their medicinal effects. Benzoin however, though rarely employed in a simple state, has been frequently prescribed as a pectoral, and is recommended for inveterate coughs, asthmas, obstructions of the lungs, and phthisical complaints, unattended with much fever: it has also been used as a cosmetic, and in the way of fumigation for the resolution of indolent tumours. Dr. Cullen, who classes Benzoin with the stimulants, says, that the flowers, which is the only preparation employed, are manifestly a saline substance of the acid kind, of considerable acrimony and stimulant power; it has been recommended as a pectoral; I have employed it in some asthmatic cases without finding it of use, and in a dose of half a dram it appeared to be hearing and hurtful. In the pharmacopœias the flowers are directed in the tinctura opii camphorata, and it is ordered in substance in the tinctura benzoes composita ‡.

4. The leaves of this are toothed, in all the other species they are quite entire.—Native of South Carolina. Found by Mr. John Cree. Introduced in 1765. It flowers in june and july *.]

PROPAGATION AND CULTURE.

1. It may be propagated by sowing the seeds in pots filled with fresh light earth, and plunged into a moderate hot-bed. This should be done as soon as possible when the seeds are procured, for if they are sown the latter end of summer, and the pots kept in a moderate hot-bed of tanners bark all the winter, the plants will come up the succeeding spring; whereas those sown in the spring, often remain in the ground a whole year before the plants come up.

When the plants are come up, they should be hardened gradually to the open air, into which they should be removed in june, placing them in a sheltered situation, observing to keep them clean from weeds, as also to supply them with water duly in dry weather. In this place they may remain till autumn, when they should be placed under a common hot-bed frame, where they may be screened from hard frost in winter, but in mild weather enjoy the free air as much as possible, for if they are kept too close their tops are very subject to grow mouldy. The leaves of these plants fall off in autumn, and in the spring, before they begin to shoot, they should be shaken out of the pots, and their roots carefully parted, and each transplanted into a separate small pot filled with light fresh earth, and plunged into a very moderate hot-bed, observing to water and shade them until they have taken root; after which they should be inured to the open air by degrees, into which they must be removed in june, placing them in a warm situation; where they may remain till the end of october, when they should be removed into shelter for the winter season. These plants are tolerably hardy, and only require to be sheltered from severe frost while they are young; for in

* Hort. kew. † Dryander in Philos. transf. ‡ Woodville. * Hort. kew.

Italy they grow extremely well in the open air, and produce fruit in great plenty. When the plants have grown three or four years in pots, and are become ſtrong, ſome of them may be turned out, and planted in the full ground, againſt a ſouth wall, to which their branches ſhould be trained in the ſame manner as fruit trees; and in this ſituation they will bear the cold of our ordinary winters very well; but in ſevere froſt, it will be proper to cover the branches with mats, ſtraw, or other light materials.

STYRAX. See *Liquidambar.*

SUBER. See *Quercus.*

[SUBULARIA. (*So named from its awl-ſhaped leaves.*) *Lin. gen. n.* 799. *Reich. n.* 863. *Schreb. n.* 1075. *Juſſ.* 240.

Claſſ. 15. 1. Tetradynamia Siliculoſa.

Nat. order of *Siliquoſæ* or *Cruciformes. Cruciferæ*, Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* four-leaved: *leaflets* ovate, concave, ſpreading a little, deciduous.

COR. four-petalled, cruciform. *Petals* obovate, entire, a little bigger than the calyx.

STAM. *Filaments* ſix, ſhorter than the corolla; two of which are oppoſite and ſtill ſhorter. *Anthers* ſimple.

PIST. *Germ* ovate. *Style* ſhorter than the ſilicle. *Stigma* obtuſe.

PER. *Silicle* ovate, ſubcompreſſed, entire, with a very ſhort ſtyle, two-celled: *partition* contrary to the valves: *valves* ovate, concave.

SEEDS ſome, very minute, roundiſh.

ESSENTIAL CHARACTER.

Silicle entire, ovate: valves ovate, concave, contrary to the partition. *Style* ſhorter than the ſilicle.

SPECIES.

1. Subularia aquatica. *Awl-wort. Lin. ſpec.* 896. *Fl. ſuec.* 585. *Reich.* 3. 212. *Fl. lapp. n.* 253. *Suec. n.* 566. *Hudſ. angl.* 277. *Wither. arr. ed.* 3. 564. *Smith brit.* 676. *engl. bot. t.* 732. *Lightf. ſcot.* 337. *Dickſ. hort. ſicc.* 5. 9. *Fl. dan. t.* 35. *Gort. ingr.* 101. *Pallas it.* 2. 100.

S. erecta junci foliis acutis mollibus. *Raii ſyn.* 307. *Petiv. brit. t.* 48. *f.* 8.

Alyſſum paluſtre, folio junci. *Buxb. act.* 2. 369. *t.* 23. *f.* 1.

Graminifolia aquatica, &c. *Pluk. phyt. t.* 188. *f.* 5.

Gramen junceum hibernicum, thlaſpeos capitulis Sherardi. *Mor. hiſt. ſ.* 8. *t.* 10. *f.* 29.

DESCRIPTION, *&c.*

The root is annual, and conſiſts of many long ſimple white fibres. Leaves all radical, ſmooth, awl-ſhaped with a recurved point. Stalk ſeldom more than two inches high, ſimple, ſmooth, bearing a ſimple ſpike of ſmall white flowers, always immerſed in the water, and ſo cloſed that the impregnation is accompliſhed in ſafety under the protection of the calyx and petals. Seeds ovate, compreſſed, about three on each ſide. By the firſt appearance of the flower and ſeed-veſſel this little plant might be taken for a Draba, but on examination an eſſential difference is found in the partition being contrary to the valves, not parallel with them, and yet thoſe valves are not keeled as in Lepidium, only concave; neither is the ſilicle notched, as in that genus. It is no leſs remarkable for its ſituation and mode of flowering under water, than for the peculiarity of its generic character*.

Native of the northern parts of Europe. In the Britiſh dominions, Sherard firſt diſcovered it in the gravelly bottom of Lough Neagh, in Ireland. Since that, Dr. Hope found it in Lough Carran, and Mr. Stuart in Loch Tay, Scotland: and it has been ſeen in ſeveral lakes of North Wales; as near Llanberys, Llyn y Cwn and Ffynnon frêch near Showdon and Llyn Aled in Denbighſhire. Dr. Dillenius and Mr. Brewer found it in moſt of the lakes under Snowdon. It flowers in july.

SUBULARIA. See *Iſoëtes.*]

SUCCISA. See *Scabioſa.*

SUCCORY. See *Cichorium.*

* Engl. bot.

[SUCCORY HAWKWEED. See *Crepis.*

SUGAR CANE. See *Saccharum.*

——— MAPLE. See *Acer.*

SUILLUS. See *Boletus.*

SULPHUR-WORT. See *Peucedanum.*

SULTAN, SWEET. See *Centaurea.*]

SUMACH. See *Connarus, Coriaria* and *Rhus.*

[SUMMER CYPRESS. See *Chenopodium Scoparia.*

SUN-DEW. See *Droſera.*

SUN-FLOWER. See *Helianthus.*

SUN-SPURGE. See *Euphorbia.*

SUPPLE JACK. See *Paullinia.*]

SURIANA. (*So named by Plumier, in honour of Joſeph Donat Surian, phyſician at Marſeilles, who accompanied him in his travels.*)

Lin. gen. n. 581. *Reich. n.* 632. *Schreb. n.* 792. *Plum.* 40. *Jacqu. amer.* 140. *Juſſ.* 339.

Claſſ. 10. 4. Decandria Pentagynia.

Nat. order of *Succulentæ. Roſaceæ.* Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* five-leaved: *leaflets* lanceolate, acuminate, permanent.

COR. *Petals* five, obovate, length of the calyx, ſpreading.

STAM. *Filaments* ten, filiform, ſhorter than the corolla. *Anthers* ſimple.

PIST. *Germs* five, roundiſh. *Styles* ſolitary, filiform, erect, length of the ſtamens, inſerted into the middle and inner ſide of the germ. *Stigmas* obtuſe.

PER. none.

SEEDS five, roundiſh.

ESSENTIAL CHARACTER.

Cal. five-leaved. *Pet.* five. *Styles* inſerted into the inner ſide of the germs. *Seeds* five, naked.

SPECIES.

1. Suriana maritima.

Lin. ſpec. 624. *Juſſ.* 431. *Reich.* 2. 387. *Willd.* 2. 771. *hort. cliff.* 592. *Jacq. amer.* 140. *pict.* 70. *Swartz obſ.* 185. *Forſt. prodr. n.* 199. *Lamarck illuſtr. gen. t.* 389. *Plum. gen.* 37. *ic.* 249. *f.* 1. *Brown. jam.* 190. *Pluk. phyt. t.* 241. *f.* 5.

Thymelææ facie frutex maritimus tetraſpermus. *Sloan. jam.* 2. 29. *t.* 162. *f.* 4.

DESCRIPTION, *&c.*

[Stem ſhrubby, a fathom high, unarmed. Branches erect, ſubdivided, round, rugged, cicatriſed with the fallen leaves, glaucous, pubeſcent. Leaves cluſtered, in bundles towards the ends of the branchlets, erect, wedged, bluntiſh, ſhort, nerveleſs, veinleſs, thickiſh, villoſe-pubeſcent, pale green; on very ſhort petioles. Peduncles terminating and axillary, ſhorter than the leaves, from three to five-flowered. Flowers ſmall, yellow. Number of ſtamens always five†. According to Jacquin ten, but ſome of them often deficient, eſpecially the anthers; and both of them caducous, together with the corolla. He deſcribes it as an upright, elegant ſhrub, three feet high: the wood red and very hard; the flowers void of ſcent.—Swartz remarks, that in the ſpecimens from New Caledonia, ſome of the flowers had ten ſtamens.

Native of the ſea-coaſt of South America and the iſlands of the Weſt Indies. Browne ſays, that this little ſhrub is frequent by the ſea-ſide in the pariſh of St. James in Jamaica, that it ſeldom riſes above three or four feet, that the branches are pretty ſlender and flexile, and the leaves diſpoſed more thickly towards the tops.—Forſter marks it as found in Botany iſland.]

Mr. Miller deſcribes it as riſing, in the Weſt Indies, with a thick ſhrubby ſtalk eight or nine feet high, covered with a dark-brown bark: the leaves are about an inch long, and one eighth of an inch broad at the point, growing narrower to their baſe, of a dirty green colour. Peduncles about an inch long, each ſuſtaining two, three or four yellow flowers. Petals four or five. Seeds two, three, four or five. Theſe were brought from the Havanna by Dr. Houſtoun. Mr. Miller therefore muſt have cultivated it before the year 1733.

† Swartz.

PROPAGATION AND CULTURE.

Sow the ſeeds on a hot-bed early in the ſpring; when the plants come up, weed them and refreſh them frequently with water. In warm weather raiſe the glaſſes to admit freſh air. When the plants are fit to remove, take them up carefully, and ſet each in a ſmall pot filled with freſh light earth, plunge them into the tan-pit, ſhading them until they have taken new root: after which water them duly every evening in hot weather, and admit freſh air in proportion to the warmth of the ſeaſon. In the winter theſe plants muſt be kept very warm, eſpecially whilſt they are young. They muſt alſo be frequently refreſhed with water, but it muſt not be given them in large quantities in cold weather. Theſe plants make ſlow progreſs the firſt year, but afterwards will grow pretty freely.

[SUZYGIUM. See *Calyptranthes*.

SWALLOW-WORT. See *Aſclepias*.

SWARTZIA. (*So named by Schreber, in honour of Olaf Swartz, M. D. Prof. inſtit. Berg. Acad. Ceſar. Nat. Cur. Reg. Holm, &c. Sodalis, Author of* Nova Genera & Species Plantarum, ſ. Prodromus, &c. 1788. Obſervationes Botanicæ, 1791.—Flora Indiæ Occidentalis, ſ. Deſcriptiones Plantarum in Prodromo recenſitarum. 1797. &c.)

Lin. gen. Schreb. n. 1227. Tounatea. *Aubl.* 218? *Juſſ.* 440.

Claſſ. 18. 4. Polyadelphia Polyandria.

GENERIC CHARACTER.

CAL. *Perianth* one-leafed, inferior, coriaceous, coloured internally, four or five-parted, permanent; *ſegments* ovate, ſharpiſh, reflexed, almoſt equal.

COR. none.

STAM. *Filaments* numerous, capillary, flexuoſe, longer than the calyx, aſcending, united at the baſe, inſerted into a ſemicircular receptacle ſurrounding the baſe of the pedicel of the germ, and two longer and thicker, by the ſide of the pedicel on each part, before the other filaments, adnate, free, declined. *Anthers* roundiſh, flat, emarginate above and below, faſtened by the back; on the longer filaments larger and oval.

PIST. *Germ* oblong, compreſſed, villoſe, placed on a thickiſh, declining pedicel. *Style* none. *Stigma* oblique, acute.

PER. *Capſule* coriaceous, obliquely ovate, pedicelled, one-celled, two-valved.

SEED ſingle, ovate, covered at the baſe with a pulpy pitcher-ſhaped oblique *aril*, and pedicelled.

ESSENTIAL CHARACTER.

Cal. four-leaved. *Petals* ſingle, lateral, flat. *Legume* one-celled, bivalve. *Seeds* arillated.

SPECIES.

1. Swartzia ſimplicifolia.
Willd. ſp. pl. p. 1219.
Rittera ſimplex. *Vahl ſymb. 2. p.* 60.
Poſſira ſimplex. *Swartz prodr.* 82.
With ſimple leaves, and roundiſh ovate petal larger than the calyx, and polyandrous flowers.

2. Swartzia grandiflora.
Willd. ſp. pl. p. 1220.
Rittera grandiflora. *Vahl eclog. 2. p.* 37.
With ſimple oblong-ovate leaves, ſubtriflorous foot-ſtalks, round reniform very large petal, and oblong legumes.

3. Swartzia dodecandra.
Willd. ſp. pl. p. 1220.
Rittera dodecandra. *Vahl ſymb. 2. p.* 60. *t.* 34.
With ſimple leaves, dodecandrous flowers, and oblong petal of the length of the cup.

4. Swartzia triphylla.
Willd. ſp. pl. p. 1220.
Poſſira triphylla. *Swartz prodr.* 82.
Poſſira arboreſcens. *Aubl. gui. 2. p.* 934. *t.* 355.
With ternate leaves, and margined foot-ſtalks.

5. Swartzia pinnata.
Willd. ſp. pl. p. 1220.
Rittera pinnata. *Vahl eclog. 3. p.* 38.
With pinnate leaves and round common foot-ſtalk.

6. Swartzia alata.
Willd. ſp. pl. p. 1220. *Schreb. gen. pl. n.* 1227.
Tounatea guianenſis. *Aubl. guj. 1. p.* 550. *t.* 218.
With pinnate leaves and winged common foot-ſtalk.

DESCRIPTIONS, *&c.*

1. A ſhrub, with ſmooth branches, and ovate alternate leaves; cluſtered flowers, growing four, five, or ſix from each foot-ſtalk.—Native of Trinidad.

2. This, ſays Willdenow, is ſo like the ſimplicifolia, that it is not eaſy to give an infallible criterion of the difference; except that the leaves are rather narrower.—Native of Trinidad.

3. A ſhrub of a ſmaller kind than the ſimplicifolia, with round and ſubpubeſcent branches: ovate-lanceolate, alternate leaves, and axillary flowers of four, five, or ſix, from each foot-ſtalk.—Native of South America.

4. This is a middle-ſized tree, riſing to the height of eight feet or more, and branching towards the top: leaves alternate, and digitated, with three of the leaflets ſeſſile and annexed to the flat midrib: flowers corymboſe and axillary.—Native of the Caribbee iſlands.

5. Sufficiently diſtinguiſhed from the reſt by its pinnated leaves and round foot-ſtalks.—Native of Trinidad.

6. This, according to Aublet, is a tree of twenty-five feet high or more, with a branchy top, and ſcattered ramulets: leaves alternate and unequally pinnate; of a bright green: flowers very ſmall.—Native of Guiana.

SWARTZIA *Ebrh.* Didymodon *Hedw.*

SWEET APPLE. See *Annona.*

SWEET BRIER. See *Roſa.*

SWEET FERN. See *Scandix.*

SWEET FLAG. See *Acorus.*

SWEET GUM. See *Liquidambar.*

SWEET JOHNS. See *Dianthus.*

SWEET MAUDLIN. See *Achillea.*

SWEET PEA. See *Lathyrus.*

SWEET RUSH. See *Acorus.*

SWEET SOP. See *Annona.*

SWEET SULTAN. See *Centaurea.*

SWEET WEED. See *Capraria* and *Sceparia.*

SWEET WILLIAM. See *Dianthus.*

SWEET WILLOW. See *Myrica.*

SWERTIA. (*So named by Linnæus, in honour of Eman. Sweert, a cultivator of bulbs and flowers in Holland. He publiſhed* Florilegium, 1612. Francof. fol.)

Lin. gen. n. 321. *Reich. n.* 351. *Schreb. n.* 449. *Juſſ.* 142. *Gærtn. t.* 114.

Claſſ. 5. 2. Pentandria Digynia.

Nat. order of *Rotaceæ*. *Gentianæ* Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* five-parted, flat, permanent: *ſegments* lanceolate.

COR. one-petalled, wheel-ſhaped: *border* flat, five-parted; *ſegments* lanceolate, bigger than the calyx, with the claws connected.

Nectaries ten, as it were two dots in the baſe of each ſegment of the corolla within, excavated, girt with ſmall erect briſtles.

STAM. *Filaments* five, awl-ſhaped, from erect ſpreading, ſhorter than the corolla. *Anthers* incumbent.

PIST. *Germ* ovate-oblong. *Style* none. *Stigmas* two, ſimple.

PER. *Capſule* round, acuminate at both ends, one-celled, two-valved.

SEEDS numerous, ſmall, faſtened to the future of the capſule.

Obs. *There are ſpecies* (n. 4. 5. 6.) *with four-cleft flowers. The nectaries in one ſpecies* (4.) *project beneath in horns.*

ESSENTIAL CHARACTER.

Cor. wheel-ſhaped. *Nectariferous* pores at the baſe of the ſegments of the corolla. *Capſ.* one-celled, two-valved.

SPECIES.

1. Swertia perennis. *Marſh Swertia* or *Felwort.*
Lin. ſpec. 328. *ſyſt.* 266. *Reich.* 1. 635. *Willd.* 1. 1329. *hort. cliff.* 53. *Gærtn. fruct.* 2. 160. *Hudſ. angl.* 102. *Wither. arr. ed.* 3. 280. *Smith brit.* 284. *Hoffm. germ.* 86. *Roth. germ.* 2. 284. *Jacqu. auſtr. t.* 243. *Villars dauph.* 2. 520. *Pallas roſſ.* 2. 98. *Gmel. ſib.* 4. 111. *n.* 77. *Kniph. cent.* 7. *n.* 91.

Gentiana paluſtris. *Allion. pedem. n.* 367. *Hall. helv. n.* 636. *Barrel. ic.* 91. *Monnier obſ.* 154. —latifolia. *Bauh. pin.* 188.—punctata. *Tournef. inſt.* 81.

G. 12. punctato flore. *Cluſ. hiſt.* 1. 316.

G. major, flore cæruleo punctato. *Mor. hiſt. ſ.* 12. *t.* 5. *f.* 11.

G. Pennei minor. *Ger.* 351. *emac.* 433.

G. Pennei cærulea punctata. *Park. theat.* 404. *Raii hiſt.* 721.

Corollas five-cleft, peduncles four-cornered awl-ſhaped, ſtem undivided, root-leaves oval.

2. Swertia diſſormis.

Lin. ſpec. 328. *ſyſt.* 266. *Reich.* 2. 636. *Willd.* 2. 1330. *Gron. virg.* 30.

Corollas five-cleft, the terminating one ſix-cleft, peduncles very long, leaves linear.

[3. Swertia decumbens.

Lin. ſpec. ed. Willd. 2. 1330. *Vahl ſymb.* 1. 24.

Parnaſſia polynectaria. *Forſk. deſcr.* 207. *ic. t.* 5. *f.* 6.

Corollas five-parted, leaves linear-lanceolate, nectaries ten briſtly.

4. Swertia corniculata.

Lin. ſpec. 328. *ſyſt.* 266. *Reich.* 1. 636. *Willd.* 1. 1330. *amoen.* 2. 344. *Gmel. ſib.* 4. 114. *t.* 53. *f.* 4. *Pallas roſſ.* 2. 99. *t.* 90. *f.* 1.

Corollas four-cleft four-horned.

5. Swertia dichotoma.

Lin. ſpec. 329. *ſyſt.* 266. *Reich.* 1. 636. *Willd.* 1. 1330. *amoen.* 2. 345. *Gmel. ſib.* 4. 113. *t.* 53. *f.* 3. *Pallas roſſ.* 2. 100. *t.* 91.

Corollas four-cleft horneleſs, peduncles nodding, leaves elliptic, ſtem branched.

6. Swertia tetrapetala.

Lin ſpec. ed. Willd. 1. 1331. *Pallas roſſ.* 2. 99. *t.* 90. *f.* 2.

Corollas four-cleft horneleſs, peduncles erect, leaves lanceolate, ſtem ſimple.

DESCRIPTIONS, *&c.*

1. This is a handſome plant, with a perennial root compoſed of long whitiſh fibres. Stem upright, ſimple, a foot high, ſlightly four-cornered, ſmooth, little leafy. Almoſt all the leaves radical, petioled, ovate or elliptic, quite entire, obſcurely nerved, ſmooth. Spike terminating, erect; with the peduncles oppoſite, erect, angular, one-flowered, bracted at the baſe. Bractes ſeſſile, elliptic-oblong, quite entire. Flowers cinereous-purple, of a dull colour, and void of ſcent. Segments of the calyx awl-ſhaped, ſpreading. Corolla ſpreading, with the ſegments elliptic, acute, dotted with black, and having nectariferous pores briſtly at the edge. Stamens awl-ſhaped. Anthers verſatile. Germ ovate, compreſſed. Style very ſhort, two-parted. The herb is very bitter [a].—Capſule ſurrounded with the permanent calyx and corolla, ovate-oblong, acuminate at both ends, and very ſhortly two-beaked above with the divaricating ſtigmas, compreſſed like a lens. Seeds numerous, ſuborbicular, leafy-compreſſed, with a wide membranaceous margin, ruſt-coloured, faſtened to the thickened edges of the valves in a double row: the radicle of the embryo is centripetal [b].

The old authors conſidered it as a Gentiana, and ſome more modern authors are of the ſame opinion: but Gærtner remarks, that whatſoever affinity there may be between theſe two genera, they cannot be united on account of the very different ſituation of the ſeeds and embryo.

Native of Germany, Auſtria, Switzerland, France and Siberia, in alpine bogs. It is a doubtful native of Britain. According to Hudſon, Richardſon found it in Wales. It flowers in auguſt.]

2. This has narrow linear leaves which come from the root, about three inches long, and half a quarter of an inch broad; the flower-ſtalks ariſe immediately from the root, are about ſix or ſeven inches high, and ſupport one blue flower.—Native of Virginia.

The flowers are white [c].

3. Stems filiform, branched at top, obſcurely angular, very ſmooth, as is the whole plant. Leaves ſeſſile, oppoſite, remote, a little united at the baſe, ſpreading very much, half an inch long. Peduncles in pairs from the top of the branches, filiform, having a linear leaflet at the baſe [c].—Native of Arabia Felix.

4. Root annual, ſhort, attenuated, cruciate with four lateral fibres, ſometimes branched a little with more, ſtiffiſh, white. The plant varies in ſize from a long ſpan and almoſt ſimple, to two feet, many-ſtemmed and more branched. Stem-leaves many, broad-lanceolate, withering as the ſtem grows up. Stem obſcurely four-cornered, ſingle or many, five or more, theſe laſt oppoſitely branched, ſtiffiſh, elongated, ſubfaſtigiate. Stem-leaves oppoſite, ovate-lanceolate, three-nerved. Peduncles axillary and terminating, filiform, naked, one-flowered. Flower nodding a little, for the moſt part four-cleft, but often five-cleft, of a pale greeniſh colour, ſomewhat four-cornered, bell-ſhaped, with the ſegments acute and converging, produced at the baſe into as many awl-ſhaped, ſpreading, ſtraightiſh horns as there are ſegments in the petal, of a greener colour; in alpine ſpecimens more elongated. Leaflets of the calyx linear, ſlender, of the ſame number as in the corolla. Anthers ſmall, within the corolla. Germ cylindric-conical. Capſule within the permanent corolla, cloſed, ſhaped like a ſilicle, two-valved. Seeds fewer, a little larger than thoſe of the poppy, browniſh gray.

Native of Siberia, where for its grateful bitterneſs, it is received among the domeſtic remedies of the inhabitants. It is common on both ſides the river Jeniſea, in ſandy moiſtiſh pine woods. It occurs in ſome parts of a lower ſtature, with larger ſeeds, and more turgid flowers. In Kamtſchatka it is ſcarcely more than two inches high, with a ſimple one-flowered ſtem, and two or three pairs of leaves only.—It is alſo found in Canada.

5. Root ſimple, drawing to a point, ſtouter than in the preceding, and ſeeming to be biennial. Plant very tender, ſoft, bright green, as in corniculata. Root-leaves ovate, five-nerved, elongated into the petiole. Stems from the root many, ſlender, red, often decumbent, in the adult plant very much branched, here and there in a manner dichotomous, producing abundance of flowers from all the axils on long and very ſlender pedicels. Stem-leaves ſubſeſſile, ovate-lanceolate, five-nerved. Flowers much ſmaller than thoſe of the preceding, greener but ſometimes a little reddiſh, four-cleft, ſubglobular bell-ſhaped, with the ſegments divided almoſt to the baſe, ovate, having two nectariferous yellow dots on the inſide of each. Calyx-leaves ovate-lanceolate. The plant is very ſmooth, as in the reſt of this genus.

Native of eaſtern Siberia: ſcarcely bitter. It flowers in auguſt: the preceding in july.

6. This is an annual plant, ſcarcely a ſpan high, with a ſimple, ſlender, attenuated root. Stem quite ſimple, erect, filiform, round, with four or five pairs of lanceolate, nerved leaves: the lower leaves are ovate-lanceolate. Petioles axillary, and ſome terminating, leafed, ſubfaſtigiate. Flower ſmall, all four-cleft. Calyx-leaves linear. Segments of the corolla ſcarcely cohering at the baſe, ſpreading, deep blue with an orange-coloured ſcar in the middle notched at the edge, and viſible at the back. Stamens ruſeſcent, ſhorter than the corolla.—Native of Kamtſchatka [c].]

PROPAGATION AND CULTURE.

Theſe plants growing naturally in ſwamps, are with difficulty preſerved in gardens, and as they do not produce ſeeds in England, are only propagated by parting the roots; the beſt time for which is in ſeptember, that they may have time to be rooted before the froſts come on. They ſhould be planted in the ſhade, and have a looſe moiſt ſoil. In ſummer they muſt be frequently watered.

[SWERTIA carinthiaca, rotata, ſulcata. See *Gentiana.*

[SWIETENIA. (*So named by Jacquin, in honour of the illuſtrious Gerard, L. B. a Swieten, Archiater to*

[a] Smith. [b] Gærtner. [c] Linn. ſyſt.

[a] Vahl. [b] Pallas.

Maria Teresa, Empress of Germany, who at his persuasion founded the botanic garden at Vienna.)
Lin. gen. n. 521. *Reich. n.* 575. *Schreb. n.* 723. *Jacqu. amer.* 127. *Gærtn. t.* 96. *Juss.* 266. *Cavan. diss.* 7. 209.

Class. 10. 1. Decandria Monogynia.
Nat. order of *Tribiliatæ*. *Meliæ* Juss.

GENERIC CHARACTER.

CAL. *Perianth* one-leafed, five-cleft, obtuse, very small, deciduous.

COR. *Petals* five, obovate, obtuse, concave, spreading. *Nectary* one-leafed, cylindric, length of the petals: *mouth* ten-toothed.

STAM. *Filaments* ten, very small, inserted below the teeth of the nectary. *Authers* oblong, erect.

PIST. *Germ* ovate. *Style* awl-shaped, erect, length of the nectary. *Stigma* headed, flat.

PER. *Capsule* ovate, large, woody, one-celled, at the top five-celled, five-valved, *valves* opening at the base.

SEEDS very many, imbricate, compressed, oblong, obtuse, having a leafy wing. *Receptacle* large, five-cornered.

OBS. *It is allied to* Cedrela *by the fruit.*

ESSENTIAL CHARACTER.

Cal. five-cleft. *Pet.* five. *Nect.* cylindric bearing the anthers at the mouth. *Caps.* five-celled, woody, opening at the base. *Seeds* imbricate, winged.

SPECIES.

1. Swietenia Mahagoni. *Mahogany Tree.*
Lin. spec. 548. *Syst.* 399. *Reich.* 2. 271. *Willd.* 2. 557. *Jacqu. amer.* 127. *Cavan. diss.* 7. 365. *t.* 209. *Catesb. car.* 2. *t.* 81. *Gærtn. fruct.* 2. 89. *Plenck. ic. t.* 336.
Cedrus Mahagoni. *Mill. dict.*
Cedrela foliis pinnatis, floribus sparsis, ligno odorato. *Brown. jam.* 158.
Leaves pinnate about four-paired, leaflets ovate-lanceolate equal at the base, panicles axillary.

[2. Swietenia febrifuga.
Lin. spec. ed. Willd. 2. 557. *Roxb. corom.* 1. 18. *t.* 17. & *monogr.*
S. Soymida. *Duncan tent. inaug. Edinb.* 1794.
Leaves pinnate about four-paired, leaflets elliptic-roundish emarginate unequal at the base, panicle terminating divaricate.

3. Swietenia Chloroxylon.
Lin. spec. ed. Willd. 2. 557. *Roxb. corom.* 1. 46. *t.* 64.
Leaves pinnate many-paired, leaflets halved-cordate obtuse, panicle terminating spreading.

DESCRIPTIONS, &c.

1. The Mahogany is a lofty and very branching tree, with a wide handsome head. Leaves reclining, alternate, shining, eight inches long, numerous on the younger branches: leaflets for the most part four pairs, but often three, seldom five, without any odd one, falcate-lanceolate, quite entire, acuminate, bent in backwards, petioled, opposite, an inch and half long. Racemes subcorymbed, with about eight flowers in each, axillary, solitary, two inches long. Flowers small, whitish[6]. Capsule large, (sometimes attaining the size of a child's head,) woody, ovate, of a smoaky-rufescent colour (or ferruginous,) towards the top five-celled, but in other parts widely one-celled, five-valved. Valves thick, opening from the base, caducous, covered within by a thick flexile coriaceous lamina, exactly equal to them in size. Receptacle central, free, woody, five-cornered, from a narrower base widening much and thickening upwards, but narrowing again at the point, and on each side of the pyramid having a double row of very small scars, into which the seeds are inserted. Seeds numerous, collected into five bundles, imbricate downwards, compressed, yellowish-rufescent or cinnamon-coloured, having a nucleus below, but ending above in a long membranaceous wing[7].

Linnæus remarks that this tree has a great affinity with Cedrela (Barbadoes Cedar). They were joined by Miller and others under the name of Cedrus. Jacquin first separated them: the Mahogany tree, according to him, having the flower of Melia, and the fruit of Cedrela opening from the base.]

The Mahogany tree is a native of the warmest parts of America, and grows plentifully in the islands of Cuba, Jamaica and Hispaniola; there are also many of the trees on the Bahama islands. In Cuba and Jamaica there are (or rather were) trees of a very large size, so as to cut into planks of six feet breadth. Those on the Bahama islands are not so large; though these are frequently four feet diameter, and rise to a great height, notwithstanding they are generally found on the solid rock, where there seems to be scarcely any earth for their nourishment.

The wood which has been brought from the Bahama islands has usually passed under the name of Madeira wood. The Spaniards make great use of this wood for building ships, and it is better adapted to this purpose than most sorts of wood yet known, being very durable, resisting gun shots, and burying the shot without splintering: nor is the worm so apt to eat this wood as that of the oak; so that for the West Indies, ships built of Mahogany are preferable to any other.

The excellency of this wood for all domestic purposes has been long known in England: and it is a matter of surprize that for a long time the only author who had noticed this tree was Mr. Catesby.

Dr. Browne informs us that the Mahogany was formerly very common in Jamaica, and while it could be had in the low lands, and brought to market at an easy rate, furnished a very considerable branch of the exports from that island; that it thrives in most soils, and varies both in grain and texture with each; that which grows among rocks being smaller but very hard and weighty, of a close grain and beautifully shaded; while the produce of the low and richer lands is observed to be more light and porous, of a paler colour and open grain. The tree grows very tall and straight, and generally bears a great number of capsules; the flowers are of a reddish or saffron colour; and the fruit is about the size of a turkey's egg. The wood is a very strong timber, and answers very well in beams, joists, plank, boards and shingles; and has been frequently put to those uses in Jamaica in former times.

2. This is a very large tree, with a straight trunk, rising to a great height and thickness, and covered with a gray, scabrous, cracked bark. Branches numerous; the lower spreading, the higher ascending, forming a very large shady head. Leaves alternate, about the extremities of the branchlets, abruptly pinnate, about twelve inches long: leaflets opposite, very short, petioled, three or four pairs, oval, obtuse or emarginate, the lower side extending a little farther down on the petiolet than the upper side, smooth, shining, from three to five inches long, and from two to three broad, the lower smallest. Petiole round, smooth, about nine or ten inches long. Stipules none. Panicle very large, terminating, diffuse, bearing great numbers of middle-sized, white, inodorous flowers. Peduncles and pedicels round and smooth. Bractes very minute. Calyx inferior, five-leaved. Nectary not quite half the length of the petals, a little bellied; teeth at the mouth bifid. Filaments very short, inserted just within the mouth of the nectary. Germ conical: style thick, tapering: stigma large, targetted, shutting up the mouth of the nectary. Capsule ovate, large, five-celled, five-valved: valves gaping from the top. Receptacle in the centre, large, spongy, five-angled: angles sharp, and connected with the sutures of the capsule, between them deeply sulcated. Seeds obliquely wedge-shaped, enlarged by a long membranaceous wing, inserted at the upper point of the wing into a long brown speck, on the upper part of the excavations of the receptacle: all the rest of the receptacle is white.

Native of the mountainous parts of the Rajahmundry Circar, north of Samulcotah and Peddapore. It flowers about the end of the cold, or beginning of the

[6] Jacquin. [7] Gærtner.

the hot ſeaſon; and the ſeeds ripen in three or four months after.

The wood is of a dull red colour, remarkably hard and heavy; it is reckoned by the natives the moſt durable wood they know, and on that account is uſed for all the wood-work in their temples; it is alſo very ſerviceable for various other purpoſes.

The bark is internally of a light red colour: a decoction of it dyes brown of various ſhades, according as the cloth has been prepared. Its taſte is a bitter and aſtringent united, and very ſtrong, particularly the bitter, at the ſame time not any way nauſeous or otherwiſe diſagreeable. Soymida is its name among the Telingas.

3. This is a middle-ſized tree, with the trunk tolerably erect; ſupporting a large ſpreading, evergreen, ſhady head: bark pretty ſmooth, of a dark ruſt-colour. Leaves about the extremities of the branches, abruptly pinnate, ſix or ſeven inches long: leaflets alternate, on ſhort petioles, from ten to twenty pairs, obliquely oval, obtuſe, upper half twice the breadth of the lower, ſmooth, entire, an inch long and three eighths of an inch broad. Petioles round, ſmooth. Stipules none. Panicles pretty large, terminating. Flowers numerous, ſmall, yellow. Bracte ſmall, below each ſubdiviſion of the panicle. Nectary a fleſhy notched ring ſurrounding the baſe of the germ. Germ ſuperior; ſtyle ſhort: ſtigma ſimple. Capſule about an inch long, and half an inch in diameter, oblong, three-celled, three-valved, opening from the apex. Seeds four in each cell, membrane-winged, placed alternately with four oblong, compreſſed, ſpongy bodies, reſembling the ſeeds themſelves.

Native of the mountainous parts of the Circars: flowering at the beginning of the hot ſeaſon.

The wood of this tree is of a deep yellow colour, remarkably cloſe-grained, heavy and durable: it is uſed for various economical purpoſes, and comes nearer to box-wood than any other in that country. It is the Billoo of the Telingas[t].

PROPAGATION AND CULTURE.

1. In the Weſt Indies this tree grows to a large ſize in a few years. The manner of their propagation in the Bahama iſlands, as deſcribed by Mr. Cateſby, is as follows. When the fruit is ripe, the outer hard ſhell, ſeparates next the foot-ſtalk, and thereby expoſes the ſeeds; which being broad and light, are diſperſed on the ſurface of the rocks. Such of them as happen to fall into the fiſſures, very ſoon ſend forth roots, and if theſe tender fibres meet with reſiſtance from the hardneſs of the rock, they creep along the ſurface, and ſeek another fiſſure, into which they creep, and ſwell ſo as to break the rock, and thereby make way for the root to penetrate deeper.

It is propagated here by ſeeds, which may be eaſily procured from the Bahama iſlands, whence moſt of the good ſeeds which have come to England have been brought. Moſt of thoſe that have been ſent from Jamaica have not ſucceeded.

Sow the ſeeds in ſmall pots filled with light ſandy earth, and plunge them into a hot-bed of tanner's bark, giving them a gentle watering once a week; if the ſeeds are good, the plants will appear in a month or five weeks, and when they are two inches high, fill a ſufficient number of ſmall pots with light earth, and plunge them into the tan-bed a day or two, that the earth may be warmed before the plants are put into the pots; then ſhake out the young plants, carefully ſeparating them ſo as not to tear their roots, and plant each ſingly in the pots, ſhading them till they have taken freſh root: after which treat them in the ſame manner as directed for other plants from the Weſt Indies; being careful not to give them much water, eſpecially in winter; as alſo when they are ſhifted, to preſerve the earth about their roots.

Mahogany being now ſo generally uſed in England, it would ſurely be worth the attention of the planters in America, many of whom are poſſeſſed of barren rocky lands, which produce them no profit, but might turn to great advantage, if the ſeeds of this tree were to be ſown in them.

[SWINE'S CRESS. See *Cochlearia Coronopus.*

SYALITA. See *Dillenia.*

SYCOMORE and SYCOMORUS. See *Acer* and *Ficus.*

SYENA.

Lin. gen. Schreb. n. 88. Mayaca *Aubl. t.* 15. *Juſſ.* 45.

Claſſ. 3. 1. Triandria Monogynia.

GENERIC CHARACTER.

CAL. *Perianth* three-leaved: *leaflets* linear-lanceolate, acute, ſpreading, permanent.

COR. *Petals* three, roundiſh, concave, ſpreading, length of the calyx.

STAM. *Filaments* three, capillary. *Anthers* oblong.

PIST. *Germ* ſuperior, roundiſh. *Style* filiform. *Stigma* trifid.

PER. *Capſule* globular, crowned with the ſtyle, one-celled, three-valved.

SEEDS ſix, globular, ſtriated: two faſtened to each valve, one above the other.

OBS. *It is allied to Commelina.*

ESSENTIAL CHARACTER.

Cal. three-leaved. *Pet.* three. *Anthers* oblong. *Capſ.* one-celled, three-valved.

SPECIES.

1. Syena fluviatilis.

Lin. ſpec. ed. Willd. 1. 254.

Mayaca fluviatilis. *Aubl. guian.* 1. 42. *t.* 15.

DESCRIPTION, *&c.*

This is a minute moſſy plant. Stem ſomewhat branched decumbent. Leaves capillaceous, in whorls. Flowers axillary, white, peduncled, ſolitary.—Native of Guiana, in rivulets[*].

SYMPHONIA.

Lin. gen. Schreb. n. 1106. *ſuppl.* 49. *Juſſ.* 263. Moronobea. *Aubl.* 788. *t.* 313. *Juſſ.* 257.

Claſſ. 16. 2. Monadelphia Pentandria.

GENERIC CHARACTER.

CAL. *Perianth* five-leaved, permanent: *leaflets* roundiſh, very ſmall, ſpreading.

COR. *Petals* five, roundiſh, ſubcoriaceous, concave, converging into a depreſſed globe.

STAM. *Filament* cylindric, ſheathing the ſtyle. *Anthers* five, ovate, acute, alternate with the ſtigmas.

PIST. *Germ* ovate. *Style* cylindric, a little longer than the corolla. *Stigmas* five, oblong, acute, ſpreading.

PER. *Berry* five-celled, globular.

SEEDS ſolitary, ſubglobular, ſmooth, flatter internally.

ESSENTIAL CHARACTER.

One-ſtyled. *Cor.* globular. *Berry* five-celled.

SPECIES.

1. Symphonia globuliſera.

Lin. ſyſt. 610. *ſuppl.* 302.

DESCRIPTION, *&c.*

This is a tree with a thick lofty trunk. Branchlets ſhorter, ſmooth, marked with ſcars from the fallen leaves. Leaves at the end of the branchlets, approximating, oblong, lanceolate, quite entire, very ſmooth, glaucous, keeled underneath with a blunt rachis: veins very fine, tranſverſe; conſiſtence of Bay leaves, a hand in length. Petioles very ſhort, half round. Umbel terminating, ſimple, few-flowered, ſeſſile. Peduncles erect, angular, one-flowered. Flowers the ſize of thoſe of Thea, red. Calyx ſhort, with blunt ſcales. Petals five, converging, like thoſe of Trollius, into an oblate ſpheroidal globe; each petal lying over the next with the right margin. Sheath of the ſtamens undivided, cloſely covering the piſtil, and ſtanding out beyond the flower, like a ſuperior calyx in the fruit. This undivided ſheath is terminated at the top by five ſeſſile Anthers, alternating with five ſtigmas, forming a ſort of ſtar. The coriaceous rind of the fruit covers the painted ſeeds, which have a deep-yellow mucous ſubſtance interpoſed between them. Theſe ſeeds are very grateful to Parrots.—Native of Surinam[*].

SYMPHORICARPOS. See *Lonicera.*]

[t] Roxburgh.

[*] Willdenow. [*] Linn. ſuppl.

SYMPHYTUM (*of Pliny.* Συμφυτον *of Dioſcorides:* απο του συμφυειν, *from its conglutinating quality.*)

Lin. gen. n. 185. *Reich. n.* 197. *Schreb. n.* 245. *Tournef. t.* 56. *Juſſ.* 131. *Gærtn. t.* 67.

Claſſ. 5. 1. Pentandria Monogynia.

Nat. order of *Aſperifoliæ. Borragineæ* Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* five-parted, erect, five-cornered, acute, permanent.

COR. one-petalled, bell-ſhaped: *tube* very ſhort: *border* tubular-bellying, a little thicker than the tube: *mouth* five-toothed, obtuſe, reflexed: *throat* fenced by five lanceolate rays, ſpinuloſe at the edge, ſhorter than the border, converging into a cone.

STAM. *Filaments* five, awl-ſhaped, alternate with the rays of the throat. *Anthers* acute, erect, covered.

PIST. *Germs* four. *Style* filiform, length of the corolla. *Stigma* ſimple.

PER. none. *Calyx* larger, widened.

SEEDS four, gibbous, acuminate, converging at the tips.

ESSENTIAL CHARACTER.

Cor. border tubular-ventricoſe: throat cloſed by lanceolate rays.

SPECIES.

1. Symphytum officinale. *Common Comfrey.*

Lin. ſpec. 195. *Juſſ.* 187. *Reich.* 1. 394. *Willd.* 1. 770. *hort. cliff.* 47. *fl. ſuec. n.* 165. *mat. med.* 56. *Woodv. med. bot. ſuppl.* 10. *t.* 215. *Gærtn. fruct.* 1. 325. *Hudſ. angl.* 181. *Wither. arr. ed.* 3. 230. *Smith brit.* 218. *engl. bot. t.* 817. *Lightf. ſcot.* 134. *Curt. lond.* 4. *t.* 18. *Relh. cant. ed.* 2. *n.* 168. *Sibth. oxon. n.* 219. *Fl. dan. t.* 664. *Hall. helv. n.* 600. *Hoffm. germ.* 64. *Roth. germ.* 1. 84. 2. 215. *Krock. ſilef. n.* 282. *Neck. gallob.* 101. *Scop. carn. n.* 195. *Villars dauph.* 2. 452. *Allion. pedem. n.* 161. *Gmel. ſib.* 4. 76. *Kniph. cent.* 1. *n.* 85. *Ludw. edit. t.* 80. *Sabb. hort.* 2. *t.* 30. *Blackw. t.* 252.

S. magnum. *Bauh. biſt.* 3. 593. *Dod. pempt.* 134. 1. *Raii ſyn.* 230. *Petiv. brit. t.* 29. *f.* 5.

S. majus. *Camer. epit.* 700.—vulgare. *Park. theat.* 523. 1.—ſ. Conſolida major. *Matth.* 561

S. Conſolida major. *Bauh. pin.* 259. *Mor. biſt.* 3. *ſ.* 11. *t.* 29. *f.* 1.

Conſolida major. *Ger.* 660. *emac.* 906. *Raii biſt.* 505.

β. Symphytum patens. *Sibth. oxon. n.* 220.

S. majus flore purpureo. *Tabern.* 559. *Kniph. cent.* 1. *n.* 86. *Pluenck ic.* 76.

γ. S. bohemicum. *Schmidt bohem. n.* 211.

Leaves ovate-lanceolate decurrent.

2. Symphytum tuberoſum. *Tuberous-rooted Comfrey.*

Lin. ſpec. 195. *Juſſ.* 187. *Reich.* 1. 395. *Willd.* 1. 771. *Hudſ. angl.* 648. *Wither. arr. ed.* 3. 230. *Smith brit.* 219. *Lightf. ſcot.* 1091. *Jacqu. obſ.* 3. 12. *t.* 63. *auſtr. t.* 225. *Scop. carn. n.* 196. *Hoffm. germ.* 64. *Schmidt bohem. n.* 213. *Krock. ſilef. n.* 283. *Villars dauph.* 2. 452. *Allion. pedem. n.* 162. *Kniph. cent.* 1. *n.* 87. *Sabb. hort.* 2. *t.* 31. *Bauh. biſt.* 3. 594. *Dod. pempt.* 134. 2. *Ger. emac.* 806. 3. *Park. theat.* 523. 3. *Raii biſt.* 505. *Cluſ. biſt.* 2. 166. 2.

S. majus tuberoſa radice. *Bauh. pin.* 259. *Tournef. inſt.* 138. *Mor. biſt. ſ.* 11. *t.* 29. *f.* 2.

Leaves ovate ſemidecurrent: the uppermoſt oppoſite.

3. Symphytum orientale.

Lin. ſpec. 195. *Reich.* 1. 395. *Willd.* 1. 771.

S. orientale, folio ſubrotundo aſpero, flore cæruleo. *Tournef. cor.* 7.

S. conſtantinopolitanum, boraginis folio & facie, flore albo. *Tournef. cor.* 7. *Buxb. cent. 5.* 36. *t.* 68.

Leaves ovate ſubpetioled.

DESCRIPTIONS, *&c.*

1. Root perennial, fleſhy, externally black. Stem two or three feet high, upright, leafy, winged, branched at the top, clothed with ſhort briſtly hairs that point rather downward. Leaves waved, pointed, veiny, rough; the radical ones on footſtalks, and broader than the reſt. Cluſters of flowers in pairs on a common ſtalk, with an odd flower between them, recurved, denſe, hairy. Corolla yellowiſh-white, ſometimes purple, the rays downy at each edge [b].

Native of Europe and Siberia: frequent in watery places, on the banks of rivers and ditches; flowering from the end of may to ſeptember.

The root abounds in a pure taſteleſs mucilage, like that of Marſh-Mallow, but, according to Lewis, ſomewhat ſtronger bodied, or more tenacious, and in rather larger quantity. Being eaſily obtained, it may therefore be conveniently ſubſtituted for that of Althæa or Marſh-Mallow, in all caſes where emolients or demulcents are in uſe: as, in irritations of the throat, inteſtines, and above all the bladder [c].

β. The variety with a red or purple flower is more common on many parts of the continent than in England. In Holland I ſeldom obſerved any other. Dr. Sibthorpe made a new ſpecies of it, diſtinguiſhing it by a ſhorter and more ſpreading calyx; but he does not ſeem to be warranted in this remark [d].]

Mr. Miller aſſerts that the difference in colour is permanent in the plants raiſed from ſeeds, and that the purple and whitiſh yellow flowers are never found mixed, where the plant grows wild; but as he found no ſpecific differences between them, he has not ſeparated them.

2. Roots compoſed of many thick fleſhy knobs or tubers, which are joined by fleſhy fibres; the ſtalks riſe a foot and half high, and incline on one ſide; the leaves on the lower part are ſix inches long, and two inches and a half broad in the middle, ending in acute points, and not ſo rough and hairy as the preceding ſpecies; they are alternate and ſeſſile. The two upper leaves on every branch ſtand oppoſite, and juſt above them, are looſe bunches of pale yellow flowers, the corolla of which is ſtretched out farther beyond the calyx than in the common ſort.

[It is perhaps a variety of that, but the root is white on the outſide, not black as in the preceding [e]. It is alſo a lower plant. The ſtem-leaves are ovate, and the petioles winged, but they are ſcarcely decurrent. The rays of the corolla are toothletted, as in the officinale [f].

Native of Germany, Auſtria, France, Spain and Italy.—It has been obſerved in ſeveral places in Scotland. Mr. Yalden found it growing ſparingly oppoſite the new well at the water of Leith, but more plentifully in Dr. Robertſon's walks at North Marchiſton, near Edinburgh [g]. It was cultivated in 1596 by Gerarde, and flowers from may to october [h].]

3. Root perennial. Stalks two feet high. Leaves rounder, and armed with rough prickly hairs. Flowers in bunches like the firſt ſort, but blue. They appear in march, but ſeldom produce ſeeds in England. By the ſide of rivulets near Conſtantinople.

PROPAGATION AND CULTURE.

Theſe plants may be cultivated, either by ſowing their ſeeds in the ſpring, or by parting their roots; the latter being the more expeditious is chiefly practiſed. The beſt ſeaſon for parting the roots is the autumn, at which time almoſt every piece of a root will grow. They ſhould be planted about two feet and a half aſunder, that they may have room to ſpread, and will require no further care but to keep them clear from weeds; for they are extremely hardy, and will grow upon almoſt any ſoil, or in any ſituation.

[SYMPHYTUM. See *Coris, Cynoglooſſum, Gypſophila, Onoſma, Pulmonaria.*

SYMPLOCOS. (Απο του συμπλεκεσθαι, *on account of the rare connection of the petals.* Jacquin.)

Lin. gen. n. 677. *Reich. n.* 980. *Schreb. n.* 1223. *Jacqu. amer.* 166. *Swartz prodr.* 109. *obſ. t.* 7. *f.* 1. *Juſſ.* 157. *L'Herit. in Linn. tranſ.* 1. 174. Siponima *Aubl.* 226. *Cavanill. diſſ.* 7. 370. *t.* 217?

Claſſ. 18. 4. Polyadelphia Polyandria.

Nat. order of *Guaiacanæ* Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* one-leafed, bell-ſhaped, five-cleft, ſmall; *ſegments* roundiſh, erect.

[b] Engl. bot. [c] Woody. & Engl. bot. [d] Engl. bot.
[e] Linn. [f] Engl. bot. [g] Lightfoot. [h] Hort. kew.

COR. *Petals* five or eight, oblong, obtuſe, erect, ſpreading very much above.

STAM. *Filaments* very many, awl-ſhaped, flat, ſhorter than the petals, growing in four rows to the tube of the corolla: the lower ones ſhorter. *Anthers* roundiſh.

PIST. *Germ* ſuperior, roundiſh. *Style* filiform, length of the ſtamens. *Stigma* headed, ſubtrifid.

PER. *Drupe?* five-celled.

SEEDS many.

ESSENTIAL CHARACTER.

Cal. five-cleft. *Cor.* five-petalled, (five to eight) erect at the baſe. *Stam.* in four rows growing to the tube of the corolla. *Fruit* five-celled.

SPECIES.

1. Symplocos martinicenſis.
Lin. ſpec. 747. *ſyſt.* 699. *Reich.* 3. 588. *Jacqu. amer.* 166. *t.* 175. *f.* 68. *pill.* 81. *t.* 261. *f.* 41. *Swartz prodr.* 109. *obſ. t.* 7. *f.* 1. *L'Herit. in Linn. tranſ.* 1. 174.
Peduncles ſubracemed, leaves very ſmooth crenulate.

2. Symplocos Ciponima.
L'Herit. in Linn. tranſ. 1. 175.
Ciponima guianenſis. *Aubl. guian.* 567. *t.* 226.
Peduncles many-flowered, leaves entire villoſe beneath.

3. Symplocos Arechea.
L'Herit. in Linn. tranſ. 1. 176.
Peduncles about five-flowered, leaves ſerrate almoſt naked.

4. Symplocos octopetala.
Swartz prodr. 109.
Flowers eight-petalled.

DESCRIPTIONS, &c.

1. This is a branching tree, twenty-five feet high. Leaves ovate, acute, ſhining, ſubcoriaceous, petioled, placed indeterminately. Flowers white, ſmelling like thoſe of Hawthorn (Crataegus Oxyacantha.) Filaments inſerted into a pentapetalous corolla, ſo as to render it internally monopetalous, by connecting the edges of the petals with their flat baſes[1].

Swartz remarks, that the fruit, which he had ſeen only in an unripe ſtate, ſeems to be a drupe; that the calyx in the flower ſeems to be inferior, but becomes ſuperior, crowning the fruit.

Native of Martinico, in woods; flowering there in november.

2. The ſhoots of this ſpecies are very villoſe. The leaves are more or leſs villoſe beneath; for the moſt part entire or ſometimes but ſeldom very looſely toothletted. Nuts five-celled.—Native of Guiana.

3. This is intermediate between the firſt and ſecond. Perhaps they may be all varieties of the ſame ſpecies. —Native of the woods of Peru, where it was found by Dombey[2].

4. Native of Jamaica[3].

Swartz obſerves, that this genus is very nearly allied to *Hopea*, but is certainly different; and that it has ſtill more reſemblance to *Alſtonia*. L'Heritier unites them all, and remarks, that the imbricate calyx of Alſtonia reſembles the bractes of Symplocos, which might be conſidered as an exterior calyx. The younger Linneus called the corolla in Alſtonia one-petalled, becauſe it appears to be really ſuch in Symplocos. The border is from eight to ten-parted in Alſtonia: the Symplocos of Swartz is eight-petalled. The filaments of Alſtonia inſerted into the tube, imbricate, the outer longer, reſemble the ſtamens of Symplocos, diſpoſed in ſeveral imbricate rows, the interior of which are ſhorter. The younger Linneus adds, that the germ is ſuperior in Alſtonia, becauſe it ſeems to be ſo in Symplocos: and both Jacquin and the elder Linneus conſidered it as ſuch. Aublet has nothing about the poſition of the germ in *Ciponima*[a]. Linneus, following Jacquin, placed the genus Symplocos in the claſs Polyandria.

SYMPLOCOS ALSTONIA. See *Alſtonia*.

SYMPLOCOS TINCTORIA. See *Hopea*.

SYNEERELLA. See *Verbeſina*.

SYRIAN RUE. See *Peganum*.

[1] Jacquin. [2] L'Heritier. [3] Swartz.
[a] L'Heritier.

SYRINGA. (*From* Συριγξ, *a Pipe: a virgarum roſtrarum longitudine, & fungoſæ interioris medullæ copia, qua exempta ramuli fiſtuleſi fiunt.* Cluſius. *Hence the old Engliſh name of Pipe Tree, now loſt.—Caſp. Bauhin regards it as an African word.—Linneus places it among his poetical names, but with a mark of doubt. The ſtory of the nymph Syrinx in Ovid is well known.*—Lilac *or* Lilag *is a Perſian word ſignifying a flower.*)
Lin. gen. n. 22. *Reich. n.* 22. *Schreb. n.* 28. *Gærtn. t.* 49. Lilac. *Tournef. t.* 372. *Juſſ.* 105.
Claſſ. 2. 1. Diandria Monogynia.
Nat. order of *Sepiariæ*. *Jaſmineæ* Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* one-leafed, tubular, ſmall: *mouth* four-toothed, erect; permanent.

COR. one-petalled, funnel-form: *tube* cylindric, very long: *border* four-parted, ſpreading and rolled back; *ſegments* linear, obtuſe.

STAM. *Filaments* two, very ſhort. *Anthers* ſmall, within the tube of the corolla.

PIST. *Germ* oblong. *Style* filiform, length of the ſtamens. *Stigma* bifid, thickiſh.

PER. *Capſule* oblong, compreſſed, acuminate, two-celled, two-valved; *valves* contrary to the partition.

SEEDS ſolitary, oblong, compreſſed, acuminate at both ends, with a membranaceous edge.

ESSENTIAL CHARACTER.

Cor. four-cleft. *Capſ.* two-celled.

SPECIES.

1. Syringa vulgaris. *Common Lilac.*
Lin. ſpec. 11. *Reich.* 1. 20. *Willd.* 1. 48. *hort. cliff.* 6. *upſ.* 6. *Hall. helv. n.* 531. *Roth. germ.* 1. 4. 2. 4. *Hoffm. germ.* 3. *Krock. ſileſ. n.* 7. *Villars dauph.* 2. 6. *Gærtn. fruct.* 1. 224. *Du Roi harbecc.* 2. 443. *Knor. del. hort.* 2. *t.* S. 11. *Berg. phyt.* 223. *Duham. arb.* 2. *t.* 138.
α. S. cærulea. *Common blue Lilac.*
Bauh. pin. 398. *Ger.* 1213. *f.* 2. *emac.* 1399. *f.* 2. *Raii hiſt.* 1763.
S. flore cæruleo. *Cluſ. hiſt.* 1. 56. 1. *Beſl. eyſt. vern. frut. t.* 1. *f.* 2.—ſ. Lilac. *Bauh. hiſt.* 1. 204.
Lilac. *Matth.* 1237.—ſ. Syringa flore cæruleo. *Park. parad.* 407. *t.* 409. *f.* 4. *theat.* 1467. *f.* 1. —vulgare. *Allion. pedem. n.* 307.
β. S. violacea. *Common purple Lilac.*
Curt. magaz. t. 183. *Mill. fig. t.* 163.
γ. S. alba. *Common white Lilac.*
Leaves ovate-cordate.

[2. Syringa chinenſis. *Chineſe Lilac.*
Willd. arb. Berol. 378. *ſpec.* 1. 48.
Leaves ovate-lanceolate.]

3. Syringa perſica. *Perſian Lilac.*
Lin. ſpec. 11. *Reich.* 1. 21. *Willd.* 1. 48. *hort. cliff.* 6. *upſ.* 6. *Mill. fig. t.* 164. *f.* 1. *Munting. t.* 57. *Du Roi harbecc.* 2. 446. *Kniph. orig.* 6. *n.* 89. *Berg. phyt.* 225. *Pluk. phyt. t.* 227. *f.* 8.
α. S. perſica cærulea. *Blue Perſian Lilac.*—fol. integris. *Raii hiſt.* 1763. *Curt. magaz. t.* 486.
Lilac liguſtri folio. *Tournef. inſt.* 602. & *Duham. arb.* 6.
Agem Lilac Perſarum. *Corn. canad.* 190.
β. S. perſica alba. *White Perſian Lilac.*
γ. S. laciniata. *Cut-leaved* or *pinnatifid leaved Perſian Lilac.*
Mill. dict. n. 3. *fig. t.* 164. *f.* 2. *Lin. hort. cliff.* 6. *upſ.* 6. *Munting. t.* 56. *Du Roi harbecc.* 2. 447. *Gmel. it.* 3. 304.
Lilac laciniato folio. *Tournef. inſt.* 602.
Liguſtrum foliis laciniatis. *Bauh. pin.* 476.
Syringa Perſica f. Lilac foliis inciſis. *Park. theat.* 1467. 3. *Raii hiſt.* 1763.
Leaves lanceolate.

[4. Syringa ſuſpenſa.
Lin. ſpec. ed. Willd. 1. 49. *Thunb. jap.* 19. *t.* 3. Rengio. *Kæmpf. amœn.* 5. 907.
Leaves ovate ſerrate and ternate.]

DESCRIPTIONS, &c.

1. This ſhrub grows to the height of eighteen or twenty feet in good ground, and divides into many branches

branches; thoſe of the white ſort grow more erect than the blue; and the purple or Scotch Lilac has its branches yet more diffuſed. The branches of the white are covered with a ſmooth bark of a gray colour; in the other two it is darker. The leaves of the white are of a brighter green: they are heart-ſhaped in all, almoſt five inches long, and three inches and a half broad near the baſe; placed oppoſite, on foot-ſtalks an inch and half in length. The buds of the future ſhoots, which are very turgid before the leaves fall, are of a very bright green in the white ſort, but thoſe of the other two are dark green. The flowers are always produced at the ends of the ſhoots of the former year, and below the flowers other ſhoots come out to ſucceed them; for that part upon which the flowers ſtand decays down to the ſhoots below every winter. There are generally two bunches or panicles of flowers joined at the end of each ſhoot; thoſe of the blue are the ſmalleſt, the flowers alſo are ſmaller, and placed thinner than either of the others: the bunches on the white are larger, but thoſe of the Scotch are larger ſtill, and the flowers fairer; this therefore makes the beſt appearance. The panicles of flowers grow erect, and being intermixed with the bright green leaves, have a fine effect; and if we add to this, the fragrancy of the flowers, it may be ranged among the moſt beautiful ſhrubs which decorate the Engliſh gardens. The flowers appear early in may, or towards the end of april, and when the ſeaſon is cool, will continue three weeks; but in hot ſeaſons they ſoon fade. The ſeeds are ripe in ſeptember. [They are of an ovate-oblong form, compreſſed, membranous at the edge, yellow or browniſh, two in each cell, of an ovate-lanceolate, coriaceous, compreſſed, deep-cheſtnut-coloured capſule; the two valves are boat-ſhaped, and the partition is thick, ſplitting into two parts, the ſeeds are faſtened to the upper part of it on each ſide [a].]

The Lilac is very common in the Engliſh gardens, where it has been long cultivated as a flowering ſhrub. It is ſuppoſed to grow naturally in ſome parts of Perſia, but is ſo hardy as to reſiſt the greateſt cold of this country. There are three varieties of this ſhrub, which not only differ in the colour of their flowers, but alſo in that of their ſhoots and leaves; one of theſe has white flowers, one blue, and the third has purple flowers; the latter is commonly known by the title of Scotch Lilac. This is the moſt beautiful of the three, and is probably called the Scotch Lilac, becauſe it was firſt mentioned in the catalogue of the Edinburgh Garden. Whether this was raiſed from ſeeds, or which other way it was obtained I could never learn; but I take it to be a diſtinct ſpecies from the others, becauſe I have raiſed many of the plants from ſeeds, which have always retained their difference, as have alſo the white, when they were propagated by ſeeds; ſo that they may be rather eſteemed as diſtinct ſorts, although by the rules now admitted for determining ſpecific differences, they may not have ſufficient marks whereby to diſtinguiſh them; and as they have been by many of the modern botaniſts joined together, I ſhall not ſeparate them.

[Gerarde and Parkinſon cultivated the blue and white Lilac, under the name of Pipe Tree or Pipe Privets. The former ſays, "I have them growing in my garden "in very great plentie." 1597.—Matthiolus's figure is engraved from a drawing, which was taken from a plant brought over from Conſtantinople by Augerius de Buſbeke, who during ſeven years was Ambaſſador to the Sultan Soliman from the Emperor Ferdinand I[b]. —The Lilac, now ſo common in every plantation of ſhrubs, was then a great rarity.

2. Leaves ovate-lanceolate, not cordate, yet very like thoſe of the preceding, but ſmaller. Flowers as in S. perſica. May it not be a mule plant?—Suppoſed to be a native of China[c].]

3. The Perſian Lilac is a ſhrub of much lower growth than the common ſort, ſeldom riſing more than five or ſix feet high. The ſtems are covered with a ſmooth brown bark: the branches are ſlender, pliable, extend wide on every ſide, and frequently bend down where they are not ſupported. Leaves two inches and a half long, and three fourths of an inch broad, of a deep green colour. Flowers in large panicles at the end of the former year's ſhoots, as in the former; of a pale blue colour, and having a very agreeable odour. They appear at the end of may, ſoon after thoſe of the common ſort, and continue longer in beauty, but do not perfect their ſeeds in England.

β. There is a variety of this with almoſt white flowers, but whether it came from ſeeds, or was accidentally produced from ſuckers of the purple ſort, I cannot ſay.

γ. This (which Mr. Miller makes a diſtinct ſpecies) differs in having two ſorts of leaves; thoſe on the lower part of the branches are for the moſt part entire, but broader and ſhorter than in the common Perſian Lilac, and not ending in ſuch ſharp points. The leaves on the younger branches are cut into three or five ſegments like winged leaves (pinnatifid) almoſt to the midrib. The branches are ſlenderer and weaker; their bark is of a darker brown, and the flowers of a brighter purple colour.

This was brought into Europe, before that which is now the common Perſian Lilac, under the Perſian name of *Agem*.

This ſhrub was formerly known among the nurſerymen by the name of *Perſian Jaſmin*.

[It appears from the catalogue of the Oxford garden, that it was cultivated here in 1658.—Parkinſon (1640) ſays it is now to be ſeen with Maſter Tradeſcant, at South Lambeth. He ſpeaks of the variety with cut or pinnatifid leaves.

4. Stem flexuoſe, aſcending and then hanging down, little branched, four-cornered with the corners acute, muricated with ſmall ſcattered tubercles. Branches oppoſite, remote, divaricated, reſembling the ſtem. Leaves many from a bud; the firſt ſimple, petioled, ovate, acute, ſerrate, ſmooth, thin, coming out in flowering time; the next ternate. Petioles the length of the leaves. Flowers from oppoſite buds ſolitary, two or three, yellow, on a wrinkled peduncle. Calyx three times ſhorter than the corolla, four-parted almoſt to the baſe: ſegments lanceolate. Corolla bell-ſhaped, four-parted to the middle: ſegments ovate, obtuſe. Anthers oblong, grooved, length of the calyx. Germ ſuperior, ovate, ſmooth: ſtyle length of the calyx: ſtigma headed, two-lobed. It differs from the other ſpecies, in having the calyx more deeply divided, and the corolla bell-ſhaped, not funnel-ſhaped.

Native of Japan, in Miaco, &c. often cultivated for the elegance of the flowers. It begins to flower in april[†].

Willdenow remarks, that it is totally different from the other ſpecies, and might well be conſidered as a diſtinct genus.]

PROPAGATION AND CULTURE.

1. The common Lilac may be increaſed by ſeeds or ſuckers. If the ſeeds be ſown ſoon after they are ripe, the plants will come up the following ſpring; but as the roots ſend out great plenty of ſuckers annually, few perſons take the trouble of raiſing this ſhrub from ſeeds. The plants generally flower the third year from ſeed, and when ſo raiſed, are not ſo apt to ſend out ſuckers.

The common Lilac thrives beſt upon a rich light ſoil, ſuch as the gardens near London are for the moſt part compoſed of; and there they grow to a much larger ſize, when they are permitted to ſtand unremoved, than in any other part of England. In ſtrong loam or chalk they make no progreſs. If the ſuckers be ſmall when they are taken from the old plants, they ſhould be planted in a nurſery, in rows three feet aſunder, and one foot diſtance in the rows, where they may ſtand a year or two to get ſtrength, and then they ſhould be removed to the places where they are

[a] Gaertner. [b] Matth. comm. in Dioſc. Ven. 1565. [c] Willdenow.

[†] Thunberg.

to remain. The beſt time to tranſplant theſe ſhrubs is in autumn. There is a variety or two with blotched leaves; but theſe variegations being the effect of weakneſs, whenever the ſhrubs become healthy, their verdure returns again.

3. The Perſian Lilac is uſually propagated by ſuckers, which the roots ſend out in great plenty; theſe ſhould be carefully taken off from the old plant in the autumn, and planted in a nurſery, in the ſame manner as directed for the firſt, where they may grow two years to get ſtrength, and then be tranſplanted to the places where they are deſigned to remain. A better way of raiſing them, is by laying down the young branches, which in one year will be ſufficiently rooted to tranſplant, and may then be treated in the ſame way as the ſuckers.

[SYRINGA. See *Bignonia*, *Coſtrum*, *Jaſminum*, *Mitchella*, *Nyctanthes*, *Philadelphus*.

SYZYGIUM. See *Calyptranthes* & *Myrtus*.

SYZYGIUM Gærtn. is *Eugenia* Linn. See Linn. tranſ. 3. 280.

T.

TABACUM & TABACCUM. See *Nicotiana*.

TABAXIR. See *Arundo Bambos*.]

TABERNÆMONTANA. (*So named by Plumier, in memory of James Theodore ſurnamed Tabernæmontanus from Berg-Zabern, the place where he was born. He publiſhed* Kraeuterbuch, 1589, *and figures of plants*, 1590, *in an oblong quarto form. He was phyſician to the Elector Palatine, and died in* 1590.)

Lin. gen. n. 301. *Reich. n.* 327. *Schreb. n.* 424. *Plum.* 30. *Juſſ.* 145.

Claſſ. 5. 1. Pentandria Monogynia.

Nat. order of *Contortæ*. *Apocineæ* Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* five-cleft, acute, converging, very ſmall.

COR. one-petalled, funnel-form: *tube* cylindric, long: *border* five-parted, flat; *ſegments* obtuſe, oblique. *Nectary* glands five, bifid, ſtanding round the germ.

STAM. *Filaments* five, very ſmall, from the middle of the tube. *Anthers* converging.

PIST. *Germs* two, ſimple. *Style* awl-ſhaped. *Stigma* oblong, headed.

PER. *Follicles* two, horizontally reflexed, ventricoſe, acuminate, one-celled, one-valved.

SEEDS numerous, ovate-oblong, obtuſe, wrinkled, immerſed in pulp, imbricate.

ESSENTIAL CHARACTER.

Contorted. Follicles two, horizontal. *Seeds* immerſed in pulp.

SPECIES.

1. Tabernæmontana citriſolia. *Citron-leaved Tabernæmontana.*
   Lin. ſpec. 308. *ſyſt.* 255. *Reich.* 1. 600. *Willd.* 1. 1244. *hort. cliff.* 76. *Jacqu. amer.* 38. *t.* 175. *f.* 13. *pict.* 25. *t.* 40.
   T. citri foliis undulatis. *Plum. gen.* 18. *ic.* 248. *f.* 2.
   Leaves oppoſite ovate, flowers lateral glomerate-umbelled.
2. Tabernæmontana laurifolia. *Laurel-leaved Tabernæmontana.*
   Lin. ſpec. 308. *ſyſt.* 255. *Reich.* 1. 600. *Willd.* 1. 1244. *Jacqu. amer.* 39. *pict.* 25. *Brown. jam.* 182. *Amm. herb.* 212.
   Nerium arboreum, folio latiore obtuſo, flore luteo minore. *Sloan. jam.* 2. 62. *t.* 186. *f.* 2.
   Leaves oppoſite oval bluntiſh.
[3. Tabernæmontana echinata. *Rough-fruited Tabernæmontana.*
   Lin. ſpec. ed. Willd. 1. 1245. *Aubl. guian.* 263. *t.* 103.
   Leaves oppoſite ovate-oblong acuminate, flowers glomerate-umbelled, fruits echinate.
4. Tabernæmontana heterophylla. *Various-leaved Tabernæmontana.*
   Vahl. ecl. 2. 22.
   Leaves elliptic-lanceolate and ſubcordate ſomewhat waved acuminate ſmooth on both ſides, branches dichotomous, flowers racemed.
5. Tabernæmontana grandiflora. *Great-flowered Tabernæmontana.*
   Lin. ſyſt. 255. *Reich.* 1. 600. *Willd.* 1. 1245. *mant* 53. *Jacqu. amer.* 40. *t.* 31. *pict.* 25. *t.* 41.
   Leaves oppoſite, ſtem dichotomous, calyxes unequal very looſe.
6. Tabernæmontana cymoſa. *Cyme-flowered Tabernæmontana.*
   Lin. ſyſt. 255. *Reich.* 1. 600. *Willd.* 1. 1245. *mant.* 53. *Jacqu. amer.* 39. *t.* 181. *f.* 14. *pict.* 25. *t.* 259. *f.* 10.
   Leaves oppoſite ovate-lanceolate, flowers cymed.
7. Tabernæmontana amygdalifolia. *Almond-leaved Tabernæmontana.*
   Lin. ſyſt. 255. *Willd.* 1. 1245. *Jacqu. amer.* 39. *t.* 181. *f.* 15. *pict.* 25. *t.* 259. *f.* 11.
   Stamens extending beyond the tube of the corolla.
8. Tabernæmontana diſcolor.
   Lin. ſpec. ed. Willd. 1. 1245. *Swartz prodr.* 52. *deſcr.* 1. 535.
   Leaves oppoſite ovate-lanceolate, peduncles axillary two-flowered.
9. Tabernæmontana undulata. *Wave-leaved Tabernæmontana.*
   Vahl. ecl. 2. 20.
   Leaves lanceolate-elliptic acuminate-waved, branches dichotomous, flowers ſubcymed, follicles ſmooth.
10. Tabernæmontana perſicariæfolia.
   Lin. ſpec. ed. Willd. 1. 1246. *Jacqu. collect.* 4. 159. *ic. rar.* 2. *t.* 320.
   Leaves oppoſite lanceolate-acuminate, flowers racemed.
11. Tabernæmontana neriifolia. *Oleander-leaved Tabernæmontana.*
   Vahl. ecl. 2. 21.
   Leaves lanceolate oppoſite, flowers ſubracemed axillary.
12. Tabernæmontana elliptica. *Elliptic-leaved Tabernæmontana.*
   Lin. ſpec. ed. Willd. 1. 1246. *Thunb. jap.* 111. *Herbaceous, leaves ſubtern lanceolate.*
13. Tabernæmontana alternifolia. *Alternate-leaved Tabernæmontana.*
   Lin. ſpec. 308. *ſyſt.* 255. *Reich.* 1. 601. *Willd.* 1. 1246.
   Curutu-pala. *Rheed. mal.* 1. 83. *t.* 43. *Raii hiſt.* 1754.
   Leaves alternate, ſtem arboreſcent.]
14. Tabernæmontana Amſonia. *Virginian Tabernæmontana.*
   Lin. ſpec. 308. *ſyſt.* 255. *Reich.* 1. 601. *Willd.* 1. 1246. *Ait. kew.* 1. 300. *Pluk. phyt. t.* 115. *f.* 3. (Apocynum.)
   Amſonia Tabernæmontana. *Walt. carol.* 98.
   Anonymus ſuffrutex. *Gron. virg.* 26.
   Leaves alternate ovate-lanceolate, ſtems herbaceous very ſmooth.
[15. Tabernæmontana anguſtifolia. *Narrow-leaved Tabernæmontana.*
   Lin. ſpec. ed. Willd. 1. 1247. *Ait. kew.* 1. 300.
   Amſonia ciliata. *Walt. carol.* 98.
   Leaves linear ſcattered, ſtem hairy herbaceous.
16. Tabernæmontana odorata. *Sweet Tabernæmontana.*
   Vahl ecl. 2. 22.
   Cameraria Tanaquarina. *Aubl. guian.* 260. *t.* 102.
   Leaves lanceolate-elliptic acuminate ſmooth, umbels axillary ſubſeſſile three or four-flowered.]
17. Tabernæmontana alba. *White-flowered Tabernæmontana.*
   Mill. dict. n. 2.

T. lactescens, lauri folio, flore albo, siliquis rotundioribus. *Houst. MSS.*

Leaves oblong-ovate acuminate opposite, flowers corymbed terminating.

[18. Tabernæmontana bufalina.

Lour. cochinch. 117. *ed. Willd.* 145.

Leaves lanceolate opposite, peduncles in pairs one-flowered pendulous.

19. Tabernæmontana bovina.

Lour. cochinch. 118. *ed. Willd.* 145.

Leaves lanceolate opposite, peduncles solitary many-flowered.]

DESCRIPTIONS, *&c.*

1. This rises with an upright woody stalk to the height of fifteen or sixteen feet, covered with a smooth gray bark, abounding with a milky juice, and sending out several branches from the side, which grow erect, and have many joints. Leaves thick, milky, from five to six inches long, and two inches broad in the middle, drawing to a point at each end; they are of a lucid green, have many transverse veins, and stand opposite on footstalks an inch long. The flowers come out in roundish axillary bunches; they are small, of a bright yellow colour, and have an agreeable odour. The tube of the corolla is half an inch long, and the brim is cut into five acute points, which spread open like those of common Jasmin.

[According to Jacquin, it is a small tree eight feet high. Leaves very shining, waved by the contraction of the veins, green but so as that the milk in which they abound appears through. Flowers few, white. Stamens within the tube of the corolla. Follicles always green. Seeds brown, lodged in a soft orange pulp. The French call it *Bois laiteux*.

Native of Jamaica, Martinico, &c. and the island of Namoka in the South Seas.—Cultivated in 1739, by Mr. Miller[r].]

2. This rises with a shrubby stalk twelve or fourteen feet high, sending out a few branches towards the top which grow erect. Leaves four inches long and two broad, of a lucid green colour. The flowers are produced in a sort of umbel from the side of the branches; they are small, yellow, and have an agreeable odour.

[Jacquin remarks, that it is an upright little tree, five feet high, branched, milky, having the habit of the preceding. Flowers yellow, smelling very sweet, few. Stamens concealed within the corolla. Fruits green.

Native of Jamaica, St. Domingo, and other islands of the West Indies.—Cultivated in 1768 by Mr. Miller[s].

3. A shrub, sending out from its root several stems of the length of five or six feet: they are woody and branched; with the branches opposite, as well as the leaves, which are ovate-oblong, acuminate, undulated at the margin, smooth and green above, and subtomentose and whitish beneath: flowers corymbose and terminal, situated between the forkings of the branches; they are of a yellow colour and of an agreeable smell. —Native of Guiana[t].

4. Branches round, smooth, dichotomous, even. Leaves opposite at each division, and another pair between them; one three or four inches long, shortly petioled, elliptic-lanceolate, the other opposite under the division several times shorter, sessile, subcordate, or as between the division, only a little shorter, the same structure with the other, sessile, one side of the base shorter than the other: all acuminate, with the point half an inch long and sharp; the margin is a little reflexed, waved and obscurely crenate; the surface veinless, remotely nerved, paler beneath. Peduncles at the divisions and tops of the branches, five to seven-flowered, solitary, filiform, an inch long, smooth. Pedicels alternate, approximating, a little shorter than the common peduncle, one-flowered. Bractes minute, in pairs, at the base of the pedicels. Calyx smooth, with linear-lanceolate segments. Corolla half an inch in diameter, with a linear narrow tube, a little wider at the base; segments of the border lanceolate, three times shorter than the tube; the throat has a few silky villose hairs. This species was sent by von Rohr under the name of *T. echinata*; probably he was led to suppose that it was the same with the *echinata* of Aublet, by the roughness of the follicles; but it does not correspond either with the description or figure of Aublet.—Native of Cayenne[u].

5. This is an upright little tree or shrub, eight feet high, milky, branched; the branchlets dichotomous. Leaves oval, attenuated to each end, acute, quite entire, shining, petioled, very unequal in size. Common peduncles irregular, two-flowered or three-flowered, solitary by the sides of the last forking of the branchlets: the pedicels supported by a stipule. Flowers void of scent, very large when compared with those of the other species. Calyx-leaves flat, whitish, very loose, unequal in length, the two outer cordate and very wide, the three others oblong and narrow. Tube of the corolla above the calyx twisted, and twice as long as the calyx; the border very wide. Glands roundish, obtuse, small, grooved externally, united into one at the sides. Stamens in the middle of the tube. Stigma large with a cloven top. Follicles roundish-ovate, acuminate, smooth, green. The flower has something in common with Echites and Cerbera, but the fruit is that of a Tabernæmontana.

According to Linnæus, the leaves are lanceolate-ovate; the peduncles subtriflorous; the calyx-leaves scarious and white; the two outer cordate, the rest narrow.

Native of Carthagena in Spanish America; flowering there from july to september.

6. This is an elegant upright little tree or shrub, with the trunk six feet high, but sometimes double that height. Leaves acute, quite entire, scarcely waved, half a foot long. Cymes ample, handsome, convex, dense, axillary. Flowers without scent, dirty white or reddish brown, about forty in a cyme, the size of those in *laurifolia* and *citrifolia*. Calyx-leaves flat, lanceolate-oblong. Tube of the corolla, quinquangular-ventricose at the base. Stamens in the enlarged base of the tube. Stigma margined at the base. Follicles oblong, very blunt, curved in, very large, reddish with rust-coloured spots. One of each pair is commonly abortive. The pulp is orange-coloured.

Frequent in the woods and coppices about Carthagena in New Spain; flowering in july and august.

7. This is an upright little tree or shrub, six feet high, branched and milky. Leaves oval-lanceolate, acute, flat, shining very much, opposite. Peduncles few-flowered. Flowers white, smelling very sweet. Tube of the corolla slightly widening at the top and bottom. Filaments in the upper part of the tube, with the anthers stretched beyond it. Follicles subovate or oblong, always acuminate, green, shining, approaching to those of *citrifolia*, but commonly twice or three times smaller. Pulp orange-coloured. When it begins to flower, it is generally without leaves. Frequent about Carthagena in woods and coppices[x].

8. This is a shrub, a fathom in height, with a smooth, ash-coloured bark. Branches subdichotomous, spreading, round, with four-cornered smooth branchlets. Leaves entire, very slightly nerved, smooth on both sides, deep green above, pale beneath. Petioles middling, angular, smooth. Peduncles terminating, filiform, half an inch long: pedicels longer than the peduncles, one-flowered. Flowers whitish or yellowish, small. Calycine segments erect, acute. Tube of the corolla half an inch long, swelling at the base and in the middle: segments at the border roundish, waved, twisted. Filaments inserted into the middle of the tube. Anthers ovate, within the tube. Stigma headed.—Native of Jamaica[y].

9. Branches smooth, roundish, under the leaves obscurely four-cornered, at top pale green. Leaves opposite, five inches long, one a little smaller than the other, produced into a point an inch in length, acute at the base, smooth on both sides, above bright

[r] Hort. kew. [s] Idem. [t] Aublet. [u] Vahl. [x] Jacquin. [y] Swartz.

green, obſcurely nerved, with a longitudinal groove in the middle of the leaf; beneath pale, veinleſs but tranſverſely nerved: nerves numerous, diſtant, yellowiſh, as is alſo the midrib. Petiole very ſhort. Stipule a ſhort rim, ſurrounding the branch, and at length evaneſcent. Peduncles at firſt terminating, then axillary, ſolitary, very ſhort, bifid: each branchlet three or four-flowered. Flowers on very ſhort pedicels, an inch and half long, ſmooth. Calycine ſegments rounded, equal, thick. Tube of the corolla an inch long, round, thickened above the middle, then narrowed, ſomewhat fleſhy, ſegments of the border linear, obtuſe, erect, curved in, twiſted a little, doubled together from the ſides being bent back. Throat ſmooth. Nectary a fleſhy undivided gland ſurrounding the germs. Filaments ſcarcely any. Anthers ſubſeſſile a little above the middle of the tube, linear, very narrow, acute, ſhorter than the throat. Germs ovate, ſmall. Style length of the ſtamens. Stigma headed, mucronate, ſurrounded at the baſe by a minute membrane. Follicles an inch and half long, reflexed, curved in a little on each ſide, oblong-three-ſided, with the back convex, having a groove along the middle, and margined with a raiſed line on each ſide; the ſides flat, the belly rounded and ſtraight; blunt at the baſe, and ſharpiſh at the tip. Seeds in four rows, horizontal, ſtriated, brown, with one extremity of the ſuture obverſe gradually narrowed, acute, the other declining towards the tip, wider, obliquely tranſverſe at the tip itſelf, the margin acute. Navel ventral, towards the ſharper tip, turning towards the pedicel. Aril incomplete, fleſhy, irregular, compreſſed, thicker towards the navel.—It differs from *T. diſcolor*, in having many-flowered peduncles, very ſhort pedicels, the calycine ſegments obtuſe, the flowers large, and the anthers linear; from *grandiflora* by the calycine ſegments being equal: from *cymoſa* in having the cymes few-flowered, the calycine ſegments rounded, and the tube of the corolla equal at the baſe: from *echinata* of Aublet, by the follicles not being echinate.—Native of the iſland of Trinidad: where it was found by Ryan[a].

10. This grows in the iſland of St. Mauritius; and flowers in the Auſtrian ſtoves in the month of july and auguſt. It is a ſhrub of ten feet high, branchy, with an upright ſtem of an arm's thickneſs: the whole ſhrub is ſmooth, and abounds with a milky juice: the leaves are oppoſite, on ſhort footſtalks, and are of a narrow linear-lanceolate ſhape, entire, gloſſy, and of a bright green colour: the flowers are of a pale yellowiſh colour[b].

11. Branches dichotomous, thickly warted at top from the fallen leaves, ſmooth, round. Leaves on ſhort petioles, from two to three inches in length, nearly equal, ſharp at both ends, very ſmooth and even, veinleſs, tranſverſely remotely very finely and indiſtinctly nerved, quite entire, ſcarcely waved, paler beneath. Peduncles axillary, ſolitary, twice as long as the petiole, three or four-flowered: pedicels alternate, very ſhort: at the baſe of each a minute linear bractle, which is deciduous. Calyx ſmooth, with oblong acute ſegments. Corolla half an inch in diameter: ſegments longer than the tube, ſomewhat wedge-ſhaped, ſmooth, ſcarcely pubeſcent at the baſe within. Anthers prominent beyond the tube of the corolla, beaked. The *perſicariæfolia* of Jacquin is allied to this, but differs in having the leaves a little veined beneath; the peduncles bifid with the branches three or five-flowered; and the tube of the corolla twice as thick.—Native of Porto Ricco, where it was found by von Rohr[c].

12. Stem herbaceous, round, gradually attenuated, ſimple, ſmooth, a foot high or a little more. Leaves ſcattered, two, three or four together, elliptic or lanceolate-acuminate, entire, nerved, ſmooth, beneath a little pale, even, ſpreading, an inch and half long, the upper ones ſmaller. Petioles very ſhort, gradually widening into the leaf, in a ſort of whorl, four, three or two together, approximating, not oppoſite. Flowers terminating in racemes. Peduncles capillary, alternate, one-flowered, a line in length. Under each peduncle a briſtle-ſhaped bractle, ſhorter than the peduncle. Calyx five-parted, many times ſhorter than the corolla, with briſtle-ſhaped ſegments. Corolla blue, ſmall. Very nearly allied to *T. Amſonia*, but has narrower leaves, attenuated to both ends, ſcarcely nerved beneath, not oppoſite but two, three or four near together in a ſort of whorl; the ſtem alſo is round, not angular.—Native of Japan[d].

13. This is a ſmall tree or ſhrub from one to two fathoms in height, with a trunk a foot thick, covered with a brown milky bark, aſh-coloured on the branches. Leaves on ſhort thick petioles, rounded-oblong, contracted next the petiole, and ending in a long point, of a ſolid texture, milky, of a dark ſhining green above, beneath paler: the midrib is white, and many parallel nerves iſſue from it obliquely. The flowers come out at the end of the twigs on round ſlender weak peduncles; the corolla is white; the calyx-leaves are pale green and pointed. Follicles rounded-oblong, pointed at the end, when ripe of a golden yellow without, and paler yellow within. Seeds five, ſix or ſeven oblong, irregular.

Native of Malabar, where it flowers great part of the year, particularly in the rainy ſeaſon[e].]

14. This is a perennial plant, ſending up in the ſpring two or three herbaceous ſtalks near a foot high. The flowers are produced in ſmall terminating bunches, white and void of ſcent. It had the name of Amſonia given it by Mr. Clayton, who firſt diſcovered it in Virginia. [It is allied both to *Camararia* and this genus. Leaves wide lanceolate, ſubſeſſile, even. Branches alternate. Raceme compound, terminating. Follicles reflexed, round, long, acuminate. Seeds cylindrical, rugged. Anthers within the throat of the corolla. Stigma headed above a membranaceous ring[f].

Native of North America. Cultivated in 1759, by Mr. Miller. It flowers in may and june.

15. It is a perennial plant, native of North America; and was introduced in 1774 by Mr. James Gordon. It flowers in may and june[g].

16. Branches dichotomous, round, ſmooth, purpliſh brown: branchlets compreſſed, with the two oppoſite ſides grooved. Leaves on ſhort petioles, oppoſite, four or five inches long, one ſmaller than the other; they are ſharp at both ends, indiſtinctly veined, ſomewhat ſhining on the upper ſurface, the uppermoſt often ruſſet-coloured beneath, very ſmooth on both ſides, flat at the edge, quite entire. Inſtead of a ſtipule there is a rim on both ſides between the petioles. Peduncles from every other axil, very ſhort, ſolitary. Pedicels four, ſometimes three, an inch long, filiform, purpliſh, ſmooth, without bractes, one-flowered. Segments of the calyx awl-ſhaped. Segments of the corolla linear-lanceolate, longer than the tube, hoary within, at the baſe: tube gradually narrowing upwards.—Native of Surinam[h].]

17. This riſes with a woody ſtalk ten or twelve feet high, covered with a wrinkled gray bark, and ſending out many branches towards the top. Leaves of a lucid green, and a thick conſiſtence, five inches long and two inches and a half broad, rounded at both ends, but terminating with an acute point, and placed on ſhort footſtalks. The flowers come out in pretty large roundiſh bunches at the ends of the branches; they are ſmaller than thoſe of *citrifolia*, white, and have an agreeable odour. The follicles are ſhorter and rounder. It was diſcovered by William Houſtoun, M.D. in the year 1730, growing naturally at La Vera Cruz.

[18. This is a ſhrub five feet high, almoſt upright, branched. Leaves quite entire, ſhining. Peduncles lateral, long. Corolla ſalver-ſhaped, white; tube cylindrical, long, ſlender, ſwelling at the baſe. Stamens above the middle of the tube. Style ſhorter than the ſtamens, with an ovate bifid ſtigma. Follicles longiſh, ſubventricoſe, acuminate, toruloſe, ſmooth. Seeds oblong, angular, in a red pulp.—Native of Cochinchina.

[a] Vahl. ecl. [b] Jacquin. [c] Vahl. [d] Thunberg. [e] Hort. malab. [f] Hort. kew. [g] Linn. ſpec. [h] Vahl.

19. This is an upright ſhrub four feet high, with the branches reclining. Leaves quite entire, ſmooth. Peduncles axillary, almoſt upright, bearing about five flowers. Corolla white, ſalver-ſhaped. Follicles divaricating, recurved, ſhort, ſwelling, acuminate, not toruloſe. Seeds roundiſh, angular, in a red pulp.

Native of Cochinchina; where it is eſteemed emollient; the milky viſcid juice is reputed excellent for aſſiſting in the extraction of darts or thorns[h].

Loureiro has named theſe two ſpecies from the ſimilitude of the follicles to the horns of the Buffalo and Ox.]

PROPAGATION AND CULTURE.

Theſe plants, being moſtly natives of the Weſt Indies, are very impatient of cold, and will not live in this country, unleſs they are placed in a warm ſtove; they may be propagated by ſeeds, which muſt be procured from the countries where the plants grow naturally; theſe ſhould be ſown early in the ſpring on a hot-bed, and when the plants are come up, and are fit to remove, they muſt be carefully tranſplanted into ſmall pots filled with light rich earth, and then plunged into a hot-bed of tanners bark, being careful to ſhade them in the heat of the day until they have taken new root; after which time, they muſt have free air admitted to them every day when the weather is warm; but if the nights ſhould prove cold, the glaſſes of the hot-bed ſhould be covered with mats every evening, ſoon after the ſun goes off from the bed. Theſe plants muſt be often refreſhed with water, but it muſt not be given to them in large quantities, eſpecially while they are young, for as they are full of a milky juice, they are very ſubject to rot with much moiſture.

The plants may remain during the ſummer ſeaſon in the hot-bed, provided the tan is ſtirred up to renew the heat when it wants, and a little new tan added; but at Michaelmas, when the nights begin to be cold, the plants ſhould be removed, and plunged into the bark-bed in the ſtove; where, during the winter ſeaſon, they muſt be kept in a moderate degree of warmth, and in cold weather they ſhould have but little water given them, leſt it ſhould rot them. The plants ſhould conſtantly remain in the ſtove, where, in warm weather, they may have free air admitted to them by opening the glaſſes, but in cold weather they muſt be kept warm. With this management the plants will thrive and produce their flowers, and as their leaves are always green, they will make a pleaſant diverſity amongſt the tender exotic plants in the ſtove.

Theſe plants may alſo be propagated by cuttings during the ſummer ſeaſon, which ſhould be cut off from the old plants, and laid to dry in the ſtove five or ſix days before they are planted, that the wounded parts may heal, otherwiſe they will rot. Theſe cuttings ſhould be planted in pots filled with freſh light earth, and plunged into the hot-bed of tanner's bark, and cloſely covered with a hand-glaſs, obſerving to ſhade them from the ſun in the middle of the day in hot weather, as alſo to refreſh them now and then with a little water. When the cuttings have taken root, they may be tranſplanted into ſeparate pots, and treated in the ſame manner as thoſe which are raiſed from ſeeds.

14. This ſpecies and the next will live in the open air here, provided they are planted in a warm ſituation. They love a light ſoil, rather moiſt than otherwiſe; but if they be planted in dry ground, they ſhould be frequently watered in dry weather. Not producing ſeeds in England, they are increaſed by offſets, and as they do not ſend out many of theſe, they are at preſent rare in our gardens.

TACAMAHACA. See *Populus*.

[TACCA. (*Adopted by Forſter from Rumphius.*)
Lin. gen. Schreb. n. 588. *Forſt. gen. t.* 35. *Gærtn. t.* 14. *Juſſ.* 56.
Claſſ. 6. 1. Hexandria Monogynia.
Nat. order of *Coronariæ*. *Narciſſi* Juſſ.

[h] Loureiro.

GENERIC CHARACTER.

CAL. *Perianth* one-leafed, ſuperior, permanent, ſix-parted: *ſegments* oblong, converging.

COR. *Petals* ſix, inſerted into the baſe of the calycine ſegments, helmet-arched: the lip of the helmet emarginate-two-lobed.

STAM. *Filaments* ſcarcely any. *Anthers* ſix, oblong, faſtened within to the arch of the petals, tending downwards at the tip.

PIST. *Germ* inferior. *Style* ſhort, ſtraight, thick. *Stigma* orbicular, ſtellate: *rays* ſix bluntiſh, convex above.

PER. *Berry* dry, ſubglobular, ſix-ribbed, hexangular, one-celled, crowned with the calyx.

SEEDS very many, ovate, ſomewhat angular, ſtriated, faſtened all round to the ſtem of the berry.

OBS. *Are not the petals rather to be denominated Filaments? Solander thought they might. The Berry before it is ripe is three-celled, but when ripe, the pulp is ſo dried up that the cells cannot be at all diſtinguiſhed.*

ESSENTIAL CHARACTER.

Cal. ſix-parted. *Cor.* ſix-petalled, inſerted into the calyx, anther-bearing. *Stigma* ſtellate. *Berry* dry, hexangular, many-ſeeded, inferior.

SPECIES.

1. Tacca pinnatifida.
Lin. ſyſt. 455. *Willd.* 2. 200. *ſuppl.* 251. *Forſt. prodr. n.* 209. *eſcul. n.* 28. *Lour. cochinch.* 300. *ed. Willd.* 368.

T. pinnatifolia. *Gærtn. fruct.* 1. 43.

T. littorea, & ſativa. *Rumph. amb.* 5. 324. 328. *t.* 112. 114.

Leontice Leontopetaloides. *Lin. ſpec.* 448.

Leontopetaloides. *Amm. in act. petrop.* 8. 211. *t.* 113.

DESCRIPTION, &c.

Root tuberous, compoſed of many tubers heaped together, here and there emitting fibres. Radical leaf ſubſolitary, petioled, ternate or biternate; leaflets laciniate-pinnatifid, acute, even, ſpreading, decurrent a little along the ſides of the petioles, a long ſpan or a foot in length. Petiole round, fiſtular, grooved (in the cultivated variety ſmooth, variegated with dirty ſpots) at the very bottom ſheathing a ſcape, ſpreading, even. Scape half a fathom in height, herbaceous, fiſtular, grooved towards the top, erect. Umbel terminating, ſeſſile, quite ſimple. Involucre about ſeven-leaved; leaflets two inches long, the two outer ſeſſile, pinnatifid, the reſt ſpatulate even, the lamina roundiſh, with a very ſhort point at the end. Peduncles four to eight, almoſt the length of the involucre, quite ſimple, ſomewhat angular, one-flowered, ſpreading. Eight or twelve very long threads, many times longer than the involucre, ſpreading, hanging out beyond the umbel, twiſted in, interpoſed between the peduncles, are inſtead of bractes. Anthers twelve, on very ſhort filaments, or ſubſeſſile. Germs three, or one three-lobed. Styles three, very ſhort. Stigmas obcordate, two lobed. Berry black, ovate, wrinkled, obſcurely angular, crowned with the calyx, three-celled, many-ſeeded: when unripe hexangular, fleſhy, two inches in diameter. Seeds brown[i].

According to Gærtner, the calyx is ſix-cleft; the number of anthers uncertain, (ſix only ſeem to have been reckoned by Solander, who alſo regarded the petals as cowled filaments) ſtyle one, with an orbicular, ſix-rayed ſtigma. Berry membranaceous, crowned with the whole permanent flower, ribbed with ſix raiſed nerves, having a watery pulp in it. Seeds ſubovate, variouſly angular from their mutual preſſure, longitudinally ſtriated, of a pale ruſſet colour.

Native of the Eaſt Indies, China, Cochinchina, Banda and the Society iſles.

The root is red, the ſize of a man's fiſt, roundiſh[k]. In its natural ſtate it is one of the moſt bitter and acrid, but loſes ſomething of theſe qualities by culture. The raw root is raſped, and waſhed frequently in water, when a white meal falls to the bottom like ſtarch; this is again waſhed twice or thrice, till no more acrimony can be perceived in the water.

[i] Forſt. eſcul. [k] Loureiro.

The meal is then dried in the ſun. The firſt infuſions are thrown away carefully, being looked upon as noxious and even deadly. In Otaheite and the other Society iſles, they make of this meal a taſteful nouriſhing, gelatinous cake like Salep. In Banda, where Sago bread is not common, they uſe this as a ſuccedaneum, and it is even preferable to the other. They alſo apply it as a plaiſter to deep wounds[1]. The petioles and ſtalk boiled a long time, loſe their acrimony, and are rendered fit for food, as well as the roots in China and Cochinchina*.

TACHIA. See *Myrmecia.*

TACHIBOTA. See *Salmaſia.*

TACHIGALIA. See *Cubæa.*

TÆDA. See *Pinus.*

TAGADI. See *Iſchæmum.*

TAGERA. See *Caſſia.*]

TAGETES. (*From* Tages, *grandſon of Jupiter and ſon of Genius, who firſt taught the Etruſcans the art of divination.—Apuleius who firſt uſed this name, applied it to the Tanſey.* Dillenius.)

Lin. gen. n. 964. *Reich. n.* 1044. *Schreb. n.* 1302. *Tournef. t.* 278. *Vaill. act. gall.* 1720. 43. 15. *Dill. elth.* 280. 279. *Juſſ.* 182. *Gærtn. t.* 172.

Claſſ. 19. 2. Syngeneſia Polygamia Superflua.

Nat. order of *Compoſitæ Oppoſitifoliæ. Corymbiferæ* Juſſ.

GENERIC CHARACTER.

CAL. *Common* quite ſimple, one-leafed, tubular, oblong, five-cornered, five-toothed.

COR. *Compound* radiate; *Corollets* hermaphrodite, tubular, many, on an elevated diſk. *Females* ligular, five, in the ray.

Proper in the Hermaphrodites, tubular, half-five-cleft, erect, longer than the calyx, ſegments linear, inwardly villoſe.—In the Females ligular, longer than in the hermaphrodites, almoſt equal in length and breadth, very blunt, narrower towards the tube, tomentoſe, permanent.

STAM. in the Hermaphrodites: *Filaments* five capillary, very ſhort. *Anther* cylindrical, tubular.

PIST. in the Hermaphrodites: *Germ* oblong. *Style* filiform, length of the ſtamens. *Stigma* bifid, ſlender, reflexed.—In the Females *Germ* oblong. *Style* filiform, length of the hermaphrodite. *Stigma* bifid, ſlender, reflexed.

PER. none. *Calyx* unchanged.

SEEDS in the Hermaphrodites ſolitary, linear, compreſſed, a little ſhorter than the calyx. *Down* with five, erect, acuminate, unequal chaffs.—In the Females like the others.

REC. naked, ſmall flat.

ESSENTIAL CHARACTER.

Cal. one-leafed, five-toothed, tubular. *Florets* of the ray five, permanent. *Down* with firm erect chaffs. *Recept.* naked.

SPECIES.

1. Tagetes patula. *French Marygold.*
Lin. ſpec. 1249. *Reich.* 3. 840. *hort. cliff.* 418. *upſ.* 267. *Thunb. jap.* 320. *Lour. cochinch.* 504. *ed. Willd.* 616. *Knipb. cent.* 10. *n.* 90. *Knorr. del.* 1. *t.* S. 7. *Curt. magaz. t.* 150.
α. Flore ſimplici. *Single-flowered French Marygold.*
Tanacetum africanum ſ. Flos africanus minor. *Baub. pin.* 132.
Flos africanus. *Dod. pempt.* 255.—minor ſimplici flore. *Ger.* 611. 5. *emac.* 750. 4. minor ſimplex. *Park. parad.* 304. 5. *t.* 305. *f.* 8.
Tagetes indicus minor ſimplici flore, ſ. Caryophyllus indicus, ſ. Flos africanus. *Baub. hiſt. Raii hiſt.* 343.
Chryſanthemum africanum Tanaceti folio procumbens, ſ. minus flore ſimplici. *Mor. hiſt.* 3. 16. *n.* 13. *f.* 6. *t.* 5. *f.* 1. *ord.* 3.
β. Flore pleno. *Double-flowered French Marygold.*
Tagetes indicus minor, multiplicato flore. *Tournef. inſt.* 488. *Knor. del.* 1. *t.* S. 8.
T. minor flore fulvo maculato. *Dill. elth.* 373. *t.* 279. *f.* 361.
Flos africanus minor multiplex. *Park. parad.* 304. 4. *t.* 305. *f.* 6, 7.

[1] Forſt. eſcul. * Loureiro.

Chryſanthemum africanum, &c. multiplex. *Mor. hiſt. ſ.* 6. *t.* 5. *f.* 2. *ord.* 3.
Stem ſubdivided patulous.

2. Tagetes erecta. *African Marygold.*
Lin. ſpec. 1249. *Reich.* 3. 840. *hort. cliff.* 418. *upſ.* 267. *Knorr. del.* 1. *t.* S. 6. *a.*
T. major. *Gærtn. fruct.* 2. 437.
α. Flore ſimplici. *Single-flowered African Marygold.*
Tanacetum africanum majus ſimplici flore. *Baub. pin.* 133.
Flos africanus major ſimplici flore. *Ger.* 611. 4. *emac.* 749. 3. *Park. parad.* 303. 2. *t.* 305. *f.* 3.
Caryophyllus indicus. *Camer. epit.* 406. *Beſl. eyſt. eſt.* 14. *t.* 2. *f.* 3.
β. Flore pleno. *Double-flowered African Marygold.*
Tagetes maximus rectus, flore maximo multiplicato. *Baub. hiſt.* 3. 100. *Knorr. del.* 1. *t.* S. 6.
Tanacetum ſ. Flos africanus flore pleno. *Baub. pin.* 133.
Flos africanus major polyanthus. *Ger.* 609. *emac.* 749. 1.—major ſ. maximus multiplex. *Park. parad.* 303. 1. *t.* 305. *f.* 1, 2. *Raii hiſt.* 342.

γ. Flore ſiſtuloſo. *Quill-flowered African Marygold.*
Caryophyllus mexicanus ſiſtuloſo flore ſimplex. *Col. ecphr.* 2. 47. *t.* 46. *f.* 1.—item, alter polyanthos ſiſtuloſo flore, 48. *t.* 46. *f.* 2.
Flos africanus ſiſtuloſo flore ſimplex & multiplex. *Park. parad.* 303. *t.* 305. *f.* 4, 5.
Chryſanthemum africanum Tanaceti folio, flore ſimplici & pleno ſiſtuloſo. *Mor. hiſt.* 3. 17. *ſ.* 6. *t.* 5. *f.* 3, 4. *ord.* 3.
Stem ſimple upright, peduncles naked one-flowered.

3. Tagetes minuta.
Lin. ſpec. 1250. *Reich.* 3. 841. *hort. cliff.* 419.
T. multiflora, minuto flore albicante. *Dill. elth.* 374. *t.* 280. *f.* 362.
Stem ſimple upright, peduncles ſcaly many-flowered.

4. Tagetes rotundifolia.
Mill. dict. n. 4.
T. americana, folio ſingulari ſubrotundo. *Houſt. MSS.*
Stem ſimple upright, leaves cordate ſimple, peduncles naked one-flowered.

DESCRIPTIONS, &c.

1. [Stem a foot and half high, almoſt upright, ſmooth, diffuſed. Leaves deeply pinnatifid, (pinnate with a winged rachis) the ſegments lanceolate, ſerrate ſmooth, dark-green; paler at the back, and punched. Flowers ſolitary, terminating, gold-coloured, on a long upright peduncle. Calyx eight-grooved, eight-toothed, ſmooth and even. Corollets in the ray about thirty, grooved and plaited. Seeds blackiſh[1]. A flower that I have before me is eight-grooved and eight-toothed, as Loureiro deſcribes it; but it has only five large ligular florets, or ſemiflorets, as Tournefort and Dillenius call them; but between theſe there are many ſiſtular florets, which are imperfect as well as the radical ones, but have ſeeds. The colour is a deep reddiſh orange, bordered with yellow, and entirely yellow on the outſide.] But there are ſeveral varieties of the French Marygold, differing in ſize, and greatly in colour, ſome beautifully variegated, and others quite plain. [Dillenius figures and deſcribes one with oblong red ſpots dividing the orange. Curtis figures another, which is gold-coloured with red ſtripes. He remarks that the common ſmall ſort has a ſtrong diſagreeable ſmell, and is of more humble growth, with more ſpreading branches, and ſmaller flowers, that have uſually a greater portion of yellow: the larger one, commonly called the ſweet-ſcented, with the flowers bigger, and having a variety of rich tints; the ſmell of this is ſo modified as to be leſs diſagreeable than the other, but it can ſcarcely be called ſweet. From the ſeed of both varieties, ſome riſe extremely double, and others ſingle.

Dodonæus remarks the punctures or perforation of the leaves; and adduces ſome inſtances, proving the plant to be of a poiſonous nature; but it ſeems only to be warm and aromatic. He affirms that it grows ſpontaneouſly in Africa, and was firſt brought into

[1] Loureiro.

Europe by the Emperor Charles V. after his expedition againſt Tunis. But that was in the year 1535; and Fuchſius in 1542, figures the plant under the name of Tagetes indica; it has never been found in Africa. Hernandez mentions it in his hiſtory of Mexico: and the variety figured by Dillenius, which flowered in the Eltham garden in 1727, was produced from Mexican ſeeds[e]. Thunberg mentions it as cultivated in Japan; and Loureiro, in China, Cochinchina, and many parts of India; but not as indigenous of thoſe countries.—It was common with us in Gerarde's time, 1597, and appears in the catalogue of his garden, 1596[g].]

It flowers from the beginning of july, till the froſt puts a ſtop to it.

2. [Stem three or four feet high, ſtraight, round, green, dividing from the middle into many branches, each bearing one large flower. Leaves long, pinnate, leaflets dark-green. Flowers yellow, from brimſtone to orange colour.—Receptacle flat or ſomewhat convex, hollow-dotted, naked, ſmooth. Seeds linear-oblong, narrower downwards, compreſſed a little, angular, ſtriated, ſmooth, black with the point of the baſe whitiſh. Down longer than half the ſeed, pale ſtraw-coloured, five-leaved: rays chaffy-rigid, unequal, linear, ſmooth, ſhining, acuminate or obtuſe[f].]

Of this there are the following varieties:

1. Pale yellow or brimſtone-colour.
2. Deep yellow.
3. Orange-coloured: all theſe with ſingle, double and ſiſtulous flowers.
4. Middling African, with orange-coloured flowers.
5. Sweet-ſcented African.

[Parkinſon remarks, that the flower "is of the "very ſmell of new wax, or of an honie combe, and "not of that poiſonfull ſent of the ſmaller kindes."

It is a native of Mexico, and was cultivated by Gerarde in 1596[c].]

3. This is a plant of taller growth than either of the former. Stem about ten feet high, branching a little towards the top: the branches grow erect. Leaves narrower than either of the other. The peduncles ſtand erect, cloſe to the ſtem, and ſuſtain three or four ſmall white flowers, which appear very late in autumn. This plant has very little beauty, and is preſerved only for the ſake of variety.

[Dillenius ſays that it grew to the height of ten or eleven feet in a pot, and ſtill higher in the open ground, with ſtems as thick as the human arm, ſtraight, rigid, round, ſmooth, red, leafy from top to bottom. The leaves are ſmaller, ſmooth, and have the ſame ſtrong ſmell. the ends of the ſtems and branches run out into a ſpike which is a foot or more in length, and is compoſed of axillary umbels of flowers, having little bractes here and there on the pedicels. Calyxes entire, oblong, tubular, ſmooth, divided into three or four ſmall ſegments, not ſtriated but ſmooth and even, from round three-ſided, variegated and as it were dotted with ſhort brown lines. Corollas very ſmall, yellowiſh white, having two, three or four florets in the ray, which are ſucceeded by oblong, ſlender, compreſſed blackiſh ſeeds, terminated by four or five dry whitiſh leafy threads, three ſhorter and two longer. Receptacle naked. This ſpecies is eaſily diſtinguiſhed by its tallneſs, the ſmallneſs of the flowers, and their peculiar manner of growth.

It flowered in the Eltham garden, towards the end of autumn in 1728; and was raiſed from ſeeds taken from dried ſpecimens brought over by Mylam a ſurgeon from Buonos Ayres. It ſeems to be the ſame with the Tagetes Chilienſis exiguo flore, and flore minimo, of Feuillee, *obſ. phyſ.* 3. *Hiſt. plant. med.* 64[b].]

4. This riſes with an upright ſtalk about two feet high, ſending out a few branches towards the top. Leaves heart-ſhaped upon long ſlender footſtalks; the lower ones two inches and a half long, and an inch and half broad towards the baſe, ending in very acute points, in ſhape like thoſe of the black Poplar, rough to the touch, and ſlightly crenate on the edges. The ſtalks and branches are each terminated by one large yellow flower, ſtanding upon a long naked peduncle. Calyx ſhort. Florets of the ray much longer than the calyx; thoſe of the diſk are of a deep yellow colour, and make a good appearance. This plant was diſcovered by Dr. Houſtoun, growing naturally at La Vera Cruz in New Spain.

[a] Hort. elth. [b] Hort. kew. [c] Gærtner. [d] Hort. kew. [e] Dillen. in hort. elth.

PROPAGATION AND CULTURE.

1. 2. Theſe plants being annual, muſt be propagated from ſeeds every ſpring; they may be ſown upon a moderate hot-bed the beginning of April; and when the plants are come up, they ſhould have plenty of freſh air, for if they are drawn too much, they will not afterward become handſome, notwithſtanding they have all poſſible care taken of them. When they are about three inches high, they ſhould be tranſplanted on a very moderate hot-bed, which may be arched over with hoops, and covered with mats, for theſe plants are hardy enough to be brought up without glaſſes; in this bed they ſhould be planted about ſix inches aſunder each way, obſerving to water and ſhade them until they have taken root; but as the plants acquire ſtrength, they ſhould be inured to bear the open air by degrees, and about the beginning of may they ſhould be taken up, with a ball of earth to the root of each plant, and planted into the borders of the parterre-garden, or into pots, for furniſhing the courts, &c. ſhading them carefully from the ſun till they have taken new root, and alſo ſupplying them duly with water. When their flowers appear, if any ſhould prove ſingle, the plants ſhould be deſtroyed, and then thoſe in pots may be removed to the court where the ſeveral varieties, being intermixed with other annual plants, afford an agreeable variety.

The varieties, eſpecially of the African Marygold, are very ſubject to vary; ſo that unleſs the ſeeds are very carefully ſaved from the fineſt flowers, they are very apt to degenerate; nor ſhould their ſeeds be too long ſown in the ſame ground; but they who are deſirous of having theſe flowers in perfection ſhould exchange their ſeeds with ſome perſon of integrity, whoſe ſoil is of a different nature, at leaſt every other year. If this be done, the varieties may be continued in perfection.

3, 4. Theſe being not ſo hardy as the others, the ſeeds ſhould be ſown earlier in the ſpring upon a good hot-bed; and when the plants are fit to remove, they ſhould be tranſplanted to a freſh hot-bed, at about three inches diſtance every way, obſerving to ſhade them from the ſun till they have taken new root; then they ſhould be treated in the ſame way as the Amaranthus, and other tender annual plants, being careful not to draw them up weak; when they have ſpread ſo as to meet each other, they ſhould be taken up with balls of earth to their roots, and planted in pots with rich light earth, and plunged into a hot-bed under a deep frame, where the plants may have room to grow, being careful to ſhade them from the ſun till they have taken new root, after which they muſt have air and water in proportion to the warmth of the ſeaſon; and when the plants are grown up too tall to remain in the frame, they ſhould be removed to an airy glaſs caſe, where they may ſtand to flower and ripen their ſeeds.

[TAGETES. See *Cacalia, Othonna, Petitis.*

TAGOLINA. See *Cacalia.*

TALA-NELI. See *Convolvulus Medium.*

TALIGALEA. See *Amajonia.*

TALINUM Adanſ. and Gærtn. See *Portulaca.*

TALI-PULLI. See *Tradeſcantia.*

TALLOW TREE. See *Croton.*

TALU-DAMA. See *Boerhaavia.*

TAMAJA. See *Myriſne retuſa.*

TAMARA. See *Averrhoa* and *Nymphæa.*]

TAMARINDUS. (*Indian Date.* Tamar *in Arabic being the name for the Date.*)

Lin. gen. n. 46. *Reich. n.* 50. *Schreb. n.* 1100. *Tournef. t.* 445. *Juſſ.* 347. *Jacqu. amer.* 10. *Amoen. acad.* 8. 252. *Gærtn. t.* 146.

Claſſ. 16. 1. Monadelphia Triandria—*olim*, Triandria Monogynia.

Nat. order of *Lomentaceæ*. *Leguminoſæ* Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* one-leafed; *tube* turbinate, compreſſed, attenuated below, permanent; mouth oblique: *border* four-parted, deciduous: *ſegments* ovate, acute, flatiſh, reflexed, coloured, the upper and lower a little wider.

COR. *Petals* three, ovate, concave, acute, crenate, waved, reflexed, length of the calyx, inſerted into the mouth of the tube; the two lateral ones a little larger.

STAM. *Filaments* three, inſerted into the orifice of the calyx at the void ſinus, length of the corolla, awl-ſhaped, united below up to the middle, bowed towards the corolla. *Anthers* ovate, incumbent, large.

Threads five (rudiments of ſtamens), alternate with the filaments, and united below but ſeparate above, briſtle-ſhaped, headed, very ſhort: the two lateral ones lower than the others.

Briſtles two, ſpringing from the calyx below the filaments, and incumbent on them, very ſmall.

PIST. *Germ* oblong, compreſſed, curved in, placed on a pedicel faſtened to the bottom of the calyx and growing longitudinally to its tube under the back, beyond the tube with the upper margin villoſe. *Style* awl-ſhaped, aſcending, pubeſcent on the lower margin, a little longer than the ſtamens. *Stigma* thickened, obtuſe.

PER. *Legume* oblong, compreſſed, blunt with a point, ſwelling at the ſeeds, covered with a double rind, the outer dry and brittle, the inner membranaceous; a ſoft pulp between both; one-celled, not opening.

SEEDS few, angular-roundiſh, plano-compreſſed, ſhining, hard.

ESSENTIAL CHARACTER.

Cal. four-parted. *Pet.* three. *Nect.* of two ſhort briſtles under the filaments. *Legume* pulpy.

SPECIES.

1. Tamarindus indica. *Tamarind-tree.*

Lin. ſpec. 48. *ſyſt.* 81. *Reich.* 1. 92. *hort. cliff.* 18. *ufc.* 15. *fl. zeyl. n.* 14. *mat. med.* 43. *Woodv. med. bot.* 454. *t.* 166. *Rumph. amb.* 2. 90. *t.* 23. *Lour. cochinch.* 403. *ed. Willd.* 488. *Swartz obſ.* 25. *Leaſ. it* 210. *Jacqu. amer.* 10. *t.* 10. *pict.* 11. *t.* 13. *Brown. jam.* 125. *Sloan. jam* 2. 45. *Long jam* 3. 729. *Hughes barbad.* 189. *Burm. ind.* 15. *Tournef. act. gall.* 1699. *p.* 69. *Blackw. t.* 201. & 221. *Pluenck. ic. t.* 31. *Pluk. phyt. t.* 64. *f.* 4.

T. occidentalis. *Gærtn. fruct.* 2. 310.

Tamarindus. *Ger. emac. app.* 1607. *Park. theat.* 217. *Rais hiſt.* 1748.

Siliqua arabica, quæ Tamarindus. *Baub. pin.* 403.

Balam-pulli. *Rheed. mal.* 1. 39. *t.* 23.

DESCRIPTION, *&c.*

This tree grows to a very large ſize in thoſe countries where it is a native. The ſtem is very large, covered with a brown bark, and divides into many branches at the top, ſpreading wide every way. Leaves pinnate, compoſed of ſixteen or eighteen pairs of leaflets, without a ſingle one at the end: they are about half an inch long, and a ſixth part of an inch broad, of a bright green, a little hairy, and ſit cloſe to the midrib. The flowers come out from the ſide of the branches, five, ſix or more together, in looſe bunches. The pods are thick and compreſſed; thoſe from the Weſt Indies from two to five inches in length, with two, three or four ſeeds; thoſe from the Eaſt Indies are almoſt twice as long, and contain five, ſix and even ſeven ſeeds. Plants raiſed from both theſe are ſo like as not to be diſtinguiſhed; the difference in the ſize of the pods therefore is probably owing to ſoil or culture. [Gærtner ſeems to think them diſtinct, by his trivial name of *occidentalis*.

The calyx is ſtraw-coloured, and the petals are yelloviſh beautifully variegated with red veins. Pedunclcs about half an inch long, each furniſhed with a joint, at which the flower turns inwards. Filaments commonly three, but in ſome flowers four, in others only two; they are purple, and the anthers are browniſh[1].

According to Loureiro, the leaves are not always without a terminating leaflet: the leaflets are ovate-oblong, quite entire, ſmooth, ſeſſile, ſpreading during the day, but cloſing ſo as to lie over each other in the night. The flowers are in ſmall lateral bunches on a long upright common peduncle. Corolla yellow with red veins: the three petals ovate-lanceolate, unequal, ſpreading, longer than the calyx. Filaments longer than the corolla. Legume half a foot long, thick, curved a little, one-celled.

Gærtner conſiders the pod as divided into three or four cells, each lined with a very thin membrane.

Swartz deſcribes the calyx as four-leaved: the three petals unequal, ſpreading, deciduous, with a void left as it were for two others; the two upper ones the length of the calyx, ovate, acute, and channelled at the baſe, the middle one ſmaller and cowled: three ſertile filaments, and ſeven very ſhort barren ones; anthers oblong verſatile: germ ſabre-ſhaped, bowed, three-cornered: legume one-celled, containing from three to ſix ſeeds.

Linnæus retained this tree to the laſt in the claſs Triandria, though he knew from Jacquin that the filaments are united at the baſe; but it is at length placed in the claſs Monadelphia by Schreber, Scopoli, Loureiro, and Woodville. Browne remarked, that it approaches near to the Diadelphia claſs.

It ſeems to be a native both of the Eaſt and Weſt Indies, and of Egypt, if not Arabia. In the Weſt Indies it flowers in october and november. It has not often flowered in Europe. Jacquin ſaw it once in the Vienna garden; and it has lately flowered in the royal garden at Kew, in june and july. Johnſon, the editor of Gerarde's herbal, ſays that he has ſeen young plants of the Tamarind in the garden of his deceaſed friend Mr. Tuggy, but that they ſtill died at the approach of winter. It was therefore cultivated here before 1633; the year in which that edition of Gerarde's herbal was publiſhed.

The timber of the Tamarind tree is heavy, firm and hard: ſawn into boards, it is converted to many uſeful purpoſes in building[2].

The fruit is uſed both in food and medicine. In many parts of America, particularly in Curaçao, they eat abundance of it raw, without any inconvenience, except gently relaxing the body. In Martinico alſo they eat the unripe fruit, even of the moſt auſtere kind[3].]

The Tamarinds which are brought from the Eaſt Indies are darker and drier, but contain more pulp; being preſerved without ſugar they are fitter to be put into medicines than thoſe from the Weſt Indies, which are much redder, but being preſerved with ſugar, are more pleaſant to the palate.

[We have the pods ſometimes with the ſhells, from the Weſt Indies; but moſt commonly the pulp with the ſeeds, connected together by numerous tough ſtrings is brought over preſerved in ſyrup. The pods are gathered in june, july and auguſt, when full ripe. The fruit, taken out of the pod and cleared from the ſhelly fragments, is placed in layers in a caſk, and boiling ſyrup, juſt before it begins to granulate, is poured in till the caſk is filled. A more elegant method of preſerving this fruit is, with ſugar well clarified with eggs, till a clear tranſparent ſyrup is formed[4]. But as a principal medicinal purpoſe of the pulp depends upon its acidity, it would be of more utility if it were ſent over in the pods[5].

This fruit, the uſe of which was firſt learned from the Arabians, contains a larger proportion of acid with the ſaccharine matter, than is uſually found in the acid-dulcet fruits, and is therefore not only employed as a laxative, but alſo for abating thirſt and heat in various inflammatory complaints, and for correcting putrid diſorders, eſpecially thoſe of a bilious kind; in which the cathartic, antiſeptic and refrigerent qualities of the fruit have been found equally uſe-

[1] Woodville. [2] Long. [3] Jacquin. [4] Long. [5] Cullen.

ful. When intended merely as a laxative, it may be of advantage to join it with manna, or purgatives of a ſweet kind, by which its uſe is rendered ſafer and more effectual. Three drams of the pulp are uſually ſufficient to open the body; but to prove moderately cathartic, one or two ounces are required. It is an ingredient in Elect. e Caſſia, and Elect. e Senna, or lenitive electuary*.

The leaves are ſometimes uſed in ſubacid infuſions; and Alpinus ſays, that a decoction of them kills the worms in children.

The fruit is frequently made an ingredient in punch, in the Weſt Indies; and mixed with a decoction of Borage, is reputed excellent in allaying the heat of urine*.]

PROPAGATION AND CULTURE.

Sow the ſeeds on a hot-bed in the ſpring, and when the plants are come up, plant each in a ſeparate ſmall pot filled with light rich earth, and plunge them into a hot-bed of tanner's bark to bring them forward, obſerving to water and ſhade them until they have taken root; and as the earth in the pots appears dry, they muſt be watered from time to time, and ſhould have air given to them in proportion to the warmth of the ſeaſon, and the bed in which they are placed; when the pots in which they are planted are filled with their roots, the plants ſhould be ſhifted into pots of a larger ſize, which muſt be filled up with rich light earth, and again plunged into the hot-bed, giving them air, as before, according to the warmth of the ſeaſon; but in very hot weather the glaſſes ſhould be ſhaded with mats in the heat of the day, otherwiſe the ſun will be too violent for them through the glaſſes; nor will the plants thrive, if they are expoſed to the open air, even in the warmeſt ſeaſon; ſo that they muſt be conſtantly kept in the bark-ſtove both ſummer and winter, treating them as hath been directed for the Coffee-tree, with whoſe culture they will thrive exceeding well.

Theſe plants, if rightly managed, will grow very faſt; for I have had them upwards of three feet high in one ſummer from ſeed, and have had two plants which produced flowers the ſame ſeaſon they were ſown; but this was accidental, for none of the older plants have produced any flowers, although I have ſeveral plants of different ages, ſome of which are above twenty years old, and about fifteen feet high, with large ſpreading heads.

[TAMARISCUS. See *Brunia, Seriphium, Tamarix.*

TAMARISK. See *Tamarix.*]

TAMARIX (*of Pliny. Suppoſed by ſome to be from the hebrew* Tamaris, *abſterſio, on account of its abſtergent qualities.*)

Lin. gen. n. 375. *Reich. n.* 405. *Schreb. n.* 510. *Gærtn. t.* 61. *Juſſ.* 313. Tamariſcus *Tournef.*

Claſſ. 5. 3. Pentandria Trigynia.

Nat. order of *Succulentæ. Portulaceæ* Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* five-parted, obtuſe, erect, permanent, ſhorter by half than the corolla.

COR. *Petals* five, ovate, concave, obtuſe, ſpreading.

STAM. *Filaments* five, capillary. *Anthers* roundiſh.

PIST. *Germ* acuminate. *Style* none. *Stigmas* three, oblong, revolute, feathered.

PER. *Capſule* oblong, acuminate, three-ſided, longer than the calyx, one-celled, three-valved.

SEEDS very many, very ſmall, pappoſe.

OBS. T. germanica *has ten ſtamens, of which the alternate outer ones are ſhorter; they are all connate at the baſe.*

ESSENTIAL CHARACTER.

Cal. five-parted. *Pet.* five. *Capſ.* one-celled, three-valved. *Seeds* pappoſe.

SPECIES.

1. Tamarix gallica. *French Tamariſk.*
Lin. ſpec. 386. *ſyſt.* 296. *Reich.* 1. 739. *Willd.* 1. 1498. *hort. cliff.* 111. *upſ.* 69. *mat. med.* 89. *Wither. arr. ed.* 3. 318. *Sym. ſyn.* 77. *Linn. tranſ.* 3. 333. *Smith brit.* 338. *Sauv. monſp.* 45. *Villars dauph.* 2. 546. *Ger. prov.* 429. *Aſſo aragon. n.* 277. *Guel. ſib.* 4. 116. *Pallas roſſ.* 2. 72. *Deſfont. atlant.* 269. *Medicus in obſ. ſoc. oecon. Lutz.* 1774. *p.* 278. *Willd. arb.* 380. *Blackw. t.* 331. *Mill. fig. t.* 262. *f.* 1. *Pluenk ic. t.* 240.

T. altera folio tenuiore ſ. gallica. *Baub. pin.* 485.

T. major ſ. arborea narbonenſis. *Baub. hiſt.* 1. 2. 350. *Raii hiſt.* 1704.

Tamariſcus gallicus. *Allion. pedem. n.* 1597.

T. narbonenſis. *Lob. ic.* 2. 218. *Dalech. hiſt.* 180. *Ger.* 1194. *f.* 1. *emac.* 1378. 1. *Tournef. inſt.* 661. *Garid.* 453.

T. folio tenuiore. *Park. theat.* 1479. *n.* 3.

Myrica. *Camer. epit.* 74. *f.* 1.—ſilveſtris 1. *Clus. hiſt.* 1. 40.

β. T. gallica cana. *Hoary French Tamariſk.*
Pallas roſſ. 2. 72. *t.* 79.

γ. T. africana. *African Tamariſk.*
Poiret itin. 2. 139. *ed. germ.* 171. *Deſfont. atlant.* 269.
Flowers five-ſtamened, ſpikes lateral, leaves lanceolate embracing imbricate.

[2. Tamarix articulata. *Jointed Tamariſk.*
Lin. ſpec. ed. Willd. 1. 1498. *Vahl ſymb.* 2. 48. *t.* 32.

T. orientalis. *Forſk. deſcr.* 206.

Thuja aphylla. *Lin. ſpec.* 1422. *amoen. acad.* 4. 295.
Flowers five-ſtamened, ſpikes lateral, leaves very ſhort ſheathed.

3. Tamarix ſongarica. *Songarian Tamariſk.*
Lin. ſpec. ed. Willd. 1. 1499. *Pallas in nov. act. acad. Petrop.* 10. 374. *t.* 10. *f.* 4.
Flowers eight or ten-ſtamened axillary ſubſpiked, leaves ſheſhy obtuſe three-ſided.]

4. Tamarix germanica. *German Tamariſk.*
Lin. ſpec. 387. *ſyſt.* 296. *Reich.* 1. 740. *Willd.* 1. 1499. *hort. cliff.* 111. *Gærtn. fruct.* 1. 291. *Gunn. norv. n.* 152. *Fl. dan. t.* 234. *Hoffm. germ.* 210. *Pallas roſſ.* 2. 73. *t.* 80. *Villars dauph.* 2. 546. *Aſſo aragon. n.* 278. *Mill. fig. t.* 262. *f.* 2. *Blackw. t.* 331. *Du Roi barbarc.* 2. 448. *Willd. arb.* 384.

T. fruticoſa, folio craſſiore ſ. germanica. *Baub. pin.* 485.

T. germanica, ſ. minor fruticoſa. *Baub. hiſt.* 1. 2. 351.

Tamariſcus ſpicis foliоſis. *Hall. helv. n.* 948.

T. germanicus. *Scop. carn. n.* 375. *Allion. pedem. n.* 1598.

T. floribus decandris. *Ger. prov.* 430.

T. germanica. *Ger.* 1194. 2. *emac.* 1378. 2. *Lob. ic.* 218. *Tournef. inſt.* 661.

T. folio latiore. *Park. theat.* 1479. *n.* 1. *Raii hiſt.* 1705.

Myrica. *Camer. epit.* 74.

M. pannonica. *Clus. pann.* 26. 27. 28.

β. *Pallas roſſ. t.* 80. *f.* B.—caule herbaceo anno, flore minore.
Flowers ten-ſtamened, ſpikes terminating, leaves ſeſſile linear-lanceolate.

DESCRIPTIONS, *&c.*

1. The firſt ſort is a native of the ſouth of France, Spain, Italy, Ruſſia, Tartary, Barbary and Japan; where it grows to a tree of middling ſize, but in England is ſeldom more than fourteen or ſixteen feet high. The bark is rough, and of a dark brown colour; it ſends out many ſlender branches, moſt of which ſpread out flat and hang downward at their ends; theſe are covered with a cheſtnut-coloured bark, and garniſhed with very narrow finely divided leaves, which are ſmooth, of a bright green colour, and have ſmall leaves or indentures which lie over each other like ſcales of fiſh. The flowers are produced in taper ſpikes at the end of the branches, ſeveral of them growing on the ſame branch. The ſpikes are about an inch long, and as thick as a large earth-worm. The flowers are ſet very cloſe all round the ſpike; they are very ſmall, and have five concave petals of a pale fleſh colour, with five ſlender ſtamina terminated by roundiſh red anthers. The flowers appear in July, and are ſucceeded by oblong, acute-pointed, three-cornered capſules, filled with ſmall downy ſeeds, which ſeldom ripen in England.

[This

* Woodville. * Browne and Long.

[This ſpecies is eaſily diſtinguiſhed from the fourth, by the fineneſs of the leaves, and the flowers having only five ſtamens[a].

It is a very elegant tree, ſhading the banks of rivers, and is very much branched. The younger branches are filiform, denſe and panicled. Leaves glaucous, needle-ſhaped, very ſmall, imbricate, flowers white, ſmall in panicled ſpikes. Peduncles filiform. Calyx very ſmall, five-leaved[b].

Root branched, very hard. Trunk ſtraight, frequently the thickneſs of the wriſt, very much branched from the bottom, rod-like. Wood hard but ſpongy, brittle, with a yellowiſh ſap, within gray banded with ruſſet: bark teſtaceous, gray on the outſide. Younger branches herbaceous, ſlender, bright green, looſely imbricate with very ſmall, acute, alternate leaves. Spikes terminating the branchlets, copious, panicled, ſtraight, filiform; with flowers in cluſters, accompanied by a leaflet. Flowers ſubpeduncled, globulous, roſy-red, almoſt like thoſe of Heath. Calyx bell-ſhaped, coloured at the tips, three times ſhorter than the corolla. Corolla globular-bell-ſhaped. Filaments twice as long as the corolla. Germ conical, length of the corolla. The plant and flowers have ſcarcely any ſmell; but a ſubaſtringent taſte.

The Ruſſians and Tartars uſe a decoction of the twigs in the gout and rheumatiſm and contuſions of the limbs, as a fomentation; they alſo drink it in caſe of internal injury. They make handles for whips, &c. of the wood.

β. The large figure in Pallas's ſeventy-ninth plate, repreſents a ſingular variety, which occurs in the ſalteſt and drieſt parts of the Caſpian deſert. It is ſhrubby and a fathom high, tomentoſe-hoary and ſcaly, with the branchlets herbaceous, thicker, tomentoſe, the leaflets longer and hoary, more cloſely imbricate, and in all parts cloſer and thicker: but in the ſpikes and flowers very like the common ſort[c].

γ. Poiret and Desfontaines have found another variety of this in Barbary, with ſhorter thicker ſpikes, and with the flowers cloſer together on very ſhort peduncles: whereas in the true *gallica*, the ſpike is very long, thinner, and near the end of the branches: the flowers are a little ſeparate from each other[d].

Desfontaines's plant ſeems to be the ſame, though he does not refer to Poiret. He ſays that it differs from the *gallica*, in having the bark of the branches brown; the leaves more cloſely imbricate; the ſpike thicker; and the flowers twice or four times as large. He found it in Algiers on the coaſt.

Willdenow thinks that theſe may be diſtinct ſpecies.

Dr. Smith remarked the common ſort in very great plenty in Italy about Sinigaglia, and all along the hedges near the ſea, where the ſheep preferred it to every other food, never touching any other vegetable while that remained[e]. It was gathered in a wild ſtate on St. Michael's Mount, Cornwall, by Mr. Giddy; alſo by W. G. Maton, Eſq. and a ſpecimen of it preſented to the Linnean Society by him, december 2, 1794. He alſo found it near Hurſt-caſtle, Hants; and Dr. Goodenough near Haſtings, Suſſex.

2. This is a ſhrub, with round branches, ſquarroſe with permanent ſcales and ſheaths, ſubdivided and rod-like: branchlets filiform, ſcattered, jointed: joints margined at the top, and hollowed to receive the next joint. Scales in place of leaves from the margin of each joint, ovate acute alternate patulous. Spikes towards the ends of the branches, alternate, an inch and half long, imbricate, round. Bractes ovate, acute, ſpreading very much, permanent concave, length of the flowers. Calyx five-leaved, imbricate, with roundiſh leaflets. Corolla the ſame ſize as in T. gallica, with linear petals. Capſule four-cornered, pyramidal. Native of the Eaſt Indies and Arabia.—Linnæus, not having ſeen the fructification, referred this ſhrub to the genus Thuja, from its habit[f].

Retzius obſerves, that there are at leaſt two ſpecies in India, different from the European ones, but that the ſpecimens he received were ſo much ſpoiled, that he could not aſcertain them. This perhaps may be one[g].

3. Found by Pallas in Siberia, in ſalt places of Songaria.]

4. This is rather a ſhrub than a tree, having ſeveral woody ſtalks ariſing from the ſame root, which grow quite erect, ſending out many ſide branches which are alſo erect; they have a pale-green bark when young, afterwards changing to a yellowiſh colour. The leaves are ſhorter, and ſet cloſer together than thoſe of the firſt ſort, and are of a lighter green approaching to a gray. The flowers are produced in long looſe ſpikes at the end of the branches, ſtanding erect: they are larger than thoſe of *gallica*, and have ten ſtamens ſtanding alternately.

[Alſione thus diſtinguiſhes the firſt ſpecies and this. In that the leaves are much ſmaller, more cloſely imbricate, green and ſharper, in this they are glaucous-cinereous. In *germanica* the flowering-branches are ſtraight; but in *gallica* they are horizontal, or perpendicular to the ſtem. The flowers in *germanica* are twice as large and more, but on ſhorter peduncles than in *gallica*. The ſtamens in *germanica* are ten; the ſtigma ſimple; the ſtamens ſhorter than the petals, with twin whitiſh anthers: *gallica* has only five ſtamens, much longer than the petals, with purple anthers. The calyx in *germanica* appears to be compoſed of five linear green leaflets, with a ſingle leaf, not unlike the other leaves, ſupporting the peduncle: in *gallica* the leaf under each flower is whitiſh, pellucid, and awned; but the calyx ſeems to be compoſed of five very ſhort green leaflets placed imbricately. In *germanica* the ſtigma is orbicular, not trifid: in *gallica* the germ is purple with a trifid ſtigma.

Gærtner deſcribes the capſule as pyramidal; the ſeeds oblong or ovate, ſlightly compreſſed, of a pale ruſeſcent colour, terminated by branched white ſtiped hairs; the receptacle a raiſed line, marked along the middle of the inſide of the valves, towards the baſe ending in a ſpongy lamina, to which the ſeeds are faſtened all round.

Native of Germany, by the banks of the Rhine and Danube, in Norway, Dauphiné, Spain, Piedmont, and the mountains of Dauria and Caucaſus in the Ruſſian empire.

Both ſpecies appear in the catalogue of Gerarde's garden, 1596. But Camden, in his life of Eliſabeth, ſays that the Tamariſk was introduced by Archbiſhop Grindall, as a ſpecific in diſorders of the ſpleen: and in the Remembrances for Maſter S. by R[a]. Hakluyt, 1582, we are told, that the Archbiſhop of Canterbury, Grindall, after he returned out of Germany, brought into this realm the plant of Tamariſke from thence, and this plant he hath ſo increaſed, that there be here thouſands of them; and many people have received great health by this plant[h]. Grindal was conſecrated to the Biſhopriek of London in december 1559, ſoon after his return from Germany.

Tamariſk, eſpecially this ſpecies, is ſometimes uſed abroad in obſtructions of the lower viſcera, and eſpecially in diſeaſes of the ſpleen. By combuſtion it yields no inconſiderable quantity of a fixed ſalt, which is diuretic and aperitive, and approaches to Glauber's ſalt. The bark of the root is the moſt efficacious part of the plant. A decoction of this is given in doſes of two to ſix drams, or even an ounce: of the wood and leaves double that quantity may be taken[i].

β. The variety figured by Pallas, is remarkable for having an herbaceous ſtem. It is found near the ſhore of the Caſpian ſea, on the Perſian ſide.

Loureiro has a ſpecies, which he names *Tamarix chinenſis*, from its being a native of China, which he ſays agrees with the *gallica* in having five ſtamens; but differs in having alternate leaflets, nodding branchlets, and erect terminating petals. It ſeems rather to agree with T. orientalis, *Tournef. cor.* 45. and *Forſk. arab.* 206. but it is not like that in all reſpects. Willdenow thinks it may poſſibly be the ſame with the *articulata* of Vahl.]

[a] Villars. [b] Desfontaines. [c] Pallas roſſ. [d] Poiret. [e] Tour. 2. 321. [f] Vahl.

[g] Obſ. faſc. 6. 27. [h] Voy. v. 2. 161. edit. 1599. [i] Alſione.

PROPAGATION AND CULTURE.

The Tamariſks may eaſily be encreaſed either by laying down their tender ſhoots in autumn, or by planting cuttings in an eaſt border, which will take root in a ſhort time, if they are ſupplied with water in the ſpring before they begin to ſhoot in dry weather; but they ſhould not be removed until the following autumn, at which time they may be either placed in a nurſery to be trained up two or three years, or elſe where they are deſigned to remain, obſerving to mulch their roots, and water them according as the ſeaſon may require, until they have taken root; after which, the only culture they will require, is to prune off the ſtraggling ſhoots, and keep the ground clean about them.

[The increaſing by layers is not only unneceſſary trouble, ſince cuttings grow very readily; but it is alſo a bad way, becauſe they very often will not ſtrike at all. The cuttings ſhould be of the laſt ſummer's ſhoot, and a moiſt border is moſt proper for them. In two years they will be good plants for the ſhrubbery, and may be planted out in almoſt any ſoil, though they like a light moiſt earth beſt, eſpecially the German ſort which grows naturally in low watery grounds*.

TAMBOURISSA. See *Mithridatea.*

TAME-POISON. See *Aſclepias.*

TAMNUS. See *Tamus.*

TAMONEA. See *Gloxinia.*]

TAMUS (*of Pliny. Derivation unknown.*)

Lin. gen. n. 1119. *Reich. n.* 1024. *Schreb. n.* 1527.

Tamnus *Tournef. t.* 28. *Juſſ.* 43.

Claſſ. 22. 6. Dioecia Hexandria.

Nat. order of *Sarmentaceæ. Aſparagi* Juſſ.

GENERIC CHARACTER.

* *Male.*

CAL. *Perianth* ſix-parted; *leaflets* ovate-lanceolate, ſpreading more at top.

COR. none.

STAM. *Filaments* ſix, ſimple, ſhorter than the calyx. *Anthers* erect.

* *Female.*

CAL. *Perianth* one-leafed, ſix-parted, bell-ſhaped, ſpreading: *ſegments* lanceolate: ſuperior, deciduous.

COR. *Petals* none.—*Nectaries* an oblong point, faſtened internally to each calycine ſegment at the baſe.

PIST. *Germ* ovate-oblong, large, ſmooth, inferior. *Style* cylindrical, length of the calyx. *Stigmas* three, reflexed, emarginate, acute.

PER. *Berry* ovate, three-celled.

SEEDS two, globular.

ESSENTIAL CHARACTER.

Cal. ſix-parted. *Cor.* none.

FEM. *Style* trifid. *Berry* three-celled, inferior. *Seeds* two.

SPECIES.

1. Tamus communis. *Common Black Bryony.*

Lin. ſpec. 1458. *ſyſt.* 887. *Reich.* 4. 254. *hort. cliff.* 468. *Hudſ. angl.* 433. *Wilber. arr.* 344. *Engl. bot. t.* 91. *Relh. cant. ed.* 2. *n.* 809. *Sibth. oxon. n.* 351. *Abbot beſf. n.* 704. *Gron. orient.* 317. *Hall. helv. n.* 1020. *Scop. carn. n.* 1220. *Neck. gallob.* 400. *Ger. prov.* 136. *Villars dauph.* 3. 273. *Allion. pedem. n.* 2116. *Deſfont. atlant.* 366. *Mill. illuſtr. Regnault. bot. Gſpeck. ic. faſc.* 1. *t.* 22. *male. Sabb. hort.* 1. *t.* 59. *male.*

Tamnus racemoſa, flore minore luteo-palleſcente. *Tournef. inſt.* 103. *Raii ſyn.* 262.

Bryonia nigra. *Ger. emac.* 831. *Blackw. t.* 457. *Mor. hiſt. ſ.* 1. *t.* 1. *f.* 6.

B. ſylveſtris nigra. *Park. theat.* 178. 6. *Raii hiſt.* 660.

B. laevis ſ. nigra racemoſa, cujus baccæ rubeſcunt ſ. nigreſcunt. *Baub. pin.* 297.

B. ſylveſtris baccifera. *Baub. prodr.* 135.

B. laevis ſ. nigra racemoſa. *Baub. pin.* 297. *maſ.*—baccifera *ibid. fem.*

Vitis ſylveſtris ſ. Tamus. *Dod. pempt.* 400.

V. nigra quibuſdam, ſ. Tamnus Plinii, folio Cyclamini. *Bauh. hiſt.* 2. 148.

V. nigra. *Matth.* 1285. *Camer. epit.* 988. *Tabern. ic.* 892. *Dalech. hiſt.* 1412.

Leaves cordate undivided.

2. Tamus cretica. *Cretan Black Bryony.*

Lin. ſpec. 1458. *ſyſt.* 887. *Reich.* 4. 254.

Tamnus cretica, trifido folio. *Tournef. cor.* 3.

Leaves three-lobed.

DESCRIPTIONS, *&c.*

1. [Root very large, tuberous, blackiſh externally, whence its old latin and engliſh names. Stems ſmooth, twining about every thing in their way, and thus aſcending without the aid of tendrils, to the height of ten or twelve feet in hedges or among buſhes, which their feſtoons of tawny leaves and red berries decorate in autumn. Leaves alternate, petioled, ſmooth and ſhining, quite entire, the nerves raiſed beneath, varying from kidney to heart-ſhaped, heart-ſpear-ſhaped, triangular ſpear-ſhaped, and even halbert-ſhaped. Flowers greeniſh, in long racemes or bunches from the ſide of the ſtalks, appearing in june, the barren and fertile ones on ſeparate roots, which Mr. Goodyer (in Ger. emac.) ſeems firſt to have noted. The male flowers ſoon fall off; but the female flowers are ſucceeded by ovate ſmooth berries. Theſe are inſipid. The root is acrid, and its pulp ſcraped has been formerly uſed as a ſtimulating plaiſter. The young ſhoots are ſaid to be good eating, when dreſſed like Aſparagus. The Moors eat them boiled with oil and ſalt*.

Native of Europe, but not in the north, in ſhady thickets, hedges and woods; alſo of the Levant, and about Algiers, in hedges.—It is called, wild Vine, and our Ladies ſeal. The latter name is from the French, *le ſceau de la Vierge.*]

2. This has a rounder root than the other; the ſtalks twine in the ſame manner; but the principal difference conſiſts in the leaves being divided into three lobes. It was diſcovered in the iſland of Crete or Candia by Tournefort, who ſent the ſeeds to the Royal Garden at Paris.

[Gerard (in Flora Gallo-Provinc.) obſerves, that the common ſort in the ſhade acquires broader greener leaves, ſinuate and even-three-lobed; and in this ſtate appears to be the ſame with Tournefort's plant, upon a compariſon of it with his ſpecimens.]

PROPAGATION AND CULTURE.

1. Sow the ſeeds ſoon after they are ripe under the ſhelter of buſhes, where, in the ſpring, the plants will come up, and require no farther care. The roots will abide many years.

2. This alſo is an abiding plant, hardy enough to live in the full ground in England; and it may be increaſed like the other.

TAN. See *Tanner's Bark.*

TANACETUM. (*Derivation uncertain.*)

Lin. gen. n. 944. *Reich. n.* 1024. *Schreb. n.* 1280.

Tournef. t. 261. *Vaill. act. gall.* 1719. *Juſſ.* 184. *Gerta. t.* 165. Ballamita. *Vaill. act. gall.* 1719.

Claſſ. 19. 2. Syngeneſia Polygamia Superflua.

Nat. order of *Compoſitæ Diſcoideæ. Corymbiferæ* Juſſ.

GENERIC CHARACTER.

CAL. *Common* hemiſpherical, imbricate: *ſcales* acute, compact.

COR. *Compound* tubular, convex. *Corollets* hermaphrodite numerous, tubular, in the diſk. *Females* ſome in the ray.

Proper of the Hermaphrodite funnel-form: with a five-cleft reflexed border.

Female trifid, more deeply divided inwardly.

STAM. in the Hermaphrodites: *Filaments* five, capillary very ſhort. *Anther* cylindric, tubular.

PIST. in the Hermaphrodites *Germ* oblong, ſmall. *Style* filiform, length of the ſtamens. *Stigma* bifid, revolute.—In the Females *Germ* oblong. *Style* ſimple. *Stigmas* two, reflexed.

PER. none. *Calyx* unchanged.

SEEDS ſolitary, oblong. *Down* ſlightly margined.

* Hunter's Evelyn.

* Engl. bot. Withe. Deſfont.

Rec. convex, naked.
Obs. *Sometimes there are no radial corollets, but all are hermaphrodite.*
Seed in some naked.

ESSENTIAL CHARACTER.

Cal. imbricate, hemispherical. *Cor.* rays obsolete, trifid (sometimes none, and all the florets hermaphrodite). *Down* submarginate. *Recept.* naked.

SPECIES.

1. Tanacetum fuffruticofum. *Shrubby Tanfy.*
Lin. fpec. 1183. *Reich.* 3. 734. *hort. cliff.* 398. *mant.* 465. *Berg. cap.* 241. *Reft. obf.* 5. 6. *n.* 122.
Abrotanum africanum fruticans multiflorum foliis tanaceti decuplo minoribus. *Comm. hort.* 2. 199. *t.* 100.
Leaves pinnate-multifid, fegments linear fubdivided acute, ftem fuffruticofe.

2. Tanacetum fibiricum. *Siberian Tanfy.*
Lin. fpec. 1183. *Reich.* 3. 735. *Gmel. fib.* 2. 134. *t.* 65. *f.* 2.
Leaves pinnate, fegments linear-filiform, corymbs fmooth, ftem herbaceous.

[3. Tanacetum incanum. *Hoary Tanfy.*
Lin. fpec. 1183. *Reich.* 3. 735. *hort. cliff.* 404. (Artemifia.)
Abfinthium orientale incanum tenuifolium, floribus luteis in capitulum congeftis & furfum fpectantibus. *Tournef. cor.* 34.
Leaves bipinnate tomentofe, corymb ovate compound.

4. Tanacetum coruloides. *Chamomile-like Tanfy.*
Lin. fyft. 742. *Reich.* 3. 735. *mant.* 282.
Leaves tooth-pinnate acuminate, ftem very much branched, flowers fubpanicled.

5. Tanacetum annuum. *Annual Tanfy.*
Lin. fpec. 1184. *Reich.* 3. 735. *Gouan illuftr.* 66. *Vaill. act.* 1716. *p.* 281. *Allion. pedem. n.* 601. *Mill. fig.* 152. *t.* 227. *f.* 1. (Santolina.)
Abfinthium corymbiferum annuum. *Tournef. inft.* 458.
Elichryfum foliis abrotani. *Baub. pin.* 264. *Pink. phyt. t.* 160. *f.* 1.
Elichryfon. *Cluf. hift.* 1. 325. *t.* 326.
Leaves bipinnatifid linear acute, corymbs tomentofe.

6. Tanacetum monanthos. *One-flowered Tanfy.*
Lin. fyft. 742. *Reich.* 3. 736. *mant.* 111. *Vaill. act.* 337. *Vahl fymb.* 1. 70. *Forft. defcr.* 147. *n.* 72.
Stem quite fimple one-flowered length of the leaves.]

7. Tanacetum vulgare. *Common Tanfy.*
Lin. fpec. 1184. *fyft.* 742. *Reich.* 3. 736. *mant.* 465. *hort. cliff.* 398. *fl. lapp. n.* 295. *fuec. n.* 730. *mat. med.* 182. *Woodv. med. bot.* 314. *t.* 115. *Gærtn. fruct.* 2. 395. *Hudf. angl.* 357. *Wither. arr. ed.* 3. 708. *Hull* 182. *Smith brit.* 862. *Lightf. fcot.* 465. *Relh. cant. ed.* 2. *n.* 671. *Sibth. oxon. n.* 693. *Abbot bedf. n.* 587. *Fl. dan. t.* 871. *Hall. helv. n.* 132. *Scop. carn. n.* 1031. *Pollich pal. n.* 779. *Krock. filef. n.* 1362. *Villars dauph.* 3. 187. *Allion. pedem. n.* 602. *Gmel. fib.* 2. 133. *t.* 65. *f.* 1. *Ludw. eff. t.* 22. *Knorr. del.* 2. *t.* T. 2. *Regnault. bot.*
Tanacetum. *Brunf. herb.* 1. 250. 2. 87. *Matth. vaigr.* 2. 259. 908. *Camer. epit.* 650. *Dod. pempt.* 36. 1. *Ger.* 525. 1. *emac.* 650. 1. *Raii hift.* 365. *Jon.* 188. *Petiv. brit. t.* 20. *f.* 9. *Blackw. t.* 464.
T. vulgare. *Park. theat.* 81. *Mor. hift. f.* 6. *t.* 1. *f.* 1.
T. vulg. luteum. *Bauh. pin.* 132.
T. vulg. flore luteo. *Baub. hift.* 3. 131. 2.
Athanafia f. Tanacetum. *Dalech. hift.* 955.
Artemifia monoclonos. *Fuchf. hift.* 46.
β. Tanacetum crifpum. *Curled Tanfy.*
Dod. pempt. 36. 2. *Park. theat.* 81. *Raii hift.* 365.
T crifpum anglicum. *Ger.* 525. 2. *emac.* 650. 2.
T. foliis crifpis. *Baub. pin.* 132. *Dill. in Raii fyn.* 188. *Mor. f.* 6. *t.* 1. *f.* 2.
T. crifpum flore luteo. *Baub. hift.* 3. 132.
Leaves bipinnatifid gafh-ferrate naked.

8. Tanacetum Balfamita. *Coft-mary.*
Lin. fpec. 1184. *Reich.* 3. 737. *hort. cliff.* 398. *upf.* 255. *mat. med.* 192. *Hall. helv. n.* 133. *Krock. filef. n.* 1363. *Villars dauph.* 3. 187. *Knipb. cent.* 2. *n.* 92. *Regnault bot.*
Balfamita major. *Dod. pempt.* 295. 1. *Mor. hift. f.* 6. *t.* 1. *f.* 1.
B. mas. *Ger.* 523. 1. *emac.* 648. 1. *Blackw. t.* 98.
Coftus hortorum major. *Park. theat.* 78.
C. hortenfis. *Dalech. hift.* 678.
Mentha hortenfis corymbifera. *Baub. pin.* 226.
M. corymbifera f. Coftus hortenfis. *Baub. hift. Raii hift.* 363.
Leaves ovate entire ferrate.

[9. Tanacetum flabelliforme. *Fan-leaved Tanfy.*
L'Herit. fert. angl. t. 27. *Ait. kew.* 3. 169.
Corymbs fimple, leaves deltoid ferrate at the tip.]

DESCRIPTIONS, *&c.*

1. This rifes with a branching fhrubby ftalk, three or four feet high. The fegments of the leaves are very narrow, and frequently cut into acute fegments. The flowers are produced in fmall roundifh bunches, at the ends of the branches: they are of a bright yellow, and appear in auguft.
Native of the Cape of Good Hope. [Cultivated by Mr. Miller in 1759[a].

2. Leaves linear, pinnate: pinnas linear, filiform, often bifid or trifid, quite entire. Corymb terminating and others axillary, few-flowered: flowers yellow[b].] Root fibrous perennial. Stalks more than two feet high. It flowers in june and july, and the feeds ripen in autumn.—Native of Siberia. [Cultivated by Mr. Miller in 1759.

3. This is a perennial hoary fine-leaved plant, with yellow flowers turned upwards.—Native of the Levant[c].

4. This is an annual plant, having the appearance of Chamomile. Stem half a foot high: branches the length of the ftem afcending, fpreading a little. Leaves fmall, pinnatifid; with feven or nine teeth, lanceolate, unarmed, acuminate, oppofite. Flowers at the ends of all the branches, nine to twelve, unequally pedunculed and pedicelled, fubglobular, yellow. Calyx ten-leaved; leaflets elliptic, loofe, almoft equal; by no means imbricate. Corollas globular: corollets five-cleft.—Native of the Cape of Good Hope.

5. This is an annual plant, rifing about two feet high. Stem ftiff, but herbaceous, fending out many fide branches their whole length; the lower ones four or five inches long, gradually fhorter to the top. The leaves come out in fmall clufters from the joints: they are very narrow and fhort; fome end in three points, others are fingle. The branches are terminated by clufters of flowers of a bright yellow; each corymb on a fhort peduncle. They appear in july or auguft, and continue till the froft deftroys them, but the feeds do not ripen in England. The whole plant has a fine aromatic fcent[d].
Linneus remarks, that the branches are longer than the primary umbel, and divaricating; the leaves linear, pinnate-five-cleft and trifid: and that it differs from its congeners in the want of a female ray, from Athanafia in having no chaffs.—Native of Spain and Italy. Cultivated in 1758 by Mr. Miller[e].

6. This alfo is an annual plant. Leaves bipinnate, radical, numerous, length of a finger, like thofe of Achillea Millefolium. Stems few, upright, ftiffifh, fomewhat villofe. Stem-leaves few, petioled, tooth-pinnate. Flower terminating, peduncled. Calyx oblong, imbricate, pubefcent. Corolla yellow. Seeds and receptacle naked. Others decumbent, afcending, longer, diffufed ftems arife afterwards from the root, terminated by a one-flowered peduncle[f].—Native of the Levant, where it was found by Forfkahl.]

7. Common Tanfy has a fibrous creeping root, which will fpread to a great diftance. [The herb is bitter, and has a ftrong aromatic fmell. Stems upright, two feet high,] in a garden from two to almoft

[a] Hort. kew.
[b] Linn. mant.
[c] Linn. fpec.
[d] Mill. fig.
[e] Linn. mant.
[f] Tournef. cor.
[g] Hort. kew.

four feet, [leafy, round, ſtriated, ſcarcely hairy. Leaves alternate, deep green, acutely cut, ſmooth, or ſomewhat hairy beneath, eared at the baſe, embracing: pinnules lanceolate deeply and acutely ſerrate. The flowers are in terminating corymbs, of a golden colour and flatiſh. Calyx-leaves obtuſe, ſcariose at the edge. Florets very numerous, moſtly five-cleft, the marginal ones only female and trifid [a]. Linneus remarks, that the ray (in Sweden) appears only in a hot ſummer.—Seeds ſmall, uniform, inverſely pyramidal, pentagonal, ſubcinerious, with a pale rib at the corners. Down margined, narrow, membranaceous, pentagonal, indiſtinctly five-toothed, of a pale whitiſh colour [b].

Native of Europe and Siberia, in high meadows and paſtures, on the banks of rivers and in ſwampy places; flowering from june to auguſt.

According to Bergius, Tanſy is tonic, ſtomachic, anthelmintic, emmenagogue and reſolvent: qualities uſually attributed to bitters of the warm or aromatic kind, ſuch as ſeveral of the genus Artemiſia. Tanſy has been much uſed as a vermifuge, not only the leaves, but the ſeeds have been ſubſtituted with this intention for Santonicum. We are told by Dr. Clark, that in Scotland Tanſy was found to be of great ſervice in various caſes of gout; and Dr. Cullen ſays, "I have known ſeveral who have taken it without any advantage, and ſome others who reported that they had been relieved from the frequency of the fits.

Tanſy is alſo recommended in the hyſteria, eſpecially when this diſeaſe is ſuppoſed to proceed from menſtrual obſtructions.

This plant may be given in powder to the quantity of a dram or more, for a doſe; but it has been more commonly taken in infuſion, or drank as tea [c].

The tender leaves are ſometimes uſed to give a colour and flavour to puddings. The Finlanders obtain a green dye from it. Cows and ſheep eat it: horſes, goats and ſwine refuſe it. If a dead animal ſubſtance be rubbed with this plant, the fleſh fly will not attack it [d].]

There are three varieties, one with a curled leaf, which is called double Tanſy by gardeners; another with variegated leaves; and a third with larger leaves, which have little ſcent. [Ray informs us, that the variety with curled leaves was firſt obſerved in England.]

8. Roots hardy, fleſhy and creeping. Lower leaves near three inches long, and an inch and half broad, of a grayiſh colour, and on long foot-ſtalks. The ſtems riſe from two to three feet high, and ſend out branches from the ſide: the leaves on theſe are like the lower ones, but ſmaller and ſeſſile. The flowers are produced at the top of the ſtems in a looſe corymb; they are naked, and of a deep yellow colour, appear in auguſt, but are not ſucceeded by ſeeds in England. The whole plant has a ſoft pleaſant odour. It is a native of the South of France, Spain and Italy; and was formerly pretty much uſed in the kitchen and in medicine. [It is more aromatic, and has a pleaſanter ſmell than common Tanſy. It was called *Balſamita* from its balſamic quality. *Coſtus* from the greek Κοστος, an aromatic ſhrub: hence, and from its being put into ale, our old Engliſh name *Ale-coaſt*. *Coſtmary* is the Virgin Mary's Coſtus.—It was cultivated here in 1568, as appears from Turner's herbal [e].

9. All the florets are hermaphrodite and five-cleft; but having a naked, not a chaffy receptacle it agrees rather with this genus than Athanaſia [f].—Native of the Cape of Good Hope, where it was found by Mr. Francis Maſſon, and introduced in 1774. It flowers from may to auguſt [g].]

PROPAGATION AND CULTURE.

1. This and the other ſorts from the Cape muſt be kept in pots, and removed into ſhelter before hard froſts come on. They are eaſily increaſed by cutting,

[a] Smith brit. [b] Gærtner. [c] Woodville. [d] Withering. [e] part. 3. p. 42. [f] Hort. kew. [g] L'Heritier. [h] Hort. kew.

planted in a bed of loamy earth, during any of the ſummer months. Shade them until they have taken root, and frequently refreſh them with water. When they have good roots, take them up with balls of earth, and plant them in pots, placing them among other hardy exotic plants, where they may remain till late in october, when they muſt be put into ſhelter. Theſe plants are ſo hardy as only to require protection from hard froſt, in mild weather therefore they ſhould be as much expoſed to the air as poſſible, to prevent their drawing up weak.

[5. Is propagated by ſeeds, and is hardy enough to bear the open air.]

7. Common Tanſy is eaſily propagated by the creeping roots, which, if permitted to remain undiſturbed, will in a ſhort time overſpread the ground. The ſlips therefore ſhould be placed at leaſt a foot aſunder, and in beds where the paths round them may be often dug, to keep their roots within bounds. They may be tranſplanted either in ſpring or autumn, and will thrive in almoſt any ſoil or ſituation.

If Tanſy ſhould be wanted early in the ſpring, a gentle hot-bed ſhould be made in december, and the old roots planted thereon without dividing them; arching the beds with hoops, and covering it with hoops in cold weather.—The ſecond ſort is propagated in the ſame way.

8. This alſo is propagated eaſily by parting the roots, in autumn. Where it is planted for uſe, the ſlips ſhould be ſet in beds at two feet diſtance every way: in two years the roots will meet, every other year therefore they ſhould be parted and tranſplanted, to keep them within compaſs. They will thrive in almoſt any ſoil or ſituation, but will continue longeſt in dry land.

[TANACETUM. See *Achillea*, *Athanaſia*, *Chryſanthemum*, *Cotula*, *Tagetes*.

TANAECIUM. (*From* ταινιακης, *protenſam ſ. longam aciem habens: or* ταινιακης *from* ταινια *only—thus Homer Il.* π.—ταινιακης οϊστος.)

Lin. gen. Schreb. n. 1022. *& p.* 834. *Swartz prodr.* 91. Creſcentiæ ſpec. *Brown.* 267. 266. *e Browne.*

Claſſ. 14. 2. *Didynamia Angioſpermia.*

GENERIC CHARACTER.

CAL. *Perianth* one-leafed, tubular, truncate, quite entire.

COR. one-petalled, long: *tube* cylindrical, widened above: *border* from erect ſpreading, five-cleft, almoſt equal; the two upper ſegments approximating, leſs divided, nearly upright, the three lower ſpreading, a little reflexed.

STAM. *Filaments* four, almoſt equal, ſhorter than the coroila, bending in under the back of the tube; with the rudiment of a fifth. *Anthers* two-lobed.

PIST. *Germ* placed on a fleſhy ring, roundiſh. *Style* ſimple. *Stigma* two-lobed.

PER. *Berry* large, ſubpedicelled, globular or oblong, two-celled.

SEEDS numerous, oblong, angular, neſtling.

ESSENTIAL CHARACTER.

Cal. cylindrical, truncate. *Cor.* tubular, almoſt equal, five-cleft. *Rudiment* of a fifth filament. *Berry* corticoſe, very large.

SPECIES.

1. Tanaecium Jaroba.
Swartz prodr. 92.
Jaroba. *Marcgr. broſ.* 25. *Piſo* 173.
Creſcentia? 6. *Brown. jam.* 267.
Cucurbitifera fruticoſa trifolia. *Sloan. jam.* 2. 175.
Lower leaves ternate, upper geminate, tendrils interfoliary terminating, ſtem ſcandent.

2. Tanaecium paraſiticum.
Swartz prodr. 92.
Creſcentia? 5. *Brown. jam.* 266.
Leaves ovate coriaceous, ſtem ſcandent ſhrubby rooting.

DESCRIPTION, &c.

1. This riſes with great eaſe to the top of the talleſt trees in the woods, and then ſpreads a great way over the limbs of the neighbouring trees, or bends again towards the ground. It is generally more luxuriant towards the top, and as this part requires a greater ſupport, nature

has

has ſupplied it in a peculiar manner with tendrils: for the leaves, which are always three on every common footſtalk towards the root, are never more than two at the top, but the extremity of the common ſtalk, which generally holds the third leaf in the lower branches, ſhoots here into a long winding tendril, by which it holds and ſticks to every twig or branch it meets. This climbing plant is frequent in many parts of the iſland of Jamaica, but ſeems moſt common between St. Elizabeth's and Weſtmoreland.

2. This weakly plant ſuſtains itſelf generally by the help of the neighbouring trees, or is found ſpreading upon the ground, where it does not meet with a ſupport. Its ſtem is moderately thick, and ſtreteches frequently about ſeven or eight feet from the root. The leaves are thick and ſhining; the fruit round and ſmooth. It is found, in Jamaica, about Port Antonio, near the caſcade in St. Ann's, and in many parts of the mountains, eſpecially thoſe between Sixteen-mile-walk and Luidas[1].

TANARIUS. See *Ricinus*.

TANDELA-COTTI. See *Crotalaria juncea*.]

TANNERS BARK is the Bark of the Oak-tree, chopped or ground into coarſe powder, to be uſed in tanning or dreſſing of ſkins, after which it is of great uſe in gardening: firſt, by its fermentation (when laid in a proper quantity,) the heat being always moderate, and of a long duration, which renders it of great ſervice for hot-beds; and ſecondly, after it is well rotted, it becomes excellent manure for all ſorts of cold ſtiff land, upon which one load of Tan is better than two of rotten dung, and will continue longer in the ground.

The uſe of Tan for hot-beds has not been many years known in England. The firſt hot-beds of this ſort, which were made in England, were at Blackheath in Kent, above fourſcore years ago; theſe were deſigned for the raiſing of Orange-trees, but the uſe of theſe hot-beds being but little known at that time, they were made but by two or three perſons, who had learned the uſe of them in Holland and Flanders, where the gardeners ſeldom make any other hot-beds; but in England there were very few hot-beds made of Tanners Bark before the Ananas plants were introduced into this country, which was in 1719, ſince which time the uſe of theſe hot-beds has been more general, and are now made in all thoſe gardens where the Ananas plants are cultivated, or where there are collections of tender exotic plants preſerved; and the gardeners here are now better ſkilled in the making and managing of theſe hot-beds than in moſt other countries, which might render it leſs neceſſary to give a full deſcription of them here; but yet, as there may be ſome perſons in the remote parts of England, who have not had an opportunity of informing themſelves of the uſe of Tanners Bark for this purpoſe, I ſhall inſert the ſhorteſt and plaineſt method of making and managing theſe hot-beds, as it is practiſed by the moſt knowing perſons who have long made uſe of theſe hot-beds; and firſt, I ſhall begin with the choice of the Tan.

The tanners in ſome parts of England do not grind the Bark to reduce it into ſmall pieces, as is commonly practiſed by the tanners near London, where there is great difference in the ſize of the bark, ſome being ground much ſmaller than the other, according to the different purpoſes for which it is intended; but in many places the Bark is only chopped into large pieces, which renders it very different for the uſe of hot-beds; for if the Tan is very coarſe, it will require a longer time to ferment than the ſmall Tan; but when it begins to heat, it will acquire a much greater degree, and will retain the heat a much longer time than the ſmall; therefore where there is choice, the middling ſized Tan ſhould be preferred, for it is very difficult to manage a hot-bed when made of the largeſt Tan; the heat of which is often ſo great, as to ſcald the roots of plants, if the pots are fully plunged into the bed; and I have known this violent heat continue upward of two months, ſo that it has been unſafe to plunge the pots more than half their depth into the Tan, till near three months after the beds have been made; therefore where the perſons, who have the care of theſe beds, do not diligently obſerve their working, they may in a ſhort time deſtroy the plants which are placed in the beds: on the other hand, if the Tan is very ſmall, it will not retain the heat above a month or ſix weeks, and will be rotten and unfit for a hot-bed in a ſhort time; ſo that where the middle-ſized Tan can be procured, it ſhould always be preferred to any other.

The Tan ſhould be always ſuch as has been newly taken out of the pits, for if it lies long in the tanners yard before it is uſed, the beds ſeldom acquire a proper degree of heat, nor do they continue their heat long; ſo that when it has been more than a fortnight or three weeks out of the pit, it is not ſo good for uſe as that which is new. If the Tan is very wet, it will be proper to ſpread it abroad for two or three days, to drain out the moiſture, eſpecially if it is in autumn or winter ſeaſon, becauſe then, as there will be little ſun to draw a warmth into the Tan, the moiſture will prevent the fermentation, and the beds will remain cold; but in the ſummer ſeaſon, there is no great danger from the moiſture of the Tan. The heat of the ſun through the glaſſes will be then ſo great, as ſoon to cauſe a fermentation in the Tan.

Theſe Tan-beds ſhould be always made in pits having brick-walls round them, and a brick pavement at the bottom, to prevent the earth from mixing with the Tan, which will prevent the Tan from heating. Theſe pits muſt not be leſs than three feet deep, and ſix feet in width, but ſeven is better; the length muſt be in proportion to the number of plants they are to contain, but if they are not ten feet in length, they will not retain their heat long; for where there is not a good body of Tan, the outſide of the bed will ſoon loſe its heat, ſo that the plants which are there plunged, will have no benefit of the warmth, nor will the middle of theſe beds retain their heat long, ſo that they will not anſwer the purpoſe for which they are intended.

When the Tan is put into the bed, it muſt not be beaten or trodden down too cloſe, for that will cauſe it to adhere, and form one ſolid lump, ſo that it will not acquire a proper heat; nor ſhould it be trodden down at the time when the pots are plunged into the beds, to avoid which there ſhould be a board laid croſs the bed, which ſhould be ſupported at each end, to prevent its reſting upon the Tan, upon which the perſon ſhould ſtand who plunges the pots, ſo that the Tan will not be preſſed down too cloſe. When the Tan is quite freſh, and has not been out of the pits long enough to acquire a heat, the beds will require a fortnight, or ſometimes three weeks, before they will be of a proper temperature of warmth to receive the plants; but in order to judge of this, there ſhould be three or four ſticks thruſt down into the Tan, about eighteen inches deep, in different parts of the bed, ſo that by drawing out the ſticks, and feeling them at different depths, it will be eaſy to judge of the temper of the bed; and it will be proper to let a few of theſe ſticks remain in the bed after the plants are plunged, in order to know the warmth of the Tan, which may be better judged of by feeling theſe ſticks, than by drawing out the pots, or plunging the hand into the Tan.

When the Tan is good, one of theſe beds will retain a proper degree of heat for near three months; and when the heat declines, if the Tan is forked up and turned over, and ſome new Tan added to it, the heat will renew again, and will continue two months longer; ſo that by turning over the Tan, and adding ſome new Tan every three months or thereabouts, as the bed is found to decline of its heat, they may be continued one year, but every autumn it will be proper to take out a good quantity of the old Tan, and to add as much new to the bed, that the heat of the bed may be kept up in winter; for if the heat is ſuffered to decline too much during the cold ſeaſon, the plants will ſuffer greatly; to prevent this, there ſhould always be ſome new Tan added to the bed in winter, when

[1] Browne.

when the heat is found to decline; but the Tan ſhould be laid in a dry place a week or ten days to dry, before it is put into the bed, otherwiſe the moiſture will chill the old Tan in the bed, and prevent the fermentation; ſo that unleſs the Tan is turned over again, there will be little or no heat in the beds, which often proves fatal to the plants which are plunged in them; therefore whoever has the management of theſe beds, ſhould be very careful to obſerve conſtantly the warmth of the Tan, ſince, upon keeping the beds in a due temperature of warmth, their whole ſucceſs depends; and where this caution is not taken, it frequently happens that the Ananas plants run into fruit very ſmall, or the plants are infected by inſects, both which are occaſioned by the growth of the plants being ſtopped by the decline of the heat of the Tan; therefore great regard muſt be had to that, eſpecially in winter.

The great advantages which theſe Tan-beds have of thoſe which are made of horſe-dung, are the moderate degree of heat which they acquire, for their heat is never ſo violent as that of horſe-dung, and they continue this heat much longer; and when the heat declines, it may be renewed, by turning the beds over, and mixing ſome new Tan with the old, which cannot be ſo well done with horſe-dung; and likewiſe the beds will not produce ſo great ſteams, which are often injurious to tender plants, ſo that theſe Tan-beds are much preferable to thoſe of horſe-dung for moſt purpoſes.

Tan, when it is well rotted, is alſo an excellent manure for all cold and ſtiff lands; and if it is laid upon Graſs ground in autumn, that the rains in winter may waſh it into the ground, it will greatly improve the Graſs; but when it is uſed new, or in the ſpring of the year, when dry weather comes ſoon after, it is apt to cauſe the Graſs to burn, which has occaſioned the diſuſe of Tan in many places; but if properly uſed, it will be found an excellent dreſſing for all ſtiff lands.

[It may be agreeable to thoſe who live where there are plenty of Oaks, and yet perhaps at a diſtance from tanners, to be informed that Oak leaves anſwer very well the purpoſe of Tan in hot-houſes.

Being raked into heaps, carry them to ſome place near the hot-houſe; fence them with hurdles, or any thing elſe, to keep them from being blown about; tread them well, and water them if they are brought in dry. Make the heap ſix or ſeven feet thick, and cover it with mats. In a few days the heap will come to a ſtrong heat; in five or ſix weeks they will be properly prepared for the hot-houſe. In getting them into the Pine-pits, if they appear dry, water them again; and tread them well, till the pits are quite full. Then cover the whole with Tan two inches thick, and tread it till the ſurface becomes ſmooth and even. On this place the Pine-pots, beginning with the middle row firſt, and filling up the ſpaces between the pots with tan, as when tan only is uſed.

The leaves will retain a conſtant and regular heat for twelve-months without ſtirring or turning. After this the Pines will have no occaſion to be moved, except when their pots are to be ſhifted, &c. when a little freſh Tan ſhould be added. Without a covering of Tan, the leaves by their caking will be apt to ſhrink from the ſides of the pots, and let the heat eſcape.

Oak leaves are ever preferable to Tanner's Bark; for they always heat regularly and conſtantly, never heating with violence, or turning cold after the furious heat is gone off: there is a ſaving in point of expence; and the decayed fermented leaves make good garden manure; whereas rotten Tan is of no value, for that purpoſe.

Leaves mixed with dung make excellent hot-beds, preſerving their heat much longer than when made from dung only[*].

TANNER'S SUMACH. See *Rhus Coriaria.*

TANSY. See *Tanacetum.*

——— Wild. See *Potentilla.*

TAONABO. See *Ternſtramia.*

[*] Hunter's Georgical Eſſays, 2. 65. ed. 1803. from Speechly.

TAPEINIA. See *Morœa.*]

TAPIA. See *Crateva.*

[TAPIOCA. See *Iatropha Manihot.*

It is properly the ſtarch of the Caſſada root, which it yields in conſiderable quantity. The Braſilians export it in little lumps, under this name.

TAPIRIRA. See *Juncquetia.*

TAPOGOMEA. See *Callicocca.*

TAPURA. See *Robria.*

TARALEA. See *Dipteryx.*

TARATTI. See *Nymphœa Nelumbo.*

TARAXACONASTRUM. See *Hyoſeris.*

TARAXACONOIDES. See *Apargia.*

TARAXACUM. See *Leontodon.*]

TARCHONANTHUS. (*Tarchon, an Arabic name for Artemiſia Dracunculus, or Tarragon, and ἀνθος, a flower. Having a flower like that of Tarchon or Tarragon.*)

Lin. gen. n. 940. *Reich. n.* 1020. *Schreb. n.* 1276. *Gærtn. t.* 166.

Claſſ. 19. 1. Syngeneſia Polygamia Æqualis.

Nat. order of *Nucamentaceæ. Corymbiferæ* Juſſ.

GENERIC CHARACTER.

CAL. *Common* turbinate, one-leafed, commonly half-ſeven-cleft, coloured internally, ſhorter than the corolla, ſharpiſh, permanent.

COR. *Compound* uniform: florets about twenty. *Corollets* hermaphrodite, numerous, equal.

Proper one-petalled, funnel-form, five-toothed.

STAM. *Filaments* five, capillary, very ſhort. *Anther* cylindric, tubular, length of the corollet, tailed at the baſe.

PIST. *Germ* ſuperior, oblong. *Style* twice as long as the flower. *Stigmas* two, gaping.

PER. none. *Calyx* unchanged.

SEEDS ſolitary, oblong. *Down* hairy, inveſting the ſeed all round.

REC. hairy, very ſmall, hairs length of the calyx.

OBS. *The down is ſingular in this, that it does not crown but inveſt the ſeed.*

ESSENTIAL CHARACTER.

Cal. one-leafed, commonly half-ſeven-cleft, turbinate.

Seeds covered with down.

Recept. villoſe.

SPECIES.

1. Tarchonanthus camphoratus. *Shrubby African Fleabane.*

Lin. ſpec. 1179. *Syſt.* 740. *Reich.* 3. 727. *Suppl.* 361. *bort. cliff.* 398. *Gærtn. fruct.* 2. 392. *Berg. cap.* 236. *Knipb. cent.* 2. *n.* 94.

Elichryſo affinis, &c. *Herm. lugdb.* 227. *t.* 229. *Pluk. phyt.* t. 174. *f.* 1. *Mor. hiſt.* 3. 90.

Elichryſum, Arbor africana. *Boerh. lugdb.* 1. 131.

Conyza africana fruteſcens folio Salviæ, odore Camphoræ. *Tournef. inſt.* 455.

Leaves oblong flat, calyx one-leafed five-cleft.

[2. Tarchonanthus glaber. *Smooth African Fleabane.*

Lin. ſyſt. 740. *Suppl.* 360.

Leaves ſmooth entire and toothed.

3. Tarchonanthus ericoides. *Heath-like African Fleabane.*

Lin. ſyſt. 740. *Suppl.* 360.

Leaves acerose, calyxes four-leaved.]

DESCRIPTIONS, &c.

1. Stem ſtrong, woody, riſing to the height of twelve or fourteen feet, ſending out many woody branches at the top, which may be trained to a regular head. Leaves in ſhape like thoſe of the broad-leaved Sallow, having a downy ſurface like Sage, and their under ſides white; in ſmell they reſemble Roſemary leaves when bruiſed. The flowers are produced in ſpikes at the extremity of the ſhoots, and being of a dull purple colour, do not make any great appearance. They appear in autumn, and continue great part of the winter. It retains the leaves all the year.

[Receptacle flattiſh, villoſe, with the hairs ſhorter than the calyx. Seeds ſmall, ovate, woolly, crowned with the permanent corollet, woolly on the outſide and continuous with the external integument of the ſeed. No down except a copious wool common to the ſeed and corollet. Bergius is miſtaken in attributing

buting a ſuperior germ to the flower; and Linneus in aſſigning a feathered down to the ſeeds[h].

Native of the Cape of Good Hope; alſo of China, according to Miller.—Cultivated 1690, in the Royal garden at Hampton Court.

2. This reſembles the preceding very much, but is void of ſmell, and entirely ſmooth all over. It varies with wider and narrower, entire and toothed leaves.

3. This is a ſtiff branching ſhrub, ſeldom attenuated at the top. Leaves like thoſe of Heath, cluſtered, linear, very ſhort. Flowers cluſtered, lateral, bigger than the leaves, on ſhort peduncles. Calyx-leaves oval. Corollas few, minute, concealed within the ſnow-white down of the receptacle, which is much larger than the flower.

Theſe are both natives of the Cape of Good Hope[i].]

PROPAGATION AND CULTURE.

Theſe plants are too tender to live through the winter in the open air in England, but requiring no artificial heat, may be placed with Myrtles, Oleander, &c. in winter, and in ſummer may be expoſed to the open air in a ſheltered ſituation.

They may be increaſed by cuttings, planted in may, in pots filled with light earth, and if they are plunged into a moderate hot-bed, it will promote their putting out roots; ſcreen them from the ſun until they have taken root, which will be about the middle of july; when each ſhould be tranſplanted into a ſeparate pot, and placed in the ſhade until they have taken new root: after which ſet them with other hardy exotic plants in a ſheltered ſituation to the middle or end of october, when they ſhould be removed into the greenhouſe, placing them where they may have a large ſhare of air in mild weather. Being very thirſty plants, they muſt be often watered. They muſt be ſhifted every year, and as they increaſe in ſize, into larger pots.

[TARCHONANTHUS. See *Iva*.

TARDAVEL. See *Spermacoce*.

TARE. See *Ervum* and *Vicia*.

TARENAYA. See *Cleome*.

TARGIONIA. (*So named by Micheli, in honour of Cypriani Targioni, M.D. of Florence, who had a Muſeum there.*)

Cryptogamia Algæ:—now Hepaticæ.

GENERIC CHARACTER.

Cal. two-valved, compreſſed, containing at bottom a *Capſule* nearly globular, many-ſeeded.

SPECIES.

1. Targionia hypophylla.

Micheli. 3. Engl. bot. 287. *Wither.* 884.

Lichen. *Dill. muſc. t.* 78. *f.* 9. *Col. ecphr.* 1. 331. *f.* 333. *Buxb. cent.* 1. *t.* 61. *f.* 4.

DESCRIPTION, *&c.*

Not larger than the finger nail. Green not pellucid, rough with white riſing dots. Leaf cordate-lanceolate, at firſt green, afterwards dark purple, blackiſh underneath. Fructification at the end, on the under ſide, the ſize of a Vetch. Calyx black; opening, containing the fruit covered with a yellowiſh ſkin, and filled with a yellowiſh pulp which rubs to powder between the fingers, and ſtains them[k].

Native of Italy, Spain, Conſtantinople, Flanders, Saxony about Dreſden, and England near Dawliſh in Devonſhire: flowering from march to may.

TARRAGON. See *Artemiſia*.

TARTARIAN LAMB. See *Polypodium*.

TARTONRAIRA. See *Daphne*.

TATSI-IBA. See *Morus tinctoria*.

TATULA. See *Datura*.]

TAXUS (*of Pliny, &c.* Ταξος *of Aetius. Derivation uncertain. From* τοξον; *a bow or arrow. Pliny ſays, that according to ſome, the* toxica *or poiſons, uſed for arrows, were called* taxica, *from this tree. But theſe poiſons were ſo named from* τοξον. *Others derive it from* Taxo, *in the ſenſe of reprehendo, culpo: this being a poiſonous tree.*)

Lin. gen. n. 1135. *Reich. n.* 1241. *Schreb. n.* 1553. *Tournef. t.* 362. *Juſſ.* 412. *Gærtn. t.* 91.

Claſſ. 22. 13. Dioecia Monadelphia.

Nat. order of *Coniferæ*.

GENERIC CHARACTER.

* *Male.*

CAL. none: except a *Bud* like a four-leaved Perianth.

COR. none.

STAM. *Filaments* numerous, united at bottom into a column, longer than the bud. *Anthers* depreſſed, blunt at the edge, eight-cleft, gaping every way at the baſe, and, when they have diſcharged their pollen, flat, peltate, and remarkable for their eight-cleft margin.

* *Female.*

CAL. as in the Male.

COR. none.

PIST. *Germ* ovate-acuminate. *Style* none. *Stigma* obtuſe.

PER. *Berry* from the receptacle elongated into a præputium globular, ſucculent, gaping at the top, coloured, at length waſting from dryneſs, and evaneſcent.

SEED one, ovate-oblong, prominent at the top, beyond the berry.

OBS. *The berry, ſtrictly ſpeaking, ought not to be called a pericarp. This ſpecies of berry is remarkable, nor does a ſimilar one occur, except that of Gaultheria.*

ESSENTIAL CHARACTER.

MALE. *Cal.* none. *Cor.* none. *Stam.* many. *Anthers* peltate eight-cleft.

FEM. *Cor.* none. *Style* none. *Seed* one, in a berried calycle that is quite entire.

SPECIES.

1. Taxus baccata. *Common Yew-tree.*

Lin. ſpec. 1472. *Reich.* 4. 279. *hort. cliff.* 464. *fl. ſuec. n.* 916. *Gærtn. fruct.* 2. 65. *Willich obſ. n.* 3. *illuſtr. n.* 2. *Hudſ. angl.* 437. *Wither. arr. ed.* 3. 614. *Lightf. ſcot.* 626. *Engl. bot. t.* 746. *Relh. cant. ed.* 2. *n.* 817. *Sibth. oxon. n.* 607. *Gunn. norv. n.* 420. *Hall. helv. n.* 1663. *Villars dauph.* 3. 815. *Allion. pedem. n.* 1953. *Du Roi harbecc.* 2. 451. *Duham. arb.* 2. *t.* 86. *Blackw. t.* 572. *Knipb. cent.* 1. *n.* 89. *mas. Hunt. Evel. ſilva ed.* 1. 378. 2. 257.

Taxus. *Bauh. pin.* 505. *Camer. epit.* 840. *Dod. pempt.* 859. 1. *Matth.* 1099. *Lob. obſ.* 637. 1. *ic.* 2. 232. *Ger.* 1187. 2. *emac.* 1370. *Park. theat.* 1412. *Bauh. hiſt.* 1. 241. 2. *Raii hiſt.* 1416. *ſyn.* 445.

Smilax. *Dioſcor. l.* 4. *c.* 80.

Μιλος *Theophr.* 3. *hiſt.* 10.

Leaves linear approximating.

[2. Taxus nucifera. *Acorn-bearing Yew.*

Lin. ſpec. 1472. *Reich.* 4. 280. *Kæmpf. amoen.* 814. *t.* 815. *Thunb. jap.* 275.

Leaves linear diſtant.

3. Taxus macrophylla. *Long-leaved Yew.*

Lin. ſyſt. 895. *Thunb. jap.* 276. *Kæmpf. amoen.* 5. 780. *ic. ſelect. t.* 24.

Leaves ſolitary lanceolate remote.

4. Taxus verticillata. *Whorl-leaved Yew.*

Lin. ſyſt. 895. *Thunb. jap.* 276. *Kæmpf. amoen.* 5. 780.

Leaves whorled linear, ſickle-ſhaped.

DESCRIPTIONS, *&c.*

1. Trunk ſtraight, with a ſmooth deciduous bark. Wood very hard, tough, and of a fine grain. Leaves thickly ſet, linear, ſmooth, evergreen. Flowers axillary, enveloped with imbricate bractes: the male on one tree, ſulphur-coloured, without a calyx; the female on another, with a ſmall green calyx, ſuſtaining the oval flattiſh ſeed, which calyx at length becomes red, ſoft, full of a ſweet ſlimy pulp[l].

The ſingular fructification of this tree is differently deſcribed. According to Gærtner, the calyx is imbricate with four or ſeven rounded, concave ſcales. The receptacle in the male is elongated into a column, to which are faſtened about ten anthers, after they open becoming lobed and peltate:—in the female, firſt orbicular, narrow, fungoſe; then ſubhemiſphe-

[a] Gærtner. [i] Linn. ſuppl. [k] Withering from Columna. [l] Engl. bot.

rical, membranaceous; finally fleſhy, berried, ſcarlet. Pericarp a bony obovate nut, mucronate at the tip, of a turgid lenticular form, ſmooth, dark-coloured, one-celled, valveleſs, involucred with the receptacle of the flower enlarged, ovate-globular, pervious at the tip, fleſhy and ſcarlet. Seed of the ſame ſhape with the cavity of the nut, but with a mamillary proceſs at the baſe, pale.

The fruit in ſome degree reſembles a ſmall acorn whilſt it is young, but as it advances, the ſcarlet cup becomes more fleſhy, and is elongated till it covers the whole ſeed or nut, except a round hole at the tip.]

Mr. Miller aſſerts, that though the male and female flowers are commonly on different trees, yet they are ſometimes found upon the ſame. I have never obſerved this, but it is not improbable.

The Yew-tree is a native of Europe, North America, [and Japan. Its proper ſituation is in mountainous woods, or more particularly the cleſts of high calcareous rocks. Cæſar mentions the *Taxus* as very common in Gaul and Germany. England formerly poſſeſſed great abundance, and it is now not very uncommon in a wild ſtate, in ſome parts of the country. Of planted trees there are yet many in church-yards. In Ireland, it was evidently very plentiful in former times, being at preſent common in a foſſil ſtate, but it is not now found there except in cultivation[a].

The Yew, ſays Mr. Gilpin, is a pure native of Britain: and Mr Pennant informs us, that it is to be found wild upon the hills that bound the waters of the Winander, and on the face of many precipices of different places in this kingdom[b].

Mr. Lightfoot ſays, that it is found here and there in the Highlands of Scotland in a truly wild ſtate.

In ſome parts of Buckinghamſhire it comes up in great abundance from the berries ſpontaneouſly.

The accounts of large Yew-trees yet remaining in England are numerous.

Mr. Lyſons mentions one in the church-yard at Totteridge, the girth of which, at three feet from the ground, is twenty-ſix feet: and another in Woodford church-yard, which girths at the ſame height eleven feet nine inches; and at four feet and a half from the ground fourteen feet three inches: the ſpread of its boughs forms a circumference of about one hundred and eighty feet[c].

At Waltham in Eſſex, were two large Yew-trees in which they uſed to hang the bells.

There is one of an extraordinary ſize at Peterſham: and another with a thick and ſturdy trunk at Lord Newberry's, in the old palace garden at Richmond, planted three days before Queen Elizabeth was born.

The aged Yew groves at Mickleton in Surrey could not eſcape the notice of Mr. John Toland, in his pleaſant deſcription of Epſom, 8vo. 1711.

Mr. Evelyn ſays, "he that in winter ſhould behold ſome of our higheſt hills in Surrey, clad with whole woods of theſe trees (the Box and the Yew) for divers miles in circuit, as in thoſe delicious groves of them, belonging to the late Sir Adam Brown of Bech-worth caſtle, from Box-hill, might eaſily fancy himſelf tranſported into ſome new or enchanted country[d]."—Theſe woods and groves are now no more.

The ſame author mentions "a Yew-tree in the church-yard of Crowhurſt in Surrey, which was ten yards in compaſs. Another in Braburne church-yard, not far from Scots-Hall in Kent, which being fifty-eight feet eleven inches in circumference, will bear near twenty-feet diameter: not to mention the goodly planks, and other conſiderable pieces of ſquared and clear timber, which had been hewed and ſawn out of ſome of the arms only torn from it by impetuous winds. Such another monſter is alſo to be ſeen in Sutton church-yard near Wincheſter[e]."

Several fine old trees are to be ſeen on ſome ſandy rocks about two miles from Withyam, and five from Tunbridge[f].

Near the church at Hedſor in Bucks, is a fine-growing Yew-tree, which meaſures twenty-ſeven feet circumference[g]. There are other large trees on the chalk hills of the ſame county: and a ſhady walk of them in the garden of Bradenham houſe near Weſt Wycombe, the branches of which would make excellent bows.

At Mill Hill, Hendon, in Middleſex, are four beautiful Yew trees. Dr. Trinder, whoſe property they are, favoured me with the following account of them on the 20th of April, 1797.—"Their poſition is nearly rhomboidal, in a little field belonging to me, in ſize about two acres and a half, and near the ten mile ſtone from London. The tradition is, that there were many more Yews in this field, which ſeems probable from the hollows that appear therein. I meaſured them this morning round the ſound and ſolid wood. The trees are in good preſervation, ſhowing but ſmall ſymptoms of decay.

N° 1. in girth 9 feet.
2. ——— 8 feet.
3. ——— 7½ feet.
4. ——— 7 feet.

An apprehenſion that Dr. Trinder had an intention of felling thoſe magnificent and venerable trees, attracted the attention of the late Michael Collinſon, and induced him to write a feeling letter to the learned and benevolent proprietor in their behalf.

Other remarkable Yews that are mentioned are, Sir Francis Vincent's at Stoke. One at Iſley by Oxford, four yards and ſix inches round. Talbot's Yew in Takerſley pariſh. One in Martley church-yard, Worceſterſhire, about twelve yards in circumference. In the church-yard at Aſhill in Somerſetſhire are two very large Yew-trees; one fifteen feet round, with a vaſt ſpread of branches, extending N. and S. fifty-ſix feet. The other divides into three large trunks juſt above the ground, but many of the arms are decayed[h]. Two trees are now growing on the hill above Fountain's abbey, near Ripon, which in 1770 meaſured in circumference from thirteen feet to twenty-ſix feet ſix inches[i]. In the church-yard at Aberfilwith are eleven Yew-trees, the largeſt twenty-four feet, and the ſmalleſt eleven and a half in circumference. In Mamkilad church-yard are twelve fine trees, the largeſt of which is twenty-five feet in circumference[k]. Doubtleſs there muſt be many large ancient Yew-trees remaining in Wales.

Mr. Pennant mentions one in Fontingal church-yard, in the highlands of Scotland, the ruins of which meaſured fifty-ſix feet and a half in circumference. And Mr. Lightfoot informs us, that at Glenure, near Glen-Creran, in Upper Lorn, there are the remains of an old wood of Yew.

In Ireland, there is a Yew-tree at Macruſs Abbey, having one great ſtem, two feet in diameter, and fourteen feet high, with a vaſt head of branches ſpreading on every ſide, and filling the area of the cloiſters[l].

This catalogue might probably be much increaſed by a diligent reſearch into County hiſtories, and the works of travellers.

The comparative value of a Yew with other trees, in former times, may be ſeen from the following table, taken from the ancient laws of Wales.

A conſecrated Yew, its value is a pound.
An Oak, its value is ſix ſcore pence.
A Miſſletoe branch, its value is three ſcore pence.
Thirty pence is the value of every principal branch in the Oak.
Three ſcore pence is the value of a ſweet Apple-tree.
Thirty pence is the value of a four Apple tree.
Fifteen pence is the value of a wood Yew tree.
Seven pence halfpenny is the value of a Thorn tree.
Four pence is the value of every tree after that.

[a] Information from Mr. Templeton of Orange Grove near Belfaſt.
[b] Hunter's Evelyn.
[c] Environ. vol. 4. p. 43. 277.
[d] Silva, b. 2. c. 6.
[e] Idem, b. 3. c. 3.
[f] Engl. bot.
[g] Langley's hundred of Deſbro'. p. 279.
[h] Collinſon's Somerſetſhire, 1. 13.
[i] Hunter's Evelyn.
[k] Cox's Monm. p. 248. & 264.
[l] Young's Iriſh tour.

The great value ſet upon a conſecrated Yew, in the above table, in compariſon with a common tree of the ſame kind, induces me, among other reaſons to think, that the Yew was commonly planted in church-yards, rather from motives of ſuperſtition, than on account of its utility in making bows, as many have ſuppoſed: for a ſingle tree would have afforded a very ſcanty ſupply for this purpoſe. Our forefathers were particularly careful in preſerving this funereal tree, whoſe branches it was uſual to carry in ſolemn proceſſion to the grave, and afterwards to depoſit therein, under the bodies of their departed friends. Our learned Ray ſays, that our anceſtors planted the Yew in church-yards, becauſe it was an evergreen tree, as a ſymbol of that immortality which they hoped and expected for the perſons there depoſited. For the ſame reaſon this and other evergreen trees are even yet carried in funerals and thrown into the grave with the corpſe in ſome parts of England; and in Wales, planted, with flowers, upon the grave itſelf.

The wood of the Yew is red and veined, very hard and ſmooth, much uſed by turners, inlayers, and cabinet-makers. For cogs of mills, handles of tools, poſts to be ſet in moiſt grounds, and everlaſting axle-trees, there is none to be compared with it. It is likewiſe uſed for the bodies of lutes, &c., bowls, wheels, and pins for pullies, &c.—ſpoons, cups, and ſtood-gates for fiſh-ponds, which hardly ever decay [a].

Formerly, ſays Mr. Gilpin [b], the Yew was, what the Oak is now, the baſis of our ſtrength. Of it the old Engliſh yeoman made his long-bow; which, he vaunted, nobody but an Engliſhman could bend. In ſhooting he did not, as in other nations, keep his left hand ſteady, and draw his bow with his right: but keeping his right at reſt upon the nerve, he preſſed the whole weight of his body into the horns of his bow. Hence aroſe the Engliſh phraſe of *bending a bow*; and the French of drawing one.

So great was the demand for Yew in the days of archery, that our own ſtock could not ſupply the Bowyers, and they were obliged by ſtatute to import ſtaves of it for making Bows, ſometimes at a very high price.

By the 5th Edward IV. it was directed that every Engliſhmen in Ireland, and Iriſhmen dwelling with Engliſhmen, ſhall have an Engliſh bow of his own height, made of Yew, Wych, Hazel, Aſh, or Awburne (perhaps Alder [c].) But "as for Braſell (ſays Roger Aſcham) Elme, Wych and Aſhe, experience doth prove them to be but mean for bowes, and ſo to conclude, *Exce* of all other things is that, whereof perfite ſhootinge would have a bowe made [d]."

All Venetian ſhips, with every butt of Malmſey or Tyre wine, were to import ten bow ſtaves, as the price had riſen from 40*s.* to 8*l.* a hundred.

33 Hen. VIII. c. 9. recites the great price of Yew bows made of Elke (probably Elbe) Yew; and reduces it to 3*s.* 4*d.*

By one of the ancient ſtatutes a bow of foreign Yew may be ſold for no more than 6*s.*

8 Eliz. c. 10. regulates the price of bows; and 13 Eliz. c. 14. enacts that bow ſtaves ſhall be brought into the realm from the Hanſe towns and the eaſtward.—From the end however of the reign of Hen. VIII. archery ſeems to have been chiefly conſidered as a paſtime [e].

Mr. Gilpin, contrary to general opinion, is a great admirer of the form and foliage of this tree. "The Yew, ſays he, is of all other trees, the moſt tonſile. Hence all the indignities it ſuffers. We every where ſee it cut and metamorphoſed into ſuch a variety of deformities, that we are hardly brought to conceive, it has a natural ſhape; or the power which other trees have, of hanging careleſsly or negligently. Yet it has this power in a very eminent degree; and in a ſtate of nature, except in expoſed ſituations, is perhaps one of the moſt beautiful evergreens we have.

We ſeldom however ſee the Yew in perfection. In the New Foreſt it formerly abounded: but it is now much ſcarcer. Still in many parts of the foreſt, ſome noble ſpecimens are left. One of theſe is a tree of peculiar beauty. It immediately divides into ſeveral maſſy limbs, each of which, hanging in grand looſe foliage, ſpreads over a large compaſs of ground, and yet the whole tree forms a cloſe compact body: that is, its boughs are not ſo ſeparated as to break into diſtinct parts. It cannot boaſt the ſize of many other trees on record, but it has ſufficient ſize for all the purpoſes of landſcape, and in point of picturesque beauty it probably equals any of them. It ſtands not far from the banks of Lymington river, and occupies a ſmall knoll, ſurrounded with other trees, ſome of which are Yews, but of inferior beauty. If ſuch trees were common, they would recover the character of the Yew among the admirers of picturesque beauty [f].

Dr. Hunter mentions a variety with ſhort leaves which appears very ornamental in plantations.

It has been much debated whether the Yew-tree be poiſonous or not; there cannot now be any doubt of its being ſo. Mr. White in his hiſtory of Selborne, has given ſome authentic information on the ſubject, as well as on other particulars relative to this intereſting tree.

"In the church-yard of this village, ſays he, is a Yew-tree, whoſe aſpect beſpeaks it to be of a great age: the body is ſquat ſhort and thick, and meaſures twenty-three feet in the girth, ſupporting an head of ſuitable extent to its bulk. This is a male tree, which in the ſpring ſheds clouds of duſt, and fills the atmoſphere around with its farina. As far as we have been able to obſerve, the male trees become much larger than the females; and moſt of the Yew-trees in the church-yards of this neighbourhood are males; but this muſt have been matter of mere accident, ſince men, when they firſt planted Yews, little dreamed that there were ſexes in trees.

In a yard, in the midſt of the ſtreet, till very lately grew a middle-ſized female tree, which commonly bore great crops of berries. By the high winds uſually prevailing about the autumnal equinox, theſe berries, then ripe, were blown down into the road, where the hogs ate them. It was remarkable, that though barrow-hogs and young ſows found no inconvenience from this food, yet milch-cows often died after ſuch a repaſt: a circumſtance that can be accounted for, only by ſuppoſing that the latter, being much exhauſted and hungry, devoured a larger quantity.

But the twigs and leaves of Yew, eaten in a very ſmall quantity, are certain death to horſes and cows, and that in a few minutes. An horſe tied to a yew-hedge, or to a faggot-ſtack of dead Yew, ſhall be found dead before the owner can be aware that any danger is at hand: the writer has been ſeveral times a ſorrowful witneſs to loſſes of this kind among his friends; and in the iſle of Ely had once the mortification to ſee nine young ſteers or bullocks of his own all lying dead in an heap from browzing a little on an hedge of Yew in an old garden, into which they had broken in ſnowy weather. Even the clippings of a Yew hedge have deſtroyed a whole dairy of cows when thrown inadvertently into a yard. And yet ſheep and turkies, and as park-keepers ſay, deer, will crop theſe trees with impunity.

Some intelligent perſons aſſert, that the branches of Yew, while green, are not noxious: but among the number of cattle that we have known fall victims to this deadly food, not one has been found, when it was opened, but had a lump of green Yew in its paunch. True it is, that Yew-trees ſtand for twenty years or more in a field, and no bad conſequences enſue: but at ſome time or other, cattle, either from wantonneſs when full, or from hunger when empty, will be meddling, to their certain deſtruction [g].

According to Linneus, horſes and cows refuſe the Yew, but ſheep and goats eat it. It ſhould ſeem that ſheep feed on it with impunity, ſince the lower part

[a] Evelyn. [b] Withering. [c] Foreſt ſcen. 1. 92.
[d] Barrington in Archæologia. 7. 48. 53.
[e] Works, ed. Benn. 133. [f] Archæol. 7. 53. 55. 61. 65.
[g] For. ſcen. p. 92. 93. [h] P. 324.

of

of the trees, in ſheep-walks where the boughs come near the ground, are as much formed into ſhapes by their browzing, as any other tree or ſhrub: it is however ſo common to find a ſheep dead, that the cauſe is ſeldom enquired into[a]. Sheep are ſaid to have been killed by eating the bark. It is a common notion, that the loppings in a withering or half dried ſtate are moſt detrimental to cattle[1]. This may be true, but yet it is certain from what has been ſaid above, that the freſh leaves are often fatal to them. And this contradicts the aſſertion of Theophraſtus, that ruminating animals eat Yew-leaves with impunity[b]. Though perhaps they are killed by them leſs frequently, and not ſo ſuddenly as horſes and aſſes, which by eating a handful or two of leaves from the extremities of the branches, have been known to die in a quarter of an hour after, ſuddenly, and without any apparent ſymptoms or pain, not diſtended by wind, nor inflamed. Some cows die in the ſame eaſy manner; but others vomit, are very ſick, and languiſh a long time. Six or eight ſheep periſhed by browzing on this tree. A horſe and a mule died by eating five ounces each of the leaves; the former, who took them faſting, died within an hour; the latter at the end of three hours, he had taken them after eating[2].

Yew-leaves are certainly fatal to the human ſpecies. Evelyn, from Aubrey, relates a caſe of two women who died from a drink of it: and Dr. Percival of Mancheſter mentions another of three children, who were killed by a ſpoonful of the green leaves, which was given them for worms: they died without agony or any of the uſual ſymptoms of vegetable poiſons. The ſame quantity of the dried leaves had been given the day before without any effect[c].

A clergyman, who was curate in Suſſex, informed me, that a young lady and her ſervant, his pariſhioners, being ſeized with an ague, were adviſed to take a decoction of Rue, which they unhappily miſtaking for Yew, ſent to the church-yard, where a large old tree grew, and gathered a quantity of the leaves, of which they made a decoction, and drank it upon going to bed. The next morning they were both found dead. This was ſunday: on the thurſday following, the clergyman was called upon to bury them: he performed the office on the ſervant, but the young lady had ſo fine a bloom on her countenance, that they entertained hopes of her being in a ſtate of ſuſpended animation, and accordingly tried the experiments uſual in ſuch caſes, but without ſucceſs: they determined however not to bury her at that time, but kept her till the enſuing ſaturday, and even then the corpſe remained totally unchanged. What made it more remarkable was, that the accident happened in november, and the weather was of that damp murky kind in which ſtefſh keeps the worſt.

Reſpecting the fruit, Theophraſtus ſays it is eaten by ſome perſons, being ſweet and harmleſs. The berries are certainly not ſo deleterious as the leaves; I was fond of ſucking them in my youth, but ſpit out the ſtones. The ſows, I preſume, mentioned by Mr. White, ſwallowed the whole fruit, and in large quantities. They are eaten by birds, after the haws are conſumed, or deſtroyed by froſt. Dioſcorides ſays they occaſion the flux: and that a drink of the leaves brings on a coldneſs of the whole body, ſuffocation and death in a little time. Cæſar, in his gallic war relates, that Cativulcus king of the Eburones killed himſelf by a draught of Yew.—Gerarde with his uſual ſimplicity relates, that when he was young, and went to ſchool, he and divers of his ſchool-fellows did eat their fills of the berries of this tree.

Mr. Boutcher aſſerts upon his own experience, that the wooden parts of a bed made of Yew, will not be approached by bugs.

An anonymous writer in the Gentleman's Magazine ſuggeſts that the Yew afforded branches for the proceſſions on Palm-Sunday. In the eaſtern counties, the children gather the branches of the Sallow, which is then in flower, and carry them about on that feſtival.]

The only uſe this tree is fit for in gardens, is to form hedges for the defence of exotic plants: for which purpoſe, when it is neceſſary to have hedges, it is the moſt proper of any; the leaves being ſmall, and the branches ſo cloſe together, that it is carefully ſhorn, they break the winds better than any other ſort of fence, becauſe they are not reverberated, as they are againſt walls and pales. [But they have this diſadvantage, that they are a harbour for ſnails and other vermin.

If the only uſe of the Yew in gardens be for hedges: in plantations, notwithſtanding its ſombrous hue, it may be placed ſo as to be an ornament, among other evergreen trees; and where a diſagreeable object is to be concealed, nothing is more effectual than the Yew, which with proper care may be removed even when it is of a conſiderable ſize.

In the ſouth of England almoſt every church-yard has its tree, and ſome have two; but in the north few are to be found.

2. The fruit reſembles the acorns of the Oak, and is aſtringent. It is eaten in deſerts, is ſaid to be very wholeſome, and notwithſtanding its aſtringent taſte, to be laxative to the bowels. An oil expreſſed from it is uſed in cookery. The wood is in requeſt among the cabinet-makers.—Native of Japan, here and there near Nagaſaki and in Nipou.

3. Branches round, knotted from the fallen leaves, flexuoſe, erect, aſh-coloured, ſmooth. Leaves ſcattered, elliptic, entire with a thick rib, ſmooth, pale beneath, patulous, a finger's length. Flowers among the leaves, axillary, dioecous. Ament male, cylindric. Berry ovate, ſmooth, green, ſize of a large pea, one-celled, one-ſeeded, growing black as it dries. Seed one, filling the berry, ovate, white. The wood is uſed by the cabinet-makers.—Native of Japan near Nagaſaki, &c. It flowers in june.

4. Branches round, ſmooth, aſh-coloured. Leaves ſeſſile, about eight in a whorl, blunt, entire, ſmooth; above green, convex, with a groove in the middle; beneath concave, with the margin and two lines raiſed, pale; ſpreading, a finger's length and more.—Native of Japan[e].

Loureiro's *Sebifera glutinoſa* is perhaps the ſame with *Taxus macrophylla* of Thunberg. It is certainly very nearly allied to this genus.]

PROPAGATION AND CULTURE.

Sow the berries in autumn, as ſoon as they are ripe, without clearing them from the pulp, upon a ſhady bed of freſh undunged ſoil, covering them about half an inch thick with the ſame earth. In the ſpring clear the bed carefully from weeds, and if the ſeaſon prove dry, refreſh the bed with water occaſionally, to promote the growth of the ſeeds, many of which will come up the ſame ſpring, but others will remain in the ground until autumn or ſpring following; but where the ſeeds are preſerved above ground, until ſpring before they are ſown, the plants never come up until the year after.

In this bed, conſtantly well cleared from weeds, the plants may remain two years; when they ſhould be removed, in autumn, into a ſpot of freſh undunged ſoil, divided into beds four or five feet wide. Set them in rows a foot aſunder, and ſix inches from each other, obſerving to lay a little mulch upon the ſurface of the ground about their roots, as alſo to water them in dry weather until they have taken root, after which they will require no farther care, but to keep them clear from weeds in ſummer, and to trim them according to the purpoſe for which they are deſigned.

In theſe beds they may remain two or three years, according as they have grown, when they ſhould be removed, in autumn, into a nurſery; placing them in rows at three feet diſtance, and the plants eighteen inches aſunder in the rows; and trimming them in ſummer according to the deſign for which they are intended. In three or four years they may be tranſplanted where they are to remain; always ob-

[a] Gent. magaz. vol. 56. for 1786. p. 941.
[b] Hiſt. l. 3. c. 19.
[c] Villars.
[1] Withering.
[2] Withering.
[e] Thunberg.

ſerving

ſerving to remove them in autumn where the ground is very dry, but on cold moiſt land it is better in the ſpring. Theſe trees are very ſlow of growth.

[Mr. Boutcher adviſes, that the ſeeds ſhould be diveſted of their pulp before they are ſowed. In this caſe, ſome will appear the following ſpring; but as theſe will be much the ſmaller part, he adviſes the ſeeds to be mixed with earth till ſpring.

The Yew may likewiſe be propagated by cuttings of one or two years growth, planted in a ſhady border, the beginning of april, or the end of auguſt: torn branches are preferable for this purpoſe. In two years they will be fit for removal to another nurſery, where they may remain three years, and ſo on, according to the ſize required. No tree is more patient of being tranſplanted old than the Yew; ſo that you may at once form with it hedges ſeven or eight feet high. It ſhould be a rule never to clip theſe hedges in autumn.

TAZETTA. See *Narciſſus*.

TEA-BUCKTHORN. See *Rhamnus*.

—— TREE. See *Thea*.

——, New Jerſey. See *Ceanothus*.

——, New Zealand. See *Philadelphus*.

——, Oſwego. See *Monarda*.

——, Weſt Indian. See *Sida*.

TEAK TREE. See *Tectona*.

TEASEL. See *Dipſacus*.

TECTONA. (*Tectonia, ſtructura, opus fabrile, ſo named from the uſe of this noble tree in building.*)

Lin. gen. Schreb. n. 356. *ſuppl.* 20. *Thunb. nov. gen.* 71. *Gærtn. t.* 57. Theka Malab. *Juſſ.* 108.

Claſſ. 5. 1. Pentandria Monogynia.

Nat. order of *Vitices* Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* one-leafed, bell-ſhaped, half-five-cleft, permanent: *ſegments* ovate, from upright ſpreading, obtuſe.

COR. one-petalled, funnel-form, length of the calyx. *Tube* ſhort. *Border* five-cleft: *ſegments* ſpreading, ovate, externally tomentoſe.

STAM. *Filaments* five, inſerted into the orifice of the tube of the corolla, very ſhort. *Anthers* globular, grooved, ſtanding out.

PIST. *Germ* ſuperior, ovate, very villoſe, girt with a ſhort pitcher-ſhaped gland. *Style* filiform, erect, a little longer than the calyx. *Stigma* obtuſe, two or three-toothed: (according to Thunberg, Stigmas two, revolute, obtuſe.)

PER. *Drupe* ſubglobular, depreſſed, four-lobed, rounded-four-cornered, hirſute, corky-ſpongy, juiceleſs, within the calyx now large, inflated, membranaceous, veined, concealed.

SEED. *Nut* ſubglobular, terminated by a round tubercle, four-ribbed, four-celled: axis bony, hollow within. *Kernels* compreſſed.

OBS. *The flowers are often ſix-cleft, hence the genus is referred to the claſs Hexandria by Thunberg.*

ESSENTIAL CHARACTER.

Cor. five-cleft. *Stigma* toothed. *Drupe* dry, ſpongy, within the inflated calyx. *Nut* three-celled.

SPECIES.

1. Tectona grandis. *Teak-wood* or *Indian Oak*.

Lin. ſpec. ed. Willd. 1. 1088. *ſuppl.* 151. *Thunb. nov. gen.* 4. 71. *Roxb. corom.* 1. 10. *t.* 6. *Ait. kew.* 1. 260.

T. Theka. *Lour. cochinch.* 137. *ed. Willd.* 169.

Theka. *Rheed. mal.* 4. 57. *t.* 27. *Marſd. Sumatr.* 129.

Jatus. *Rumph. amb.* 3. 34. *t.* 18.

Quercus indica. *Bont. jav. l.* 6. *c.* 16. *p.* 151.

DESCRIPTION, *&c.*

Trunk erect, growing to an immenſe ſize: bark aſh-coloured. Branches croſs-armed, numerous, ſpreading: young ſhoots four-ſided; ſides channelled. Leaves oppoſite, ſpreading, ovate, a little ſcolloped, above ſcabrous, beneath covered with ſoft white down; larger at a diſtance from the flowers, and on young trees from twelve to twenty-four inches long, and from eight to ſixteen broad. Petiole ſhort, thick, laterally compreſſed. Panicle terminating, very large, croſs-armed: diviſions dichotomous, with a ſeſſile fertile flower in each cleft; the whole covered with a hoary farinaceous ſubſtance. Common peduncle quadrangular, with the ſides deeply channelled, and the angles obtuſe. Bractes oppoſite, lanceolate, two at each ſubdiviſion. Flowers ſmall, white, very numerous, fragrant. Calyx and corolla oftener ſix-cleft than five-cleft. Nectary very ſmall; often wanting. Stamens oftener ſix than five. Stigma two-cleft: diviſions obtuſe and ſpreading. Nut exceeding hard, four-celled[o].

In the Supplementum Plantarum of the younger Linneus it is ſaid that the bark is like that of the Alder; the larger leaves pendulous, parabolic, acute, for the moſt part oblique at the baſe, ſilvery beneath, ſmooth above with very minute white dots; the common peduncle erect; calyx white-tomentoſe; corolla ſcarcely bigger than the calyx, pubeſcent on the outſide with black dots interſperſed; nectary red-orange; anthers tawny; germ white-villoſe; drupe ſize of a hazel nut.

Loureiro deſcribes the bark as ſmooth, and the branches aſcending; leaves very large, ovate, acute, quite entire, oblique at the baſe, with ribs oppoſite, curved in, thick; flowers white, terminating, in large, upright racemes, regularly divided; corolla five-parted; drupe ſmall, roundiſh, three-celled, covered with the inflated calyx, which is five-cleft and gaping at the top.

According to Gærtner, the drupe is hirſute all over with roughiſh curled aſh-coloured villoſe hairs; the rind friable; the ſhell bony, marked with four raiſed narrower ribs, and as many thicker rounded ſwellings, and perforated at the axis. Seed one in each of the four cells, lens-ſhaped ſwelling a little, having an umbilical chord from the top to the bottom, faſtened to the vertex of the cells.

Native of the vaſt foreſts in Java and Ceylon, Malabar, Coromandel, Pegu, Ava, the confines of Cochinchina and Cambodia, &c. On the coaſt of Coromandel it flowers in the hot ſeaſon; and the ſeed is ripe in auguſt and ſeptember. Lord Cornwallis and Colonel Kyd begun ſome time ago to introduce it into Bengal, where it thrives well.

The wood of this tree has by long experience been found to be the moſt uſeful timber in Aſia: it is light, eaſily worked, and at the ſame time both ſtrong and durable: that which grows near the banks of the Goda-very is beautifully veined, and very cloſely grained; it is particularly fit for furniture, gun-carriages, &c. where ſmall timber is wanted. For ſhip-building the Teak is reckoned ſuperior to any other ſort of wood, being light, ſtrong, and very durable, either in or out of the water. Pegu produces the largeſt quantity, the large rivers there enable the natives to bring it down to the ſea ports from the interior mountainous parts of the country where it grows, at a cheap rate, which enables them to ſell it lower than in any other part of India[p].

The trade between Calcutta, Madras and Rangoon (the principal port of Pegu) has of late years rapidly increaſed, particularly on account of Teak timber, the produce of Ava and Pegu, whence Calcutta and Madras draw all their ſupplies of wood for ſhip-building, and various other purpoſes: it being conveyed from the Malabar to the Coromandel coaſt, or to Calcutta, at an expenſe ſo great as to preclude the attempt. The commerce in this article is ſo extenſive, as to require an annual return of Indian commodities to the amount of £.200,000 ſterling. And it is produced in the foreſts of the Birman and Pegu empires in inexhauſtible abundance.

A durable veſſel of burthen cannot be built in the river of Bengal, without the aid of Teak plank. Within the laſt ſix years (previous to 1795) ſome of the fineſt merchant ſhips ever ſeen in the river Thames, have arrived from Calcutta, where they were built of Teak timber. Madras alſo is ſupplied from Rangoon, with timber for all the common purpoſes of domeſtic uſe; and even Bombay, although the coaſt

[o] Roxburgh. [p] Idem.

of Malabar is its principal ſtore-houſe, finds it worth while, annually to import a large quantity of planks from Pegu[1].

This tree was introduced at Kew in 1777, by John Walſh, Eſq.[2]

TEF. See *Poa*.

TEGANIUM. See *Nolana*.

TELEPHIASTRUM. See *Portulaca*.

TELEPHIOIDES. See *Andrachne*.]

TELEPHIUM (*of Pliny.* Τηλεφιον *of Dioſcorides. So named from Telephus ſon of Hercules by Auge, and according to ſome, king of Myſia.*)

Lin. gen. n. 377. *Reich. n.* 408. *Schreb. n.* 515. *Tournef. t.* 128. *Juſſ.* 313. *Gærtn. t.* 129.

Claſſ. 5. 3. Pentandria Trigynia.

Nat. order of *Portulaceæ* Juſſ. *Miſcellaneæ* Linn.

GENERIC CHARACTER.

CAL. *Perianth* five-leaved: *leaflets* oblong, obtuſe, concave; keeled, length of the corolla, permanent.

COR. *Petals* five, oblong, obtuſe, narrower below, erect, inſerted into the receptacle.

STAM. *Filaments* five, awl-ſhaped, ſhorter than the corolla. *Anthers* incumbent.

PIST. *Germ* three-ſided, acute. *Style* none. *Stigmas* three, acute, ſpreading.

PER. *Capſule* ſhort, three-ſided, three-valved, one-celled, *Receptacle* free, ſhorter by half than the capſule.

SEEDS very many, roundiſh.

ESSENTIAL CHARACTER.

Cal. five-leaved. *Pet.* five, inſerted into the receptacle. *Capſ.* one-celled, three-valved.

SPECIES.

1. Telephium Imperati. *True Orpine.*
Lin. ſpec. 388. *Reich.* 1. 743. *Willd.* 1. 1506. *vir. cliff.* 20. *hort. cliff.* 73. *upſ.* 70. *Hall. helv. n.* 841. *Ger. prov.* 450. *Villars dauph.* 2. 555. *Allion. pedem. n.* 1682. *Deſcent. atlant.* 270. *Gærtn. fruct.* 2. 221. *Lamark illuſtr. t.* 213. *Knipb. cent.* 2. *n.* 95.
T. Dioſcoridis *Imperati* 665. *Tournef. inſt.* 248.
T. legitimum Imperati 7. *Cluſ. hiſt.* 2. 67. *Ger. emac.* 520. 3. *Park. theat.* 727.
T. repens folio non deciduo. *Baub. pin.* 287.
Helianthes ſpecies rara, coma inflexa ut in Heliotropio. *Baub. hiſt. Rait hiſt.* 1016.
Polygonum perenne procumbens folio breviore floribus in capitulum congeſtis. *Mor. hiſt.* 2. 592.
Leaves alternate.

[2. Telephium oppoſitifolium.
Lin. ſpec. 388. *Reich.* 1. 743. *Willd.* 1. 1506. *Deſcent. atlant.* 270.
T. Myoſotidis foliis amplioribus conjugatis. *Shaw afr.* 572. *ic.*
Leaves oppoſite.]

DESCRIPTIONS, *&c.*

1. Root compoſed of yellowiſh woody fibres, ſpreading out wide. Stalks and branches ſlender, trailing, eight or nine inches long. Leaves ſmall, ovate, grayiſh, ſmooth and pretty ſtiff, having one longitudinal nerve running through the middle. Flowers terminating, in ſhort thick bunches, reflexed like thoſe of Heliotrope.

[Stem proſtrate, ſmooth, round, ſcarcely branched. Leaves glaucous, elliptic, quite entire, narrower at the baſe, thick, hard, ſolid. Flowers in a cloſe corymb, white. Styles three, converging at the baſe[3]. Capſule ovate, contracted at top into a point, three-ſided, having a depreſſed ſtreak along the middle of each ſide. Seeds about twelve, ovate-globular, ſomewhat kidney-ſhaped, ſcarcely or very ſlightly compreſſed, dotted all over with very minute raiſed dots, but ſmooth and of a very dark colour not ſhining; faſtened to a ſhort, free central receptacle[4].

Native of the South of France, Spain, Switzerland, Italy and Barbary.—It flowers from june to auguſt; and was cultivated by Mr. Miller in 1739[5].

2. Native of Barbary, where it was found by Shaw; and is diſtinguiſhed by its larger conjugate leaves.]

[1] Major Symes's Embaſſy to Ava, 1800. qu. pp. 217. 457. &c.
[2] Hort. kew. [3] Deſfontaines. [4] Gærtner. [5] Hort. kew.

PROPAGATION AND CULTURE.

1. Sow the ſeeds in autumn, on a bed of freſh light earth, in an open ſituation; for if they be ſown in the ſpring, the plants will not come up till the following ſpring. Leave them ſix or eight inches aſunder, and clear them well from weeds, which will ſoon overbear ſuch trailing plants. They do not tranſplant well, and therefore ſhould be ſown where they are to remain. The ſeeds will ſoon ſcatter, and if the ground be not diſturbed, plants will come up in plenty.

[TELEPHIUM. See *Arenaria, Cotyledon, Craſſula, Ornithopus, Rhodiola, Sedum.*

TEKDO. See *Fucus.*

TENOA. See *Cocos.*

TENTWORT. See *Aſplenium.*

TERAMNUS. (Τερμνος, *the ſame with* τερμων *and* τερνος, *ſoft: properly predicated of legumes and ſeeds which are made tender by boiling.* Theophr. l. 4. c. 13. *Land adapted to produce ſeeds fit for boiling is called by Dioſcorides* γον τερμνιαιον.)

Lin. gen. Schreb. n. 1171. *Brown.* 290. *Swartz prodr.* 105.

Claſſ. 17. 4. Diadelphia Decandria.

Nat. order of *Papilionaceæ* or *Leguminoſæ.*

GENERIC CHARACTER.

CAL. *Perianth* one-leafed, two-lipped: *upper lip* a little larger, bifid; *lower* three-toothed, *teeth* acute, erect, approximating.

COR. papilionaceous: *ſtandard* obcordate, ſpreading, erect, bent down a little; *wings* length of the ſtandard, erect, approximating, rounded at the tip; *keel* very ſmall, concealed at the baſe by the calyx between the lower part of the wings, bipartile, covering the ſtamens.

STAM. *Filaments* ten; five very ſmall and barren, alternate with the others, which are fertile, longer, and united at the baſe. *Anthers* roundiſh.

PIST. *Germ* elongated, pubeſcent. *Style* none. *Stigma* round-headed.

PER. *Legume* linear, compreſſed, margined.

SEEDS many, roundiſh, compreſſed, retuſe at the end.

ESSENTIAL CHARACTER.

Keel very ſmall, concealed within the calyx. *Stam.* alternate; five barren. *Stigma* ſeſſile, headed.

SPECIES.

1. Teramnus volubilis.
Swartz prodr. 105. *Brown. jam.* 290.
Dolichos uncinatus. *Linn. & Dill. upſr.*
Phaſeolus ſylveſtris minor, flore minori. *Sloan. jam.* 1. 182.
Leaves ovate-lanceolate pubeſcent.
2. Teramnus uncinatus.
Swartz prodr. 105.
Leaves oblong obtuſe, ſilky beneath.

DESCRIPTIONS, *&c.*

1. This creeping or climbing plant is pretty common in the lower hills of Jamaica, and runs generally the length of ſix or ſeven feet from the root. The leaves are oblong, and covered moderately with down. The flowers are ſmall, and diſpoſed in ſlender ſpikes at the axils of the leaves. The ſeed-veſſels are long, ſlender and compreſſed. See *Dolichos uncinatus.*

2. Native of Jamaica[6].

TEREBINTHUS. See *Burſera, Cluſia, Piſtacia,* and *Rhus.*

TERMINALIA. (*So named, I preſume, from the leaves in cluſters terminating the branches, with ſpikes of flowers intermixed.*)

Lin. gen. Reich. n. 1261. *Schreb. n.* 1583. *Jacqu. collect.* 1. 130. *Forſk. eſcul.* 20. *Juſſ.* 76. Catappa *Gærtn. t.* 127.

Claſſ. 23. 1. Polygamia Monoecia.

Nat. order of *Elæagni* Juſſ.

GENERIC CHARACTER.

* *Hermaphrodite* Flowers, at the lower part of the raceme, flowering firſt.

CAL. *Perianth* one-leafed, ſuperior, five-cleft, coloured within: *ſegments* ovate, acute, equal.

[6] Swartz.

COR. none.—*Nectary* pitcher-ſhaped, in the bottom of the calyx, conſiſting of five ſmall hiſpid corpuſcles.
STAM. *Filaments* ten, awl-ſhaped, from erect ſpreading, longer than the calyx, and inſerted into the bottom of it. *Anthers* roundiſh, erect.
PIST. *Germ* inferior, ovate-oblong. *Style* filiform, erect, length of the ſtamens. *Stigma* ſimple.
PER. *Drupe* oval, depreſſed, two-grooved; or compreſſed, acuminate.
SEED *Nut* oval-oblong, two-valved; *kernel* oblong.
* *Males* ſuperior, flowering later.
CAL. as in the Hermaphrodites.
COR. none. *Nectary* as in the Hermaphrodites.
STAM. as in the Hermaphrodites.

ESSENTIAL CHARACTER.

Cal. five-parted. *Cor.* none. *Stam.* ten.
HERM. *Style* one. *Drupe* inferior, boat-ſhaped.

SPECIES.

1. Terminalia Catappa.
Lin. ſyſt. ed. 13. 764. *ed.* 14. 910. *ſuppl.* 434. *mant.* 128 519. *Reich.* 4. 326. *Jacqu. collect.* 1. 130. *Forſt. prodr. n.* 388. *eſcul.* 52. *n.* 19.
Catappa. *Rumph. amb.* 1. 174. *t.* 68.
Adamaram. *Rheed. mal.* 4. *t.* 5. *Raii hiſt.* 1650.
Amygdalus indica Nieuhoff. *Raii hiſt.* 1521.
Leaves obovate, tomentoſe beneath.
2. Terminalia glabrata.
Forſt. prodr. n. 389. *eſcul.* 52. *n.* 20.
Leaves obovate, ſmooth on both ſides.
3. Terminalia latifolia.
Swartz prodr. 68. *Brown. jam.* 255.
Arbor maxima, forte prunifera. *Sloan. jam.* 2. 130. *Raii dendr.* 43.
Leaves obovate ſubſerrate, drupes fleſhy.
4. Terminalia arbuſcula.
Swartz prodr. 68.
Leaves ovate-lanceolate entire pubeſcent, branches dichotomous, racemes erect.
5. Terminalia Chebula.
Retz. obſ. 5. 31. *n.* 91.
Leaves ovate naked, petioles biglandular above, racemes ſimple.
6. Terminalia anguſtifolia.
Jacqu. hort. 3. 51. *t.* 100.
T. Benzoin. *Lin. ſyſt.* 910. *ſuppl.* 434.
Croton Benzoe. *Lin. ſyſt. ed.* 13. 721. *mant.* 297. *Reich.* 4. 184. *mat. med.* 206.
Catappa Benzoin. *Gærtn. fruct.* 2. 206.
Arbor Benzoinæ. *Grim. ephem. nat. cur. dec.* 4. *ann.* 1. *Valentin. ind. litt.* 487.
Leaves lanceolate pubeſcent.

DESCRIPTIONS, &c.

1. This is a large tall leafy tree, with ſpreading branches in whorls. Leaves at the ends of the branches in cluſters, ſpreading, obovate or ſubcordate, marked with a notch, ſomewhat tomentoſe beneath, on ſhort roundiſh petioles. Racemes among the leaves, very many, round. Bractes oblong, caducous, cordate. Racemelets cylindrical. Hermaphrodite flowers few, more remote, at the baſe of the racemelet, ſmaller than thoſe of the Currant[a]. The fruit is a drupe, three inches long, egg-ſhaped, grooved, containing an oblong kernel, that has the taſte of an Almond, and may be uſed for the ſame purpoſes, but it has not ſo much oil. At Banda and Batavia it appears in the deſert, and is much liked by Europeans. Rheede ſays that the Catappa bears ripe fruit three times in a year. This tree is commonly planted near houſes, in wide areas, and ſeats are placed under it, for the enjoyment of the cloſe extenſive ſhade which it affords. The timber is fit for ſhip-building, being light and laſting many years in ſalt water. The bark and leaves yield a black pigment, with which the Indians dye their teeth, and Indian ink is made[b].
Native of the Eaſt Indies. Introduced in 1778, by Meſſ^rs. Kennedy and Lee[c].
2. This alſo is a lofty widely-branching tree, with a ſtraight ſtem clear of branches to a great height; the branches moſtly oppoſite, round, ſpreading, ſmoothiſh, with a cinereous cloven bark. Leaves terminating in cluſters, ovate and obovate, bluntiſh, quite entire, ſpreading, ſmooth, even, a ſpan long, on round ſpreading petioles, covered with a brownish pile, and ſcarcely an inch in length. Peduncles from the axils of the upper leaves, ſimple, round, filiform, erect, bent down at the top, ſmooth, a ſpan long. Raceme quite ſimple, with the flowers ſcattered and whitiſh: the males on the upper part, pedicelled; the hermaphrodites below, numerous, up to the middle of the raceme, very like the others, but really ſeſſile; the germ itſelf being inferior, and performing the office of a pedicel.
It differs from the preceding, in having the leaves only half the ſize, and without any pubeſcence on the lower ſurface; the nut only one third of the ſize, oval, not at all grooved or margined, but as it were appendicled with an acute, compreſſed, membranaceous apex.
Native of the Society and Friendly iſles in the South Seas. In the former it is cultivated near their huts and in their burial places. In the language of Otaheite it is named *Auwiri*, or *e-Tara-iri* and *e-Tara-heiriri*, and is accounted ſacred to their idols. The wood is uſed in building boats, and making drums, benches, &c. The kernels are eaten, and have the flavour of almonds[d].
3. This tree has a very large trunk, and grows to a vaſt height, covered with a gray or very light-brown bark, ſeeming to be looſe and come off in long pieces; it has here and there ſome knobs or eminencies on its ſurface, the leaves are very large and long. It grows in all the inland great woods of the iſland of Jamaica[e].
4. This alſo is a native of Jamaica[f].
5. This tree ſcarcely exceeds three or four times the height of a man, and is not much diffuſed. Branches ſcattered, covered with an aſh-coloured bark. Leaves moſtly oppoſite, quite entire, the younger ones ſilky-hirſute. Under the leaf on the upper ſide of the petioles are two glands, and ſometimes two others in the very baſe of the leaf, eſpecially in the tender leaves. Peduncles racemed, with the flowers ſeſſile in whorls, at the ends of the branchlets. Calyx bell-ſhaped, ſhort, five-toothed, outwardly naked, yellowiſh, inwardly bearded. Glands at the bottom oblong, denſely bearded. Filaments twice as long as the calyx. All the flowers are hermaphrodite, but thoſe which are fertile may eaſily be diſtinguiſhed from the barren ones, by having the germ thickened at the baſe.—Native of the Eaſt Indies, where it was found by Koenig[g].
6. Bark ſmooth, or very minutely cloven, brown. Branches in whorls, leafy at the end, ſpreading, ſimple, hairy. Leaves in cluſters, petioled, repand, hairy, green with blood-red netted veins. Stipules none. Raceme horizontal, immediately below the leaves, ſimple, ſhort, male flowers with one hermaphrodite. Germ inferior obclavate or ovate-oblong, contracted at the neck. Drupe boat-ſhaped or concave, convex on the other ſide. Nut bony, very hard, ovate, obtuſe, ſharp. The bark on the wood of the officinal Benzoin which Thunberg brought over reſembles that of this tree very much[h]. But that is now aſcertained to be a ſpecies of Styrax.
Native of the Eaſt Indies. Cultivated in 1757, by Mr. Miller[i].

TERMINALIS. See *Dracæna*.]
TERNATEA. See *Clitoria*.
[TERNSTROEMIA. (*So named by Matis, in memory of Ternſtroem, known by his travels into China.*)
Lin. gen. Schreb. n. 872. *ſuppl.* 39. *Swartz prodr.* 81. *Juſſ.* 262. Cleyera *Thunb. jap.* 12. *nov. gen.* 68. *ſpec. Vahl* Taonabo *Aubl.* 227. t. 228. *ſpec. Swartz.* Tonabea *Juſſ.* 262.
Claſſ. 13. 1. Polyandria Monogynia.
Nat. order of *Columniferæ*. *Aurantiæ* Juſſ.

[a] Forſter, eſcul. [b] Sloane. [c] Swartz. [d] Retz.
[e] Lin. mant. [f] Forſter eſcul. [g] Hort. kew.

GENERIC CHARACTER.

CAL. *Perianth* one-leafed, five-parted, upon which two ſmaller *ſcales* are incumbent: all the *ſegments* are orbicular, concave, and permanent.

COR. one-petalled, bell-ſhaped: *tube* none: *border* five-parted: *ſegments* orbicular, concave, emarginate, longer than the calyx.

STAM. *Filaments* numerous, filiform, inſerted in a double row into the baſe of the corolla, and ſhorter than it. *Anthers* linear, erect, length of the filaments.

PIST. *Germ* ſuperior, roundiſh. *Style* cylindric, length of the ſtamens. *Stigma* capitate.

PER. *Berry* juiceleſs, ovate, even, two-celled.

SEEDS about eight, convex on one ſide, flat on the other.

ESSENTIAL CHARACTER.

Cal. five-parted. *Cor.* one-petalled, wheel-ſhaped, with the border bell-ſhaped, five or ſix-parted. *Anthers* thick at the tip. *Berry* juiceleſs, two-celled.

SPECIES.

1. Ternſtroemia meridionalis.
Lin. ſyſt. 427. *ſpec. ed. Willd.* 2. 1128. *ſuppl.* 264. *Vahl ſymb.* 2. 60. *Swartz prodr.* 81. *obſ.* 207. *Mutis amer. t.* 9.
Leaves obovate emarginate quite entire, peduncles axillary.

2. Ternſtroemia elliptica.
Lin. ſpec. ed. Willd. 2. 1128. *Vahl ſymb.* 2. 61. *Swartz prodr.* 81.
Leaves elliptic quite entire, peduncles lateral.

3. Ternſtroemia punctata.
Lin. ſpec. ed. Willd. 2. 1128. *Swartz prodr.* 81. Taonabo punctata. *Aubl. guian.* 1. 571. *t.* 228.
Leaves oblong quite entire ſubemarginate dotted at the edge, peduncles axillary.

4. Ternſtroemia japonica.
Lin. ſpec. ed. Willd. 2. 1129. *Thunb. in Linn. tranſ.* 2. 335.
Cleyera japonica. *Thunb. jap.* 224.
Leaves ovate-lanceolate ſerrulate at the tip, peduncles lateral.

5. Ternſtroemia dentata.
Lin. ſpec. ed. Willd. 2. 1129. *Swartz prodr.* 81. Taonabo dentata. *Aubl. guian* 1. 569. *t.* 227.
Leaves oblong acuminate tooth-ſerrate, peduncles axillary and lateral.

DESCRIPTIONS, *&c.*

1. This is a tree with determinate branches, and more ſimple ſtiffiſh branchlets, with an aſh-coloured bark. Leaves alternate, ſubpetioled, coriaceous, perennial, oval, obtuſe, ſubemarginate, ſomewhat recurved at the edge, quite entire, veinleſs. Stipules none. Peduncles thick, compreſſed-ancipital, ſhorter by half than the leaves, drooping. Calyx rigid, almoſt cartilaginous. Corolla moſtly five-parted, ſeldom ſix-parted, white; firſt globular, then bell-ſhaped. Berry dry, falling when ripe without ſplitting. Seeds blood-red, ſilky [2].

Swartz remarks, that the flowers are whitiſh below, but yellow above; and the ſeeds ſcarlet.

According to Vahl it differs little from the next ſpecies: the leaves are ſhorter, acute at the baſe, rounded at the top and emarginate; and the peduncles are commonly longer than the leaves.

Found in New Granada by Mutis; and ſince in Jamaica, Nevis and Dominica by Swartz.

2. The branches have a ſmooth wrinkled bark. Leaves at the top of the branches, ſcattered, alternate, two inches long and more, quite ſmooth, coriaceous, a little bent back at the edge, having numerous minute raiſed dots ſcattered over both ſurfaces, narrower at the baſe, above veinleſs, ſhining. Petiole ſhort, flat above, convex beneath. Peduncles towards the top, a little above the leaves, ſcattered, an inch long, one-flowered, purpliſh. Calyx-leaves blunt, coriaceous [1].

Willdenow remarks, that the leaves are rather obtuſe than acute.

[2] Linn. ſuppl. [1] Vahl.

Native of the Weſt Indies, Guadeloupe, St. Vincent's, &c.

3. This is a tree of about twenty-five feet in height, and branching in a ſcattered manner at the top: the leaves are alternate, ovate, of an obſcure green, ſmooth, and marked with rough dots on the edges: the flowers are yelloviſh and ſtand on long ſtalks.

Native of Guiana, in the woods of Serpent mountain [2].

4. Stem arboreous, branched, ſmooth all over. Branches and branchlets ſubverticillate, three, four or five together, cinereous, wrinkled, directed one way, upright. Leaves at the very ends of the final branchlets, in a ſort of whorl, four, five or ſix together, unequal, oblong-ovate, obtuſe, thick, evergreen, bright green above, paler beneath, flat, an inch and half long. Petioles half round, grooved above, red, a line in length. Flowers axillary, one, two, or three together, on drooping, one-flowered peduncles, half an inch long.—Native of Japan; flowering in the autumnal months [3].

5. A tree, of the height of about twenty feet, ſpreading into ſeveral ſtraight but bending branches at the top: theſe branches divide into alternate, leafy branchlets: the leaves are ovate, alternate, ſmooth, ſerrated, and terminate in a long point: the flowers ſpring ſingly from the branchlets and the boſoms of the leaves, and are of a yelloviſh colour [4].

Native of the woods of Guiana, flowering in auguſt and ſeptember.

TERRÆ GLANDES. See *Lathyrus tuberoſus.*

TERRA JAPONICA. See *Mimoſa.*

TESTA. See *Cycas.*

TESTICULUS. See *Ophrys* and *Orchis.*

TETRACERA. (*Τέτρα* and *κέρας, quadruplex cornu. The ſeed-veſſel, in ſome ſpecies, being compoſed of four capſules, like horns.*)
Lin. gen. n. 683. *Reich. n.* 738. *Schreb. n.* 930. & *p.* 833. *Gærtn. t.* 69. *Juſſ.* 339. Euryandra *Forſt. gen. n.* 41. Delima *Linn.* Rhinium *Schreb. gen.* 1545. Mappia *n.* 1755.
Claſſ. 13. 4. Polyandria Tetragynia.—Icoſandria Tetragynia. *Schreb.*
Nat. order of *Roſaceæ* Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* one-leafed, five or ſix-parted, (five or ſix-leaved,) ſpreading, permanent: *ſegments* roundiſh, a little unequal.

COR. *Petals* three to five, or none? (four or five) roundiſh, concave, inſerted into the calyx.

STAM. *Filaments* numerous, capillary, widening at the top, permanent, inſerted into the calyx. *Anthers* twin, with the cells diſjoined.

PIST. *Germs* three or four, ſometimes ſolitary, ovate, oblique, diverging. *Styles* ſimple, permanent. *Stigmas* obtuſe.

PER. *Capſules* as many (four) as there are germs, ovate, divaricating, opening by the inner ſide.

SEEDS ſolitary or few, ſurrounded by a rayed aril.

ESSENTIAL CHARACTER.

Cal. five or ſix-leaved. *Cor.* four or five-petalled. *Filam.* widening above and anther-bearing on each ſide. *Capſ.* four, opening on the ſide. *Seed* arilled at the baſe.

SPECIES.

* *Flowers one-ſtyled.*

[1. Tetracera ſarmentoſa.
Lin. ſpec. ed. Willd. 2. 1240. *Vahl ſymb.* 3. 70.
Delima ſarmentoſa. *Lin. ſpec.* 736. *ſyſt.* 494. *Reich.* 2. 587. *fl. zeyl. n.* 205. *amœn.* 1. 403. *Burm. ind.* 122. *t.* 37. *f.* 1. *Dill. muſc.*
Frutex indicus ſarmentoſus, foliis hiſpidis rigidis. *Burm. zeyl.* 101.
Piripu. *Rheed. mal.* 7. 101. *t.* 54.
Leaves oblong ſerrate rugged, flowers one-ſtyled.

2. Tetracera tomentoſa.
Lin. ſpec. ed. Willd. 2. 1241.
Tigarea dentata. *Aubl. guian.* 2. 920. *t.* 351.

[2] Aublet. [3] Thunberg. [4] Aublet.

Leaves

Leaves ovate acuminate toothed ſmooth above tomentoſe beneath, flowers one-ſtyled.

3. Tetracera aſpera.
Lin. ſpec. ed. Willd. 2. 1241.
Tigarea aſpera. *Aubl. guian.* 2. 918. *t.* 350.
Rhinium. *Schreb. gen. n.* 1545.
Leaves roundiſh ſubrepand rugged, flowers one-ſtyled.

4. Tetracera Doliocarpus.
Lin. ſpec. ed. Willd. 2. 1241.
Doliocarpus caule ſcandente, foliis ovatis dentatis, pedunculis lateralibus unifloris. *Roland. act. holm.* 1756. *p.* 249. *t.* 9.
Leaves oblong acuminate, toothed at the end, peduncles axillary one-flowered, flowers one-ſtyled.

5. Tetracera ſtricta.
Lin. ſpec. ed. Willd. 2. 1241.
Doliocarpus caule ſtricto, foliis deflexis ovato-lanceolatis dentatis, floribus terminalibus. *Roland. act. holm.* 1756. *p.* 249.
Leaves ovate-lanceolate toothed, flowers terminating one-ſtyled, ſtem ſtrict.

6. Tetracera Calinea.
Lin. ſpec. ed. Willd. 2. 1241.
Calinea ſcandens. *Aubl. guian.* 1. 556. *t.* 221.
Doliocarpus Calinea. *Dict. noſtr. n.* 3.
Leaves oblong acuminate quite entire ſmooth, peduncles many-flowered lateral, flowers one-ſtyled.

7. Tetracera obovata.
Lin. ſpec. ed. Willd. 2. 1241.
Soramia guianenſis. *Aubl. guian.* 1. 552. *t.* 219.
Mappia guianenſis. *Dict. noſtr.*
Leaves obovate quite entire ſmooth, peduncles ſubcorymboſe lateral, flowers one-ſtyled.

8. Tetracera nitida.
Lin. ſpec. ed. Willd. 2. 1242. *Vahl ſymb.* 3. 70.
Leaves lanceolate-oblong rugged quite entire, flowers one-ſtyled.

** *Flowers moſtly four-ſtyled.*

9. Tetracera Euryandra.
Lin. ſpec. ed. Willd. 2. 1242. *Vahl ſymb.* 3. 71.
Euryandra ſcandens. *Forſt. prodr. n.* 228. *gen. n.* 41. *Dict. noſtr.*
Leaves oblong obtuſe even quite entire, flowers three-ſtyled.]

10. Tetracera volubilis.
Lin. ſpec. 751. *Reich.* 2. 617. *Willd.* 2. 1242. *hort. cliff.* 214. *Vahl ſymb.* 3. 71. *Gærtn. fruct.* 1. 336. *Pluk. phyt. t.* 146. *f.* 1.
Petræa floribus ſpicatis, ſcabris lauri foliis. *Amm. hort.* 581.
Leaves very rugged ſerrate, flowers four-ſtyled.

[11. Tetracera lævis.
Lin. ſpec. ed. Willd. 2. 1242. *Vahl ſymb.* 3. 71.
Leaves oblong even almoſt quite entire acuminate, flowers terminating.

12. Tetracera alnifolia.
Lin. ſpec. ed. Willd. 2. 1243.
Leaves oblong acute almoſt quite entire ſomewhat rugged beneath, panicle terminating.

DESCRIPTIONS, &c.

1. Calyx-leaves often ſix. Capſule ovate, attenuated, ſmooth, opening longitudinally on one ſide. Seed one, ſmall, black, girt below by a toothletted aril[a].—Native of the Eaſt Indies. See DILLENIA.

2. A ſhrub, with long downy twigs, and alternate, ſharp-pointed, toothed leaves, which are of a bright green above, and downy beneath: the flowers are white. It is a native of Guiana, flowering in january.

3. A ſhrub, with ſeveral rough ſtems or twigs, ſubdividing into long branches and branchlets, which riſe to the branches of the neighbouring trees, and, bending over them, hang downwards to the ground: the branches, branchlets, and even the leaves are very rough: the latter ſtand alternate, and are roundiſh and ſlightly undulated on the edges: the flowers, according to Aublet, are male and female, and are of a white colour.

Native of Guiana, where it grows in woods, ſometimes ſo very plentifully as to be extremely inconvenient to thoſe who endeavour to walk in them[b].

4. A ſhrub, with a climbing ſtem, and alternate, ovate, toothed, pointed leaves: the flowers are rather ſmall, and are ſucceeded by rounded or globoſe capſules.—Native of Surinam.

5. A ſhrub, riſing with a ſtraight ſtem: leaves ovate, lanceolate, and toothed: flowers borne at the extremities of the branches.—Native of Surinam[c].

6. See *Doliocarpus Calinea.*

7. See *Mappia guianenſis.*

8. Branches round, ſmooth. Branchlets moſtly two-parted, ſomewhat hairy, rugged. Leaves alternate, three or four inches long, ſomewhat ſhining, marked with lines above along the nerves, beneath in a manner ribbed with the raiſed nerves; the nerves beneath and the rib on both ſides villoſe; they are veined, rugged eſpecially the younger ones, bluntiſh; ſometimes obſcure remote toothlets run from the nerves a little beyond the edge: the younger leaves when examined with a magnifier appear to have minute whitiſh ſcales ſcattered over the upper ſurface; the older ones are marked with impreſſed dots. Petiole ſhort, convex beneath, channelled above from a thin upright margin. Racemes a little above the axils of the upper leaves, and from the end of the branchlets, compound, longer than the leaf. Partial peduncles and pedicels alternate, filiform, villoſe, purpliſh. Bracte ovate, membranaceous, acute, at the baſe of the partial peduncles. Calyx five-leaved: leaflets roundiſh, the three outer ſmaller, ſhort, the two inner larger, concave, ſmooth, the edges appearing to be ſubciliate when examined with a magnifier. Corolla four-petalled: petals roundiſh, a little plaited and waved about the edge, two ſomewhat leſs than the others. Filaments length of the petals, ſmooth. Anther on each ſide by the ſide of the filament towards the top. Germ ovate, acute, ſmooth. Style length of the filaments. Stigma flat, ſubpeltate. Suppoſed to have been found in the iſland of Trinidad by von Rohr.

9. Leaves petioled, paler underneath, two inches long and more[d]. See EURYANDRA.]

10. This has a woody ſtalk riſing to the height of twelve or fourteen feet, covered with a gray bark, and ſending out ſeveral ſlender woody branches which twine about any neighbouring ſupport. Leaves oblong-ovate, near ſix inches long, and two inches and a half broad, ſlightly indented on their edges towards their points, and having many tranſverſe veins running from the midrib to the edges; they are placed alternate on the branches, ſtand upon ſhort foot-ſtalks, are of a grayiſh colour on their upper ſurface, and brown on their under. The flowers are produced in panicles at the end of the branches; theſe panicles are compoſed of three or four ſhort thick ſpikes, which branch out from the lower part of the principal ſpike, which is much longer and thicker than the others. The flowers have ſix thin purple petals, of the ſame length as the calyx, and very fugacious. The four germs become ſo many oval capſules, which are reflexed, open lengthwiſe on the upper ſide, and have each one oblong ſeed incloſed. Mr. Miller affirms, that this ſhrub is very different from the *Fagus americana*, &c. of Plukenet: [but that is continued as a ſynonym by Gærtner, Willdenow, &c.

Capſules acuminate both ways, ſpreading horizontally, coriaceous, ſmooth, very dark cheſtnut-coloured, one-celled. Seed ovate, ſomewhat wrinkled and angular, black, ſhining, very minutely dotted; ſurrounded by a fleſhy membranaceous aril, which is white, quite entire below, faſtened to the navel, above divided longitudinally by a cleft, and thence towards each ſide deeply cloven into linear parallel ſegments: the ſeed is faſtened to the bottom of the capſule[e].

Native of South America.] Mr. Miller ſays, it grows naturally at La Vera Cruz, where it was diſcovered by Dr. Houſtoun, who ſent it to England. He received it alſo from the iſland of Bermuda, where it was found by Dr. Creſſy.

11. Branchlets flexuoſe, with an aſh-coloured bark, ſmooth, ſomewhat angular. Leaves alternate, attenu-

[a] Vahl. [b] Aublet. [c] Roland. [d] Vahl. [e] Gærtner.

GENERIC CHARACTER.

CAL. *Perianth* one-leafed, five-parted, upon which two ſmaller *ſcales* are incumbent: all the *ſegments* are orbicular, concave, and permanent.

COR. one-petalled, bell-ſhaped: *tube* none: *border* five-parted: *ſegments* orbicular, concave, emarginate, longer than the calyx.

STAM. *Filaments* numerous, filiform, inſerted in a double row into the baſe of the corolla, and ſhorter than it. *Anthers* linear, erect, length of the filaments.

PIST. *Germ* ſuperior, roundiſh. *Style* cylindric, length of the ſtamens. *Stigma* capitate.

PER. *Berry* juiceleſs, ovate, even, two-celled.

SEEDS about eight, convex on one ſide, flat on the other.

ESSENTIAL CHARACTER.

Cal. five-parted. *Cor.* one-petalled, wheel-ſhaped, with the border bell-ſhaped, five or ſix-parted. *Anthers* thick at the tip. *Berry* juiceleſs, two-celled.

SPECIES.

1. Ternſtroemia meridionalis.
Lin. ſyſt. 487. *ſpec. ed. Willd.* 2. 1128. *ſuppl.* 264. *Vahl ſymb.* 2. 60. *Swartz prodr.* 81. *obſ.* 207. *Mutis amer. t.* 9.
Leaves obovate emarginate quite entire, peduncles axillary.

2. Ternſtroemia elliptica.
Lin. ſpec. ed. Willd. 2. 1128. *Vahl ſymb.* 2. 61. *Swartz prodr.* 81.
Leaves elliptic quite entire, peduncles lateral.

3. Ternſtroemia punctata.
Lin. ſpec. ed. Willd. 2. 1128. *Swartz prodr.* 81.
Taonabo punctata. *Aubl. guian.* 1. 571. *t.* 228.
Leaves oblong quite entire ſubemarginate dotted at the edge, peduncles axillary.

4. Ternſtroemia japonica.
Lin. ſpec. ed. Willd. 2. 1129. *Thunb. in Linn. tranſ.* 2. 335.
Cleyera japonica. *Thunb. jap.* 224.
Leaves ovate-lanceolate ſerrulate at the tip, peduncles lateral.

5. Ternſtroemia dentata.
Lin. ſpec. ed. Willd. 2. 1129. *Swartz prodr.* 81.
Taonabo dentata. *Aubl. guian* 1. 569. *t.* 227.
Leaves oblong acuminate tooth-ſerrate, peduncles axillary and lateral.

DESCRIPTIONS, *&c.*

1. This is a tree with determinate branches, and more ſimple ſtiffiſh branchlets, with an aſh-coloured bark. Leaves alternate, ſubpetioled, coriaceous, perennial, oval, obtuſe, ſubemarginate, ſomewhat recurved at the edge, quite entire, veinleſs. Stipules none. Peduncles thick, compreſſed-ancipital, ſhorter by half than the leaves, drooping. Calyx rigid, almoſt cartilaginous. Corolla moſtly five-parted, ſeldom ſix-parted, white; firſt globular, then bell-ſhaped. Berry dry, falling when ripe without ſplitting. Seeds blood-red, ſilky [b].

Swartz remarks, that the flowers are whitiſh below, but yellow above; and the ſeeds ſcarlet.

According to Vahl it differs little from the next ſpecies: the leaves are ſhorter, acute at the baſe, rounded at the top and emarginate; and the peduncles are commonly longer than the leaves.

Found in New Granada by Mutis; and ſince in Jamaica, Nevis and Dominica by Swartz.

2. The branches have a ſmooth wrinkled bark. Leaves at the top of the branches, ſcattered, alternate, two inches long and more, quite ſmooth, coriaceous, a little bent back at the edge, having numerous minute raiſed dots ſcattered over both ſurfaces, narrower at the baſe, above veinleſs, ſhining. Petiole ſhort, flat above, convex beneath. Peduncles towards the top, a little above the leaves, ſcattered, an inch long, one-flowered, purpliſh. Calyx-leaves blunt, coriaceous [c].

Willdenow remarks, that the leaves are rather obtuſe than acute.

[b] Linn. ſuppl. [c] Vahl.

Native of the Weſt Indies, Guadeloupe, St. Vincent's, &c.

3. This is a tree of about twenty-five feet in height, and branching in a ſcattered manner at the top: the leaves are alternate, ovate, of an obſcure green, ſmooth, and marked with rough dots on the edges: the flowers are yellowiſh and ſtand on long ſmooth footſtalks.

Native of Guiana, in the woods of Serpent mountain [a].

4. Stem arboreous, branched, ſmooth all over. Branches and branchlets ſubverticillate, three, four or five together, cinereous, wrinkled, directed one way, upright. Leaves at the very ends of the final branchlets, in a ſort of whorl, four, five or ſix together, unequal, oblong-ovate, obtuſe, thick, evergreen, bright green above, paler beneath, flat, an inch and half long. Petioles half round, grooved above, red, a line in length. Flowers axillary, one, two, or three together, on drooping, one-flowered peduncles, half an inch long.—Native of Japan; flowering in the autumnal months [b].

5. A tree, of the height of about twenty feet, ſpreading into ſeveral ſtraight but bending branches at the top: theſe branches divide into alternate, leafy branchlets: the leaves are ovate, alternate, ſmooth, ſerrated, and terminate in a long point: the flowers ſpring ſingly from the branchlets and the boſoms of the leaves, and are of a yellowiſh colour [c].

Native of the woods of Guiana, flowering in auguſt and ſeptember.

TERRÆ GLANDES. See *Lathyrus tuberoſus.*

TERRA JAPONICA. See *Mimoſa.*

TESSO. See *Cycas.*

TESTICULUS. See *Ophrys* and *Orchis.*

TETRACERA. (*Τέτρα and κέρας, quadruplex cornu. The ſeed-veſſel, in ſome ſpecies, being compoſed of four capſules, like horns.*)
Lin. gen. n. 683. *Reich. n.* 738. *Schreb. n.* 930. & *p.* 833. *Gærtn. t.* 69. *Juſſ.* 339. Euryandra *Forſt. gen. n.* 41. Delima *Linn.* Rhinium *Schreb. gen.* 1545. Mappia *n.* 1735.
Claſſ. 13. 4. Polyandria Tetragynia.—Icoſandria Tetragynia. *Schreb.*
Nat. order of *Roſaceæ* Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* one-leafed, five or ſix-parted, (five or ſix-leaved,) ſpreading, permanent: *ſegments* roundiſh, a little unequal.

COR. *Petals* three to five, or none? (four or five) roundiſh, concave, inſerted into the calyx.

STAM. *Filaments* numerous, capillary, widening at the top, permanent, inſerted into the calyx. *Anthers* twin, with the cells diſjoined.

PIST. *Germs* three or four, ſometimes ſolitary, ovate, oblique, diverging. *Styles* ſimple, permanent. *Stigmas* obtuſe.

PER. *Capſules* as many (four) as there are germs, ovate, divaricating, opening by the inner ſide.

SEEDS ſolitary or few, ſurrounded by a rayed aril.

ESSENTIAL CHARACTER.

Cal. five or ſix-leaved. *Cor.* four or five-petalled. *Filam.* widening above and anther-bearing on each ſide. *Capſ.* four, opening on the ſide. *Seed* arilled at the baſe.

SPECIES.

* *Flowers one-ſtyled.*

[1. Tetracera ſarmentoſa.
Lin. ſpec. ed. Willd. 2. 1240. *Vahl ſymb.* 3. 70.
Delima ſarmentoſa. *Lin. ſpec.* 736. *ſyſt.* 494. *Reich.* 2. 587. *fl. zeyl. n.* 205. *amœn.* 1. 403. *Burm. ind.* 122. *t.* 37. *f.* 1. *Dill. muſtr.*
Frutex indicus ſarmentoſus, foliis hiſpidis rigidis. *Burm. zeyl.* 101.
Piripu. *Rheed. mal.* 7. 101. *t.* 54.
Leaves oblong ſerrate rugged, flowers one-ſtyled.

2. Tetracera tomentoſa.
Lin. ſpec. ed. Willd. 2. 1241.
Tigarea dentata. *Aubl. guian.* 2. 920. *t.* 351.

[a] Aublet. [b] Thunberg. [c] Aublet.

Leaves

Leaves ovate acuminate toothed smooth above tomentose beneath, flowers one-styled.

3. Tetracera aspera.
Lin. spec. ed. Willd. 2. 1241.
Figarea aspera. *Aubl. guian.* 2. 918. *t.* 350.
Rhinion. *Schreb. gen. n.* 1545.
Leaves roundish subrepand rugged, flowers one-styled.

4. Tetracera Doliocarpus.
Lin. spec. ed. Willd. 2. 1241.
Doliocarpus caule scandente, foliis ovatis dentatis, pedunculis lateralibus unifloris. *Roland. act. holm.* 1756. *p.* 249. *t.* 9.
Leaves oblong acuminate, toothed at the end, peduncles axillary one-flowered, flowers one-styled.

5. Tetracera stricta.
Lin. spec. ed. Willd. 2. 1241.
Doliocarpus caule stricto, foliis deflexis ovato-lanceolatis dentatis, floribus terminalibus. *Roland. act. holm.* 1756. *p.* 249.
Leaves ovate-lanceolate toothed, flowers terminating one-styled, stem strict.

6. Tetracera Calinea.
Lin. spec. ed. Willd. 2. 1241.
Calinea scandens. *Aubl. guian.* 1. 556. *t.* 221.
Doliocarpus Calinea. *Dict. nostr. n.* 3.
Leaves oblong acuminate quite entire smooth, peduncles many-flowered lateral, flowers one-styled.

7. Tetracera obovata.
Lin. spec. ed. Willd. 2. 1241.
Soramia guianensis. *Aubl. guian.* 1. 552. *t.* 219.
Mappia guianensis. *Dict. nostr.*
Leaves obovate quite entire smooth, peduncles subcorymbose lateral, flowers one-styled.

8. Tetracera nitida.
Lin. spec. ed. Willd. 2. 1242. *Vahl symb.* 3. 70.
Leaves lanceolate-oblong rugged quite entire, flowers one-styled.

** *Flowers mostly four-styled.*

9. Tetracera Euryandra.
Lin. spec. ed. Willd. 2. 1242. *Vahl symb.* 3. 71.
Euryandra scandens. *Forst. prodr. n.* 228. *gen. n.* 41. *Dict. nostr.*
Leaves oblong obtuse even quite entire, flowers three-styled.]

10. Tetracera volubilis.
Lin. spec. 751. *Reich.* 2. 617. *Willd.* 2. 1242. *hort. cliff.* 214. *Vahl symb.* 3. 71. *Gærtn. fruct.* 1. 336. *Pluk. phyt. t.* 146. *f.* 1.
Petræa floribus spicatis, scabris lauri foliis. *Amm. hort.* 581.
Leaves very rugged serrate, flowers four-styled.

[11. Tetracera læves.
Lin. spec. ed. Willd. 2. 1242. *Vahl symb.* 3. 71.
Leaves oblong even almost quite entire acuminate, flowers terminating.

12. Tetracera alnifolia.
Lin. spec. ed. Willd. 2. 1243.
Leaves oblong acute almost quite entire somewhat rugged beneath, panicle terminating.

DESCRIPTIONS, &c.

1. Calyx-leaves often six. Capsule ovate, attenuated, smooth, opening longitudinally on one side. Seed one, small, black, girt below by a toothletted aril*.—Native of the East Indies. See DILLENIA.

2. A shrub, with long downy twigs, and alternate, sharp-pointed, toothed leaves, which are of a bright green above, and downy beneath: the flowers are white. It is a native of Guiana, flowering in january.

3. A shrub, with several rough stems or twigs, subdividing into long branches and branchlets, which rise to the branches of the neighbouring trees, and, bending over them, hang downwards to the ground: the branches, branchlets, and even the leaves are very rough: the latter stand alternate, and are roundish and slightly undulated on the edges: the flowers, according to Aublet, are male and female, and are of a white colour.

Native of Guiana, where it grows in woods, sometimes so very plentifully as to be extremely inconvenient to those who endeavour to walk in them*.

* Vahl. * Aublet.

4. A shrub, with a climbing stem, and alternate, ovate, toothed, pointed leaves: the flowers are rather small, and are succeeded by rounded or globose capsules.—Native of Surinam.

5. A shrub, rising with a straight stem: leaves ovate, lanceolate, and toothed: flowers borne at the extremities of the branches.—Native of Surinam*.

6. See *Doliocarpus Calinea.*

7. See *Mappia guianensis.*

8. Branches round, smooth. Branchlets mostly two-parted, somewhat hairy, rugged. Leaves alternate, three or four inches long, somewhat shining, marked with lines above along the nerves, beneath in a manner ribbed with the raised nerves; the nerves beneath and the rib on both sides villose; they are veined, rugged especially the younger ones, bluntish; sometimes obscure remote toothlets run from the nerves a little beyond the edge: the younger leaves when examined with a magnifier appear to have minute whitish scales scattered over the upper surface; the older ones are marked with impressed dots. Petiole short, convex beneath, channelled above from a thin upright margin. Racemes a little above the axils of the upper leaves, and from the end of the branchlets, compound, longer than the leaf. Partial peduncles and pedicels alternate, filiform, villose, purplish. Bracte ovate, membranaceous, acute, at the base of the partial peduncles. Calyx five-leaved: leaflets roundish, the three outer smaller, short, the two inner larger, concave, smooth, the edges appearing to be subciliate when examined with a magnifier. Corolla four-petalled: petals roundish, a little plaited and waved about the edge, two somewhat less than the others. Filaments length of the petals, smooth. Anther on each side by the side of the filament towards the top. Germ ovate, acute, smooth. Style length of the filaments. Stigma flat, subpeltate. Supposed to have been found in the island of Trinidad by von Rohr.

9. Leaves petioled, paler underneath, two inches long and more*. See EURYANDRA.]

10. This has a woody stalk rising to the height of twelve or fourteen feet, covered with a gray bark, and sending out several slender woody branches which twine about any neighbouring support. Leaves oblong-ovate, near six inches long, and two inches and a half broad, slightly indented on their edges towards their points, and having many transverse veins running from the midrib to the edges; they are placed alternate on the branches, stand upon short foot-stalks, are of a grayish colour on their upper surface, and brown on their under. The flowers are produced in panicles at the end of the branches; these panicles are composed of three or four short thick spikes, which branch out from the lower part of the principal spike, which is much longer and thicker than the others. The flowers have six thin purple petals, of the same length as the calyx, and very fugacious. The four germs become so many oval capsules, which are reflexed, open lengthwise on the upper side, and have each one oblong seed inclosed. Mr. Miller affirms, that this shrub is very different from the *Fagus americana*, &c. of Plukenet: [but that is continued as a synonym by Gærtner, Willdenow, &c.

Capsules acuminate both ways, spreading horizontally, coriaceous, smooth, very dark chestnut-coloured, one-celled. Seed ovate, somewhat wrinkled and angular, black, shining, very minutely dotted; surrounded by a fleshy membranaceous aril, which is white, quite entire below, fastened to the navel, above divided longitudinally by a cleft, and thence towards each side deeply cloven into linear parallel segments: the seed is fastened to the bottom of the capsule*.

Native of South America.] Mr. Miller says, it grows naturally at La Vera Cruz, where it was discovered by Dr. Houstoun, who sent it to England. He received it also from the island of Bermuda, where it was found by Dr. Cressy.

11. Branchlets flexuose, with an ash-coloured bark, smooth, somewhat angular. Leaves alternate, attenu-

* Roland. * Vahl. * Gærtner.

ated at the base, obscurely serrate at top with a few teeth, two or three inches long, veined, smooth on both sides, on very short petioles. Peduncles solitary or two together, an inch long. Flowers in a sort of raceme, on one or two-flowered pedicels. Calyx-leaves six, roundish. Styles two, awl-shaped. Capsules four, roundish, ventricose, mucronate, very smooth, shining. Seed one, small, black, shining, covered below up to the middle with a whitish aril toothletted at the edge.—Native of the East Indies[1].

12. Branches round, smooth. Leaves alternate, petioled, coriaceous, attenuated at the base, rounded at the tip, mostly quite entire at the edge, but sometimes having an obscure tooth or two at the tip, parallel-netted veined, smooth and shining above. Calyx four-leaved. Corolla seems to be five-petalled. Filaments widening a little at the top. Anther on each side. Capsules four, one-seeded. Seed black, wholly covered with a whitish aril. Panicle simple. Peduncles three-flowered.—Native of Guinea[2].

We have here many distinct genera of various authors united under one, from their agreement in the general characters. As *Delima* of Linneus, *Rhinium* and *Mappia* of Schreber, *Tigarea*, *Calinea* and *Soromia* of Aublet, *Doliocarpus* of Rolander, and *Euryandra* of Forster. Willdenow suspects, that *Assa indica* of Houttuyn, (*Syst.* 4. *p.* 40. *t.* 26.) is a species of this genus.]

PROPAGATION AND CULTURE.

The seeds being procured from the countries where the plant naturally grows should be sown in pots filled with light earth, and plunged into a moderate hot-bed of tanners bark, where they must be treated in the same way as other exotic seeds from the same countries: and as the plants seldom come up the same year, the pots should be removed into the stove before winter, and plunged into the tan-bed between the other pots of plants, where they should remain till spring, when they should be taken out and plunged into a fresh hot-bed of tanners bark, which will bring up the plants if the seeds were good. When the plants are fit to remove, they should be each planted in a separate small pot filled with light earth, and plunged into a good bed of tan, shading them from the sun till they have taken new root; after which their treatment must be the same as for the Annona, and the like tender exotic plants, which require to be kept always in the tan-bed.

TETRAGONIA. (*Abbreviated by Linneus, from* Tetragonocarpus *a name of Commelin's, given from the four-cornered form of the fruit.*)

Lin. gen. n. 627. *Reich. n.* 683. *Schreb. n.* 859. *Gærtn. t.* 127. 179. *Juss.* 317.

Class 12. 4. Icosandria Pentagynia.

Nat. order of *Succulentæ. Ficoideæ* Juss.

GENERIC CHARACTER.

CAL. *Perianth* four-leaved, superior: *leaflets* four, ovate, bent down and flat, rolled back at the edge, coloured, permanent.

COR. none, unless the calyx be called so.

STAM. *Filaments* twenty, capillary, shorter than the calyx. *Anthers* oblong, incumbent.

PIST. *Germ* roundish, five-cornered, inferior. *Styles* four, awl-shaped, recurved, length of the stamens. *Stigma* longitudinal of the style, pubescent.

PER. *Drupe* coriaceous, four-cornered with four longitudinal wings, the opposite angles narrower, not opening.

SEED one, bony, four-celled: *kernels* oblong.

OBS. *The first flower adds a fifth part of the number in every part of the fructification: hence, according to the general rule, it is placed in the order pentagynia.*

ESSENTIAL CHARACTER.

Cal. three to five-parted. *Pet.* none. *Drupe* inferior, inclosing a nut from three to eight-celled.

SPECIES.

1. Tetragonia fruticosa. *Shrubby Tetragonia.*
Lin. spec. 687. *Syst.* 467. *Reich.* 2. 504. *Willd.* 2. 1023. *mant.* 398. *hort. cliff.* 126. *upsal.* 126. *Gærtn. fruct.* 2. 204. *Ait. kew.* 2. 176. *Mill. fig.* 176. *t.* 263. *f.* 2. *Knipho. cent.* 4. *n.* 87. *Comm. hort.* 2. 205. *t.* 103. *Seba thes.* 2. 13. *t.* 11. *f.* 8. (Euonymo affinis.)

Shrubby, leaves linear, fruits winged.

2. Tetragonia decumbens. *Trailing Tetragonia.*
Lin. spec. ed. Willd. 2. 1023. *Ait. kew.* 2. 177. *Mill. fig.* 176. *t.* 263. *f.* 1.

Shrubby trailing, leaves obovate, fruits winged.

3. Tetragonia herbacea. *Herbaceous Tetragonia.*
Lin. spec. 687. *Syst.* 467. *Reich.* 2. 504. *Willd.* 2. 1023. *mant.* 398. *Ait. kew.* 2. 177. *Comm. hort.* 2. 203. *t.* 102. (Tetragonocarpos.)

Herbaceous even, leaves ovate petioled, fruits winged.

[4. Tetragonia hirsuta. *Hairy Tetragonia.*
Lin. Syst. 467. *Willd.* 2. 1023. *suppl.* 258.

Herbaceous hirsute procumbent, leaves ovate villose, flowers axillary term sessile.

5. Tetragonia spicata. *Spiked Tetragonia.*
Lin. Syst. 467. *Willd.* 2. 1024. *suppl.* 258.

Smooth herbaceous erect, lower leaves ovate, uppermost lanceolate smooth, flowers racemed.

6. Tetragonia echinata. *Hedge-hog Tetragonia.*
Lin. spec. ed Willd. 2. 1024. *Ait. kew.* 177.

Herbaceous, leaves rhomb-ovate; fruits echinate.

7. Tetragonia expansa. *Horned Tetragonia.*
Lin. Syst. 467. *Willd.* 2. 1024. *Murr. in comm. gott.* 1783. *p.* 13. *t.* 5. *Scop. insubr.* 1. 32. *t.* 14. *Thunb. in Linn. trans.* 2. 335. *Ait. kew.* 178.
T. cornuta. *Gærtn. fruct.* 2. 483.
T. hallimifolia. *Forst. prodr. n.* 223. *escul.* 67. *n.* 37. *Roth. abhand.* 48. *t.* 8.
T. japonica. *Thunb. jap.* 208. *Lin. Syst.* 467.
Demidovia tetragonoides. *Pallas hort. demid.* 150. *t.* 1.

Herbaceous, leaves ovate-rhombed, fruits four-horned.

8. Tetragonia crystallina. *Diamond Tetragonia.*
Lin. spec. ed. Willd. 2. 1025. *L'Herit. stirp.* 1. 81. *t.* 39. *Ait. kew.* 2. 178.

Herbaceous frosty, leaves ovate sessile, fruits unarmed.]

DESCRIPTIONS, &c.

1. Stems slender woody, rising three or four feet high if supported, otherwise trailing, covered with a light gray bark, and dividing into a great number of trailing branches, which when young are succulent, of an herbaceous colour, and covered with small pellucid drops, which reflect the light, somewhat like the Diamond Ficoides. As the branches grow older, they become more woody. Leaves narrow, thick, succulent, about half an inch long, and a tenth of an inch broad, concave and blunt-pointed; they are placed alternately, and at their base comes out a cluster of smaller leaves, which have the like pellucid drops with the stalks. Flowers axillary, at every joint towards the ends of the branches, solitary, or two or three together. Calyx-leaves five, spreading and a little reflexed, green without and yellow within. Stamens about forty, terminated by oblong prostrate anthers which fill up the middle of the flower. [In the axils of the leaves are numerous smaller leaves, or rudiments of branches. The flowers are solitary or digested into a terminating raceme[1].

The fruit is an inferior juiceless drupe, with eight wings, alternately larger and smaller, but all rounded, leafy-compressed and coriaceous: shell in the upper part of the drupe, bony, ovate-globular, having also eight rounded wings alternately larger and smaller, four-celled, valveless; cells very smooth within, chestnut-brown. Seeds solitary, attenuated upwards and elongated from a subglobular base, smooth, chestnut-rust-coloured, fastened by a short umbilical chord to the top of the cells. Embryo inverted, curved and hooked[2].

This and all the species except the two last are natives of the Cape of Good Hope.—It was cultivated in 1712, by Bishop Compton; and flowers from july to september[3].]

2. This has larger stalks than the preceding, but they branch out in like manner; the branches trail upon the ground; the young branches are very succu-

[1] Vahl. [2] Willdenow.

[1] Linn. mant. [2] Gærtner. [3] Hort. kew.

lent,

lent, and almoſt as thick as a man's little finger. The leaves are two inches long, and an inch broad; their ſurface covered with very ſmall pellucid drops, as are alſo the young branches. Flowers larger, upon pretty long foot-ſtalks, three or four from the ſame point. Calyx and anthers of a pale ſulphur colour.

[Cultivated by Mr. Miller in 1758. It flowers from july to ſeptember[2].]

3. This has large fleſhy roots. Branches weak and trailing, generally decaying about midſummer, and new ſhoots produced late in autumn. The leaves come out in bunches; they are oval, plane, and not ſo thick and ſucculent as in the other ſorts; they are little more than an inch long, and half an inch broad. The flowers are produced from the wings of the leaves in february: they are like thoſe of the ſecond ſort, and have long ſlender foot-ſtalks.

[Axils moſt commonly without any rudiments of branches. Peduncles three, one-flowered from the axils of the leaves; which are obovate-lanceolate[3].

Cultivated in 1759, by Mr. Miller. It flowers in june and july[4].

4. 5. Theſe were found at the Cape by Thunberg.

6. Root biennial. Stem herbaceous, near the root dividing into diffuſed branches, rendered angular by the petioles running down them, ſcarcely a foot long. Leaves ſucculent, ſpreading, an inch in length: petioles ſhorter by half than the leaves. Peduncles axillary, ſolitary, filiform, covered with ſhining bladders, purple, very ſhort. Flowers pendulous, appearing as if froſted with cryſtalline bladders. Calyx three-leaved or four-leaved, yellowiſh green within. Stamens commonly three, ſeldom four. Germ flat beneath, three-ſided; the angles echinate with many conical proceſſes. Styles three. Nut three-celled. Found at the Cape by Maſſon, and introduced in 1774. It flowers from may to auguſt[5].

7. Stem herbaceous, even, procumbent, branched, ſomewhat angular with raiſed ſtreaks from the decurrent margins of the petioles, a little thicker than a gooſe quill, weak. Branches numerous, elongated, round, ſpreading. Leaves alternate, bluntiſh, quite entire, horizontal, ſhorter than the internodes, an inch and half long. Petioles ſlender, flattiſh above, an inch long. Peduncles ſubſolitary, axillary, one-flowered, very ſhort. Flowers yellow. Calyx four-parted, ſeldom five-parted, coloured within, one wider and more rounded than the reſt. Stamens ſixteen or twelve. Germ very ſmall. Styles ſix, ſeldom five. Drupe rude, turbinate or obconical, fleſhy, four-cornered or five-cornered towards the top, horned with the acute angles being more produced. Nut bony, with cells correſponding to the number of ſtyles; containing one ovate white kernel. The whole plant is ſtudded with very minute cryſtalline dots, as in ſome ſpecies of Atriplex, Chenopodium and Meſembryanthemum[6].

According to Scopoli, the ſtem is a foot high, upright, with ſpreading branches from the very bottom, moſtly ſimple, covered with ſmall confluent tubercles. Leaves thickiſh, tuberculed; the tubercles on the back more ſhining; waved or ſubſinuate. Petioles channelled, ſpreading. Flowers ſolitary from the axils, ſeſſile or ſhortly peduncled. Calyx four-toothed, with ſhining granules ſcattered over it, and from the baſe of each tooth a petal-ſhaped lamella, of a ſubovate form, granulated, and of a yellowiſh-green colour. Stamens to ſixteen, four from each angle, alternate with the teeth of the calyx. Styles five. Fruit four-cornered, four-horned, four-celled, with one ſeed in each cell; ſometimes five-celled, and even eight-celled. Seeds oblong, ſlightly gibbous, ſmooth, yellow on the outſide, white within.

Thunberg, who at firſt took the Japoneſe plant to be a ſpecies diſtinct from this, deſcribes it as wholly ſucculent and ſmooth: the ſtem angular, decumbent, ſimple, a foot high. Leaves ſubcordate, ovate, ſomewhat angular, acute, entire, dotted all over with very ſmall pores, two inches long, the upper ones gradually ſmaller, on ſhort petioles widening by degrees into the leaf. Flowers axillary, ſolitary, on peduncles half a line in length. Calyx four-parted. Drupe four-cornered, four-horned, the ſize of a pea.

Gærtner deſcribes the fruit as a juiceleſs inferior drupe, ſubturbinate, rhomb-compreſſed, obſcurely grooved, crowned with the converging four-toothed calyx, four-horned: rind herbaceous-membranaceous, ending above in the calyx, below in the peduncle, but within between the baſe of the ſhell and the origin of the peduncle having an almoſt hemiſpherical cavity either quite empty, or with a cellular-cobwebby ſubſtance in it. Shell ſomewhat bony, ſhorter by half than the fruit, the naked ferruginous ſix or eight-tubercled top prominent within the cavity of the calyx, the reſt covered with the rind, four-horned, eight-grooved, ſix or eight-celled. Seeds ſolitary, hooked and doubled together, narrowing upwards, red-ferruginous. Embryo inverted, yellowiſh, curved and hooked.

Native of New Zealand, by the ſides of woods in buſhy ſandy places; alſo within the tropics on the ſhore of the iſland Tongatabu: and in Japan. Though not uſed by the inhabitants, it is a very good pot-herb. By the orders of Captain Cook, whilſt they were in port it was ſerved to the ſailors boiled every day at breakfaſt and dinner[7].

It is a biennial plant, and was introduced in 1772, by Sir Joſeph Banks. It flowers here in auguſt and ſeptember[8].

8. Root annual. Plant a ſpan high, the whole covered with cryſtalline papillæ. Stem in a manner upright, round, the thickneſs of a reed. The bottom branches only oppoſite, all the reſt alternate, dichotomous at the top, ſpreading a little. Leaves alternate, except the two lower which are oppoſite, acute, quite entire, three-nerved, ſomewhat fleſhy, ſoft, bright green on both ſides, ſpreading, gradually ſmaller upwards, from eighteen to thirty lines in length, and from ten to fifteen lines in breadth. Flowers ſolitary, or very ſeldom two together, the uppermoſt remote from the axil; the reſt axillary, ſubſeſſile, erect, tawny. Peduncles round, growing in length when bearing fruit. Calyx four-parted, as it were four-leaved. Stamens about ſixteen, inſerted into the baſe of the calyx: anthers roundiſh, two-celled, ſubpeltate. Germ turbinate-quadrangular, as it were the baſe of the calyx running down, and of the ſame ſubſtance, in the centre of which the germ properly ſo called is almoſt immerſed, ovate and pubeſcent. Styles four, diverging, upright, pubeſcent. Drupe dry, ſpongy, obovate-turbinate, quadrangular, umbilicate, one-celled, cinereous, brown within, pubeſcent, four lines long and three wide. Seed a four-lobed nut, ſometimes as it were beaked at the top, four-celled.

Found in Chancaye a province of Peru by Dombey, whence he ſent the ſeeds to the Paris garden, where it flowers and fruits during the ſummer, growing up and periſhing in a few months[9]. It was introduced at Kew in 1788, by Monſ. Thouin[10].]

PROPAGATION AND CULTURE.

1—6. Theſe may be propagated by cuttings, which ſhould be cut off from the plants a few days before they are planted, that the part where they are cut may be healed, otherwiſe they will rot, for the leaves and ſtalks are very full of moiſture. The beſt time to plant theſe cuttings is in july, that they may have time to make good roots before winter. Theſe cuttings may be planted on a bed of freſh earth, and if they are ſhaded from the ſun in the heat of the day, it will be of ſervice to them. They ſhould be frequently refreſhed with water, but they muſt not have it in too great plenty, for that will rot them. In about ſix weeks after planting, the cuttings will be ſufficiently rooted to tranſplant, therefore they ſhould be taken up, and planted into pots filled with

[2] Hort. kew.
[3] Linn. mant.
[4] Hort. kew.
[5] Idem.
[6] Forſter, eſcul.
[7] Forſter, eſcul.
[8] Hort. kew.
[9] L'Heritier.
[10] Hort. kew.

light freſh undunged earth, and placed in a ſhady ſituation until they have taken new root, after which time they may be placed with other hardy exotic plants in a ſheltered ſituation, where they may remain till the middle or latter end of october; at which time they ſhould be removed into the green-houſe, and placed where they may enjoy as much free air as poſſible in mild weather; for they only require to be protected from the froſt, being pretty hardy with reſpect to cold, but they ſhould not have too much moiſture in winter. If theſe plants are planted in the full ground in the ſummer ſeaſon, they will grow prodigiouſly rank and large; as they alſo will, if they are permitted to root into the ground through the holes at the bottom of the pots; therefore the pots ſhould be frequently removed to prevent it, for when they grow too freely, their leaves will be very full of moiſture; which, together with the weight of the fruit, which is always produced at the extremity of the branches, will weigh the branches upon the ground, and render the plants very unſightly. The plants of this kind commonly grow very ſtraggling; therefore the more their roots are confined in the pots, the more cloſe and ſtinted will be the heads of the plants, which is what they ſhould always be kept to, in order to render them ſightly. The flowers of theſe plants have no great beauty, but as their whole appearance is ſingular, they may be allowed a place in collections of plants; eſpecially as they require no great trouble in the cultivation.

The firſt and ſecond ſorts may alſo be propagated by ſeeds, ſown in a gentle hot-bed or in a warm border of light freſh earth, where ſometimes they will remain a whole year before the plants come up. When they are about four inches high, take them up and plant them in pots; treating them in the ſame manner as has been directed for the cuttings.

The third ſort never produces ſeeds in England, but will grow from cuttings planted early in the ſpring, with the ſame facility as the others.

[The two laſt ſpecies are more tender, eſpecially the eighth, and muſt be kept in the tan-ſtove. They are propagated only by ſeeds.

Tetragonia ivæfolia. See *Haloragis*.

TETRAGONOCARPOS. See *Tetragonia*.

TETRAGONOLOBUS. See *Lotus*.

TETRAGONOTHECA. See *Polymnia*.

TETRAHIT. See *Galeopſis*.

TETRALIX. See *Erica*.

TETRANTHUS. (*So named from having four flowers within one common calyx.*)

Lin. gen. Schreb. n. 1354. *Swartz prodr.* 115.

Claſſ. 19. 5. Syngeneſia Polygamia Segregata.

Nat. order of *Capitatæ*. Cinarocephalæ Juſſ.

GENERIC CHARACTER.

CAL. *Common* five-leaved, four-flowered: *leaflets* linear, erect, ciliate, at the baſe of the florets.

Perianth proper one-leafed, tubulous, attenuated at the baſe, compreſſed, oblique at the throat, ciliate at the edge, one-flowered, many times longer than the common calyx.

COR. *Compound*, uniform, equal. *Corollets* four, hermaphrodite.

Proper one-petalled, funnel-form; *tube* gradually widening; border five-cleft, unequal; the two upper ſegments ſmaller and leſs divided, the three lower more ſpreading, oblong, obtuſe.

STAM. *Filaments* five, from the baſe of the corollet, half the length of the tube. *Anther* tubulous.

PIST. *Germ* from the bottom of the perianth, under the filaments, oblong. *Style* longer than the ſtamens and corolla, filiform, divided beyond the middle. *Stigmas* reflexed, linear, obtuſe.

PER. none. *Perianth proper* unchanged, permanent, including.

SEED oblong, ſtriated, crowned with the membranaceous ciliate margin of the apex.

REC. very ſmall, naked.

ESSENTIAL CHARACTER.

Cal. common four-flowered. *Perianth* proper one-leafed. *Seeds* crowned.

SPECIES.

1. Tetranthus littoralis.
Swartz prodr. 116.

DESCRIPTION, *&c.*

It is an annual plant, native of Hiſpaniola.

TETRAPHIS. One of Hedwig's genera of Cryptogamia Muſci, or Moſſes. Species of Mnium according to Linneus.]

TEUCRII FACIE. See *Coldenia*.

TEUCRII SPECIES. See *Veronica*.

TEUCRIUM. (*So named from Teucer, ſon of Scamander, and father in law of Dardanus, king of Troy.*)

Lin. gen. n. 706. *Reich. n.* 764. *Schreb. n.* 960. *Tournef. t.* 93. *Juſſ.* 112. Polium *Tournef. t.* 98. Chamædrys *Tournef. t.* 97.

Claſſ. 14. 1. Didynamia Gymnoſpermia.

Nat. order of *Verticillatæ*. *Labiatæ* Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* one-leafed, half-five-cleft, acute, almoſt equal, gibbous at the baſe on one ſide, permanent.

COR. one-petalled, ringent: *tube* cylindric, ſhort, ending in an incurvated throat: *upper lip* erect, acute, deeply two-parted beyond the baſe, the ſegments at the ſides diſtant: *lower lip* ſpreading, trifid: the lateral ſegments of the ſame form with the upper lip, almoſt erect; the middle one very large, and ſomewhat rounded.

STAM. *Filaments* four, awl-ſhaped, longer than the upper lip of the corolla and aſcending in the cleft of it, prominent. *Anthers* ſmall.

PIST. *Germ* four-parted. *Style* filiform, ſituation and ſize of the ſtamens. *Stigmas* two, ſlender.

PER. none. *Calyx* unchanged, ſoſtering the ſeeds at the bottom.

SEEDS four, roundiſh.

OBS. *The upper lip of the corolla, divided beyond the baſe and gaping, reſembles a corolla deſtitute of an upper lip.*

Teucrium *of Tournefort has a bell-ſhaped calyx, and the ſegment of the lower lip of the corolla concave.*

Polium *of Tourn. has the flowers collected into heads, terminating the branches.*

Chamædrys *of Tourn. has the flowers from the axils of the leaves, calyx tubular.*

Marum *of Boerhaave has the leaves of Serpyllum; and an acrid odour.*

ESSENTIAL CHARACTER.

Cor. upper lip two-parted beyond the baſe, divaricating where the ſtamens are.

SPECIES.

1. Teucrium campanulatum. *Small-flowered Germander. Lin. ſpec.* 786. *Reich.* 3. 10. *Willd.* 3. 13. *Schreb. unilab.* 31. *n.* 19. *Boerh. lugdb.* 1. 181.
Iva moſchata flore albo. *Rivin. mon. t.* 24.
β. T. ſupinum perenne paluſtre apulum glabrum, foliis laciniatis, flore albo. *Till. piſ.* 193. *t.* 49. *f.* 1. *Allion. taur.* 53.
Leaves multifid, flowers lateral ſolitary.
[2. Teucrium orientale. *Great-flowered Germander. Lin. ſpec.* 786. *ſuſt.* 525. *Reich.* 3. 10. *Willd.* 3. 14. *bort. cliff.* 301. *Schreb. unilab.* 30. *n.* 17.
T. orientale anguſtifolium laciniatum, flore magno ſubcæruleo. *Tournef. cor.* 14. *Comm. rar. t.* 25. *Riv. mon. t.* 19.
β. T. orient. anguſtif. lacin. magno flore ſuaverubente. *Tourn. cor.* 14.
Leaves multifid, flowers racemed.]
3. Teucrium Botrys. *Cut-leaved annual Germander. Lin. ſpec.* 786. *Reich.* 3. 11. *Willd.* 3. 14. *bort. cliff.* 301. *Pollich pal. n.* 544. *Hoffm. germ.* 200. *Roth. germ.* 1. 250. 2. 14. *Scop. carn. n.* 725. *Krock. ſilef. n.* 900. *Villars dauph.* 2. 350. *Allion. pedem. n.* 146. *Aſſo aragon. n.* 500. *Deſfont. atlant.* 2. 1. *Knipb. cent.* 9. *n.* 88. *Sabb. hort.* 3. *t.* 91. *Mill. fig.* 176. *t.* 264. *f.* 1.
Botrys chamædryoides. *Bauh. pin.* 138.
B. verticillata. *Bauh. hiſt.* 3. 298.
Chamædrys. *Hall. helv. n.* 239.

C. laciniatis foliis. *Lob. hift.* 209. *ic.* 385. *Park. theat.* 104. 4. *ic.* 105. 4. *Raii hift.* 526. *Tournef. inft.* 205. *Vaill. par.* 33.
C. altera. *Matth.* 597. *Camer. epit.* 568. *Paulli dan. t.* 48.
C. vera fœmina. *Fuchf. hift.* 870. *Dalech. hift.* 1163.
C. minor annua, laciniatis hirfutis foliis. *Mor. hift. f.* 11. *t.* 22. *f.* 18.
Chamæpitys altera. *Ded. pempt.* 46.
C. fœmina. *Ger.* 421. 2. *emac.* 525. 2.
Chamæcypariffus agreftis. *Trag.* 79.
Iva mofchata. *Tabern. ic.* 385.—folio multifido. *Rivin. mon. t.* 14.
Leaves multifid, flowers lateral in threes peduncled.

4. Teucrium Chamæpitys. *Ground Pine.*
Lin. fpec. 787. *fyft.* 525. *Reich.* 3. 11. *hort. cliff.* 301. *upf.* 160. *mat. med.* 143. *Hudf. angl.* 247. *Fl. dan. t.* 733. *Crantz auftr.* 249. *Neck. gallob.* 248. *Pollich pal. n.* 545. *Guett. ftamp.* 2. 248. *Sauv. monfp.* 175. *Villars dauph.* 2. 351. *Kreck. filef. n.* 901. *Affo aragon. n.* 501. *Gron. virg.* 64. *Knipb. cent.* 8. *n.* 92. *Blackw. t.* 528. *Ludw. eft. t.* 130. *Regnault bot.*
Ajuga Chamæpitys. *Schreb. unilab.* 24. *Wither. arr. ed.* 3. 517. *Smith brit.* 605. *engl. bot. t.* 77. *Relh. cant. ed.* 2. *n.* 472. *Willd. fpec.* 3. 10.
A. f. Chamæpitys. *Camer. epit.* 679.
Chamæpitys. *Matth.* 940.
Chamæpitys vulgaris. *Park. theat.* 283. 1. *Raii hift.* 573. *fyn.* 244.—odorata flore luteo. *Baub. hift.* 3. 295.
C. lutea vulgaris, f. folio trifido. *Baub. pin.* 249. *Mor. hift. f.* 11. *t.* 22. *f.* 1. *ord.* 3.
C. prima. *Ded. pempt.* 46. 1. *Riv. mon.* 14. 1.
C. mas. *Ger.* 421. 1. *emac.* 525. 1.
Bugula. *Hall. helv. n.* 284.
B. Chamæpitys. *Scop. carn. n.* 718.
β. Chamæpitys vulgaris folio trifido, flore rofeo, luftanica. *Tournef. inft.* 208.
Leaves trifid linear quite entire, flowers feffile lateral folitary, ftem diffufed.

5. Teucrium nifolianum. *Trifid-leaved Germander.*
Lin. fpec. 786. *Reich.* 3. 12. *Willd.* 3. 15. *Schreb. unilab.* 29.
T. fupinum annuum luſitanicum, foliis laciniatis. *Tournef. inft.* 208.
Chamædrys annua multiflora tenuifolia hifpanica Tournefortii. *Mor. hift.* 3. 423. *f.* 11. *t.* 22. *f.* 19.
Leaves trifid and quinquefid filiform, flowers peduncled folitary oppofite, ftem decumbent.

[6. Teucrium pfeudo-chamæpitys. *Baſtard Ground Pine.*
Lin. fpec. 787. *fyft.* 526. *Reich.* 3. 12. *Willd.* 3. 15. *Schreb. unilab.* 29. *n.* 15. *Ger. prov.* 276. *n.* 3. *Gouan hort.* 271. *illuſtr.* 35. *Deſfont. atlant.* 2. 2. *Sabb. hort.* 3. *t.* 95.
T. fupinum perenne, foliis laciniatis. *Tournef. inft.* 208.
Pfeudochamæpitys. *Cluſ. hiſt.* 2. 185.*
Chamæpitys alba. *Camer. epit.* 680.
C. adulterina. *Lob. ic.* 385.—f. Pfeudochamæpitys. *Park. theat.* 283. *n.* 4. 284. *t.* 4. *Raii hiſt.* 574.
C. ſpuria, multifido folio, Lamii flore. *Baub. pin.* 250. *Mor. hiſt. f.* 11. *t.* 21. *f.* 2.
C. ſpuria altera Dodonæi. *Ger. emac.* 526. 5.
Chamæpitycs ſpuriæ alterius altera icon. *Ded. pempt.* 47.
Leaves three-parted trifid linear, flowers racemed, ſtem rough-haired.]

7. Teucrium Iva. *Muſky Germander.*
Lin. ſpec. 787. *Reich.* 3. 13. *Vahl ſymb.* 1. 40. *Sauv. monſp.* 141. *Allion. pedem. n.* 147. *Deſfont. atlant.* 2. 3. *Cavan. ic. n.* 130. *t.* 120. *Gouan hort.* 271. *n.* 6. *Affo aragon. n.* 502. *Lamarck, encycl.* 2. 690.
Ajuga Iva. *Schreb. unilab.* 25. *Willd. ſpec.* 3. 11.
Chamæpitys moſchata foliis ſerratis. *Baub. pin.* 249. *Raii hiſt.* 574. *Mor. hiſt. ſ.* 11. *t.* 22. *f.* 3. *Tournef. inſt.* 208.
C. f. Iva moſch. Monſpelienſium. *Baub. hiſt.* 3. 296.

C. ſpuria prior. *Ded. pempt.* 47.
Anthyllis altera. *Cluſ. hiſt.* 2. 186. *Park. theat.* 281. *f.* 3. 282. *n.* 3.
A. chamæpityides minor. *Lob. hiſt.* 208. *ic.* 384.
Iva moſchata monſpeliaca. *Tabern. ic.* 386. *Ger.* 422. 3. *emac.* 525. 4.
Moſcharia aſperifolia. *Forſk. deſcr.* 158.
Leaves three-cuſped linear, flowers ſeſſile lateral ſolitary,

[8. Teucrium mauritanum. *Mooriſh Germander.*
Lin. ſpec. 787. *Reich.* 3. 13. *Schreb. unilab.* 30. *n.* 16.
T. delphinii folio, non ramoſum. *Shaw afr.* 575. *ic.*
Leaves pinnate-multifid, ſtem quite ſimple erect, bractes ſubulate-palmate.]

9. Teucrium fruticans. *Narrow-leaved Tree Germander.*
Lin. ſpec. 787. *fyſt.* 526. *Reich.* 3. 13. *Willd.* 3. 16. *hort. cliff.* 302. *Schreb. unilab.* 26. *Knipb. cent.* 1. *n.* 90. *Sabb. hort.* 3. *t.* 96. *Deſfont. atlant.* 2. 3.
T. bœticum. *Tabern. ic.* 381. *Dalech. hiſt.* 1166. *Ger.* 533. *f.* 3. *emac.* 659. *f.* 5. *Park. theat.* 109. *n.* 3. 110. *f.* 3. *Raii hiſt.* 526.
T. fruticans bœticum. *Cluſ. hiſt.* 1. 348. *Baub. hiſt.* 3. 291. *Tournef. inſt.* 208. *Barrel. rar.* 348. *t.* 512. *Dill. elth.* 379. *t.* 284. *f.* 366, 367. *Zanich. iſt. t.* 163.
T. peregrinum, folio ſinuoſo. *Baub. pin.* 247.
Chamædrys fruticcens, floribus violaceis. *Mor. hiſt. ſ.* 11. *t.* 22. *f.* 7.
Leaves quite entire elliptic tomentoſe beneath, flowers lateral ſolitary peduncled.

10. Teucrium latifolium. *Broad-leaved Tree Germander.*
Lin. ſpec. 788. *Reich.* 3. 13. *hort. upſ.* 159. *Curt. magaz.* 245.
T. fruticans A. *Deſfont. atlant.* 2. 3.
T. fruticans γ. *Willd. ſpec.* 3. 17.
T. frut. bœticum, ampliore folio. *Dill. elth.* 379. *t.* 284. *f.* 368.
T. bœticum humilius & ramoſius, folio ſubrotundo. *Hort. angl. t.* 3.
T. bœticum flore cæruleo. *Riv. mon. t.* 18.
T. hiſpanicum latiore folio. *Tournef. inſt.* 208.
Leaves quite entire rhombed acute villoſe tomentoſe beneath.

[11. Teucrium reſupinatum. *Reſupine-flowered Germander.*
Deſfont. atlant. 2. 4. *t.* 117. *Willd. ſpec.* 3. 26.
Villoſe, leaves lanceolate deeply ſerrate, flowers ſolitary ſeſſile, corollas reſupine.

12. Teucrium ramoſiſſimum. *Branched Germander.*
Deſfont. atlant. 2. 4. *t.* 118.
T. quadratulum. *Schreb. unilab.* 36. *n.* 27. *Willd. ſpec.* 3. 18.
Chamædrys hiſpanica minima ſaxatilis incana. *Tournef. inſt.* 205.
Hoary, ſtem fruticoſe, very much branched, branches ſubform, leaves obovate crenate, flowers ſolitary axillary.

13. Teucrium creticum. *Cretan Germander.*
Lin. ſpec. 788. *fyſt.* 526. *Reich.* 3. 14. *Willd.* 3. 17. *hort. cliff.* 303. *upſ.* 159. *Gouan monſp.* 272.
T. hyſſopifolium. *Schreb. unilab.* 28. *n.* 11.
Roſmarinum ſtœchados facie. *Alp. exot.* 103. *t.* 102. *Mor. hiſt.* 3. 410. *f.* 11. *t.* 16. *f.* 3.
Leaves lanceolate-linear quite entire, flowers racemed tern.]

14. Teucrium Marum. *Common Marum* or *Cat-thyme.*
Lin. ſpec. 788. *fyſt.* 526. *Reich.* 3. 14. *Willd.* 3. 18. *mant.* 409. *hort. cliff.* 303. *upſ.* 159. *mat. med.* 144. *Woodv. med. bot.* 153. *t.* 56. *Medic. act. palat.* 3. *phyſ.* 207. *Schreb. unilab.* 36. *n.* 28. *Blackw. t.* 47. *Knipb. cent.* 3. *n.* 93. *Ludw. eft. t.* 14. *Sabb. hort.* 3. *t.* 90.
Marum. *Matth.* 730.—Cortuſi. *Baub. hiſt.* 3. 242. *Raii hiſt.* 527. *Rivin. mon. t.* 23.
Tragoriganum Lob. *Ger. emac.* 668.
T. latifolium, f. Marum Cortuſi. *Park. theat.* 17. *f.* 2.
Chamædrys marifima incana fruticcens, foliis lanceolatis. *Tournef. inſt.* 205.
β. C. cretica ſaxatilis tenuifolia foliis, ſubtus incanis. *Tournef. inſt.* 206.

Leaves quite entire ovate acute petioled tomentoſe beneath, flowers racemed all directed one way.

[15. Teucrium multiflorum. *Many-flowered Germander.*

Lin. ſpec. 788. *ſyſt.* 526. *Reich.* 3. 15. *Willd.* 3. 19. *hort. cliff.* 303. *Medic. act. palat.* 3. *phyſ.* 208. *Schreb. unilab.* 36. *n.* 26. *Gouan monſp.* 272. *Zinn. goett.* 291.

Marum hiſpanicum nigrum. *Becc. muſ. t.* 117.— flore purpureo. *Hall. goett.* 314.

Chamædrys multiflora tenuifolia hiſpanica. *Tournef. inſt.* 205. *Boerh. lugdb.* 1. 182.

β. C. hiſpanica tenuifolia, latiori folio, multiflora. H. R. P. *Boerh. lugdb.* 1. 182. *n.* 7.

Leaves ovate, ſmooth above, ſerrate-toothed, flowers racemed, whorls ſix-flowered.

16. Teucrium Laxmanni.

Lin. ſyſt. 526. *Reich.* 3. 15. *Willd.* 3. 20.

Leaves ovate-oblong quite entire ſeſſile, flowers ſolitary ſeſſile.

17. Teucrium ſibiricum. *Siberian Germander.*

Lin. ſpec. 788. *ſyſt.* 526. *Reich.* 3. 15. *Willd.* 3. 20. *Schreb. unilab.* 28. *n.* 12.

Leaves ſerrate ovate, peduncles ſolitary three-flowered, the middle flower ſeſſile, bractes linear-lanceolate.

18. Teucrium ſalicifolium. *Willow-leaved Germander.*

Lin. ſyſt. 526. *Reich.* 3. 16. *mant.* 80. *Schreb. dec.* 1. 17. *t.* 9.

Ajuga ſalicifolia. *Schreb. unilab.* 26. *Willd. ſpec.* 3. 12.

Chamæpitys orientalis ſalicis folio. *Tournef. cor.* 14. *Schreb. dec.* 1. 17. *t.* 9.

Leaves lanceolate-elliptic blunteſh quite entire, calyxes quadrifid ſolitary.

19. Teucrium aſiaticum. *Aſiatic Germander.*

Lin. ſyſt. 527. *Reich.* 3. 16. *Willd.* 3. 21. *mant.* 80. *Jacqu. hort.* 3. 24. *t.* 41. *Schreb. unilab.* 38. *n.* 31. *Ait. kew.* 2. 277. *Med. act. palat.* 3. *phyſ.* 204. *t.* 10.

Leaves lanceolate repand-ſerrate rectangular at the baſe, flowers ſolitary.]

20. Teucrium cubenſe. *Cuba Germander.*

Lin. ſyſt. 527. *Reich.* 3. 17. *Willd.* 3. 21. *Jacqu. amer.* 172. *t.* 183. *f.* 74. *pict.* 85. *t.* 164. *obſ.* 2. 5. *t.* 29. *Schreb. unilab.* 29. *n.* 13.

T. chamædrifolium. *Mill. dict. n.* 16.

T. americanum Chamædryos folio flore albo. *Houſt. MSS.*

Leaves wedge-ſhaped ſerrate-gaſhed ſmooth attenuated into the petiole, flowers ſolitary peduncled.

[21. Teucrium Arduini.

Lin. ſyſt. 527. *Reich.* 3. 17. *Willd.* 3. 22. *mant.* 81. *Schreb. unilab.* 40. *n.* 37. *Arduin. ſpec.* 1. 12. *t.* 3.

Leaves ovate ſerrate, raceme ſpiked round ſeſſile terminating.]

22. Teucrium canadenſe. *Nettle-leaved Germander.*

Lin. ſpec. 789. *Reich.* 3. 17. *Willd.* 3. 22. *Pallas it.* 2. 569. *Schreb. unilab.* 41. *n.* 39. *Gron. virg.* 64?

Chamædrys canadenſis, urticæ folio ſubtus incano. *Tournef. inſt.* 205.

Leaves ovate-lanceolate ſerrate, ſtem erect, raceme round terminating, whorls ſix-leaved.

23. Teucrium virginicum. *Virginian Germander.*

Lin. ſpec. 789. *ſyſt.* 527. *Reich.* 3. 18. *Willd.* 3. 22. *Gron. virg.* 64. *Schreb. unilab.* 41. *n.* 38. *Medic. act. palat.* 3. *phyſ.* 212. *Walt. carol.* 161.

Leaves ovate unequally ſerrate, racemes terminating.

[24. Teucrium inflatum. *Thick-ſpiked Germander.*

Willd. ſpec. 23. *Swartz prodr.* 88. *Ait. kew.* 2. 277. *Brown. jam.* 257.

Leaves oblong acuminate unequally ſerrate pubeſcent, ſpikes ſeſſile terminating, calyxes inflated villoſe.

25. Teucrium hircanicum. *Betony-leaved Germander.*

Lin. ſpec. 789. *Reich.* 3. 18. *Willd.* 3. 24. *Schreb. bilab.* 40. *n.* 36. *Medic. act. palat.* 3. *phyſ.* 206. *Hall. comm. goett.* 2. 343. *t.* 13. *Arduin. ſpec.* 13. *t.* 4.

Leaves cordate-oblong obtuſe, ſtem brachiate dichotomous, ſpikes very long terminating ſeſſile ſpiral.

26. Teucrium abutiloides. *Mulberry-leaved Germander. Willd. ſpec.* 3. 24. *L'Herit. ſtirp. nov.* 84. *Ait. kew.* 2. 278.

Leaves cordate toothed acuminate, racemes lateral nodding.]

27. Teucrium Scorodonia. *Sage-leaved Germander, or Wood Sage.*

Lin. ſpec. 789. *ſyſt.* 527. *Reich.* 3. 18. *Willd.* 3. 24. *hort. cliff.* 301. *Hudſ. angl.* 248. *Wither. arr. ed.* 3. 518. *Smith brit.* 606. *Lightf. ſcot.* 303. *Curt. lond.* 5. *t.* 40. *Relh. cant. ed.* 2. *n.* 473. *Sibth. oxon. n.* 512. *Fl. dan. t.* 485. *Scop. carn. n.* 721. *Hoffm. germ.* 201. *Roth. germ.* 1. 250. 2. 14. *Pollich pal. n.* 546. *Neck. gallob.* 247. *Villars dauph.* 2. 354. *Ger. gallopr.* 278. *n.* 7. *Aſſo aragon. n.* 503. *Allion. pedem. n.* 152. *Deſfont. atlant.* 2. 5. *Schreb. unilab.* 39. *n.* 35. *Medic. act. palat.* 3. *phyſ.* 206. *Knipb. cent.* 11. *n.* 96. *Regnault bot.*

Scorodonia. *Cord. hiſt.* 91. 1. *Riv. mon. t.* 12. *Blackw. t.* 9. *Sabb. hort.* 3. *t.* 92.

S. ſ. Salvia agreſtis. *Ger. emac.* 662. *Raii hiſt.* 576. *ſyn.* 245.

S. ſ. Scordium alterum, & Salvia agreſtis. *Park. theat.* 111. 2.

Scordium alterum ſ. Salvia agreſtis. *Bauh. pin.* 247.

Scordion alterum Plinii. *Lob. obſ.* 262. 1. *ic.* 1. 497. 2.

Scordotis ſ. Scordium folio Salviæ. *Bauh. hiſt.* 3. 295. 1. & 294.

Salvia ſylveſtris. *Trag. hiſt.* 15. 2.

S. agreſtis ſ. Sphacelus. *Dod. pempt.* 291.

Chamædrys. *Hall. helv. n.* 287. *Gesner ic. t.* 85.

C. elatior Salviæ folio, flore ochroleuco. *Mor. hiſt.* 3. 423. *ſ.* 11. *t.* 20. *f.* 15.

C. fruticoſa ſylveſtris Meliſſæ folio. *Tournef. inſt.* 205.

Leaves cordate ſerrate petioled, racemes lateral directed one way, ſtem erect.

[28. Teucrium Pſeudo-Scorodonia. *Baſtard Wood Sage. Deſfont. atlant.* 2. 5. *Willd. ſpec.* 3. 25.

Shrubby, leaves cordate toothed petioled hoary beneath, racemes directed one way.]

29. Teucrium maſſilienſe. *Sweet-ſcented Germander.*

Lin. ſpec. 789. *ſyſt.* 527. *Reich.* 3. 19. *Willd. ſpec.* 3. 26. *Jacqu. hort.* 1. 41. *t.* 94. *Schreb. unilab.* 39. *n.* 34. *Medic. act. palat.* 3. *phyſ.* 205. 271. *t.* 11. *Ger. prov.* 277. *t.* 11. *Leur. cochinch.* 362. *ed. Willd.* 439.

T. creticum. *Clus. hiſt.* 1. 348.

Leaves ovate wrinkled gaſh-crenate hoary, ſtems erect, racemes ſtraight directed one way.

[30. Teucrium betonicum. *Hoary Germander.*

L'Herit. ſtirp. nov. 83. *t.* 40. *Ait. kew.* 2. 279. *Willd. ſpec.* 3. 25.

Salvia major folio glauco ſerrato. *Sloan. jam.* 1. 17. *t.* 3. *f.* 3.

Leaves lanceolate crenate tomentoſe hoary beneath, racemes terminating, flowering ſtem brachiate.]

31. Teucrium Scordium. *Water Germander.*

Lin. ſpec. 790. *ſyſt.* 527. *Reich.* 3. 19. *Willd.* 3. 27. *hort. cliff.* 302. *fl. ſuec. n.* 513. *mat. med.* 144. *Woodv. med. bot.* 156. *t.* 57. *Hudſ. angl.* 247. *Wither. arr. ed.* 3. 519. *Smith brit.* 606. *engl. bot. t.* 828. *Relh. cant. ed.* 2. *n.* 474. *Sibth. oxon. n.* 511. *Fl. dan. t.* 593. *Scop. carn. n.* 719. *Neck. gallob.* 246. *Hoffm. germ.* 201. *Roth. germ.* 1. 250. 2. 15. *Pollich pal. n.* 547. *Krock. ſilef. n.* 903. *Villars dauph.* 2. 353. *Allion. pedem. n.* 151. *Schreb. unilab.* 37. *n.* 29. *Aſſo aragon. n.* 504.

Scordium. *Bauh. pin.* 247. *Camer. epit.* 588. *Dod. pempt.* 126. *Fuchſ. hiſt.* 776. *Matth.* 842. *Baub. hiſt.* 3. 292. 2. *Ger.* 534. 1. 2. *emac.* 661. *Raii hiſt.* 576. *ſyn.* 246. *Riv. mon. t.* 11. *Blackw. t.* 475.

S. legitimum. *Park. theat.* 111. 1.

Chamædrys. *Hall. helv. n.* 288.

C. paluſtris cæneſcens ſ. Scordium officinarum. *Tournef. inſt.* 205.

C. pal. allium redolens. *Mor. hiſt.* 3. 423. *ſ.* 11. *t.* 22. *f.* 14.

Leaves

Leaves oblong ſeſſile tooth-ſerrate, flowers axillary in pairs peduncled, ſtem diffuſed.

32. Teucrium Chamædrys. *Common* or *Wall Germander. Lin. ſpec.* 790. *Reich.* 3. 20. *Willd.* 3. 28. *hort. cliff.* 302. *mat. med.* 144. *Woodv. med. bot. ſuppl.* 82. *t.* 243. *Schreb. unilab.* 32. *n.* 21. *Retz. obſ.* 1. 21. *n.* 66. *Medic. act. palat.* 3. *phyſ.* 213. *Huſſ. angl.* 247. *Wilber. arr. ed.* 3. 518. *Smith brit.* 607. *Sibth. oxon. n.* 510. *Abbot bedf. n.* 419. *Hoffm. germ.* 201. *Roth. germ.* 1. 250. 2. 15. *Crantz auſtr.* 251. *n.* 3. *Scop. carn. n.* 720. *Pollich pal. n.* 548. *Krock. ſileſ. n.* 902. *Villars dauph.* 2. 353. *Allion. pedem. n.* 148. *Aſſo aragon. n.* 505. *Knipb. cent.* 11. *n.* 95. *Sabb. hort.* 2. *t.* 88.

Chamædrys. *Hall. helv. n.* 286.

Chamædrys. *Cord. hiſt.* 126. *Lob. obſ.* 260. 1. *ic.* 1. 491. 1, 2. *Riv. mon. t.* 10. *f.* 2. *Blackw. t.* 180.

C. major repens. *Bauh. pin.* 248. *Mor. hiſt. ſ.* 11. *t.* 22. *f.* 11. *Dod. pempt.* 43. 1.

C. vera mas. *Fuchſ. hiſt.* 869.

C. major. *Park. theat.* 104. 2. *Raii hiſt.* 527.—latifolia. *Ger.* 530. 1. 3. *emac.* 656. 1.

C. vulgaris ſ. ſativa. *Raii ſyn.* 231.

Triffago ſ. Chamædrys. *Meltb.* 818.

β. Chamædrys minor repens. *Bauh. pin.* 248. *Dod. pempt.* 43. 2. *Tournef. inſt.* 205. *Mor. ſ.* 10. *Retz. n.* 66. β.

C. vulgaris. *Cluſ. hiſt.* 1. 351. *Park. theat.* 104. 1. *Raii hiſt.* 527.

C. minor. *Ger.* 530. 2. *emac.* 656. 2.

C. vulgo vera exiſtimata. *Bauh. hiſt.* 3. 288. 1.

γ. C. alpina hirſuta repens. *Mor. hiſt.* 3. 422. *n.* 12. *Raii hiſt.* 3. 282. 1.

Leaves ſubovate petioled goſh-crenate, flowers axillary peduncled tern, ſtem round hairy.

[33. Teucrium heterophyllum. *White-leaved Tree Germander.*

L'Herit. ſtirp. nov. 84. *Ait. kew.* 2. 279. *Willd. ſpec.* 3. 29.

T. canarienſe. *Lamarck encycl.* 2. 684.

Leaves elliptic crenate, flowers lateral ſolitary, lip of the corolla woolly on the outſide, branches with different leaves.]

34. Teucrium lucidum. *Shining Germander.*

Lin. ſpec. 790. *ſyſt.* 527. *Reich.* 3. 21. *Willd.* 3. 29. *Medic. act. palat.* 3. *phyſ.* 211. *t.* 12. *f.* 7, 8, 9. *Schreb. unilab.* 33. *n.* 22. *Ger. prov.* 278. *n.* 9. *Allion. pedem. n.* 149. *Deſfont. atlant.* 2. 6.

Chamædrys alpina major & elatior, foliis profundius diſſectis. *Mor. hiſt.* 3. 423. *n.* 13. *Raii hiſt.* 3. 282. *n.* 11.

C. alpina frutescens, folio ſplendente. *Magn. hort.* 52. *ic. Tournef. inſt.* 205.

Teucrium regium flore rubro. *Rivin. mon. t.* 80?

Leaves ovate acutely goſh-ſerrate ſmooth, flowers axillary tern, ſtem erect even.

35. Teucrium flavum. *Yellow-flowered ſcrubby Germander.*

Lin. ſpec. 791. *ſyſt.* 527. *Reich.* 3. 21. *Willd.* 3. 30. *hort. cliff.* 302. *ufc.* 160. *Medic. act. palat.* 3. *phyſ.* 209. *Schreb. unilab.* 34. *n.* 23. *Scop. carn. n.* 722. *Sauv. monſp.* 145. *Deſfont. atlant.* 2. 6. *Knipb. cent.* 9. *n.* 89. *Sabb. hort.* 3. *t.* 89. *Jungh. ic. cent.* 1. *f.* 5.

Teucrium. *Bauh. pin.* 247. *Rivin. mon. t.* 10. *Raii hiſt.* 536.

T. multis. *Bauh. hiſt.* 3. 290.

T. verum. *Boſt. eyſt. æſt.* 7. *p.* 11. *f.* 1.

T. vulgare fruticans 1. *Cluſ. hiſt.* 1. 348.

T. majus vulgare. *Park. theat.* 109. 1.

T. latifolium. *Ger.* 532. *emac.* 658. 1.

Chamædrys fruticoſior ſ. Teucrium vulgare flore ochroleuco. *Mor. hiſt.* 3. 421. *ſ.* 11. *t.* 22. *f.* 1?

β. T. flavum hirſutum. *Deſfont. atlant.* 2. 6. A.

Leaves cordate bluntly ſerrate, braktes quite entire concave, ſtem ſhrubby, flowers racemed tern.

[36. Teucrium bracteatum. *Bractled Germander. Deſfont. atlant.* 2. 7. *Willd. ſpec.* 3. 29.

Stem erect villoſe, leaves cordate crenate, braktes fix or more ovate acuminate petioled, whorls diſtinct.]

37. Teucrium montanum. *Dwarf Mountain Germander. Lin. ſpec.* 791. *ſyſt.* 527. *Reich.* 3. 22. *Willd.* 3. 31. *hort. cliff.* 302. *Willich illuſtr. n.* 60. *Schreb. unilab.* 50. *n.* 57. *Crantz auſtr.* 253. *Scop. carn. n.* 723. *Sauv. monſp.* 141. *Villars dauph.* 2. 351. *Krock. ſileſ. n.* 904. *Allion. pedem. n.* 153. *Hoffm. germ.* 201. *Roth. germ.* 1. 251. 2. 16.

Polium montanum. *Mill. dict. n.* 1.—8. *Cluſ. hiſt.* 1. 363.

P. lavandulæ folio. *Bauh. pin.* 220. *Lob. ic.* 488.

P. majus. *Cord. hiſt.* 124.

P. alterum. *Matth.* 841. *Daleeb. hiſt.* 929.

P. montanum lavendulæ folio. *Park. theat.* 25. 6. *Raii hiſt.* 525.

P. lavendulæ folio, flore albo. *Ger. emac.* 655. 5. *f.* 3.

P. campeſtre. *Tabern.* 365.

Chamædrys. *Hall. helv. n.* 285.

Ajuga folio integro. *Rivin. mon. t.* 15.

Corymb terminating, leaves lanceolate quite entire tomentoſe beneath.

38. Teucrium ſupinum. *Procumbent Germander. Lin. ſpec.* 791. *ſyſt.* 528. *Reich.* 3. 23. *Willd. ſpec.* 3. 32. *Jacqu. auſtr.* 5. *p.* 8. *t.* 417.

Polium 2. *Mill. dict. vel.* 2. 1739.

P. montanum repens. *Bauh. pin.* 220. *Raii hiſt.* 525.

P. mont. ſupinum minimum. *Lob. ic.* 488. *Ger.* 529. 4. *emac.* 655. 4. *Park. theat.* 24. 5.

Corymb terminating, leaves linear rolled back at the edge.

39. Teucrium pyrenaicum. *Pyrenean Germander. Lin. ſpec.* 791. *Reich.* 3. 23. *Willd.* 3. 33. *hort. cliff.* 55. *hort. cliff.* 301. *Schreb. unilab.* 41. *n.* 40. *Aſſo arag. n.* 506.

Polium pyrenaicum. *Mill. dict. n.* 6.

P. pyren. ſupinum hederæ terreſtris folio. *Tournef. inſt.* 206.

P. ſaxatile purpureum chamædryoides, ampla coma. *Bocc. muſ.* 2. *t.* 61. *Barr. rar.* 315. *t.* 1086.

Corymb terminating, leaves cuneiform-orbicular crenate.

40. Teucrium Polium. *Peley.*

Lin. ſpec. 792. *ſyſt.* 528. *Reich.* 3. 23. *hort. cliff.* 302. *Scop. carn. n.* 724. *Sauv. monſp.* 141. *Villars dauph.* 2. 351. *Allion. pedem. n.* 155. *Gron. orient.* 71. *Lour. cochinch.* 362. *ed. Willd.* 439. *Deſfont. atlant.* 2. 7.

α. Polium luteum. *Mill. dict. n.* 2.—item *n.* 3.

P. montanum luteum. *Bauh. pin.* 220. *Lob. ic.* 487. *Tabern. ic.* 364. *Ger.* 528. 2. *emac.* 653. 2. *Raii hiſt.* 525. *Mor. hiſt.* 3. 455. *ſ.* 11. *t.* 2. *f.* 1. *Tournef. inſt.* 206. *Barrel. obſ.* 310. *ic.* 1082. *Blackw. t.* 456.

P. montanum vulgare. *Park. theat.* 24. 1.

Teucrium aureum. *Schreb. unilab.* 43. *n.* 43. *Willd. ſpec.* 34.—tomentoſum. *Villars dauph.* 2. 352.

Yellow Peley or *Mountain Germander.*

β. Polium album. *Mill. dict. n.* 4.—item, *n.* 7 & 8.

Polium montanum album. *Bauh. pin.* 221. *Ger.* 528. 1. *emac.* 653. 1. *Raii hiſt.* 524.

P. mont. 1. *Cluſ. hiſt.* 1. 361. *Lob. hiſt.* 257. *ic.* 486.

P. mont. monſpeliacum. *Park. theat.* 24. *n.* 3.

P. mont. album ſerratifolium latifolium majus. *Barrel. obſ.* 326. *ic.* 1074.—P. latifolium. *Mill. n.* 7.—item, minus. *Barrel. obſ.* 329. *f.* 1078.

Teucrium Teuthrion. *Schreb. unilab.* 46.

T. Polium. *Willd. ſpec.* 3. 36.

White Peley or *Mountain Germander.*

γ. Polium montanum ſupinum alterum. *Bauh. pin.* 221.

δ. Polium maritimum ſupinum venetum. *Bauh. pin.* 221. *hiſt.* 3. 300. *Mor. hiſt.* 3. *ſ.* 11. *t.* 2. *f.* 12. *Tournef. inſt.* 206.

P. marit. ſupinum. *Park. theat.* 24. 4. *Raii hiſt.* 524.

Teucrium Achæmenis. *Schreb. unilab.* 44. *n.* 45. *Willd. ſpec.* 3. 35.

Purple Peley or *Mountain Germander.*

1. Hyſſopium Dioſcoridis. *Col. ecphr.* 1. 59. *t.* 67.
Teucrium Pſeudhyſſopus. *Schreb. unilab.* 45. *n.* 46. *Willd. ſpec.* 3. 37.
Polium montanum incanum, &c. *Mich. hort. flor.* 75. *n.* 2.
Spikes roundiſh, leaves oblong obtuſe crenate tomentoſe ſeſſile, ſtem proſtrate.

41. Teucrium capitatum. *Round-headed Germander.*
Lin. ſpec. 792. *fiſt.* 528. *Reich.* 3. 24. *Willd.* 3. 38. *Aſſo arag. n.* 508. *Deſfont. atlant.* 2. 7. *Cavan. ic. n.* 129. *t.* 119.
T. bellon. *Schreb. unilab.* 47. *n.* 49.
Polium daſyphyllum gnaphalodes flore albo. *Barrel. rar.* 324. *ic.* 1047. *ſec. Schreb.*
P. mont. album ſerratum latifolium. *Barr. rar.* 325. *t.* 1079. *ſec. Linn.*—v. T. Polium β.—*Barrel. t.* 1078, 1079. *et forte* 1048, 1049, 1050. *Deſf.*
β. Polium capitatum. *Mill. dict. n.* 5. *Villars dauph.* 2. 352. *Allion. pedem. n.* 154.
P. maritimum erectum monſpeliacum. *Bauh. pin.* 221. *Tournef. inſt.* 206.
P. monſpeſſulanum. *Bauh. hiſt.* 3. 299.
Heads peduncled, leaves lanceolate crenate tomentoſe, ſtem erect.

[42. Teucrium pumilum. *Dwarf Germander.*
Lin. ſpec. 792. *Reich.* 3. 25. *Willd.* 3. 40. *amœn.* 4. 276. *Schreb. unilab.* 48. *n.* 53.
Polium hiſpanicum montanum pumilum, roſmarini folio, flore rubro. *Tournef. inſt.* 207.
P. mont. pum. rubrum, viridi ſtœchadis folio, caule tomentoſo. *Barr. rar.* 336. *t.* 1092.
β. P. mont. pum. anguſto viridique folio, caule incano. *Barr. rar.* 337. *t.* 1093.
Heads terminating ſeſſile, leaves linear flat claſpered four ways, ſtem procumbent tomentoſe.

43. Teucrium ſpinoſum. *Thorny Germander.*
Lin. ſpec. 793. *fiſt.* 528. *Reich.* 3. 25. *Willd.* 3. 41. *Loeſ. it.* 147. *Schreb. unilab.* 38. *n.* 32.
Chamædrys multifida ſpinoſa odorata. *Griſl. luſit.* 20. *Tournef. inſt.* 208.
C. ſpinoſa. *Bauh. pin.* 248. *prodr.* 117. *ic. Mor. hiſt.* 3. 423. *ſ.* 11. *t.* 22. *f.* 17. *Raii hiſt.* 528. —cretica. *Park. theat.* 105. 5.
β. Teucrium mucronatum. *Lin. ſpec.* 793.
Scordium ſpinoſum odoratum. *Coru. can.* 123. *Barr. rar.* 319. *t.* 202.
Thorny, upper lip of the calyxes ovate, corollas reſupine, peduncles in pairs.

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44. Teucrium corymbiferum. *Corymbiferous Germander.*
Deſfont. atlant. 2. 8.
Frutiſcent, leaves oblong crenate cinereous, flowers corymbed capitate, peduncles leafy.

45. Teucrium lævigatum. *Smooth Germander.*
Vahl ſymb. 1. 40. *Willd. ſpec.* 3. 13.
Lower leaves multifid, upper three-parted, peduncles ſolitary length of the leaves.

46. Teucrium trifoliatum. *Three-leaved Paley.*
Vahl ſymb. 1. 40. *Willd. ſpec.* 3. 36.
Heads roundiſh looſe, leaves tern oblong revolute, crenate in front, tomentoſe.

47. Teucrium Gnaphalodes.
Vahl ſymb. 1. 41. *L'Herit. ſtirp. nov.* 4. 84. *Willd. ſpec.* 3. 35.
Polium montanum 5 purpureo flore. *Cluſ. hiſt.* 1. 362.
P. mont. gnaphalodes inciſum, flore rubro ſupinum. *Barrel. ic.* 1083.
Flowers ſolitary cloſtered, leaves linear revolute crenate, both they and the calyxes woolly.

48. Teucrium villoſum. *Villoſe Germander.*
Forſk prodr. n. 232. *Willd. ſpec.* 3. 33.
Leaves elliptic-ovate acuminate ſerrate petioled villoſe, raceme ſpiked terminating, calyxes inflated.

49. Teucrium undulatum. *Wave-leaved Germander.*
Linn. suchinch. 362. *ed. Willd.* 439.
Leaves oblong waved ſubcrenate, corymb terminating.

50. Teucrium Thea. *Tea Germander.*
Linn. suchinch. 363. *ed. Willd.* 440.
Leaves ovate-lanceolate, ſtem procumbent, peduncles axillary three-flowered.

51. Teucrium triſidum. *Trifid-leaved Germander.*
Retz. obſ. 1. 21. *n.* 65. *Willd. ſpec.* 3. 15.
Leaves lanceolate triſid, peduncles axillary three-flowered.

52. Teucrium parviflorum. *Small-flowered Germander.*
Lin. ſpec. ed. Willd. 3. 14. *Schreb. unilab.* 31. *n.* 18.
T. orientale latifolium laciniatum flore parvo. *Tournef. cor.* 24.
Leaves multifid linear, raceme decompounded, pedicels elongated divaricating.

53. Teucrium breviſolium. *Short-leaved Germander.*
Lin. ſpec. ed. Willd. 3. 17. *Schreb. unilab.* 27. *n.* 10.
T. fruteſcens ſtœchades arabicæ folio & facie. *Tournef. cor.* 14. *Rivin. mon. t.* 20.
Leaves lanceolate revolute quite entire obtuſe hoary, flowers ſolitary, calyxes awnleſs.

54. Teucrium regium. *Royal Germander.*
Lin. ſpec. ed. Willd. 3. 19. *Schreb. unilab.* 35. *n.* 25. *Medic. act. palat.* 3. *phyſ.* 208.
T. lucidum parvo folio, flore venuſte purpureo. *Pluk. phyt. t.* 305. *f.* 2. *Mor. hiſt.* 3. 422. *n.* 5.
Leaves ovate toothed in front, floral leaves quite entire ſeſſile, whorls racemed, ſtem branched.

55. Teucrium japonicum. *Japoneſe Germander.*
Lin. ſpec. ed. Willd. 3. 23.
T. virginicum. *Thunb. jap.* 244.
T. virgin. e Japonia. *Houtt. fyſt.* 7. 401. *t.* 56. *f.* 1.
Scorodoniæ affinis Sinarum, floribus ex albo-purpurascentibus, ſpica florum compactiore. *Pluk. amalth.* 188. *t.* 441. *f.* 2.
Leaves ovate doubly-ſerrate, racemes terminating, bractes length of the calyx.

56. Teucrium Salviaſtrum. *Sage-like Germander.*
Lin. ſpec. ed. Willd. 3. 27. *Schreb. unilab.* 38. *n.* 33.
Chamædrys fruticoſa luſitanica meliſſæ folio minori, flore purpureo. *Tournef. inſt.* 205.
Leaves oval crenulate wrinkled tomentoſe beneath petioled, raceme directed one way.

57. Teucrium ſcordioides. *Scordium-like Germander.*
Lin. ſpec. ed. Willd. 3. 27. *Schreb. unilab.* 37. *n.* 30.
Chamædrys cretica paluſtris caneſcens ſcordioides, betonicæ folio. *Tournef. cor.* 14.
Scordium lanuginoſum. *Bauh. pin.* 247.
Leaves oblong cordate embracing crenate lanuginoſe, flowers axillary peduncled in pairs.

58. Teucrium nitidum. *Glittering Germander.*
Lin. ſpec. ed. Willd. 3. 30. *Schreb. unilab.* 35. *n.* 24.
Leaves ovate crenate, floral leaves quite entire, whorls halved racemed, ſtem bearded in two rows.

59. Teucrium thymifolium. *Thyme-leaved Germander.*
Lin. ſpec. ed. Willd. 3. 32. *Schreb. unilab.* 50. *n.* 56.
Polium ſaxatile minimum thymi folio carneo flore. *Barr. rar.* 344. *t.* 1062.
β. P. ſax. purpureum non ſerrato ſerpilli folio, preſſa coma. *Barr. rar.* 343. *t.* 1087.
Heads terminating few-flowered, leaves petioled ovate obtuſe tomentoſe beneath, ſtem procumbent.

60. Teucrium rotundifolium. *Round-leaved Germander.*
Lin. ſpec. ed. Willd. 3. 33. *Schreb. unilab.* 42. *n.* 41.
T. ſaxatile. *Lamarck. encycl.* 2. 691.
Polium hiſpanicum chamædryos folio, purpuraſcente flore. *Tournef. inſt.* 206.
P. ſaxatile chamædryoides rotundiore folio ſupinum rubrum. *Barr. rar.* 346. *t.* 1095. *Bocc. muſ.* 2. 76. *t.* 62. *Mor. hiſt.* 3. 356. *ſ.* 11. *t.* 4. *f.* 3.
Corymbs terminating, leaves roundiſh crenate villoſe.

61. Teucrium buxifolium. *Box-leaved Germander.*
Lin. ſpec. ed. Willd. 3. 34. *Schreb. unilab.* 42. *n.* 42.
T. ſaxatile. *Cavan. ic.* 2. 19. *t.* 121. *f.* 1.
Polium ſaxatile purpureum chamædryoides ſimplici coma. *Barr. rar.* 345. *t.* 1086. *Bocc. muſ.* 2. 75. *t.* 61.
Corymbs terminating, leaves oval wrinkled crenate at the end villoſe.

62. Teucrium flavescens. *Sulphur-coloured Germander.*
Lin. spec. ed. Willd. 3. 35. *Schreb. unilab.* 44. *n.* 44.
Polium anguſtiſolium. *Mill. dict. n.* 3?
P. montanum luteum daſyphyllum ſerratum. *Barr. rar.* 321. *t.* 1073.
Heads roundiſh and leaves linear-lanceolate crenate in front tomentoſe, ſummits yellow.

63. Teucrium valentinum. *Valentia Germander.*
Lin. ſpec. ed. Willd. 3. 37. *Schreb. unilab.* 46. *n.* 48.
Polium valentinum fruticoſum anguſtiſolium, flore albo. *Barr. rar.* 331. *t.* 1048.
Heads roundiſh ſhortly peduncled, leaves linear crenate, ſtem erect hoary.

64. Teucrium luſitanicum. *Portugueze Germander.*
Lin. ſpec. ed. Willd. 3. 38. *Schreb. unilab.* 47. *n.* 59.
Polium luſitanicum ſupinum minus incanum, caulibus purpuraſcentibus, flore albo. *Tournef. inſt.* 206.
Heads looſe, leaves linear obtuſe crenulate hoary, ſtem pubeſcent corymbiferous.

65. Teucrium pycnophyllum. *Thick-leaved Germander.*
Lin. ſpec. ed. Willd. 3. 39. *Schreb. unilab.* 48. *n.* 51.
Polium ſurrectum majus anguſtiſolium ſerratum incanum tomentoſum. *Barr. rar.* 322. *t.* 1096.
P. montanum album anguſt. ſerr. ſupinum minus. *Barr. rar.* 330. *t.* 1091.
Heads roundiſh, leaves linear revolute crenate in front cluſtered, they and the ſtem denſely tomentoſe.

66. Teucrium verticillatum. *Whorled Germander.*
Lin. ſpec. ed. Willd. 3. 39. *Cavan. ic.* 2. 77. *t.* 198.
Head roundiſh ſeſſile, leaves lanceolate quite entire revolute whorled, ſtem erect, both tomentoſe.

67. Teucrium Libanitis. *Roſemary-leaved Germander.*
Lin. ſpec. ed. Willd. 3. 40. *Cavan. ic.* 2. 17. *t.* 118.
Polium montanum majus erectum roſmarini folio, flore rubro. *Barr. rar.* 338. *t.* 1090.
Spikes roundiſh, leaves cluſtered linear revolute quite entire, they and the ſtem tomentoſe.

68. Teucrium anguſtiſſimum. *Narroweſt-leaved Germander.*
Lin. ſpec. ed. Willd. 3. 40. *Schreb. unilab.* 49. *n.* 54.
Polium montanum album non ſerratum, longis anguſtiſque foliis canescentibus. *Barr. rar.* 333. *t.* 1080.
Heads terminating hairy, leaves linear quite entire almoſt naked, ſtem erect.

69. Teucrium cœleſte.
Lin. ſpec. ed. Willd. 3. 40. *Schreb. unilab.* 49. *n.* 55.
Polium montanum album non ſerratum viride, longis anguſtiſque foliis, caule incano. *Barr. rar.* 354. *t.* 1081.
Heads terminating tomentoſe, leaves linear quite entire hoary, ſtem erect.

DESCRIPTIONS, *&c.*

1. This very much reſembles T. Botrys, but the plant is ſmooth. Root perennial. Flowers ſolitary, on peduncles ſhorter than the flower: calyxes bell-ſhaped, and not gibbous at the baſe: corollas pearly-white, incumbent on the leaf. The older ſtems are proſtrate and creeping. Leaves twice trifid. Seeds rugged[a].

Native of the Levant, and of Apulia, in moiſt ground.—Cultivated in 1728, by Mr. Miller. It flowers in july and auguſt[b].

2. Native of the Levant, it ſeems doubtful whether it be ſufficiently diſtinct from the preceding[c]. The flowers are in a raceme, larger, and blueiſh. But it varies with a bright red corolla.]

3. Root annual. Stems four-cornered, hairy, about a foot long. Leaves at every joint, oppoſite, hairy and cut almoſt to the midrib, and the ſegments cut into three points. The flowers come out from the axils in whorls, three together on each ſide, upon ſhort foot-ſtalks: they appear in june and july. The ſeeds ripen in auguſt and ſeptember.

[Stem much branched and very leafy, ſtraight but often decumbent at the baſe. Leaves two, three or five-cleft, unequal, ſometimes entire, obtuſe; the lower on longer, the upper on ſhorter petioles. Whorls two, four, ſix or eight-flowered, ſometimes even nine-flowered, on ſhort peduncles. Corolla roſe-coloured or purple, the middle ſegment of the lower lip dotted with red. Calyx very gibbous[d].

This plant has a pleaſant aromatic odour. In character and qualities it lies between the Chamædrys and Chamæpitys, being leſs acrid than the latter, more aromatic and leſs bitter than the former: it may therefore be uſed ſucceſsfully in fevers, rheumatiſm, gout, and other maladies which depend upon the weakneſs of the ſtomach, and the tenacity of the humours[e].

Native of the South of Europe, and of Barbary about Algiers. Cultivated here before 1633; for Johnſon, in his edition of Gerarde's herbal, ſays that he has often ſeen it in gardens.

4. Root ſmall, branched, annual. The whole herb hairy, viſcid, aromatic and bitter. Stem much branched, four-cornered, leafy, often red. The two or three firſt leaves are entire; all the reſt are deeply three-cleft. Flowers axillary, ſolitary, oppoſite, ſubſeſſile, yellow dotted with red. The middle ſegment of the lower lip is obcordate. The upper lip, inſtead of being deeply divided and divaricated, with the ſtamens projecting between the lobes, as in the genuine Teuciums; is very ſhort and notched, as in the genus Ajuga. Hence Haller conſidered it as a Bugula, which is his name for that genus; and he has been followed by Schreber, Scopoli, Allioni, Roth, Willdenow, Smith, Withering and Relhan. Dr. Smith indeed acknowledges, that the habit of Chamæpitys is unlike that of Linneus's Ajugas; but at the ſame time remarks, that his Teucrium Iva, which belongs to the ſame genus, is the connecting link between them, by its pubeſcence and the denticulation of its leaves approaching Ajuga alpina, which is moreover a bitter aromatic plant[f]. The whole plant has a highly aromatic odour: and was much eſteemed formerly in the ſame diſorders as the preceding. It is an ingredient in the Portland powder.

Native of many parts of Europe, the Levant, Barbary and Virginia. In England it abounds in Kent and Surry, but is otherwiſe a ſcarce plant. It is found near Purfleet in Eſſex; about Rocheſter and Dartford, &c. Roehill. On the lays about the borders of Triplow-heath, Cambridgeſhire.

5. This is an annual plant native of Spain and Portugal. According to Schreber, it is confounded by Moriſon and Miller with T. multiflorum.—It was cultivated in 1768, by Mr. Miller[g]; and flowers in june and july[h].

6. Stems often many in one tuft, decumbent at the baſe, four-cornered, ſimple. Leaves oppoſite, petioled, numerous; the lower bipinnate, the upper pinnate; pinnules diſtinct, linear-ſubulate, unequal, ſmooth or pubeſcent. Flowers in whorls, looſely racemed, ſolitary or in pairs from the axils, each on a ſhort pedicel. Lower bractes many-parted, longer than the calyx; upper three-parted; ſegments awl-ſhaped. Calyx bell-ſhaped, half-five-cleft; ſegments lanceolate, acute, equal. Corolla the ſame ſize as in T. fruticans; white and villoſe: tube cloven above; the two upper lobes ovate, erect: lower lip three-lobed; the middle lobe very large, ovate, concave[i].

Native of Spain, Portugal, the ſouth of France about Marſeilles, and Algiers in Barbary.

Teucrium delphinii folio, non ramoſum of Shaw, belongs to this ſpecies; and conſequently T. mauritanum of Linneus is to be expunged[k].]

7. Annual, with a ſingle woody root, ſending out a few fibres. Stalks about ſix inches high, cloſely ſet with very hairy narrow leaves, indented towards

[a] Pollich. Krock. Desfont.
[b] Hort. kew.
[c] Linn. ſyſt.
[d] Villars.
[e] Hort. kew.
[f] Smith brit. & Engl. bot.
[g] Desfontaines.
[h] Idem.

their points. The flowers come out from the axils, to which they ſit very cloſe; they are large, of a bright purple colour, and appear in july. Mr. Miller has another ſpecies (T. moſchatum n. 15.) which ſeems to be a variety of this. The leaves are narrower and entire, and the flowers are ſmaller.

[It is a very villoſe hoary plant. The ſtems are branched at the baſe and procumbent. Leaves in cluſters, moſtly obtuſe, gradually widening from the baſe to the end, ſome quite entire, others remotely ſerrate, and others having a tooth or two only at the tip. Flowers ſolitary. Corolla large, roſe-coloured, often abortive. The whole plant ſmells of muſk[1].

It has the ſame qualities with the Chamæpitys, but poſſeſſes a more volatile principle, and deſerves a place among the ſudorifics[2].

Native of the ſouth of Europe, and of Barbary. Vahl found it flowering at the beginning of october on the rocks about Marſeilles, and in various places of the kingdom of Tunis in april.

8. Found by Shaw in Barbary, but not different from T. pſeudo-chamæpitys, his figure being of that plant in a monſtrous or unnatural ſtate[3]. See n. 6. The leaves however are multifid in this, whereas in Chamæpitys they are ſimply trifid.]

9. This has a ſhrubby branching ſtalk, riſing ſix or eight feet high, and covered with a hoary bark. Leaves oppoſite, ovate, ſeſſile or on very ſhort petioles, near an inch long, and half an inch broad, ſmooth and of a ſhining green above, and hoary beneath. Flowers axillary from the upper part of the branches, one on each ſide at a joint, on ſhort peduncles. Calyxes ſhort and hoary. Corollas pale blue.

Native of Spain, Sicily, and Corſica, near the coaſt; alſo in Barbary. Ray found it near Syracuſe, and in ſeveral other parts of Sicily; alſo at Capo Paſſaro. His friend Mr. Willughby found it in his way from Naples to Rome. Cluſius gathered it in Andaluſia, near Cadiz, and Gibraltar; flowering in february.—It was cultivated here in 1640, as appears from Parkinſon[4].

Dillenius figures a variety, which is a little more branched, and has ſmaller ſhorter leaves; the flowers are paler, the ſtamens ſomewhat longer, the anthers ſmaller and brown, whereas in the larger ſort they are violet.]

Mr. Miller mentions a variety with variegated leaves, which is preſerved in ſome gardens.

10. This is a ſhrubby plant, growing ſeven or eight feet high, and may be trained to a much greater height[5]. The flowers are ſomewhat ſhorter and ſmaller, though the leaves are larger; they are not blue but purpliſh, with more conſpicuous veins and ſtreaks: the anthers are of a duſky greeniſh colour[6].]

The leaves are broader of a rhomboid form, more hairy and whiter on their under ſide.

[Native of Spain. Cultivated in 1714, by the Ducheſs of Beaufort. It flowers from june to ſeptember. Schreber and Desfontaines conſider this as a variety of the fruticans, and Willdenow raiſed it from ſeeds which were ſent him for the fruticans.

11. Roots annual, long, twiſted, putting forth capillary branchlets. Stem erect, hirſute. Branches ſpreading, numerous. Leaves villoſe, decurrent into a ſhort petiole, deeply ſerrate, the lower obovate, the middle and upper lanceolate. Flowers axillary, ſolitary, ſeſſile or ſubſeſſile. Calyx round, gibbous at the baſe below, villoſe, five-toothed; teeth ſmall, ovate, acute, almoſt equal, mucronate. Corolla pale yellow, the ſize as in T. Chamædrys: the two lower ſegments linear, purple, blunt; the upper middle lobe larger, roundiſh.—Native of Barbary, near Maſcar, in clayey fields.

12. This is a hoary, tomentoſe, erect ſhrub, with very numerous ſtiliform branches. Leaves white, paler above, nearly the ſize of T. marum, petioled, obovate or ovate-rhombed, nerved beneath. Flowers ſmall, axillary and terminating, ſubſeſſile, ſhorter than the leaf: calyx ſlender, elongated, white, five-toothed; teeth acute, almoſt equal: corolla violet-coloured. The whole plant breathes a very ſweet odour.

Native of Barbary, near Caſſa, in cleſts of rocks[7]: alſo of Spain.

13. Leaves acuminate, white beneath. Flowers in threes or ſolitary. Calyxes ſpiny[8].

Native of Candia and Egypt. Schreber excludes the ſynonym of Bauhin[9].]

14. This has a low ſhrubby ſtalk, ſending out many ſlender woody branches, in warm countries riſing three or four feet high, but in England rarely half that height. The ſtalks are very hoary, and have ſmall leaves placed oppoſite at each joint, about the ſize of thoſe of Thyme, and pointed at both ends, green above, hoary underneath, having a grateful ſcent, but ſo piercing as to cauſe ſneezing. The flowers grow in looſe whorled ſpikes at the ends of the branches; they are very downy, and of a bright red colour; appear in july and auguſt, but produce no ſeeds in England.—Native of Spain.

At the beginning of this century, many of theſe plants were growing in the Royal gardens at Kenſington, which were near three feet high, and clipped into conical forms. Cats are very fond of this plant, and where there are but few will deſtroy them.

[It appears from Parkinſon to have been cultivated here in 1640[10].

The leaves and younger branches of Marum, when recent, on being rubbed between the fingers, emit a volatile aromatic ſmell, which readily excites ſneezing, but to the taſte they are bitteriſh accompanied with a ſenſation of heat and acrimony. Judging from the ſenſible qualities of this plant, it may be ſuppoſed to poſſeſs very active powers, and on this conſideration it is ſtrongly recommended by Wedelius, as an important remedy in many diſeaſes requiring medicines of a ſtimulant, aromatic, and deobſtruent quality: his opinion ſeems in ſome meaſure to have been ſince verified by actual experience of its efficacy. At preſent however Marum is here chiefly uſed as an errhine, and is an ingredient in *Pulvis aſari compoſitus*. The doſe of the powdered leaves is from a ſcruple to half a dram, which Murray adviſes to be given in wine[11].

15. The deſcription of T. nilfolianum in Miller's Dictionary, n. 8. ſeems to agree better with this ſpecies.] It is a perennial plant, having ſome reſemblance of the Chamædrys, but the roots do not creep. The ſtalks are taller and more erect, the leaves are narrower, pointed at both ends, and not ſo deeply indented; the indentures are ſharper, and only towards the point; the flowers come out in bunches from the axils, along the greater part of the ſtalk; they are longer than thoſe of Chamædrys, and of a brighter red colour.—Native of Spain. [It was cultivated by Mr. Miller in 1731[12].

16. Stem half a foot high, villoſe. Leaves three-nerved. Flowers ſolitary, lateral, directed one way. Found in Siberia by Laxmann[13]. It is a native alſo of Hungary and Sclavonia.

17. Leaves naked on both ſides, ovate, ſerrate. Bractes under the forking two, lanceolate, mucronate, quite entire, length of the calyx, as in Satureia montana.—Native of Siberia. Perennial[14].

18. Stems diffuſed, roundiſh, pubeſcent, perennial at the baſe. Leaves oppoſite, naked, not ſhining, erect, nerved, longer than the internodes. Flowers oppoſite, on very ſhort peduncles. Calyxes tubular, half-four-cleft, narrow. Corollas three times ſhorter than the leaves, without any rudiment of an upper lip, or lateral teeth at the baſe.—Native of the Levant[15].

19. Stem erect, ſtraight, a foot high, four-nerved, brownifh, brachiate, naked; with ſhorter branches. Firſt leaves lanceolate with a [illegible] at the baſe, petioled, wrinkled, bluntiſhly [illegible]

[1] Desfontaines. [2] Alioni. [3] Desfontaines. [4] Hort. kew. [5] Curtis. [6] Dillenius.

[7] Desfontaines. [8] Schreber. [9] Richard. [10] Hort. kew. [11] Woodville. [12] Hort. kew. [13] Linn. ſyſt. [14] Linn. ſyſt. & ſpec. [15] Linn. mant.

acute.]

acutely crenate, the notches separated by a right angle, foft, fpreading, above fomewhat wrinkled and dark green, beneath tomentofe netted veined and pale green. Flowers axillary, folitary, one-flowered, fhortly pedunculed, directed one way. Calyx like that of Ocymum or Scutellaria, with the upper lip cordate, recurved at the edge, acute; lower four-toothed, equal. Corolla white, or fcarcely flefh-coloured; without any upper lip, the lower lip trifid, with the middle lobe larger, recurved, emarginate but fcarcely crenate. Stamens hardly longer than the throat: filaments hairy; anthers brown with faffron-coloured pollen. Stigmas acuminate, fcarcely longer than the ftamens [b].

Native place not known. Conjectured to be the Eaft indies.—Introduced in 1777, by Monf. Thouin. It flowers from june to october [c].

20. Stem four-cornered, erect, a foot and half high, fmooth, little branched, annual or perhaps biennial. Leaves obtufe, inodorous, oppofite. Peduncles one-flowered, axillary, folitary, oppofite. Flowers fmall, inodorous. Corolla white: the middle fegment of the lower lip fubovate, acute and large; the lateral ones ovate-acuminate. Seeds black.

Native of Cuba in moift hedges and meadows; flowering in december and the following months [d].

Miller defcribes his chamedrifolium, which feems to be the fame plant, thus—] Annual, with an erect ftalk a foot and half high, four-cornered and fmooth. Leaves about an inch and half long, and three quarters of an inch broad, upon fhort foot-ftalks. Flowers axillary, two at each joint, upon fhort ftender peduncles: calyx fhort, cut at the brim into five very acute points: corolla fmall and white. They appear in july, and the feeds ripen in autumn. It was difcovered by Dr. Houftoun at La Vera Cruz.

[21. The whole plant is obfcurely pubefcent. Stems fuffruticofe. Spike terminating, like that of T. hircanicum, but fhorter and yellowifh. Its native place not known [e].]

22. This is a perennial plant, very like our Scorodonia or Wood Sage; but does not creep at the root as that does; the ftalks are erect: the leaves are white on their under fide, and deeply ferrate; flowers yellow in terminating racemes.

[The plant from Canada has narrower leaves, equally ferrate, tomentofe beneath, flat: the fpike is compofed of whorls or fcattered flowers, with a very fmall bracte under each. But the garden plant has larger wrinkled leaves, unequally ferrate, fcarcely pubefcent beneath; and flowers in a fubfpiked raceme, of fix-flowered, fix-leaved whorls, with ferrate bractes [f].

Native of North America. Cultivated in 1768 by Mr. Miller. It flowers in auguft and feptember [g].]

23. This is alfo a perennial plant. The ftalk is annual, rifes near a foot high, and is terminated by a long fpike of red flowers, which appear in july and auguft.

[Schreber could not difcover the two lipped calyx and doubly-crenate leaves of Gouan: nor do Medicus's fpecimens correfpond with Gronovius's defcription [h].—Native of Virginia.

24. This feldom rifes above two feet and a half in height; the fpikes of flowers are ftiff, ftraight and thick. It is a native of Jamaica, and pretty frequent in the lower parts of St. Mary's, where it grows very luxuriantly [i]. It was introduced here in 1778, by William Wright, M. D.; and flowers from auguft to october [k].

Mr. Miller has a fpecies, which he names veficarium (n. 17.) But whether it be the fame with this I am not able to fay. He thus defcribes it.] It is an annual plant, with a ftender, upright, four-cornered ftalk which rifes three feet high, and divides into feveral fmooth branches. Leaves ovate-lanceolate, three inches long, and an inch broad, bright green on their upper fide, but pale on their under, unequally ferrate, upon long foot-ftalks. Flowers axillary and terminating, in long bunches; they are pretty large, white, and have bladdered calyxes.

[25. Leaves like thofe of Betonica officinalis. Spikes very long, with the flowers thickly heaped fpirally on every fide, from the laft forkings of the ftem [l].

Native of Perfia. Introduced in 1763, by John Earl of Bute. It flowers from auguft to october. Perennial [m].

26. Leaves very large, like thofe of Sida. Teeth of the calyx very blunt. Structure of the corolla almoft as in T. betonicum; colour yellow [n].

Native of Madeira, where it was found by Maffon, and introduced in 1777. It flowers in april and may [o].

27. Root perennial, creeping. Stems a foot and half or two feet high, four-cornered, nearly upright, hairy, leafy, hard, often purple, panicle-racemed. Leaves oppofite, wrinkled, hairy, veiny and wrinkled like Sage, fomewhat glutinous, ftrong-fmelling, bitter. Flowers in pairs, on long oppofite naked racemes, pedicelled: calyx a little woolly, upper lip broad, bent back, pointed, lower with four very fhallow clefts terminating in pointed teeth bent inwards: corolla ftraw-coloured, woolly; tube longer than the calyx, upper lip none, but the top of the tube flightly cloven. Stamens violet-coloured. Seeds blackifh, fhining, almoft covered with crofs rigid hairs [p].

Native of Europe and Morocco, in woody and hilly fituations, among bufhes and under hedges, where the foil is dry and ftony: in fuch places frequent in moft parts of Great Britain; flowering from july to feptember.

Mr. Laurents, in his obfervations on the hufbandry of Flanders remarks, that in fmell and tafte, the Scorodonia or Wood-fage, (which would be more properly named Sage-leaved Germander,) refembles hops. It is called *Ambroife* in Jerfey, and in that ifland, when cyder fails, they malt their barley at home, and inftead of hops, ufe to very good purpofe, the *Ambroife* of their hedges [q]. Rutty fays, that when this herb is boiled in wort, the beer fooner becomes clear than when hops are made ufe of [r]. Dr. Withering relates that upon trial it gave too much colour to the liquor.

28. This has the appearance of the preceding, but differs in having a fhrubby and more hairy ftem, with the lower leaves tomentofe beneath and hoary.

Native of Barbary, on mount Lazar near Mayane in Algiers [s].

29. Stems fuffruticofe, fcarcely a foot high. Leaves ovate or cordate-ovate, unequally ferrate, bluntifh, fmall, reflexed at the edge, veined beneath. Flowers oppofite, peduncled. Calyxes nearly like thofe of Scutellaria, as in *T. hircanicum*, with the upper lip fubcordate, fpreading, acute. Corolla purple with the lower lip very concave. It has the odour of Nepeta or Cat-mint [t].

Accordiiig to Loureiro, it is three feet high, whitifh, fmoothi. Leaves acute, deeply crenate. Flowers violet-coloured, in erect terminating fpikes. Calyx ovate, five-cleft [u].

Native of the South of France, Candia, and Cochinchina. In the latter, the inhabitants boaft much of its medical qualities. It was cultivated in 1731 by Mr. Miller, and flowers in june and july [x].

30. This is a handfome undershrub, about three feet high. Stem upright, branched, round, cloven, cinereous: branches oppofite, fpreading, flowering and brachiate at the top: fhoots four-cornered, hoary-green, pubefcent. Leaves oppofite, broad-lanceolate, fharp at both ends, ferrate but entire at the bafe, fparingly nerved, the midrib and veins prominent beneath, marked with lines above, beneath glaucous and foftly fubpubefcent, flat, fpreading very much, the older ones reclining, from two to four inches long. Petioles three times fhorter than the leaves, round, cinereous or hoary, fubpubefcent. Racemes terminating and at the fame time from the axils of the

[b] Linn. mant. [c] Hort. kew. [d] Jacquin.
[e] Linn. mant. [f] Linn. fpec. [g] Hort. kew.
[h] Reichard. [i] Browne. [k] Hort. kew.

[l] Linn. fpec. [m] Hort. kew. [n] L'Heritier & Willdenow.
[o] Hort. kew. [p] Smith. Withering. Curtis.
[q] Young's Annals, 1. 249. [r] Curtis lond. [s] Desfontaines.
[t] Linn. fpec. [u] Loureiro. [x] Hort. kew.

upper

upper leaves, digeſted into a ſort of brachiate paniele, erect, peduncled, ſimple or in a manner ternate, bracted, pubeſcent, from four to ſix inches long. Flowers oppoſite, pedicelled, in the axils of the bractes, ſolitary, ſpreading, ſmelling like apples, purple. Bractes oppoſite, ſeſſile, lanceolate, entire, ſpreading very much, longer than the pedicel, of the ſame colour with the leaves. Seeds wedge-ſhaped, angular on one ſide, round on the other, hirſute, cinereous[a].

Native of Madeira. Introduced in 1775 by Sir Joſeph Banks. It flowers from may to auguſt[b]. Monſ. L'Heritier ſays, it was found in the ſame iſland alſo by Maſſon, and introduced by him into England, and thence into France.

This ſpecies, heterophyllum and abutiloides are intermediate between Teucrium and Ajuga. Perhaps on account of the tube of the corolla being very much lengthened out, and the upper lip ſcarcely emarginate and not cloven, they would more properly range with the Ajugas, unleſs we ſhould ſink that genus in Teucrium[c].

31. Root perennial, creeping. Stems ſpreading or even proſtrate, little branched, four-cornered, grooved, leafy, hairy. Leaves numerous, oppoſite, ſeſſile, tapering and entire at the baſe, ſerrated upwards, hairy; at the top of the branches, they are ſometimes ovallanceolate and nearly entire. Flowers axillary: the lower ones frequently ſolitary, the upper in pairs, pedicelled. Calyx hairy, purpliſh, with five nearly equal teeth. Corolla pale purple or pink, ſmaller and leſs handſome than thoſe of Chamædrys[d].

Native of many parts of Europe. In England not common. Mr. Ray obſerved it plentifully in the fens of the Iſle of Ely. I gathered it in the way from Cambridge to Hiſton on the firſt of auguſt 1760. It is found alſo at Waterbeach, Cottenham, &c. Dr. Sibthorpe gathered it on the banks of the Iſis near High-bridge, and on Eynſham-common, Oxfordſhire. It flowers in july and auguſt.

The freſh leaves are bitter and ſomewhat pungent. Powdered they deſtroy worms. A decoction of the plant is a good fomentation in gangrenous caſes[e]. It has a ſtrong diſagreeable ſcent, ſomewhat approaching to Garlick; whence its name of Scordium (from Σκορδον, Garlick). It was once in high eſteem as an antiſeptic and alexipharmic, to which it certainly had no claim. Bergius ſtates it to be antiputredinous, tonic, diaphoretic, diuretic and reſolvent. Others recommend it to be employed externally in antiſeptic cataplaſms and fomentations. Cullen ſays, it has a bitter, joined with ſome volatile parts, but that neither of theſe qualities is conſiderable enough to retain it in the preſent practice[f].

Sheep and goats are ſaid to eat this plant: horſes, cows and ſwine to refuſe it. If cows compelled by hunger eat it, their milk gets a garlick flavour[g].

32. Root perennial, creeping. Stems buſhy, almoſt upright, ſix or eight inches high, round, leafy, hairy. Leaves hairy, attenuated at the baſe, where they are entire, in the other parts deeply cut: from each axil a bunch of ſmaller leaves. Flowers from the upper axils, often three together, but ſometimes ſingle, oppoſite, pedicelled, forming a leafy ſpike. The upper part of the ſtem and the calyx are duſky purple. The upper ſegment of the calyx is broadeſt, the two lower ones narroweſt, beſet on the outſide with white globules. Corolla reddiſh purple, with white globules alſo on the outſide. Seeds naked[h].

Retzius deſcribes the ſtems as decumbent, with ſtraight diſtinct hairs; the leaves acute, gaſh-ſerrate, rough-haired on both ſides, about the length of the internodes. Bractes hairy on both ſides; the lower like the leaves; the upper quite entire, concave, acute; thoſe in the middle with fewer ſerratures. Flowers directed one way; the lower by twos, the upper by threes from each bracte. Calyx hirſute. Corolla pale purple, with the lower lip truncate, hollow. Genitals purple. Withering alſo affirms that the lower lip is truncate: but it is not ſo in the garden ſpecimens now before me; nor are the leaves hairy on the upper ſurface.

Native of many parts of Europe, the iſlands of the Archipelago, and Paleſtine near Jeruſalem. In England ſcarcely indigenous, being found chiefly on ruins of old buildings. Ray mentions his having found it more than once, but doubted whether it grew ſpontaneouſly. James Sherard found it plentifully on the ruins of Winchelſea Caſtle. Dr. Stokes, in the area of Cariſbrook Caſtle in the Iſle of Wight. Mr. Dickenſon, on the rubbiſh of Whittington Caſtle, near Oſweſtry, in Shropſhire. Mr. Crowe and Dr. Smith, on Norwich city-walls, between Magdalen and St. Auſtin gates. Dr. Sibthorp, on walls by Whitney, on the right-hand ſide of the old road leading to Burford. Dr. Abbot, at Warden in Bedfordſhire. The late canon Holcombe, near St. David's.

Ray ſays that it occurs on the borders of corn fields far from any houſe, but ſtill dared not aſſert it to be indigenous.

The Chamædrys or Germander has been eſteemed chiefly as a mild aperient and corroborant: and was recommended in uterine obſtructions, intermitting fevers, rheumatiſm and gout. Of the laſt mentioned complaint the Emperor Charles the Fifth is ſaid to have been cured, by a vinous decoction of it, with ſome other herbs, taken for ſixty ſucceſſive days. It has been employed in various forms and combinations, of which the Portland powder is one of the moſt celebrated inſtances. Its qualities ſeem nearly allied to thoſe of Marrubium or Horehound, and therefore it may be equally uſeful in aſthmatic affections, coughs and inſarctions of the lungs[i].

Dr. Withering ſays, that the plant is bitter with a degree of aroma, and may be uſed with advantage in weak and relaxed conſtitutions.

β. Retzius deſcribes this variety, as a lower plant, the ſtems decumbent, and ſomewhat tomentoſe, eſpecially at the joints: leaves obtuſe, leſs deeply ſerrate, ſhining, ciliate near the baſe, longer than the internodes: the manner of flowering, bractes, calyx and corolla as in the other, except that the bractes are blunt, and the colour of the corolla and genitals white. The odour alſo is weaker.

γ. This alſo is deſcribed as a ſmaller lower plant than the common, with procumbent and more hairy ſtems; the leaves ſmaller and of a paler green; the calyxes more hairy, greener, and not at all tinged with purple[k].

33. This is eaſily known by its heterogeneous leaves, of different colours on the ſeveral branches. Flowers purple. It is a ſhrub, native of Madeira[l]. Cultivated in 1759, by Mr. Miller. It flowers in june[l].

34. Root perennial, putting forth runners, whence riſe ſtraight ſmooth blackiſh ſtems. Leaves petioled, oblong, acutely crenate, nerved, ſmooth, ſhorter than the internodes. Flowers axillary, two on each ſide, purple. Calyxes brown[l]. It differs from T. Chamædrys, by the ſtem being a foot high, erect, ſmooth; not a palm high, diffuſed and hairy[l].

Stems upright or decumbent, ſimple or ſparingly branched, often purple. Leaves ſhining on the upper ſurface; the lower running into the petiole, bluntly toothed; the upper quite entire, ſharpiſh. Flowers two, four or ſix together, in whorls, moſtly directed one way, on pedicels ſhorter than the leaf, very ſhortly pubeſcent. Calyx oblong, ſomewhat gibbous at bottom, purpliſh, with five ovate, acute teeth. Corolla roſe-coloured[m].

Mr. Miller compares it with the next ſpecies.] It has a ſhrubby ſtalk like that, not riſing ſo high, but branching out more, and covered with a ſhort hairy down: the lower leaves ovate, crenate, of a lucid green on their upper ſide, but a little hoary on their under: the leaves between the flowers ſpear-ſhaped and entire: the ſpikes of flowers much longer, the

[a] L'Heritier. [b] Smith brit. & engl. bot. Woodw. Mſs. [c] Woodville. [d] Hort. kew. [e] Withering. [f] Smith, Wither. Woodw. Mſs. [g] L'Heritier. [h] Withering. [i] Woodville. [k] Hort. kew. [l] Lin. ſpec. [m] Deſfontaines. [n] L'Heritier. [o] Lin. ſyſt.

flowers themſelves larger, and their colour more inclining to a yellow.

[Native of the South of Europe and Mount Atlas.—Cultivated in 1730 by Mr. Miller. It flowers from june to ſeptember [a].

35. Stem ſhrubby, branched, pubeſcent, often procumbent at the baſe. Leaves ovate, ſhining above, pubeſcent beneath, crenate, obtuſe, petioled; the upper ones quite entire. Whorls from two to ſix-flowered, diſtinct. Flowers pedicelled. Calyx pubeſcent tubular, five-cleft: ſegments acute, almoſt equal. Corolla pale yellow: the two upper ſegments long, linear, greeniſh, compreſſing the anthers on both ſides, the middle ſide ones ſmall, acute, ſtraight; the lower lobe ovate, concave, quite entire: tube deeply cloven at top. Filaments bowed. Anthers ſaffron-coloured [b].

Schreber is of opinion that the ſynonym from Moriſon does not belong to this ſpecies.]

According to Miller it is two feet high, and ſends out many woody branches. Leaves a little waved, little more than an inch long, and three quarters of an inch broad near the baſe, upon ſhort foot-ſtalks. The upper part of the branches for ſix or eight inches are adorned with flowers from the axils, two or three from each joint; they are of a dirty white colour, and appear in july; under each whorl ſtand two ſmaller leaves, which are entire and concave.

[β. The hairy variety remarked by Desfontaines, has the whorls cluſtered; the bractes and calyxes very villoſe.

Native of the South of Europe, and of Barbary.—It appears from Parkinſon that it was cultivated here in 1640 [c].

36. Stem branched. Leaves like thoſe of T. hircanicum, obtuſe, petioled, pubeſcent. Whorls from four to ſix-flowered. Flowers on ſhort pedicels. Calyx villoſe, oblong, five-toothed: teeth ovate, acute, almoſt equal. Corolla purple, the ſame ſize as in T. Scordium. Stamens ſtanding out, on bowed filaments. Bractes ſix to eight, whorled, ovate, acuminate, petioled, villoſe: the lower ones toothed; the upper ones quite entire. It flowers early in the ſpring, and is found on the uncultivated hills near Maſcar and Tlemſen [d].

37. This and the following ſpecies are treated ſeparately by Miller, under their old name of Polium. Of theſe he has fifteen ſpecies, ſome of which are varieties, and others not taken up by Linneus.

Mr. Miller thus deſcribes this ſpecies] Root compoſed of many woody fibres, which ſpread wide. Hence ariſe ſeveral weak trailing, woody ſtalks eight or nine inches long, ſending out many branches. Leaves ſmall, of a deep green. Flowers white, appearing in june and july; but ſeldom ſucceeded by ſeeds in England. There is another ſort (or variety) with much ſmaller leaves, hoary on their under ſide.

[Native of Germany, France, Switzerland, Auſtria, Piedmont.—Cultivated in 1711, as appears from Salmon's herbal [e].

38. This is allied to the preceding. Leaves quite entire, acute, in cluſters. Flowers white [f]. It is the ſecond Polium of Miller's ſecond volume of his Dictionary publiſhed in 1739; and was therefore at that time cultivated by him [g]: but he omitted it in the later editions of his book.

Jacquin deſcribes it as having a perennial woody root. Stems many, ſpread in a ring, ſhrubby. Branches round, annual, aſcending, half a foot long, appearing villoſe with a magnifier. Leaves lanceolate-linear, ſharpiſh, quite entire, ſubſeſſile, ſmooth and green above, wrinkled and hoary beneath, ſlightly rolled back at the edge. Heads of flowers cloſe, erect; pedicels very ſhort, but lengthened in fruiting. Calyx mucronate, often tinged with purple. Corolla white.—Native of Auſtria, in mountains.]

39. This has ſlender ſhrubby ſtalks, which trail cloſe upon the ground; they have a purple bark, and are covered with white hairs: the leaves are round at the top, but at their baſe are contracted in form of a wedge, ſo as to reſemble at firſt ſight the leaves of Ground-Ivy, but they are hairy, and of a thicker conſiſtence: the flowers are collected in round bunches at the end of the branches; the corolla is large, and one half of it is purple, the other white. It flowers great part of the ſummer, but ſeldom produces ſeeds here. It grows naturally on the Pyrenean mountains. [Cultivated in 1731, by Mr. Miller [h].

40. Stems ſuffruticoſe, round, procumbent. The whole plant tomentoſe and hoary. Leaves oblong, lanceolate or almoſt linear. Flowers ſeſſile, cloſe and lying over each other, ſmall. Bractes the length of the calyx. Corolla yellow: the middle ſegment concave, entire [i].

Native of the South of Europe, the Levant, and Barbary.—It appears from Turner's herbal, that it was cultivated here in 1562 [k]. Linneus has ſeveral varieties, ſome of which other authors conſider as diſtinct ſpecies. Mr. Miller has multiplied the varieties very much.]

α. The common Yellow Poley has the ſtalks rather herbaceous and trailing, about ſix inches long and hoary: leaves woolly, about half an inch long, ſome wedge-ſhaped, others oblong ending in obtuſe points, and crenate towards their ends: flowers collected in oblong thick ſpikes at the end of the branches, of a deep yellow colour, and appearing at the beginning of june. It grows naturally in Spain.

Narrow-leaved Yellow Poley (n. 3.) has woody ſtalks, erect, branching, and covered with a hoary down, riſing ſix or eight inches high: leaves linear, woolly, about half an inch long, having ſometimes two or three ſlight indentures on their edges: flowers collected in roundiſh ſpikes at the end of the branches; they are bright yellow, have woolly calyxes, and appear in june and july. This grows naturally in Spain and Portugal.

[Schreber ſeparates this under the name of Teucrium aureum; and Villars, under that of T. tomentoſum. According to the latter it is ſmaller than the white, the ſtems more cottony, the leaves cut on the ſides and at the end, a little like thoſe of the Chamædrys, but as ſmall again, of a deep yellow, and the lower lip hollowed like the bowl of a ſpoon and lengthened out: the whole plant is covered with a yelloviſh cotton, which is more apparent at the top where the flowers are.

β. According to Villars the White Poley is intermediate between the preceding variety and the capitatum, which is our next ſpecies. The ſtems are a foot long and trailing; the leaves are a little cottony, entire on the ſides, but toothed at the end; the flowers are pretty large, white tinged a little with purple.]

Miller deſcribes it, as having a trailing branching ſtalk, which at the bottom is woody, but the branches herbaceous and woolly: the leaves linear-lanceolate and woolly, indented on their edges: the flowers produced in a corymb at the end of the branches, ſmall and white; appearing in june and july. It grows naturally in the South of France and in Italy.

Some of his other ſpecies may probably be reduced to this: as Polium latifolium, n. 7. which has a woody erect branching ſtalk, near a foot high, very hoary, and branching out towards the top; the leaves lanceolate, indented on their edges, and woolly on their under ſide; the flowers white, ſmall, and growing in cluſters at the end of the branches. This and the next flowers in june and july, and grow naturally in Italy and Spain.

P. erectum, n. 8. riſing with a ſhrubby ſtalk nine or ten inches high, branching out towards the top in form of a corymb; the leaves linear, and reflexed on the edges; the flowers collected in roundiſh woolly heads at the end of the branches, white and ſmall.

And perhaps P. ſpicatum, n. 10. which has ſlender ſhrubby ſtalks, riſing a foot and half high, ſmooth and white ſending out a few ſhort branches towards the top; leaves ſmall, linear, growing in cluſters;

[a] Hort. kew. [b] Desfontaines. [c] Hort. kew. [d] Desfontaines. [e] Bot. n. 3. Hort. kew. [f] Linn. ſpec. & ſyſt. [g] Hort. kew. [h] Hort. kew. [i] Desfont. & Scopoli. [k] Hort. kew.

the flowers collected in long cylindrical ſpikes, which ſtand in bunches at the top of the ſtalks, and ſometimes come out in bunches on the ſides; they are ſmall and white, and appear in july and auguſt.—Native of Sicily.

[γ. Villars conſiders this and the next variety, as mere varieties of the album.

δ. This is made a ſeparate ſpecies by Schreber and Willdenow.—Native of the ſhore of the Adriatic [a].

41. Shrubby branched at the baſe. Branches round, tomentoſe, erect. Leaves ſeſſile, linear-lanceolate, obtuſe, often ternate. Flowers corymbed, headed, cloſe. Calyxes villoſe-tomentoſe. Corolla ſmall, pale yellow or white [b].

It has the habit of Origanum Maiorana, but it is tomentoſe and has narrow leaves [c].—Native of France, Spain, Barbary and Siberia.]

β. This has an erect branching ſtalk, which riſes a foot high; the lower part becomes woody, but the upper is herbaceous; the leaves are linear-lanceolate, about an inch long, crenate, of a pretty thick conſiſtence, and a little woolly; the flowers collected in a corymb at the end of the branches, white, appearing in july and auguſt.

[According to Villars, it does not creep like the others; the ſtems riſe a foot or more, and are terminated by a lengthened ſpike, which is often interrupted; the villoſe leaves are more pointed, in other reſpects they reſemble thoſe of the white Poley; the flowers alſo are white.

Gerard conſiders this as a variety of T. Polium. Alſo remarks, that beſides other differences, it flowers much later.

Native of the South of France and Italy.—Cultivated by Mr. Miller in 1731 [d].

42. Native of Spain. Tournefort's plant is conſidered as a new ſpecies under the name of Teucrium Libanitis, n. 67.

43. Flowers two axillary peduncled, one from each ſide of the ſpine [e].

Teucrium mucronatum, which Linneus had made a diſtinct ſpecies, is only a variety, with white reſupine corollas, and very ſhort ſtamens [f].

This is an annual plant, native of the hills and fields of Portugal.

44. This is a procumbent ſhrub, allied to T. capitatum: but it has the leaves and calyxes ſcarcely tomentoſe, the peduncles leafy, and the corollas violet-coloured.—Native of Barbary, in the uncultivated fields near Maſcar [g].

45. Herbaceous: the whole plant very ſmooth. Leaves like thoſe of the campanulatum, the uppermoſt three-parted, with the ſegments quite entire. Calyxes bell-ſhaped, five-cleft; the ſegments lanceolate, with a railed line along the back.—Native of Buones Ayres.

46. Stems a ſpan high, aſcending, hoary, muricated from the fallen leaves; the younger branches tomentoſe. Leaves on theſe only, ſeſſile, green with a ſlender nap, which is thicker underneath, ſoft, rolled back a little, obtuſe. Peduncles three from the uppermoſt axils on each ſide, the height of the ſtem. There is a ternate leaf at the baſe of each head of the ſame ſtructure with the ſtem-leaves. Calyxes tomentoſe, bluntly toothed.—Native of Spain and Barbary.

47. This is a ſmall ſhrub, covered wholly with a thick white wool, which becomes yelloviſh towards the top, and is very much branched; the branches are proſtrate and diffuſed. Leaves ſeſſile, cluſtered, obtuſe. Flowers at the end of the branches, oppoſite, in cluſters. Calyxes larger than in the other ſpecies, ſubglobular, obtuſe. Seeds wrinkled [h].

It differs from T. Polium, in having ſolitary looſiſh flowers ſcarcely in heads; and not in round heads; the leaves alſo are linear not oblong [i].

Found in Spain, on mountains near Saguntum and Guadalaxara, by Vahl.

[a] Willdenow. [b] Desfontaines. [c] Linn. ſpec. [d] Hort. kew. [e] Linn. ſpec. [f] Linn. ſyſt. [g] Desfontaines. [h] Vahl. [i] L'Heritier.

48. Differs from inflatum by its hairineſs, leaves very hairy on both ſides and narrower, with teeth longer towards the baſe, bractes lanceolate-acute, and teeth of the calyx mucronate.—Native of Tongatabu in Auſtralaſia [j].

49. Stem ſhrubby, upright, round, five feet high, with ſpreading branches. Leaves ovate-oblong, blunt, ſmooth, oppoſite, petioled. Corolla pale, five-cleft, with a ſhort tube, and the ſegments blunt, the upper ones divaricating. Stamens very long.—Native of Cochinchina, by hedges.

50. Stem ſhrubby, eight feet high, ſmooth, round, branched. Leaves ovate-oblong, acute, quite entire, petioled, ſmooth, oppoſite. Flowers white.—Native of Cochinchina among buſhes, where the natives uſe it as tea, to promote digeſtion, and to relieve an overloaded ſtomach [k].

51. Stem four-cornered, rough-haired, branched, leafy. Leaves oppoſite; the larger cut with a lobe, the ſmaller with a ſharp tooth on each ſide, in other parts entire, rugged above, tomentoſe beneath, with a yelloviſh nap ſcarcely perceptible. Peduncles oppoſite, the length of the internodes. Calyx bell-ſhaped, ſpreading, five-toothed: teeth lanceolate, almoſt equal; pubeſcent. Corolla purpliſh, with the lip pubeſcent on the outſide, deeply three-lobed, the middle lobe reflexed, concave, emarginate. Stamens long. Style longer. Stigma bifid, one ſegment ſhorter, both reflexed. Seeds roundiſh, wrinkled, large in proportion to the calyx.—Native of the Cape of Good Hope [l].

52. Like the orientale in the leaves and inflorescence; but differs in having the racemes more elongated, the peduncles longer, and the corollas ſcarcely longer than the calyxes, which in that are much longer. Found by Tournefort in Armenia.

53. This is a ſhrub reſembling Lavandula Stoechas. Leaves hoary on both ſides, rolled back at the edge, veined beneath. Peduncles long, ſolitary, in the axils of the upper leaves. Calyxes hoary, bluntly toothed. Corolla large, pubeſcent on the outſide.—Native of Candia on the coaſt [m].

54. Stem ſhrubby. Leaves ſmall, ſhining, hoary beneath, acute, floral ones the length of the calyx. Corolla purple, with linear elongated earlets.—Native of Spain [n].

55. Stem erect, grooved, ſmooth, a foot high and more: branches from divaricate-erect, rod-like. Leaves acute, ſmooth, pale beneath, an inch or more in length, on petioles only half the length of the leaves. Racemes ſubdiſtich, erect, unequal, the longeſt a finger's length. Bractes lanceolate, acute, entire, ciliate and rugged, a little longer than the peduncle. Peduncles capillary, one-flowered, ſcarcely a line in length. Calyxes angular, ſlightly awned, ciliate and rugged. Corollas narrow, twice as long as the calyx. It varies with doubly ſerrate, unequally ſerrate, and gaſhed leaves [o].

Thunberg took it for the virginicum, to which it is near allied, but leſs in ſtature, with the leaves doubly ſerrate and rounded at the baſe, not gradually attenuated into the petiole: the flowers alſo are ſmaller and drooping, the raceme compound at the baſe, the bractes linear and of the ſame length with the calyx [p].—Native of Japan.

56. Root perennial, woody. Stem erect, pubeſcent, ſomewhat clammy. Leaves unequally crenulate, rounded at both ends, ſilky-hoary above, whitiſh beneath, ſhortly petioled, like thoſe of Sage, but ſmaller. Raceme ſhort. Calyx hairy, half-five-cleft; teeth lanceolate, the upper tooth a little wider than the reſt. Corolla villoſe on the outſide, with a tube the length of the calyx.—Native of Portugal.

57. Root perennial. Stem woolly, higher than in Scordium. Leaves wrinkled, leſs deeply crenate, covered with white wool: branch-leaves ſmaller. Flowers larger.—Native of Candia.

58. Stem ſhrubby, ſmooth, denſely hairy on both

[j] Forſter. [k] Loureiro. [l] Retzius. [m] Willdenow. [n] Schreber. [o] Thunberg. [p] Willdenow.

ſides

ſides from the point where the leaves meet. Leaves on ſhort petioles, entire at the baſe, but cut in front with obtuſe notches bent back at the edge; they are ſmooth and ſhining with the midrib bearded at the baſe, blunt and hard: the floral leaves are almoſt lanceolate, more hairy than in flavum, as are alſo the calyxes. The flowers are ſmaller. Corolla purple, with ſmaller earlets, which are blunt but not truncate. —Native of Barbary.

59. Stem ſhrubby, a finger's length, covered with a white nap, branched. Leaves cluſtered, ovate or ovate-lanceolate, hoary, bent back at the edge and obſcurely crenate all round; they are ſmall and on very ſhort petioles. Flowers four or five, erect, ſeſſile. Calyx even, hoary, mucronate. Corolla purple.—Native of the kingdom of Valentia in Spain.

60. Stem ſhrubby, decumbent or hanging from the rocks. Leaves leſs than in pyrenaicum, ſlightly cut out like reniform leaves at the baſe, the reſt of the circuit almoſt orbicular, deeply and bluntly crenate, bent back at the edge, the upper ſurface green, but covered with ſoft hoary hairs, which on the lower ſurface are denſer and longer, chiefly adhering to the veins and filling the interſtices between them. Corymbs roundiſh, few-flowered. Floral leaves lanceolate, naked above, obtuſe, ſhorter than the calyx. Calyx angular with ten ſtreaks, villoſe, acuminate.—Native of Valentia, on the rocks of the higheſt mountains.

61. This alſo is a native of the kingdom of Valentia on mountains.

62. This is confounded with Yellow Germander, (which is not diſtinguiſhed from the white by Linneus, but is made a ſeparate ſpecies by Schreber and Willdenow, under the name of aureum.) It agrees with that in ſtature, in the whiteneſs and delicacy of the wool on the ſtem and leaves, and in having the leaves crenate with a narrower entire baſe, which however is wider on the flowering branches: but it differs in having the leaves narrower and lanceolate, (on the young ſhoots linear;) the heads ſmall and few-flowered; the calyx ſhorter, clothed not with hairs, but with a cloſe nap, neither angular nor keeled; the tops not of a gold, but of an elegant ſulphur colour. Schreber ſaw only three conglobate heads at the top of the ſtems. Barrelier has ſeveral lateral ones in his figure.—Native of the South of France.—This is perhaps Polium anguſtifolium of Miller, n. 3.

63. This differs from the white Poley (40. β.) in having a more ſlender ſtalk; the leaves not ſhorter but very narrow, obſcurely crenate, covered with a very thin nap, which is a little cloſer and hoary on the under ſide, blunt at the end; heads numerous, ſmaller, hoary, on almoſt equal leafy branchlets; flowers ſmaller. The floral leaves equal to the calyx, which is covered with a thin whitiſh nap, and has the mouth blunt, more cloſely tomentoſe.—Native of Valentia.

64. Root woody. Stem aſcending, clothed with a thin white nap. Leaves long, narrower at the baſe, cut into ſmall reflexed notches from the middle, wrinkled, green but becoming hoary with a thin nap, more ſo on the under ſurface, obtuſe, the upper ones ſhorter and twice as broad. Heads roundiſh, few-flowered, at the top of the ſtem, and at the ends of the branches, which are elongated and triſid. Floral leaves longer than the calyx. Flowers erect, the lower ones ſpreading. Calyx angular, cloſely tomentoſe. Corolla white. It is larger than T. pſeud-hyſſopus (40. 1.); greener and the flowers bigger; of the ſame ſize as in Yellow Poley (40. 2.) The leaves are ſometimes in threes.—Native of Portugal.

65. The whole plant is covered with a very thick white nap. Stem a ſpan high, procumbent at the baſe, with aſcending branches, and very ſhort branchlets, cloſely leafy, ſpringing on every ſide from the axils. Leaves obtuſe, with a few indiſtinct notches towards the tip. Heads ſmall, one terminating and others lateral, on peduncles of a middling length. Floral leaves ovate, obtuſe. Calyx minute, tomentoſe. Corolla white.—Native of Spain[q].

[q] Schreber.

66. Native of Valentia. Shrubby. Leaves narrow-lanceolate or linear.

67. Shrubby. Stem erect. Leaves like thoſe of Roſemary. Spikes ovate or roundiſh, leafy. Flowers red.—Native of Spain[r].

68. Shrubby.—Native of Spain.

69. Shrubby.—Native of the higheſt mountains of the kingdom of Valentia, eſpecially by the Carthuſian monaſtery called *Porta Coeli*, whence the trivial name.]

PROPAGATION AND CULTURE.

1. Sow the ſeeds in the ſpring where the plants are to remain; when they come up, thin them where they are too cloſe, and keep them clean from weeds. They ripen their ſeeds the firſt year, but if they are in a warm ſituation will live through the winter.

3. This is propagated in the ſame way; but if the ſeeds be ſown in autumn, or permitted to ſcatter when ripe, they will ſucceed better than if ſown in the ſpring, and the plants will come earlier to flower.

4. If the ſeeds be permitted to ſcatter, the plants will come up better than if ſown, and require no care but to thin them, and keep them clean from weeds.

5. Part the roots in autumn, or ſow the ſeeds at that ſeaſon. It loves an open ſituation expoſed to the ſun, but will thrive in almoſt any ſoil which is not too moiſt.

7. Sow the ſeeds in autumn, or permit them to ſcatter, in which way they ſucceed beſt.

9, 10. Theſe may be increaſed by cuttings planted in the ſpring on a bed of freſh light earth; ſhading and watering them until they have taken root; and keeping them clear from weeds until the following autumn, when they may be tranſplanted into pots, taking them up with a ball of earth about their roots, and watering them until they have taken new root. During the winter they muſt be kept in the greenhouſe with hardy exotics.

14. This ſort is eaſily propagated by ſlips or cuttings, planted during the ſummer months on a bed of light loamy earth, covering them down cloſe either with bell or hand-glaſſes, and ſhading them from the ſun. When they have made good roots tranſplant them either into ſeparate ſmall pots, or on a warm border, at about ſix inches diſtance every way: ſhading them from the ſun, and watering them until they have taken new root; after which they will require no other care, but to keep them clean from weeds. Theſe plants will live through the winter in the open air, on a dry ſoil and in a warm ſituation, when the froſts are not very ſevere; but in hard winters they are frequently killed, if not protected by mats or other covering.

20. 24. Sow the ſeeds in ſmall pots in autumn, and plunge them into the tan-bed in the ſtove between the other pots; in ſpring plunge them into a hot-bed, which will bring up the plants. When theſe are fit to remove, plant each in a ſeparate pot, plunge them into a hot-bed, and treat them in the ſame way as directed for tender plants from the Weſt Indies.

22, 23. Sow the ſeeds in autumn on a bed of light earth. They may alſo be increaſed by parting the roots, and are hardy enough to thrive in the open air.

27. Wood Sage may be propagated by ſeeds or parting the roots; it will grow in any ſoil or ſituation, but being common in woods and thickets, is rarely admitted into gardens.

29. This may be propagated by ſeeds or cuttings, in the ſame manner as n. 9 & 10. but the plants ſhould have a dry ſoil and a warm ſituation, otherwiſe they will not live through the winter in the open air in England. [A plant or two of this and other doubtful ſpecies, ſhould be kept in the greenhouſe during winter for ſecurity.

30. 33. Theſe may be increaſed both by ſeeds and cuttings; and muſt have the protection of the greenhouſe in winter.]

31. Water Germander may be propagated by its creeping roots, or planting the young ſhoots in the

[r] Cavanilles.

ſpring, in the ſame manner as Mint, Penny-royal, &c. and ſhould have a moiſt ſoil.

32. Common Germander propagates very faſt by its creeping roots, and will thrive in almoſt any ſoil or ſituation. Tranſplant it in autumn.

34. 35. Theſe may be increaſed by cuttings in the ſame manner as n. 9. 10. Alſo by ſeeds, which they generally produce in plenty. Sow them on a bed of light earth in april; the plants will come up in ſix weeks, and may be tranſplanted in autumn where they are deſigned to remain.

37 to 41. All theſe are abiding plants; they may be propagated by ſeeds, which muſt be procured from the countries where they naturally grow, becauſe they ſeldom perfect their ſeeds in England. Theſe ſhould be ſown upon a bed of freſh light earth in the ſpring, and when the plants come up, they muſt be carefully kept clean from weeds; about the middle of july the plants will be fit to remove, when they may be carefully taken up, and part of them planted on a warm border of dry rubbiſhy ſoil, obſerving to ſhade them from the ſun, and water them till they have taken new root; after which they will require no other culture but to keep them clean from weeds. My adviſing theſe and many other aromatic plants, which are natives of the warmer parts of Europe, to be planted in rubbiſh, is founded upon long experience of their abiding much longer, and reſiſting the cold of our winters much better, than when they are in better ground, where they grow much freer, are fuller of moiſture, and therefore more liable to be killed by froſt.

The other part of the plants may be planted in ſmall pots, filled with freſh, light, undunged earth, and placed in the ſhade till they have taken new root; then they may be removed into an open ſituation, where they may remain till the beginning of november, when they ſhould be placed under a common frame, to ſecure them from the froſt in winter, which ſometimes deſtroys theſe plants; by this method the ſpecies may be preſerved.

Theſe plants may be mixed advantageouſly with Marum and other aromatic plants, upon the ſloping ſides of banks expoſed to the ſun, or upon little hillocks in a ſheltered ſituation, where by the variety of their hoary branches they will make a pretty appearance, and reſiſt the cold much better than when they are planted in a good ſoil.

They may alſo be increaſed by cuttings or ſlips, planted at the beginning of april, juſt before they ſhoot, upon a border expoſed to the eaſt: if the ſeaſon prove dry, they muſt be watered and ſhaded until they have taken root; and being kept clean from weeds, at Michaelmas the plants ſhould be removed where they are deſigned to remain. But it will be proper to put a plant of each ſort in a pot, that they may be ſheltered in winter.

[TEUCRIUM. See *Ajuga*, *Barbſia*, *Dryas*, *Praſium*, *Scutellaria*, *Trichoſtema*, *Veronica*.

THALIA. (*So named by Linnæus, in memory of John Thalius, a phyſician at Nordhuys; author of* Plantæ Hercyniæ, 1588.)

Lin. gen. n. 8. *Reith. n.* 8. *Schreb. n.* 10. *Juſſ.* 63. Cortuſa. *Plum.* 8.

Claſſ. 1. 1. Monandria Monogynia.

Nat. order of *Scitamineæ*. *Cannæ* Juſſ.

GENERIC CHARACTER.

CAL. *Perianth*, ſcales three, very ſmall, ovate, ciliate, permanent, crowning the germ.

COR. *Petals* five, ſuperior, thrivelling, in a double row: *three outer* longer, oblong, waved, connate at the baſe, ſpreading; *two inner* ſmaller, from erect ſpreading, oblong, connate with each other and the nectary at the baſe.

Nectary petal-ſhaped, oppoſite to the ſmaller petals, lanceolate, acuminate, concave.

STAM. *Filament* one, awl-ſhaped, inſerted into the nectary. *Anther* club-ſhaped.

PIST. *Germ* turbinate, crowned with the calyx. *Style* filiform, bent in. *Stigma* leafy, bent in.

PER. *Drupe* oblong, gibbous, one-celled.

SEED one, awl-ſhaped, bent in. (*Nut* bony, two-celled?)

ESSENTIAL CHARACTER.

Cal. three-leaved. *Cor.* five-petalled: two inner petals leſs. *Nect.* lanceolate, concave. *Drupe* with a one-celled nut.

SPECIES.

1. Thalia geniculata.

Lin. ſpec. 3. *ſyſt.* 51. *Reich.* 1. 6. *Willd.* 1. 15. *Rottb. collect. havn.* 2. 249. *t.* 2. *Swartz obſ.* 8. Cortuſa arundinacea, amplis cannacori foliis. *Plum. gen.* 26. *ic.* 108. *f.* 1.

Aguti-guepo-obi. *Maregr. braſ.* 53. *Raii hiſt.* 1203.

Corollas five-petalled, nectary lanceolate.

2. Thalia cannæformis.

Lin. ſpec. ed. Willd. 1. 16. *Forſt. prodr. n.* 3. *Symes Ava* 473. *cum. ic.*

Corollas ſix-petalled, nectary bifid erect.

DESCRIPTIONS, &c.

1. Leaves alternate, ovate-oblong, with tranſverſe parallel nerves: petioles round, furniſhed with a joint, below membranaceous and ſheathing[1].

Stem taller than a man, quite ſimple. The American Indians uſe it for a dart wherewith to kill animals[2].

The ſynonyms from Browne, Sloane, Ray, Plukenet and Bauhin appertain to Maranta arundinacea.

Linneus, not having ſeen this plant, made out the character from Plumier's figure.

Rottboell's plant, referred to above, is perhaps different from this, and ſeems to be very nearly allied to the next ſpecies[3].—Native of South America.

2. Culm ſolid, round, ſmooth, branched. Branches jointed, divaricating. Leaves on the ſtem, alternate, ſpreading, oval, quite entire, ſmooth, with numerous lateral, aſcending, parallel nerves. Petiole jointed, round above, membranaceous below, ſheathing, embracing, oppoſite to a branchlet. Stipule ſolitary, oppoſite to the petiole, often the length of the ſheaths, awl-ſhaped, channelled at the back: beſides this, there are ſometimes ſcattered ſtipules below the leaves. Panicle pendulous, oppoſite to a leaf: rachis flexuoſe, jointed, compreſſed; joints glume-bearing at the end: glumes two-valved, two-flowered, permanent, involving the peduncle; lower valve length of the peduncle, harder, embracing the upper, which is thinner and coloured: peduncle coloured, club-ſhaped, bifid, fleſhy: flowers white, ſolitary, ſitting on the tips of the pedicel; each having the rudiment of another at the baſe. Calyx three-parted, ſuperior, very ſhort, coloured: ſegments erect, acuminate. Corolla one-petalled, irregular: tube three-cornered: border double; three outer ſegments equal, lanceolate, ſpreading, acuminate, waved; of the inner ſegments two wider, ſpreading; the third ſhort, cowled, covering the genitals. Filament petaloid, two-parted: ſegments ſickled-ſhaped. Anther club-ſhaped, growing to the margin of the right ſegment of the filament. Germ inferior, ſmall. Style cylindric, length of the filament, growing to the tube of the corolla at the baſe, curved in at the tip, free. Stigma concave[4].

Native of Mallicollo, one of the New Hebrides, in Auſtralaſia; and found in the Andaman iſles, and Rangoon, in the kingdom of Pegue, by Dr. Buchanan[5].

THALIA MARAVARA. See *Epidendrum*.

THALICTROIDES. See *Cimicifuga*.]

THALICTRUM (*of Plin.* Θαλικτρον *of Dioſcorides. From* Θαλλω, *vireo: to flouriſh or look green, being full of leaves.*)

Lin. gen. n. 697. *Reich. n.* 755. *Schreb. n.* 951. *Tournef. t.* 270. *Juſſ.* 232. *Gærtn. t.* 74.

Claſſ. 13. 7. Polyandria Polygynia.

Nat. order of *Multiſiliquæ*. *Ranunculaceæ* Juſſ.

GENERIC CHARACTER.

CAL. none: unleſs the corolla be taken for it.

COR. *Petals* four, roundiſh, obtuſe, concave, caducous.

STAM. *Filaments* very many, wider at top, compreſſed, longer than the corolla. *Anthers* oblong, erect.

[1] Linn. ſpec. [2] Rolander in Rottb. act. hafn. 2. 251. [3] Swartz obſ. [4] Symes's Ava. [5] Forſter & Symes.

PIST.

PIST. *Styles* very many, very short. *Germs* many, commonly pedicelled, roundish. *Styles* none. *Stigmas* thickish.

PER. none.

SEEDS many, grooved, ovate, tailless.

OBS. T. tuberosum *and* cornutum *have a five-petalled corolla.*

T. dioicum *has the sexes distinct.*

T. aquilegifolium *and* contortum *have the seeds pedicelled, pendulous, and three-sided with wings.*

Number *of stamens and pistils different in the several species.*

ESSENTIAL CHARACTER.

Cal. none. *Pet.* four or five. *Seeds* tailless.

SPECIES.

1. Thalictrum alpinum. *Alpine Meadow Rue.*
Lin. spec. 767. *syst.* 513. *Reich.* 2. 645. *Willd.* 2. 1295. *hort. cliff.* 227. *fl. lapp. n.* 225. *suec. n.* 491. *Hudf. angl.* 238. *Wither. arr. ed.* 3. 500. *Smith brit.* 584. *engl. bot. t.* 262. *Lightf. scot.* 286. *t.* 13. *f.* 1. *Fl. dan. t.* 11. *Gunn. norv. n.* 41.
T. minimum montanum atrorubens, foliis splendentibus. *Raii syn.* 204. *Boerh. lugdb.* 1. 44. *t.* 1.
T. minimum præcox, fol. splendentibus. *Mor. hist.* 3. 325. *f.* 9. *t.* 20. *f.* 14.
Stem quite simple almoft naked, raceme simple terminating.

2. Thalictrum fœtidum. *Fetid Meadow Rue.*
Lin. spec. 768. *syst.* 513. *Reich.* 2. 645. *Willd.* 2. 1295. *hort. cliff.* 227. *Sauv. monsp.* 251. *Allion. pedem.* 2. 1073. *Hall. helv. n.* 1140.
T. minimum fœtidiffimum. *Bauh. pin.* 337. *prodr.* 147. *Bauh. hist.* 3. 488. *Park. theat.* 265. *n.* 8. *Raii hist.* 404. *Mor. hist.* 3. 325. *f.* 9. *t.* 20. *f.* 13. *Pluk. phyt. t.* 65. *f.* 4.
Stem panicled filiform very branching leafy.

3. Thalictrum tuberosum. *Tuberous-rooted Meadow Rue.*
Lin. spec. 768. *syst.* 513. *Reich.* 2. 645. *Willd.* 2. 1296. *hort. cliff.* 226. *Mill. fig. t.* 265. *f.* 2.
T. minus, asphodeli radice, magno flore. *Tourn. inst.* 271.
T. minus, grumosa radice, fibribus majoribus. *Herm. fasc.* 9. *Boerh. lugdb.* 1. 45.
Ranunculus thalictri folio, asphodeli radice. *Mor. hist.* 2. 438. *f.* 4. *t.* 28. *f.* 13.
Oenanthe hederæ folio. *Bauh. pin.* 163.
Flowers five-petalled, root tuberous.

4. Thalictrum Cornuti. *Canadian Meadow Rue.*
Lin. spec. 768. *Reich.* 2. 646. *Willd.* 2. 1296. *Ait. kew.* 2. 262.
T. canadense. *Corn. canad.* 168. *Raii hist.* 403. *Mill. dict. n.* 5.
T. americanum. *Park. theat.* 265.
T. majus, foliis aquilegiæ, flore albo. *Mor. hist.* 3. 325. *f.* 9. *t.* 20. *f.* 15.
Flowers dioecious, leaflets ovate trifid, panicles terminating.

5. Thalictrum dioicum. *Dioecious Meadow Rue.*
Lin. spec. 768. *Reich.* 2. 646. *Willd.* 2. 1296. *Ait. kew.* 2. 262.
Flowers dioecious, leaves roundish cordate lobed, lobes obtuse, peduncles axillary shorter than the leaf.

[6. Thalictrum elatum. *Tall Meadow Rue.*
Lin. syst. 513. *Willd.* 2. 1297. *Jacqu. hort.* 3. 49. *t.* 95.
Leaflets ovate subcordate subtrifid, panicle terminating, flowers erect, stem roundish.

7. Thalictrum majus. *Great Meadow Rue.*
Lin. syst. 513. *Willd.* 2. 1297. *Jacqu. austr.* 5. *t.* 420. *Hasl. syn.* 306. *Smith brit.* 585. *engl. bot. t.* 611. *Wither. arr. ed.* 3. 502.
Leaflets roundish subcordate trifid glaucous beneath, panicle kidfy, flowers drooping.

8. Thalictrum medium. *Middle Meadow Rue.*
Lin. syst. 513. *Willd.* 2. 1297. *Jacqu. hort.* 3. 50. *t.* 96.
Leaflets oblong wedge-shaped acute trifid, the uppermoft undivided lanceolate, flowers nearly upright.]

9. Thalictrum minus. *Small Meadow Rue.*
Lin. spec. 769. *syst.* 513. *Reich.* 2. 646. *fl. suec. n.* 489. *Hudf. angl.* 238. *Wither. arr. ed.* 3. 501. *Smith brit.* 584. *engl. bot. t.* 11. *Lightf. scot.* 285. *Reich. cant. ed.* 2. *n.* 453. *Fl. dan. t.* 732. *Hall. helv. n.* 1138. *Hoffm. germ.* 192. *Roth. germ.* 1. 233. 2. 597. *Jacqu. austr.* 5. 9. *t.* 419. *Scop. carn. n.* 672. *Pollich pal. n.* 522. *Krock. filef. n.* 861. *Villars dauph.* 3. 713. *Allion. pedem. n.* 1074. *Segu. veron.* 476. *t.* 11. *Bauh. pin.* 355. *Ded. pempt.* 58. 2. *Gor.* 1067. 2. *emac.* 1251. 2. *Park. theat.* 264. 5. *Raii hist.* 404. *syn.* 203. *Mor. hist. f.* 9. *t.* 20. *f.* 12.
T. minus, f. Rutæ pratensis genus minus, semine striato. *Bauh. hist.* 3. 487. 3.
Ruta pratensis minor. *Tabern. ic.* 55.
β. T. montanum minus, foliis latioribus. *Raii syn.* 204.
Leaves tripinnate, leaflets trifid glaucous, flowers panicled drooping.

[10. Thalictrum rugosum. *Rough Meadow Rue.*
Lin. spec. ed. Willd. 2. 1298. *Ait. kew.* 2. 262.
Stem striated, leaves wrinkled veined, lobules blunt.

11. Thalictrum sibiricum. *Siberian Meadow Rue.*
Lin. spec. 769. *Reich.* 2. 647. *Willd.* 2. 1298. *Gærtn. fruct.* 1. 355.
T. orientale minimum sumariæ folio. *Tournef. cor.* 20.
Leaves three-parted, leaflets subreflexed sharply cut, flowers drooping.

12. Thalictrum squarrosum.
Lin. spec. ed. Willd. 2. 1299.
Leaflets trifid and undivided, petioles embracing membranaceous winged, flowers drooping.

13. Thalictrum purpurascens.
Lin. spec. 769. *Reich.* 2. 647. *Willd.* 2. 1299.
T. virginianum elatius glaucum, staminibus purpurascentibus. *Mor. hist.* 3. 324. 6.
Leaves three-parted, stem twice as high as the leaves, flowers drooping.

14. Thalictrum angustifolium. *Narrow-leaved Meadow Rue.*
Lin. spec. 769. *syst.* 513. *Reich.* 2. 647. *Willd.* 2. 1299. *hort. cliff.* 226. *amoen.* 3. 48. *Hall. helv. n.* 1137. *Hoffm. germ.* 192. *Roth. germ.* 1. 233. 2. 597. *Pollich pal. n.* 523. *Scop. carn. n.* 676. *Krock. filef. n.* 862. *Allion. pedem. n.* 1075. *Knipb. cent.* 5. *n.* 86.
T. Bauhini. *Crantz austr.* 105. *n.* 1.
T. pratense angustissimo folio. *Bauh. pin.* 337. *prodr.* 146. *ic. Pluk. phyt. t.* 65. *f.* 6. *Park. theat.* 265. *n.* 7. *Raii hist.* 404. 9. *Tournef. inst.* 271. *Mor. hist. f.* 9. *t.* 20. *f.* 8.
β. T. pratense angustifolium. *Bauh. pin.* 337. *Raii hist.* 404. 8.
T. minimum. *Park. theat.* 265. 6.
T. angustissimum. *Crantz austr.* 105. *n.* 2.
Leaflets lanceolate-linear quite entire.

15. Thalictrum flavum. *Common Meadow Rue.*
Lin. spec. 770. *Reich.* 2. 648. *Willd.* 2. 1300. *hort. cliff.* 226. *fl. suec. n.* 488. *Hudf. angl.* 239. *Wither. arr. ed.* 3. 501. *Smith brit.* 585. *engl. bot. t.* 367. *Roth. cant. ed.* 2. *n.* 454. *Sibth. oxon. n.* 487. *Fl. dan. t.* 919. *Hall. helv. n.* 1138. *Hoffm. germ.* 192. *Roth. germ.* 1. 233. 2. 598. *Pollich pal. n.* 524. *Neck. gallob.* 236. *Krock. filef. n.* 864. *Scop. carn. n.* 673. *Villars dauph.* 3. 712. *Allion. pedem. n.* 1076. *Gmel. it.* 1. 139. *Knipb. cent.* 5. *n.* 87.
T. pratense. *Lin. lapp. n.* 224.
T. nigricans. *Jacqu. austr.* 5. 10. *t.* 421. *Lin. syst.* 513. *Willd.* 2. 1301.
T. nigrum, caule & semine striato. *Bauh. hist.* 3. 486.
T. majus, siliqua anguloso f. striata. *Baub. pin.* 336.
T. magnum. *Ded. pempt.* 58. 1.
T. f. Thalictrum majus. *Raii hist.* 403. *syn.* 203. *Petiv. brit. t.* 71. *f.* 9.
T. majus vulgare. *Park. theat.* 264. 1. *Mor. hist. f.* 9. *t.* 20. *f.* 1. *ord.* 2.—*f.* 3. var.
β. T. speciosum. *Mill. dict. n.* 2.
Leaves tripinnate, leaflets trifid, stem grooved, panicle branched very much and contracted, flowers erect.

16. Thalictrum ſimplex. *Simple-ſtalked Meadow Rue.* *Lin. ſyſt.* 513. *Reich.* 2. 648. *Willd.* 2. 1301. *mant.* 78. *fl. ſuec. n.* 490. *Fl. dan. t.* 244.
T. anguſtifolium. *Villars dauph.* 3. 712.
Stem leafy quite ſimple angular.]

17. Thalictrum lucidum. *Shining-leaved Meadow Rue.* *Lin. ſpec.* 770. *Reich.* 2. 649. *Willd.* 2. 1301. *Dalib. par.* 162. *Pluk. phyt. t.* 65. *f.* 5.
T. minus alterum pariſienſium, foliis craſſioribus & lucidis. *Tournef. inſt.* 271.
T. 1. vel pratenſe 1. *Cluſ. hiſt.* 1. 234.
Stem leafy grooved, leaves linear fleſhy.

18. Thalictrum aquilegifolium. *Columbine-leaved Meadow Rue* or *Feathered Columbine.*
Lin. ſpec. 770. *ſyſt.* 513. *Reich.* 2. 649. *Willd.* 2. 1301. *hort. cliff.* 226. *fl. ſuec. n.* 487. *Hall. helv. n.* 1141. *Reyg. ged.* 2. 96. *Gort. ingr.* 87. *Jacqu. auſtr.* 4. 10. *t.* 318. *Scop. carn. n.* 672. *Crantz auſtr.* 107. *n.* 3. *Villars dauph.* 3. 713. *Krock. ſileſ. n.* 865. *Allion. pedem. n.* 1077. *Ger. prov.* 379. 4.
T. majus, florum ſtaminibus purpuraſcentibus. *Bauh. pin.* 337. *Tournef. inſt.* 270.
T. majus, folliculis anguloſis, caule lævi. *Bauh. hiſt.* 3. 487. *Raii hiſt.* 403.
β. T. atropurpureum. *Lin. ſyſt.* 513. *Jacqu. hort.* 3. 35. *t.* 61.
Fruits pendulous triangular ſtraight, ſtem round.

[19. Thalictrum contortum.
Lin. ſpec. 770. *ſyſt.* 513. *Reich.* 2. 649. *Willd.* 2. 1302. *amœn.* 3. 47.
Fruits pendulous triangular contorted, ſtem ſubancipital.

20. Thalictrum petaloideum.
Lin. ſpec. 770. *Reich.* 2. 650. *Willd.* 2. 1302. *Pallas itin.* 3. 231.
β. T. ſtamineum. *Lin. ſyſt.* 514. *ſuppl.* 271.
Scape ſubumbelled, filaments oblanceolate coloured wider than the anther.

21. Thalictrum ſtyloideum.
Lin. ſyſt. 514. *Willd.* 2. 1303. *ſuppl.* 271.
Leaves three-parted-pinnate, ſtyles winged at the baſe.

22. Thalictrum japonicum.
Lin. ſpec. ed. Willd. 2. 1303. *Thunb. in Linn. tranſ.* 2. 337.
Didynamitia Salviæ ſimilis. *Thunb. jap.* 364. *n.* 74.
Seeds even, leaves tripinnate, pinnules gaſhed ſerrate.

DESCRIPTIONS, *&c.*

1. The root conſiſts of a few ſimple fibres, and creeps juſt below the ſurface by horizontal runners. It is a delicate little plant, ſcarcely a ſpan high, and truly alpine. Root-leaves on long purpliſh foot-ſtalks, firſt ternate, and again either ternate or pinnate; leaflets roundiſh or wedge-ſhaped, varying much in breadth, with ſeveral blunt notches or lobes, ſhining green above, glaucous beneath, often purpliſh, ſmooth, veiny, a little revolute. Stem ſimple, erect, round, about twice as long as the leaves, glaucous or purpliſh, ſmooth, naked or more luxuriant ſpecimens having one ſeſſile leaf, more or leſs compound, about the middle. Raceme very ſimple, at firſt drooping, but afterwards erect, compoſed of eight or ten alternate flowers, each on a ſlender pedicel ſubtended by a ſimple bracte, of which ſome of the lowermoſt approach to the texture and colour of the leaves; the reſt are membranous. Petals four, acute, white or purple. Stamens eight or ten, (Linnæus ſays twelve,) capillary, often purpliſh, with oblong vertical anthers. Germs two or four, ſcarcely ever more, (Linnæus ſays eight,) roundiſh, green; each with a whitiſh, lanceolate, divaricated, downy ſtyle, or rather ſeſſile ſtigma. Seeds almoſt even.

Native of Lapland, Wales and Scotland, in wet black mould in the clefts of rocks, or on the ſpongy margins of little rills, on very high mountains, and not rare in ſuch ſituations. It is perennial, and flowers early in ſummer [a].

2. Stem about ſix or ſeven inches high. Leaves downy, compoſed of a great number of ſmall leaflets, which are bluntly indented, and have a fetid ſcent. Flowers in looſe panicles, ſmall, and of an herbaceous white colour. [Haller ſays it has all the habit of Thalictrum minus, and can ſcarcely be diſtinguiſhed from it: but it has a ſmell like that of Geranium Robertianum, approaching to that of cat's urine; the leaves are ſomewhat hairy on both ſides, pulpy and ſofter; the petals themſelves are ſomewhat hairy, in the young plant they are reddiſh, but in the adult whitiſh; it is alſo lower, almoſt a foot high, and leſs leafy.

Native of the South of France, Switzerland, the Valais and Piedmont.

Cultivated by Mr. Miller in 1739. It flowers from may to july [b].]

3. This has knobbed roots. Leaves ſmall, obtuſe, indented in three parts at their points, of a grayiſh colour and ſmooth. The ſtalks riſe a foot and half high, and are naked almoſt to the top, where they divide into two or three ſmall ones, under each of which is placed one leaf, every diviſion is terminated by a ſmall bunch of pretty large flowers, diſpoſed almoſt in form of an umbel, each compoſed of five white petals.

[Native of Spain. Cultivated here in 1713. It flowers in june [c].

Loureiro has a ſpecies, which he names *Thalictrum ſinenſe*. The root is a roundiſh, ſolid and very white tuber; but he ſays it differs from this in the form both of the root and leaves. The ſtem is ſuffruticoſe, quite ſimple, a foot high, round and ſtraight: the leaves linear-lanceolate, quite entire, ſmooth, ſeſſile, alternate: the flowers white, ſolitary, terminating: the petals five, rounded, ſpreading.—Native of China.

4. Height three feet. Stems ſuffruticoſe, dark purple, branched. Leaves reſembling thoſe of Columbine, but glaucous. Flowers in many pale-purple heads, five-petalled [d], white.

There is a variety of this, which is ſomewhat ſmaller, and has pale purple filaments, which in the other are white [e].

Native of North America. Cultivated in 1683, by Mr. James Sutherland. It flowers from may to july [f].

5. Height ſcarcely a foot. Stem ſtraight. Leaflets nodding, by which mark the plant is very diſtinguiſhable in its habit. Flowers four-petalled, with about forty white ſtamens, with yellow anthers. Styles in the female flowers briſtle-ſhaped, longer than in the other ſpecies [g].]

The ſtalks are naked to the top, where they have one leaf, compoſed of many leaflets of a grayiſh colour, indented at their points. The flowers are produced in ſmall terminating bunches.

[Native of North America. Cultivated in 1759 by Mr. Miller. It flowers in june and july [h].

6. Stems four feet high and more, round, upright, the thickneſs of a finger at the baſe, hollow, leafy, branching very much, purple below, ſmooth. Sheaths of the leaves ſtriated. Petioles round. Leaves wide, many-pinnate: leaflets like thoſe of Columbine, ſmooth on both ſides, veined, obtuſe, gaſhed above, deep green on the upper ſurface, and glaucous on the lower. Flowers panicled, ſweet-ſmelling: petals four, oblong, obtuſe, concave, pale, ſpreading very much. Filaments twelve to fourteen, twice as long as the petals. Piſtils from three to five. Seeds lanceolate, acute, brown, ſtraight, ſomewhat ſtriated. It flowers from the middle of june to the middle of july.—Native of Hungary [i].

It approaches in habit to Th. minus, but is of a larger ſtature, with wider leaflets leſs deeply cut, and the flowers are erect not drooping [k].

7. This is neareſt related to the minus, but it is twice or thrice as large. The leaves are broader and more lobed, of a dark green above and glaucous beneath. Stem purpliſh, panicled, the flowering branches growing two or three together, the partial flower-ſtalks generally umbellate. Flowers drooping, with

[a] Engl. bot.
[b] Hort. kew. [c] Idem. [d] Raius ex Cornuto. [e] Morriſon & Parkinſon. [f] Hort. kew. [g] Linn. ſpec. [h] Hort. kew. [i] Jacquin. [k] Willdenow.

four

four purpliſh-green petals. Stamens capillary, with long yellow anthers. Germs furrowed, with ſeſſile downy ſomewhat arrow-ſhaped ſtigmas [a].

Crantz, who ſeems firſt to have deſcribed this plant, particularly notices its differing from Th. minus, in its branches growing three together, the darker colour of its leaves, the grayer green of their under ſurface, and their pellucid veins.

Dr. Withering ſays, that in the ſpecimen before him, the leaves were trebly winged, the leaflets urn-ſhaped and three-cleft at the end, the petals four and purpliſh, the ſtamens fourteen to eighteen, and the piſtils from five to ſeven.

According to Jacquin, the ſtamens are from fifteen to twenty, and the piſtils from four to ſeven. He obſerves that it approaches to the ſibiricum, but in that the fruit is different, the ſtem is green not purpliſh, the leaflets are finely ſerrate and very much ſmaller than even thoſe of Th. minus [b].

Native of Auſtria and Hungary in woody places. It has lately been diſcovered in England by Mr. Robſon, on a buſhy hill at Baydales near Darlington, and alſo on the margin of Ullſwater in Cumberland. He ſays that it frequently attains the height of four or five feet. It flowers in june and july.

Dr. Smith remarks, that Dodonæus's figure referred to under Th. flavum (n. 15.), and copied in Ger. emac. 1251. 1. bears a much greater reſemblance to this than to that ſpecies.

8. This is a middle ſpecies between majus and minus, differing in leaves and ſtature from elatum, with which it agrees in the fructification. The whole plant is ſmooth; the ſtems are two feet high and obſcurely angular; the lower leaves are many-pinnate, with oblong ſharpiſh leaflets, having few gaſhes, and pale green beneath. Native of Hungary on hills [c].

Willdenow remarks, that it differs from the minus in having the leaflets wedge-ſhaped, the upper ones undivided and lanceolate, and the flowers almoſt upright never truly drooping.

9. Root fibrous. Stem almoſt upright, a foot high, flexuoſe, grooved; glaucous with a blueiſh bloom, leafy, panicled. Lower leaves very large, patulous, tripinnate almoſt from the baſe; leaflets cordate or wedge-ſhaped, trifid, ſometimes gaſhed, ſmooth, glaucous. Panicle ſpreading, compound. Flowers pedicelled, drooping. Petals four, elliptic, glaucous-purple. Seeds grooved [d].

Mr. Woodward remarks, that the leaflets are broad and blunt, generally trifid at the extremity, though the upper ones are oval-lanceolate and entire; and that the panicle is branched, bearing a few ſcattered flowers at firſt nodding, but afterwards erect.

Pollich numbered twenty ſtamens; and four or five germs as far as nine. Krocker, eighteen or twenty ſtamens, and three, four, five to eight piſtils. Villars reckons as far as twenty-four ſtamens.

Linnæus's character of ſix-parted leaves has puzzled many perſons; Dr. Smith interprets it to mean, that the leaves are compounded in a ſix-fold order, which is generally near the truth; not, as ſome have underſtood it, that the leaflets are in ſix diviſions, which can never be the caſe, unleſs by accident, as they have a central lobe, and conſequently an odd number of diviſions.

Native of many parts of Europe, in meadows. In Britain, it occurs in various parts of the country in calcareous ſoils; but being found only in ſuch it is by no means a common plant. It is alſo met with in Ireland on ſandy ſhores about Newcaſtle near Mourne, and ſeldom flowers before july [e].

β. Lhwyd obſerved it with broader leaves in Wales; but being tranſplanted into Richardſon's garden in Yorkſhire, it proved not to be different. Pollich remarks that it varies with broader, larger and ſmaller leaves.

10. Native of North America. Introduced in 1774, by John Fothergill, M.D. It flowers in july [f].

11. This has the habit of Th. minus or purpuraſcens, but the leaflets are ſix times ſmaller and glaucous, the colour of Rue or Fumitory. Stem green, very greatly panicled. Panicle brown at the diviſions. It flowers later, with the flavum and dioicum [g].

Willdenow adds, that the wild plant is only half the ſize of the minus, but in the garden it becomes much larger, and approaches in habit to the medium; from which however it differs in having all the leaflets three-parted, and the flowers drooping.

Native of Siberia and Armenia.—Introduced in 1775, by Monſ. Thouin. It flowers in june and july [h].

Gærtner deſcribes the fructification as conſiſting of from five to eight capſules, which are of a ſpongy coriaceous texture, ſmall, ovate, beaked, grooved, one-celled, valveleſs; containing one ovate ſeed, attenuated above, of a ruſſet bay colour, having a brown tubercle at the baſe. Common receptacle very narrow: the proper one a very ſlender umbilical chord deſcending from the vertex of the capſule to the baſe of the ſeed.

12. This differs from all the preceding ſpecies, which it reſembles by its nodding flowers, in the ſtructure of its petiole. Leaves ſuperdecompound as in the reſt; the lateral leaflets moſtly ovate, acute, quite entire, but the terminating and upper lateral ones trifid or elſe bifid. Petiole much widened at the baſe, with orbicular membranaceous wings toothed at the edge. On the partial petioles of the leaves there are alſo ſmaller orbicular toothed earlets, by which mark this ſpecies is eaſily diſtinguiſhed. Native of Siberia [i].

13. This has the habit of Th. minus, but it is lower by half where that is three feet high. Stem purple without any bloom. Flowers purple. Stamens yellow. It differs from Th. minus in not having the leaflets at all purple at the rip. It flowers earlier. Flowers as in Th. minus; with four petals, fourteen ſtamens, and eight piſtils. Native of Canada [k].

14. Stems from two to three feet high. Flowers ſmall, collected in terminating panicles, and of an herbaceous white colour.

[Petals four; ſtamens ſixteen; piſtils ſeven [l]. Stamens from ten to twelve, according to Scopoli.

It is allied to the next ſpecies, and in Willdenow's opinion, perhaps only a variety of it, he having frequently obſerved among the ſtems of the cultivated plant, ſome with wider leaves, approaching to thoſe of the flavum.

Native of Germany, Switzerland, Carniola and Italy.—Cultivated in 1739 by Mr. Miller. It flowers in june and july [m].

15. Root yellow. Stem two or three feet high, upright, ſimple below, panicled above, ſmooth, ſo ſtrongly furrowed as to be almoſt angular, leafy. Leaves alternate, twice compounded in a ternate order; their common footſtalk with a ſhort ſheathing baſe, and a toothed intrafoliaceous ſtipule; leaflets ſomewhat wedge-ſhaped, commonly trifid, but ſometimes undivided, entire, varying much in breadth and ſharpneſs, veiny, glaucous beneath. (According to Mr. Woodward, the lower leaflets are very irregular, ſometimes wedge-ſhaped, trifid at the extremity, ſometimes oval, entire or with a ſort of lobe on one ſide; upper leaflets lanceolate, entire or trifid.) Panicle erect, much branched, ſomewhat leafy, contracted, compoſed of many, upright, yellowiſh-white flowers, with yellow anthers. Petals four. Germs ſeſſile, deeply furrowed. Styles none. Stigmas ſhort, oblique, heart-ſhaped, downy [n].

According to Linnæus, the flowers have twenty-four ſtamens, and from ten to ſixteen piſtils. Haller ſays, from ſeventeen to twenty ſtamens, and from ſeven to ten or twelve ſeeds. Pollich agrees with him in the number of ſtamens, and ſays that he has reckoned ten germs. Krocker affirms, that there are from ſeventeen or twenty-four to ſeventy and even ninety ſtamens, and from ten to ſixteen piſtils.

[a] Engl. bot. [b] Withering. [c] Jacquin. [d] Smith brit. [e] Engl. bot. and Templeton M. S. [f] Hort. kew. [g] Linn. ſpec. [h] Hort. kew. [i] Willdenow. [k] Linn. ſpec. [l] Idem. [m] Hort. kew. [n] Engl. bot.

Dr. Smith having compared our ſpecimens with original ones of Jacquin's nigricans from himſelf, found no ſpecific difference between them. Scopoli ſuſpected that they might be the ſame. Jacquin thus deſcribes his nigricans.—Stems three or four feet high, erect, ſtriated, hollow. Baſes of the petioles ſtriated, and dilated into membranes. Leaflets lanceolate, acute, deep green above, paler beneath and wrinkled a little with prominent veins, ſmooth on both ſides, ſome quite entire, others thrice or twice cut, eſpecially in the lower leaves, which are alſo wider than thoſe of the upper ones. Panicle cloſe, terminating, erect. Flowers yelloviſh, odorous, not drooping. Petals four, ſmall, leſs coloured. Stamens ſixteen to thirty. Piſtils from two to five at moſt. Seeds as many, brown, ſubovate.

Native of Europe: frequent with us in wet meadows, and on the banks of rivers and ditches; flowering in june.

A cataplaſm made of the bruiſed leaves is a ſlight bliſter, and has been known to give relief in the ſciatica. The root dyes wool yellow; and has been formerly uſed to cure the jaundice, probably from its colour. Cows, horſes, goats and ſheep eat it, but ſwine are not fond of it. [a]

It has the Engliſh name Meadow Rue from its place of growth, and a certain vague reſemblance to Garden Rue, to which it has no affinity.

The narrow-leaved variety mentioned by Lightfoot, and figured by Moriſon (ſ. 3.) is neither rare nor important. It is ſtill diſtinct enough from Linnæus's anguſtifolium [b].

β. Mr. Miller has a ſpecies, which he names *ſpicatum*: it is a mere variety of this. He deſcribes] the ſtalks as angular and five feet high, better furniſhed with leaves, the leaflets of which are very narrow, ſome ending with two, others with three points, of a bright green colour. The flowers are yellow, and are formed into many panicles which terminate the ſtalks. It grows naturally in the meadows about Montpelier: [according to Willdenow, in Spain.

16. This differs from flavum in having the herb half as ſmall again, the flowers nodding not erect, the petals green not white, the filaments fourteen and purple not ſeventeen and white, the panicle thinner, the leaves narrower; beſides the ſtipules between the firſt ramification of the leaves there are no ſcales, whereas in flavum there is a torn ſcalelet on each ſide [c].

The anguſtifolium of Villars is this ſpecies, as appears from ſpecimens ſent by him to Willdenow [d].

Native of Sweden, Denmark and France.—Introduced in 1778, by Monſ. Thouin. It flowers in may and june [e].]

17. Stems upright, channelled, five or ſix feet high, having at each joint pinnate leaves, compoſed of many linear fleſhy leaflets, which are for the moſt part entire, and end in acute points. The flowers are of a yelloviſh white colour; they appear in july, and are ſucceeded by ſmall angular capſules, with one ſmall oblong ſeed in each, which ripens in auguſt.

[Linnæus doubts whether this be ſufficiently diſtinct from T. flavum; and in his quaint phraſeology ſays, that it ſeems to be a daughter of time.—Native of France about Paris, and of Spain. Cultivated by Mr. Miller in 1739 [f].]

18. Root thick, fibrous. Stems taper, riſing three feet high. Leaves like thoſe of Columbine. Flowers in large terminating panicles.

[Petals four, ſtamens ſixty, piſtils ſixteen, according to Linnæus; or, as Crantz ſays, ſtamens fifty-ſix or fifty-ſeven, piſtils ſeven, eight, or ten; or, as Haller, ſtamens forty to ſixty, ſeeds ſix to twelve; or, as Scopoli, ſtamens ſixty-five to eighty-five, germs ſeven to nine, twelve and ſixteen.]

It varies with a green ſtalk and white ſtamens, and with a purple ſtalk and ſtamens of the ſame colour.

[Native of Scania, Switzerland, Auſtria, Carniolia, Ingria, Sileſia, the South of France, and Italy.—Cultivated by Mr. Miller in 1731. It flowers from may to july [g].

Retzius refers the atropurpureum of Jacquin to this ſpecies, and profeſſes not to know whither the aquilegifolium of that author ought to be referred. Jacquin thus deſcribes his atropurpureum.—Stems three feet high, ſhining, hollow, round, marked with lines, very dark purple with a glaucous bloom before flowering, afterwards partly dark green. Leaves triternate, leaflets like thoſe of Columbine but ſmaller, veined, ſmooth but not ſhining, dark green above, ſomewhat glaucous and netted beneath, widening towards the end, and there variouſly cut into lobes. Petioles round, firm, ſpreading, purpliſh green. Petals four, roundiſh, blunt, very concave, dark purple and ſtriated on the outſide, white within, caducous. Filaments about ſixty, pale purple. Germs from ten to ſixteen. Fruit ſmooth, pendulous, triangular. It flowers from the end of may to the end of june.

19. This is very like the preceding, but it is lower, and has white flowers. Petals four, ſtamens ſixty, piſtils eight [h]. Willdenow adds, that the ſeeds are by no means contorted, but agree exactly with thoſe of aquilegifolium; the imperfect ſeeds however are twiſted. Native of Siberia.

20. Root-leaves two, ſuperdecompound as in the other ſpecies, but far leſs. Leaflets ovate, obtuſe, often three-lobed. Scape ſcarcely a foot high, ſtriated, leafleſs, ſometimes but ſeldom having a ſingle decompound leaf and a lateral peduncle. Flowers heaped into a ſort of terminating umbel. Petals four, deciduous, rounded. Stamens numerous, with membranaceous filaments, more widening above, fleſh-coloured. Germs ſeſſile. Native of Dauria [i].

Retzius remarks that the ſtamineum of the ſupplement is not at all different from this.

21. Stem with one or two leaves. Both root-leaves and ſtem-leaves three-parted, with bipinnate leaflets; pinnas ſubcordate, three or five-toothed. This ſpecies is very diſtinct by its awl-ſhaped ſtyles, dilated on each ſide at the baſe into a vertical ſemiorbicular wing. Native of Siberia [k].

22. The root conſiſts of many capillary bundles. Root-leaves very many, on long petioles, ternate-ſuperdecompound, ſmooth, erect: leaflets gaſhed, ſerrate, ſomewhat wedge-ſhaped, patulous, paler beneath. Scape ſtriated, erect, divided at top. Flowers in whorls, peduncled. Native of Japan [l].]

PROPAGATION AND CULTURE.

Theſe plants are generally propagated by parting their roots, in ſeptember, when the leaves begin to decay, and they may take freſh root before froſt comes on. They may be planted in almoſt any ſoil or ſituation, provided it be not very hot and dry; but they moſtly prefer a freſh light ſoil, and a ſhady ſituation. Moſt of them creep ſo much as to be troubleſome in a garden; therefore it is better to confine their roots in pots plunged in the ground. The third, fourth and eighteenth, are moſt frequently cultivated in gardens; their roots not creeping ſo much as ſome of the others, and the flowers having ſome beauty to recommend them.

[THAMNIA. See *Lætia*.

THAMNOCHORTUS. See *Reſtio*.]

THAPSIA (*of Pliny.* Θάψια *of Dioſcorides: from* Thapſus *a town of Africa.*)

Lin. gen. n. 361. *Reich. n.* 391. *Schreb. n.* 493. *Tournef. t.* 171. *Juſſ.* 220. *Gærtn. t.* 21.

Claſſ. 5. 2. Pentandria Digynia.

Nat. order of *Umbellatæ* or *Umbelliferæ*.

GENERIC CHARACTER.

CAL. *Umbel univerſal* large, of about twenty rays, almoſt equal in length: *partial* of as many rays, almoſt equal.

Involucre univerſal none: *partial* none.

Perianth proper ſcarcely to be obſerved.

COR. *univerſal* uniform. *Florets* all fertile. *Proper* of five petals, lanceolate, curved in.

[a] Engl. bot. and Withering. [b] Linn. mant. [c] Willd. ſpec. [d] Hort. kew. [e] Idem. [f] Hort. kew. [g] Linn. ſpec. [h] Linn. ſuppl. [i] Idem. [k] Thunb. jap.

STAM. *Filaments* five, capillary, length of the corolla. *Anthers* ſimple.

PIST. *Germ* oblong, inferior. *Styles* two, ſhort. *Stigmas* obtuſe.

PER. none. *Fruit* oblong, girt longitudinally by a membrane, bipartile.

SEEDS two, very large, oblong, convex, acuminate at both ends, girt with a margin flat on both ſides entire and large, emarginate at top and bottom.

OBS. T. trifoliata *has the fruit of Selinum Carvifolia or Monnieri, but no involucres.*

ESSENTIAL CHARACTER.

Fruit oblong, ſurrounded by a membrane.

SPECIES.

1. Thapſia villoſa.
   Lin. ſpec. 375. *Reich.* 1. 717. *Willd.* 1. 1464. *hort. cliff.* 105. *Plenck ic.* 219. *Allion. pedem. n.* 1307. *Desfont. atlant.* 1. 262. *Gærtn. fruct.* 1. 88.
   T. latifolia villoſa. *Bauh. pin.* 148. *Mor. hiſt. ſ.* 9. *t.* 18. *f.* 3. *Tournef. inſt.* 322.
   T. 1. *Cluſ. hiſt.* 2. 192.
   T. latifolia hiſpanica. *Park.* 878. 2. *t.* 877. *f.* 2. *Raii hiſt.* 418.
   T. latifolia Cluſii. *Ger.* 875. 1. *emac.* 1030. 1.
   Leaflets toothed villoſe ovaduate at the baſe.
2. Thapſia fœtida.
   Lin. ſpec. 375. *Reich.* 1. 717. *Willd.* 1. 1464. *hort. cliff.* 105. *Blackw. t.* 459.
   T. carotæ folio. *Bauh. pin.* 148.
   T. carotæ effigie. *Bauh. hiſt.* 3. 187. *Mor. hiſt. ſ.* 9. *t.* 18. *f.* 7.
   Leaflets multifid narrowed at the baſe.
3. Thapſia Aſclepium.
   Lin. ſpec. 375. *Reich.* 1. 718. *Willd.* 1. 1464. *hort. cliff.* 106.
   T. apulia. *Mill. dict. n.* 2.
   T. tenuifolia petiolis radiatis. *Mor. hiſt.* 3. 319. *n.* 9. *f.* 9. *t.* 18. *f.* 9.
   T. tenuiore folio apulia. *Tournef. inſt.* 322.
   Panax Aſclepium apulum. *Col. ecphr.* 1. 87. *t.* 86.
   Leaves digitate, leaflets bipinnate ſetaceous multifid.
[4. Thapſia garganica.
   Lin. ſyſt. 290. *Reich.* 1. 718. *Willd.* 1. 1465. *mant.* 57. *Gouan. illuſtr.* 18. *t.* 10. *Desfont. atlant.* 1. 262.
   T. filotriotidis folio, glutinoſa glabra. *Pluk. phyt. t.* 67. *f.* 2.
   T. f. Turbith garganicum, ſemine latiſſimo. *Bauh. hiſt.* 3. 50. *Raii hiſt.* 418. 2. *Tournef. inſt.* 322.
   T. Thalictri folio. *Magn. monſp.* 287. *t.* 286.
   Leaves pinnate, leaflets pinnatifid, ſegments lanceolate.]
5. Thapſia trifoliata.
   Lin. ſpec. 376. *ſyſt.* 290. *Reich.* 1. 718. *Willd.* 1. 1465. *Gron. virg.* 31. (Sium.)
   Leaves ternate ovate.
[6. Thapſia polygama.
   Desfont. atlant. 1. 261. *t.* 75.
   Leaves decompound, leaflets ovate, involucre pinnatifid at the top, central flowers abortive.]

DESCRIPTIONS, &c.

1. Root thick, fleſhy, in ſhape of a carrot, blackiſh on the outſide, but white within, bitter and very acrid, with a little aromatic taſte. Stem ſpongy, riſing about two feet high, dividing upwards into two or three ſmall branches, each terminated by a large umbel of yellow flowers.

[Leaves large, villoſe, multifariouſly decompound: leaflets wrinkled, unequal, linear or linear-lanceolate, paler beneath, reflexed at the edge. Petioles round, ſheathing at the baſe. Stem cylindrical, ſmooth and even, the thickneſs of a finger, having a glaucous meal ſcattered over it. Sheaths large, concave, entire at the baſe of the petioles. Umbels large, regular, globular: umbellets diſtinct, round*. Fruit compreſſed, ovate-oblong, deeply emarginate at both ends, terminated by the receptacle of the ſtamens which is permanent waved and peduncled, below that with the five calycine leaflets curved upwards like little horns, in the other parts winged, bipartile.

* Desfontaines.

Seeds two, with four membranaceous wings, of which the two ſide ones are very wide, longer than the ſeed, the two dorſal ones are very narrow, waved, and the length of the ſeed: between theſe wings are three raiſed longitudinal compreſſed ſtreaks, but not membranaceous: the ventral part is flat without any furrow[1].

Native of Spain, Portugal, the South of France, Italy and Algiers.—Cultivated in 1739 by Mr. Miller. It flowers in june and july[m].

Desfontaines remarked a variety, which had the ſeed only half the ſize of the common one.]

2. The leaves of this ſort are cut into many narrow ſegments, almoſt as ſmall as thoſe of the garden Carrot, but rough and hairy; their ſegments are always oppoſite, and narrower at their baſe than their points. The ſtalks riſe about two feet high, and are terminated by umbels of ſmall yellow flowers which appear in july; theſe are ſucceeded by flat bordered ſeeds, which ripen in the beginning of ſeptember. Native of Spain and Italy.

3. The root of this is about the thickneſs of a man's thumb; the bark is yellow and wrinkled, the inſide white and abounds with an acrid milky juice: the leaves are finely divided like thoſe of Fennel, hairy and ſitting cloſe to the root: the ſtalk riſes from two to three feet high: it is naked, and branches into two or three, each terminated by a ſmall umbel of flowers, which are large, yellow, and appear in july: they are ſucceeded by flat ſeeds, having cartilaginous borders, which ripen in ſeptember. Native of Apulia [and the Levant.

4. Leaves ſhining ſmooth; the primary ones on long petioles, ovate or ovate-lanceolate, quite entire, to which ſucceed others, ternate, quinate or ſeptenate, finally three or four times decompound: leaflets narrow-lanceolate or linear, acute, very ſmooth, ſhining above, pale beneath, decurrent into the petiole. Petioles round, ſheathing at the baſe. Sheath large. Stem thick, ſmooth, erect, ſlightly ſtriated. Umbel hemiſpherical: umbellets diſtinct, round. Sheaths concave, leafleſs at the baſe of the peduncles. Petals pale yellow. Seed elongated, ſemicylindrical, ſtriated at the back, having a yelloviſh membranaceous wing at the edge on each ſide. The bruiſed root is good for reſolving tumours. Native of Barbary[n].]

5. This has a ſlender tap root, ſhaped like that of Parſley. The leaves at the bottom are heart-ſhaped. The ſtalk is ſingle and does not branch; it riſes near two feet high, is of a purple colour and ſlender; at each joint is one ternate leaf, the leaflets ovate and crenate. The ſtalk is terminated by a ſmall umbel of purple flowers, which appear in july, and are ſucceeded by compreſſed channelled ſeeds, ripening in ſeptember.

Native of North America. The ſeeds were ſent to Mr. Miller by Dr. Benſel from Philadelphia. Gronovius thought this plant very like that which is figured by Kæmpfer under the name of Nin-ſi.

[6. Leaves bifariouſly or trifariouſly decompound; with the outmoſt ſegments ſmall, acute, unequal; moſt of them three-toothed at the end, but ſome ſimple. Stem erect, ſlightly ſtriated, ſparingly branched, ſmooth. Umbels flat, peduncled. Umbellets diſtinct. Rays unequal. Univerſal involucre five or ſeven-leaved: leaflets linear, pinnatifid at the end, often three-forked, ſeldom ſimple: partial involucre ſimple, ſlender. Corolla pale yellow. Flowers in the centre male, abortive, ſmaller, on ſhorter pedicels. Seeds ſemicylindrical. Native of Barbary, near Bone by the ſea coaſt[o].

Mr. Miller has two other ſpecies:]

Thapſia maxima, n. 2. which he ſays has a large thick root, of a dark colour on the outſide: the leaves very thick, hairy on their under ſide, ſpreading circularly on the ground, and divided into very broad hairy leaflets: the petioles are decurrent: the ſtalks riſe four or five feet high, are large, jointed and full of pith, having one leaf at each joint, ſhaped like

[l] Gærtner. [m] Hort. kew. [n] Desfontaines. [o] Idem.

thoſe at the bottom, but ſmaller as they approach the top. The ſtalk is terminated by a large umbel of yellow flowers which appear at the end of june, and the ſeeds ripen about two months after. Native of Spain, all over Old Caſtile, quite to the Pyrenees.

Thapſia altiſſima, n. 6. has a large taper root; the leaves ſpread circularly near the ground, are branched into ſeveral, and theſe again are divided into many very large lucid leaflets, ſtanding alternately on ſhort footſtalks; the ſtalk riſes near eight feet high, and is terminated by an umbel of yellow flowers, which appear in july, and are ſucceeded by bordered compreſſed ſeeds, which ripen in ſeptember.

Thapſia maxima, latiſſimâ folio *Bauh. pin.* 148. is given as a ſynonym of the former; and Th. montana omnium maxima, foliis lobatis *Tilli hort. piſan.* 164. as a ſynonym of the latter.

PROPAGATION AND CULTURE.

Theſe plants are all propagated by ſeeds, which ſhould be ſown in autumn; for if they are kept out of the ground till ſpring, they often miſcarry, or if they grow, they commonly lie a whole year in the ground before the plants come up; whereas thoſe ſeeds which are ſown in autumn, generally grow the following ſpring. Theſe ſhould be ſown in drills, in the place where they are deſigned to remain. The drills ſhould be at leaſt three feet and a half aſunder, becauſe the plants ſpread their leaves very wide. When the plants come up in the ſpring, they muſt be carefully cleared from weeds; and where they are too cloſe together, ſome of them ſhould be drawn out to give room for the others to grow, but at this time they need not be left more than two or three inches apart; for the firſt year when the plants ariſe from ſeeds, they make but ſlow progreſs, the autumn following the remaining part of the plants may be taken up, leaving thoſe which are deſigned to remain about eighteen inches aſunder; and thoſe plants which are taken up may be tranſplanted into another bed, if they are wanted. After the firſt year theſe plants will require no farther care, but to keep them clear from weeds; and every ſpring, juſt before the plants begin to puſh out new leaves, the ground ſhould be carefully dug between the plants to looſen it, but the roots muſt not be injured, leſt it ſhould cauſe them to decay. The plants thus managed will continue ſeveral years. They delight in a ſoft loamy ſoil, and if they are expoſed only to the morning ſun, they will thrive better than if they have a warmer ſituation.

THAPSIA. See *Artedia* and *Selinum*.

THAPSUS. See *Verbaſcum*.

THEA. (*From* Teh *or* Theh *of the Chineſe, or* Tſia *of the Japoneſe.*)

Lin. gen. n. 668. *Reich. n.* 726. *Schreb. n.* 911. *Gærtn. t.* 95. *Juſſ.* 262. *Kæmpfer. Lettſom monogr. ed. t.* 1770. *ed.* 2. 1769.

Claſſ. 13. 1. (ſ. 3.) Polyandria Monogynia ſ. Trigynia.

Nat. order of *Columniferæ* β. *Aurantia* 3. Juſſ.

GENERIC CHARACTER.

PER. five-parted, very ſmall, flat, inferior, permanent: *ſegments* roundiſh, obtuſe, equal.

COR. *Petals* ſix, (three to nine) roundiſh, concave, large, of which two are exterior and a little ſmaller.

STAM. *Filaments* numerous, (more than two hundred) filiform, ſhorter than the corolla, inſerted into the receptacle. *Anthers* cordate, faſtened by the back.

PIST. *Germ* globular-trigonal. *Styles* three, united at the baſe, at bottom erect, cloſely approximating, and as it were united into one, above the ſtamens diverging, ſomewhat recurved at the top, after flowering ſeparated to the very baſe, reflexed at the top. *Stigmas* ſimple.

PER. *Capſule* tricoccous, trilocular, gaping at the top, in three directions.

SEEDS ſolitary, globoſe, angular on the inward ſide.

OBS. *The parts of the flower vary much in number, for ſometimes the calyx is ſix-parted; the corolla has three petals or more as far as nine, of which the ſix inner ones are larger and equal, the three outer a little ſmaller: ſtamens as far as two hundred and eighty.*

In Thea japonica, the calyx is five-leaved, with ovate obtuſe concave leaflets: the corolla ſix-petalled; petals ovate, very blunt, three lower ones ſmaller. Germ ſomewhat ſcaly: ſtyle filiform, erect, very ſhort: ſtigmas three, filiform, erect, length of the filaments. Thunb. jap.

ESSENTIAL CHARACTER.

Cor. ſix or nine-petalled. *Cal.* five *&* ſix-leaved. *Capſ.* tricoccous.

SPECIES.

1. Thea.

α. Thea viridis. *Green Tea.*

Lin. ſpec. 735. *ſyſt.* 496. *Reich.* 2. 589. *Willd.* 2. 1180. *Hill. exot. t.* 22. *Gærtn. fruct.* 2. 83. *Lettſom monogr. t.* 1. *Woodv. med. bot. ſuppl.* 116. *t.* 256.

T. ſinenſis. *Blackw. t.* 351.

β. Thea Bohea. *Bohea Tea.*

Lin. ſpec. 734. *ſyſt.* 495. *Reich.* 2. 589. *Willd.* 2. 1180. *hort. diff.* 204. *mat. med.* 196. *amoen.* 7. 239. *t.* 4. *Hill. exot. t.* 22. *Blackw. t.* 352. *Thunb. jap.* 225. *Lettſ. mon. ed.* 2. *p.* 41. *tc.*

T. cantonienſis. *Lour. cochinch.* 339. *ed. Willd.* 414.

Thee. *Kæmpf. jap.* 605. *t.* 606.

Thee frutex. *Barthol. act.* 4. 1. *t.* 1. *Bont. jav.* 87. *t.* 88. *Barr. rar.* 128. *t.* 904.

Thee ſinenſium. *Breyn. cent.* 111. *t.* 112. *ic.* 17. *t.* 3. *Boec. muſ.* 114. *t.* 94. *Raii hiſt.* 1619.

China. *Bauh. pin.* 147. *Bauh. hiſt.* 3. *l.* 27. *c.* 1. *p.* 5.

Euonymo affinis arbor orientalis mucifera, flore roſeo. *Pluk. phyt. t.* 88. *f.* 6.

DESCRIPTION, *&c.*

The Tea Tree is commonly about the height of a man. It is deſcribed indeed by different authors as varying much in ſize from that juſt mentioned to thirty and even two hundred feet. Probably it may attain the height of thirty feet or more when left to itſelf; but in general the trees are cut down periodically, that they may make ſtronger ſhoots, and therefore are ſeldom ſeen to be above five or ſix feet high. The trunk is branching and round: the branches alternate or vague, ſtiffiſh, inclining to an aſh-colour, but reddiſh towards the end. Leaves alternate, elliptic, ſmooth, gloſſy, of a firm texture, bluntly ſerrate except near the baſe, blunt and for the moſt part ſlightly emarginate at the end, veined on the under ſide; on very ſhort petioles, round and gibbous beneath, flattiſh and ſlightly channelled above. Stipules to the leaves none. Peduncles axillary, alternate, ſingle, curved, one-flowered, incraſſate, having at the baſe a ſingle ſtipule or bracte, which is awl-ſhaped, erect, elliptic, obtuſely ſerrate, with the edges between the teeth recurved[†]. Corolla white, varying in the number and ſize of the petals. Stamens, according to Loureiro, inſerted rather into the baſe of the corolla than into the receptacle. If ſo, the Tea Tree ſhould be removed into the claſs Icoſandria.

It is thus deſcribed by Thunberg. Stem ſhrubby and arboreſcent, a fathom in height, ſeldom more, ſmooth in all its parts, evergreen. Leaves alternate, oblong-ovate, obtuſe, emarginate, entire at the baſe and thence ſerrate, ſomewhat channelled, parallel-nerved, erect with the end reflexed, thickiſh, deep green above, paler beneath, longer than the interſtices, two inches in length. Petioles half-round, gibbous, a line long. Flowers on the outmoſt twigs, axillary, ſolitary or more frequently two together. Peduncles incraſſate, jointed, drooping, one-flowered, twice as long as the petioles. Perianth five-leaved, green, permanent, much ſhorter than the corolla: leaflets ovate, obtuſe, concave. Petals ſix, white, very blunt, concave, unequal, the three lower being ſmaller. Filaments very many, inſerted into the receptacle, capillary, erect, white, a little ſhorter than the corolla, the outer ones ſhorter than the inner. Anthers round, twin. Germ ſuperior, conical, ſomewhat ſcaly. Style filiform, erect, very ſhort. Stigmas

† Lettſom. Linn. ſpec.

three,

three, filiform, erect, green, length of the filaments. Capsule tricoccous, often barren either wholly or in one or two of the cells.

Loureiro describes it as a small tree or shrub, four feet high, branching very much and twisted. Leaves lanceolate, acutely serrate, thickish, incurved, subsessile, smooth, alternate. Flowers white, on terminating, one-flowered, solitary peduncles. Calyx five or six-leaved, unequal. Corolla composed of seven, eight or nine petals, which are unequal, concave, spreading. Stamens about a hundred, connected at the base with one another and with the petals. Style trifid, and equal to the stamens; segments linear.

Gærtner describes the fruit as a superior coriaceous capsule, sometimes simply globular or made up of two globes, but most frequently composed of three, three-celled, three valved, on the outside of a smoaky colour, and having distant callous dots scattered over it. Seeds solitary, large, globularly-angular, bay-coloured, with a rounded, wide, closed navel on the inner side; the seed is fastened to the central angle of the cells.

Native of China and Japan. Introduced about 1768, by John Ellis, Esq., who raised it from seed. It flowers here in august and september. The first plant that flowered in England was at Sion, in the stove of his Grace the Duke of Northumberland: from this Dr. Lettsom's figure was drawn. Dr. Woodville's figure was taken from a plant which flowered in the stove of John Liptrap, Esq.

Linnæus received the true Tea Tree on the third of october, 1763, by Carl Gustavus Ekeberg, captain of a Swedish East-Indiaman, who raised it from seed on the voyage'.—It is now to be found in most of the curious botanic gardens in England, France, &c. and was introduced into Georgia in America about the year 1770.

I have considered all the varieties of Tea as forming one species. In which I am supported by the best authorities. Kæmpfer attributes their difference to soil, culture, age of the leaves, and method of curing them. Mr. Ellis directly asserts that the green and bohea Tea are one and the same species; and that it is the nature of the soil, the culture, and manner of gathering and drying the leaves, that makes the difference; and a Green Tea Tree planted in the Bohea country, will produce Bohea Tea, and the contrary. So also Sir George Staunton says; every information received concerning the Tea plant concurred in affirming, that its qualities depended upon the soil in which it grew, and the age at which the leaves were plucked off the tree, as well as upon the management of them afterwards'.

Linnæus, it is well known, distinguished two species of *Thea*, the Bohea with six-petalled flowers, and the *viridis* or green with nine-petalled flowers: but it is now well ascertained that the number of petals is very uncertain; and Dr. Lettsom informs us that he has examined several hundred flowers both from the Bohea and green countries, and that their botanical characters have always appeared uniform. In the catalogue of the Royal Botanic Garden at Kew, two varieties of Thea Bohea are given, distinguished by the leaves; namely *laxa* or broad-leaved Tea, with elliptic-oblong wrinkled leaves, and *fritta* or narrow-leaved Tea, with lanceolate flat leaves.—The Bohea Tea trees, now introduced into many botanic gardens near London, exhibit very obvious varieties: the leaves are of a deeper green colour, and not so deeply serrated; and the stalk is usually of a darker colour; but the botanical characters are the same'.

Thunberg also distinguishes two varieties from the leaves; which in one are smaller, flat, darker green, with straight serratures, and in the other larger, waved, brighter green, with sinuate serratures: but they can scarcely be considered as distinct species.

Loureiro's description given above, is taken from a living plant, which he examined himself. He observed little difference in the Sou-chong, which he also examined: both these have a brown colour, but are more odoriferous and precious than the common Bohea of the province of Fo-kien, which he had not an opportunity of seeing in a living state, though it is the most common and cheapest of all. He examined the dry flowers of the Green Tea, from the province of Kiang-si, and observed the same inconstancy, as to the number of parts in the calyx and corola, as in the Bohea. Upon the whole he concludes that all the differences of Chinese Tea form only one botanical species, owing their variation to soil, culture, and method of preparation; all retaining the same inconstancy in the parts of the flower, which gave occasion to Linnæus to consider them as two species.

Loureiro has two other species: 1. Thea cochinchinensis, which both grows wild and is cultivated in Cochinchina, where it is used medicinally, especially in hot weather as a sudorific and refrigerant. The calyx is three-leaved, but sometimes four or five-leaved, and the corolla five-petalled.—2. Thea oleosa, a native of China, where an oil obtained from the seed is used both for the table, and to burn in lamps. The calyx is six-leaved, the corolla six-petalled, the peduncles three-flowered, and the fruit rather a berry than a capsule.

Many varieties of Tea are known in China, from mixture and management. The distinctions chiefly regarded in Europe are the following.

Green Teas.

1. Bing, Imperial or Bloom Tea, with a large loose leaf, of a light green colour, and a faint delicate smell.

2. Hy-tiann, hikiong, hayssuen or hee-chun. Known to us by the name of Hyson Tea. The leaves are closely curled and small, of a green colour verging towards blue.—Another Hyson Tea, with narrow short leaves, is called Hyson-tschin. There is also a Green Tea named Gobé, with long narrow leaves.

3. Song-lo or Singlo, which name it receives, like several others, from the place where it is cultivated.

Bohea Teas.

1. Soo-chuen, sut-chong, sou-chong, or su-chong, called by the Chinese saa-tyang, and sact-chaon or sy-tyann, is a superior kind of Cong-fou Tea. It imparts a yellowish green colour by infusion; and has its name from a place or province in China.

Padre futchong has a finer taste and smell. The leaves are large and yellowish, not rolled up, and packed in papers of half a pound each. It is generally conveyed by caravans into Russia. Without much care it will be injured at sea. It is rarely to be met with in England.

2. Cam-ho or Soum-lo, called after the name of the place, where it is gathered. A fragrant Tea with a violet smell. Its infusion is pale.

3. Cong-fou, congo or bong-fo. This has a larger leaf than the following, and the infusion is a little deeper coloured. It resembles the common Bohea in the colour of the leaf.

There is a sort called lin-kifam, with narrow rough leaves. It is seldom used alone, but mixed with other kinds: by adding it to Congo, the Chinese sometimes make a kind of Pekoe Tea.

4. Pekao, pecko or pekoe, by the Chinese called back-ho or pack-ho. It is known by having the appearance of small white flowers intermixed with it.

5. Common Bohea or Black Tea, called moji or mo-ee by the Chinese, consists of leaves of one colour.—The best is named tao-kyong. An inferior kind is called An-kai, from a place of that name. In the district of Honam near Canton, the Tea is very coarse, the leaves yellow or brownish, and the taste the least agreeable of any. By the Chinese it is named Honam-té, or Kuli-té.

Besides these, Tea both Bohea and Green is sometimes imported in balls, from two ounces to the size of a nutmeg and of peas. The Chinese call it Poncul-tcha.—The smallest in this form is well known under the name of Gunpowder Tea.

Sometimes

[a] Hort. kew. [b] Linn. spec. Ellis, p. 28.
[c] Embassy, 2. 424.
[d] Lettf. p. 41. Compare the figures.

Sometimes the ſucculent leaves are twiſted like packthread, an inch and half or two inches long; three of theſe are uſually tied together at the ends by different-coloured ſilk threads. Both Green and Bohea are prepared in this manner.

The Chineſe likewiſe make an extract from Tea, which they form into ſmall cakes not much broader than a ſixpence, or into rolls of a conſiderable ſize. They diſſolve it in a large quantity of water, and aſcribe powerful effects to it in fevers, &c. when they wiſh to procure a plentiful ſweat[*].

The manner of gathering and preparing the leaves, as practiſed in Japan, is fully deſcribed by Kæmpfer, an author on whom we may ſafely depend; and as far as our information reaches, his account is in great meaſure conformable to the method uſed by the Chineſe.

The leaves are gathered carefully one by one, and each perſon is able thus to collect from four to ten or fifteen pounds in one day. The firſt gathering commences about the end of our february or beginning of march, when the leaves are young and tender: they are called Ficki Tsjaa or powdered Tea, becauſe they are pulveriſed and ſipped in hot water: they are diſpoſed of to princes and rich people only, and hence this kind is called Imperial Tea.

A ſimilar ſort is called Udſi Tsjaa, and Tacke Sacki Tajaa, from the places where it grows. Peculiar care and nicety is obſerved in gathering theſe leaves.

The ſecond collection is made at the end of march or beginning of april. This is called Tootsjaa, or Chineſe Tea, becauſe it is infuſed and drunk after the Chineſe manner.

The third gathering is made in june, when the leaves are full grown. This is called Bon Tsjaa; it is the coarſeſt, and is chiefly conſumed by the lower claſs of people. By ſorting theſe, ſeveral other varieties are produced.

Whether the Chineſe collect the Tea preciſely at the ſame ſeaſons as in Japan, we are not well informed; but moſt probably the Tea harveſt is nearly at the ſame periods, the natives having frequent intercourſe, and their commercial concerns with each other being very extenſive.

The Tea leaves ſhould be dried as ſoon as poſſible after they are gathered. For this purpoſe public buildings are erected, containing from five to ten and even twenty ſmall furnaces about three feet high, each having at the top a large iron pan. There is alſo a long table covered with mats, on which the leaves are laid, and rolled by workmen who ſit round it. The iron pan being heated to a certain degree by a fire made in the furnace beneath, a few pounds of the leaves are put upon the pan, and continually turned and ſhifted by the hands till they become too hot to be endured; they are then thrown upon the mats to be rolled between the palms of the hands; after which they are cooled as ſpeedily as poſſible. In order that all the moiſture of the leaves may be completely diſſipated, and their twiſted form be better preſerved, the above proceſs is repeated ſeveral times with the ſame leaves, but leſs heat is employed than at firſt. The Tea thus manufactured is afterwards ſorted according to its kind or goodneſs. Some of the young tender leaves are never rolled, and are immerſed in hot water before they are dried.

Country people cure their leaves in earthen kettles which anſwer every neceſſary purpoſe, at leſs trouble and expence, whereby they are enabled to ſell them cheaper.

After the Tea has been kept for ſome months, it is taken out of the veſſels in which it was ſtored, and dried again over a very gentle fire, that it may be deprived of any humidity which remained, or it might have ſince contracted.

The common Tea is kept in earthen pots with narrow mouths; but the beſt ſort uſed by the Emperor and nobility is put into Porcellane or China veſſels. The coarſeſt Tea is kept by the country people in ſtraw baſkets, made in the ſhape of barrels, which they place under the roofs of their houſes, near the hole that lets out the ſmoke[†].

Thunberg adds, that the older the leaves are, and the later in the ſeaſon they are gathered, the greater is the abundance; but then the Tea is ſo much the worſe: the ſmaller leaves, and thoſe which have juſt ſhot forth, furniſh the fineſt and moſt valuable. Young ſhrubs always yield better Tea than old ones; and ſome places produce it in greater perfection and more delicious than others[‡].

In the accounts of China, travellers have in general treated very ſlightly of the preparation of Tea. Le Comte obſerves, that to have good Tea, the leaves ſhould be gathered while they are ſmall, tender and juicy; that they begin commonly to gather them in march or april, according as the ſeaſon is more or leſs forward; that they afterwards expoſe them to the ſteam of boiling water to ſoften them, and as ſoon as they are penetrated by it, draw them over copper plates kept on the fire, which dries them by degrees, till they grow browa, and roll up of themſelves in the manner we receive them.

This account is in two reſpects at leaſt erroneous; for firſt, no materials are uſed in China for drying Tea but iron or earthen plates; copper is not commonly uſed in China, and from experiments, there does not appear the leaſt ſymptom of the green efflorescence of that metal having been uſed to give a verdure to the Green Teas: and ſecondly, there ſeems no probability that the leaves will of themſelves take ſo perfect a curl as that in which they are brought to Europe[§].

According to the more accurate account of Sir George Staunton; the largeſt and oldeſt leaves, which are the leaſt eſteemed, and deſtined for the uſe of the loweſt claſſes of the people, are often expoſed to ſale with little previous manipulation, and ſtill retaining that kind of vegetable taſte which is common to moſt freſh plants, but which vaniſhes in a little time, whilſt the more eſſential flavour, characteriſtic of each particular vegetable, remains long without diminution. But the young leaves undergo no inconſiderable preparation before they are delivered to the purchaſer: every leaf paſſes through the fingers of a female, who rolls it up almoſt to the form it had aſſumed before it became expanded in the progreſs of its growth. It is afterwards placed upon thin plates of earthen ware or iron, made much thinner than is executed by artiſts out of China. It is confidently ſaid in the country, that no plates of copper are ever employed for that purpoſe. Indeed, ſcarcely any utenſil uſed in China is of that metal, the chief application of which is for coin. The earthen or iron plates are placed over a charcoal fire, which draws all remaining moiſture from the leaves, rendering them dry and criſp. The colour and aſtringency of Green Tea is thought to be derived from the early period at which the leaves are plucked, and which, like unripe fruit, are generally green and acrid. For exportation, the Tea, as is well known, is packed in large cheſts lined with very thin plates of lead; and it is preſſed down into theſe cheſts by the naked feet of Chineſe labourers[*].

Chineſe drawings, though rudely executed, exhibit a faithful picture of what they are intended to repreſent. From a ſet of theſe giving the whole proceſs of gathering and manufacturing the Tea, we learn that the tree, or rather ſhrub, grows for the moſt part in hilly countries, on their rocky ſummits and ſteep declivities. Accordingly Sir George Staunton informs us, that vaſt tracts of hilly land are planted with it, particularly in the province of Fo-chen: and Chevalier Thunberg ſays, that he met with it frequently in Japan, both on the borders of cultivated lands, and upon ſuch mountains and downs as did not well anſwer the trouble of cultivation. It appears alſo from theſe drawings, that the trees in general are not much taller than a man's height: the gatherers are always repreſented on the ground; they make uſe of hooked

[*] Kæmpf. amoen. & jap. Thunb. jap. Woody. Letſ. 29—35.
[†] Travels, vol. 4. p. 42, 43. engl. edit.
[‡] Letſ. p. 35, 46, 47. [§] Embaſſy, 2. 465.
[*] Letſom, 38, &c.

ſticks indeed, but theſe ſeem rather intended to draw the branches towards them, when they hang over places difficult of acceſs. They pick the leaves as ſoon as gathered into different ſorts, and cure them nearly in the manner above deſcribed to be practiſed by the Japaneſe; drying them in a range of ſtoves, like thoſe in a chemiſt's laboratory, where the men work, and curl the leaves in the pans themſelves. They dry it likewiſe, after having ſpread it abroad in ſhallow baſkets, in the ſun; and by means of ſieves, ſeparate the larger from the ſmaller leaves, and theſe again from the duſt.

The Chineſe put the finer kinds of Tea into conic veſſels, like ſugar loaves, made of tutenague, tin or lead, covering them with neat matting of bamboo. The common Tea is put into baſkets, out of which it is emptied, and packed in boxes or cheſts, as ſoon as it is ſold to the Europeans[a].

It is not known what arts are uſed in China to give a variety of colour and flavour to their Teas, which cannot all be ſatisfactorily accounted for from ſoil, ſituation, and the different ſeaſons at which the leaves are gathered. In Japan the produce is chiefly conſumed within the country; whereas in China, the exportation we know is very conſiderable, and the temptation great to exerciſe the arts of ſophiſtication, in which it is notorious the Chineſe are not deficient.

In the Chineſe drawings abovementioned, there are figures of ſeveral perſons apparently ſeparating the different kinds of Tea, and drying it in the ſun, with ſeveral baſkets ſtanding near them filled with a very white ſubſtance, and in conſiderable quantity. To what uſe this may be applied is uncertain, as well as what the ſubſtance is; yet there is little doubt that it is uſed in the manufacturing of Tea, becauſe the Chineſe do not introduce any thing into their pieces, but what relates in ſome reſpect to the ſubject.

We are better acquainted with a vegetable ſubſtance which is employed in giving a flavour to Tea. This is the Olea fragrans, the flowers of which are frequently to be met with in Teas exported from China. The plant itſelf is now not unfrequent in our ſtoves[b].

The flowers alſo of the Camellia Seſanqua and of the Arabian Jaſmin are ſometimes mixed among the Teas, for the ſame purpoſe of increaſing their fragrance. The Chineſe call the former Cha-whaw or *flower of Tea*. It is cultivated in vaſt abundance in China, not ſo much for this purpoſe, as for its nut, which yields an eſculent oil equal to the beſt which comes from Florence. This plant is particularly valuable from the facility of its culture on the ſides and the very tops of mountains, in ſituations fit for little elſe[c].

It ſeems probable that ſome art is uſed in dyeing Teas, they certainly give a much darker and leſs elegant infuſion than they did formerly; and the quality in general has become inferior ſince the demand has been increaſed. I remember half a century ago, that lumps of Catechu, which is an extract from a ſpecies of Mimoſa, and vulgarly called Terra japonica, were frequently found in the cheſts of Bohea Teas; and that my father, by way of experiment, dried the Green Tea that had been uſed in the family, and before it was dry ſcraped over it ſome of the Terra japonica. It curled up very well, and paſſed with the ſervants for the ſame kind of Tea that they were accuſtomed to drink. Whether lumps of that drug now come over in cheſts of Tea, or whether it is uſed by the Chineſe to colour or flavour their Teas I cannot ſay; but if they do, we have the ſatisfaction to know that it is not noxious.

We are not certain what motive induced the natives of China and Japan firſt to uſe an infuſion of Tea, but it is highly probable that it was in order to correct the water, which is ſaid to be brackiſh and ill-taſted in many parts of thoſe countries[d].

Sir George Staunton ſays, that perſons of rank in China are ſo careful about the quality of the water intended for their own conſumption, that they ſeldom drink any without its being diſtilled; and every Chineſe infuſes Tea or ſome other vegetable ſuppoſed to be ſalubrious in the water which he uſes. Like beer in England, Tea is ſold in public houſes in every town; alſo by the ſide of public roads, and on the banks of rivers and canals, both in China and Japan; nor is it unuſual for the burdened and wearied traveller to lay down his load, refreſh himſelf with a cup of warm Tea, and then purſue his journey[e].

Theſe qualities, of taking off the ill taſte of water, and refreſhing after fatigue, have been experienced in other countries beſides China and Japan. Thus Kalm ſays, if Tea be uſeful, it muſt be ſo in travelling through a deſart country, where wine or other liquors cannot conveniently be carried, and where the water is generally unfit for uſe, as being full of inſects. In ſuch caſes, it is very pleaſant when boiled, and Tea is infuſed in it; nay I cannot ſufficiently deſcribe the fine taſte it has in ſuch circumſtances. It relieves a weary traveller more than can be imagined, as I have experienced with many others who have travelled through the foreſts of America: on ſuch journies Tea is found to be almoſt as neceſſary as victuals.—Forſter, the tranſlator adds, that on his own travels through the deſart plains beyond the river Volga, he has had ſeveral opportunities of making the ſame obſervations on Tea, and that every traveller in the ſame circumſtances will readily allow them to be very juſt[f].—Captain Forreſt, in his voyage to New Guinea, relates ſeveral inſtances, wherein the ſailors experienced the exhilarating effects of this infuſion[g]. Other travellers have borne teſtimony to this pleaſant and ſalutary effect of Tea. And perſons, after violent exerciſe, or coming off a journey much fatigued, and affected with a ſenſe of general uneaſineſs, attended with thirſt and great heat, by drinking a few cups of warm Tea, commonly experience immediate refreſhment. It alſo proves a grateful diluent, and agreeable ſedative, after a full meal, when the ſtomach is oppreſſed, the head pained, and the pulſe beats high[h]. The warm infuſion of any aromatic herb, is likely to be grateful to perſons exhauſted with fatigue, and to ſtomachs labouring with indigeſtion[i].

Neither the Chineſe, nor the natives of Japan, ever uſe Tea, before it has been kept at leaſt a year; becauſe when freſh it is ſaid to prove narcotic, and to diſorder the ſenſes. The Chineſe pour hot water on the Tea, and draw off the infuſion in the ſame manner as is now practiſed in Europe; but they drink it without ſugar or milk. The Japaneſe reduce the Tea to a fine powder, by grinding the leaves in a hand-mill; the cups are filled with hot water, and as much of this powder as might lie on the point of a moderate-ſized knife is put into each cup, and ſtirred about till the liquor foams, and it is ſipped while warm. According to Du Halde, this method is alſo uſed in ſome provinces of China.

The common people, who have a coarſer Tea, boil it for ſome time in water, and uſe the liquor for common drink. Early in the morning, the kettle filled with water, is hung over the fire, and the Tea is either put in incloſed in a bag, or by means of a baſket preſſed to the bottom of the veſſel. The coarſeſt Tea only is uſed in this manner, the qualities of which being more fixed, would probably not be ſo fully extracted by infuſion.

Tea indeed is the common beverage of all the labouring people in China; and they are ſcarcely ever repreſented at work of any kind, but the Tea-pot and Tea-cup appear as their accompaniments: reapers, threſhers, and all who work out of doors, as well as within, have theſe attendants[k].

With reſpect to the qualities of Tea, it appears, that an infuſion of Green Tea has the effect of deſtroying the ſenſibility of the nerves, and the irritability of the muſcles; and that it gives out in diſtillation an odorous water, which is powerfully narcotic.

[a] Letſom, p. 36.
[b] Staunton Embaſſy, 2. 467.
[c] Idem, p. 43.
[d] Letſom, p. 19.
[e] Embaſſy, 2. 69. 96.
[f] Travels in North America, vol. 2. p. 514. engl. ed.
[g] Letſom, p. 20.
[h] Staunton, 2. 460.
[i] Idem, p. 95.
[k] Letſom, p. 48.

That the recent plant contains ſuch an odorous narcotic power, we might preſume from the neceſſity which the Chineſe find of drying it with much heat before it can be brought into uſe; and that even after ſuch preparation, they muſt abſtain from the uſe of it for a year or more, that is, till its volatile parts are ſtill farther diſſipated: and it is ſaid, that unleſs they uſe this precaution, the Tea in a more recent ſtate manifeſtly ſhows ſtrong narcotic powers. Even in this country, the more odorous Teas often ſhow their ſedative powers in weakening the nerves of the ſtomach, and indeed of the whole ſyſtem.

From theſe conſiderations it may fairly be concluded, that Tea is to be conſidered as a narcotic and ſedative ſubſtance; and that it is eſpecially ſuch in its moſt odorous ſtate, and therefore leſs in the Bohea than in the Green Tea, and the moſt ſo in the finer kinds of the latter.

Its effects however ſeem to be very different in different perſons; and hence the contradictory accounts that are given of them. But if we conſider the difference of conſtitution, which occaſions ſome variation in the operating of the ſame medicine, and of which we have a remarkable proof in the operation of Opium, we ſhall not be ſurpriſed at the different operations of Tea.

If to this we add the fallacy ariſing from the condition of the Tea employed, which is often ſo inert as to have little or no effect; and if we ſtill add to this the power of habit, which can deſtroy the efficacy of the moſt powerful ſubſtances, we ſhall not allow the various and even contradictory reports of its effects to alter our judgment, with reſpect to its ordinary and more general qualities in affecting the human body.

Theſe, from experiments and obſervations, are clearly narcotic and ſedative.

It is not at the ſame time to be denied, that Tea may ſometimes have good effects. It is very poſſible, that in certain perſons, taken in moderate quantities, it may, like other narcotics, prove exhilarating, or like them, have ſome effect in taking off irritability, or in quieting ſome irregularities of the nervous ſyſtem.

As its bad effects have been often imputed to the warm water that accompanies the Tea, ſo there is no doubt that ſome of its good effects may alſo be aſcribed to the ſame cauſe, and particularly its being ſo often grateful after a full meal [u].

After all, the infuſion of Tea, as it is commonly taken in England, with a competent quantity of cream or milk and ſugar, cannot be very narcotic or ſedative: eſpecially as after a long voyage it is kept ſome time in the Eaſt India Company's warehouſes; and the finer ſorts of it are not ſo much in requeſt as formerly. Nor can it be an unwholeſome beverage for ſedentary perſons and ſuch as live freely, provided it be not taken too hot, or in immoderate quantities, or without any ſolid food accompanying it. For the lower claſs of people who generally live poorly, and procure little animal food, Tea conveying little or no nouriſhment, is a bad ſuccedaneum for beer; and a meal on it, including ſugar and butter, is ſo expenſive, that they muſt forego what is more neceſſary for their ſupport, in order to enjoy it.

When the Chineſe firſt began to make uſe of Tea as a beverage we are not able to ſay, but it is probable that the ill taſte of the water in many parts of the empire would induce them to look out for ſome vegetable to correct it, ſoon after they arrived at a ſtate of civilization. The firſt account that we have of it is from two Arabian travellers, who viſited China about the year 850, and relate that the inhabitants of that empire had a medicinal beverage, named Chah or Sah, which was prepared by pouring boiling water on the dried leaves of a certain herb, which infuſion was reckoned an efficacious remedy in various diſeaſes [v]. From the great revenue which theſe travellers inform us was levied from the conſumption of Tea, it ſeems then to have been as univerſally the favourite beverage of the Chineſe in the ninth century, as it is at preſent [w].

Giovanni Botaro, an eminent Italian author obſerves, that the Chineſe have an herb, out of which they preſs a delicate juice, which ſerves them for a drink inſtead of wine: it alſo preſerves their health, and frees them from all thoſe evils that the immoderate uſe of wine doth breed in us [x].

About the year 1600, Texeira, a Spaniard, ſaw the dried leaves in Malacca, where he was informed that the Chineſe prepared a drink from this vegetable: and in 1633, Olearius found this practice prevalent among the Perſians, who procured the plant under the name of Cha orchia, from China, by means of the Uſbeck Tartars. In 1639, Stirkaw, the Ruſſian Ambaſſador at the court of the Mogul Chau Altyn, partook of the infuſion of Tea; and at his departure was offered a quantity of it, as a preſent for the Czar Michael Romanoff, which the Ambaſſador refuſed, as being an article for which they had no uſe in Ruſſia [y].

Tea was not known in Europe as a beverage, before the commencement of the ſeventeenth century. Some Dutch adventurers ſeeking, about that time, for ſuch objects as might fetch a price in China, and hearing of the general uſage there of a beverage from a plant of the country, bethought themſelves of trying how far an European plant, of ſuppoſed great virtues, might alſo be reliſhed by the Chineſe, and thereby become a ſaleable commodity amongſt them; and accordingly introduced to them the herb *Sage*, ſo much once extolled by the Salernian ſchool of phyſic, as a powerful preſervative of health: the Dutch accepting in return the Chineſe Tea, which they brought to Europe. The European herb did not continue, long at leaſt, in uſe in China; but the conſumption of Tea has been gradually increaſing in Europe ever ſince [z].

What authority Sir George Staunton had for the particulars of the above account, I do not know, but it is certain that Tea was introduced into Europe by the Dutch Eaſt India Company, very early in the ſeventeeth century. Dr. Lettſom thinks it probable that the Dutch, as they traded conſiderably to Japan about that time, might have brought this article firſt from thence. But China ſoon became the general mart, and the province Fokien or Fo-chen is the principal country, that ſupplies both the Empire and Europe with this commodity. In this province, the ſhrub is called Thee or Te; and the Europeans having firſt landed there, that dialect has been preferved [a].

I have been informed that Sage was much eſteemed in China; and I recollect that Mr. Miller had a preſent of a parcel of Tea from that country, which on being infuſed, had ſo much the flavour of Sage, that he ſent for ſome of the broad-leaved Sage out of the garden, and having made an infuſion of that, he and my father could ſcarcely diſtinguiſh them. It is certain however that the European has not made its fortune in China, as the Chineſe ſhrub has done here.

The firſt introduction of Tea into England was before the year 1660, when the firſt mention of it was made in the ſtatute book, and a duty of four-pence a gallon laid on the liquor made and ſold in all coffee-houſes.

A quantity of it being brought over from Holland about the year 1666 by Lord Arlington and Lord Oſſory, Tea ſoon came into requeſt among people of faſhion, and its uſe, by degrees, ſince that period, has become general [b]. Hanway informs us, that at this time it ſold for ſixty ſhillings a pound [c].

From theſe ſmall beginnings, we have ſeen the infuſion of a leaf from almoſt the fartheſt extremity of the earth become in a manner a neceſſary of life, in ſeveral parts of Europe, and the paſſion for it deſcend from the moſt elevated to the loweſt orders in ſociety. In 1785 it was computed that the whole quantity of Tea imported into Europe was about nineteen mil-

[u] Cullen. mat. med. 2. 303. Woodville, 4. 120. See Lettſom, p. 59. to the end.
[v] Renaudot Anciennes Relations. Par. 1718. p. 31. Haller, Bibl. bot. 1. 176. Lettſ. p. 21.
[w] Robertſon's India, p. 96.
[x] Engl. tranſ. 1530. Anderſon's Commerce. Lettſ. p. 10.
[y] Lettſom, p. 20. [z] Staunton Embaſſy, 1. 21.
[a] Idem. p. 21, 25. [b] Idem, p. 24.
[c] Journal, 2. 21.

tions

lions of pounds, of which it is conjectured that twelve millions were consumed in Great Britain and its dependencies[a].

Sir George Staunton informs us, that the annual public sales of Teas, by our East India Company, did not, in the beginning of the eighteenth century, much exceed fifty thousand pounds weight, independently of what little might be then perhaps clandestinely imported. The Company's annual sales now (about 1797) approach to twenty millions of pounds; being an increase of four hundred fold, in less than one hundred years, and answers to the rate of more than a pound each, in the course of the year, for the individuals of all ranks, sexes and ages, throughout the British dominions in Europe and America[b].

Since the year 1797, it is probable, that the importation of Tea has much increased, and that at least thirty millions of pounds are annually imported into Europe and America[c].

Taking an average of seven years before the Commutation Act, which took effect in September 1784, the importation of Teas was 17,662,115 lb; and taking an average of the same number of years from 1784 inclusive, it amounted to 30,691,971 lb.

Curiosity and interest would induce the Europeans to discover the real Tea shrub, and the jealous caution of the Chinese would make them use every endeavour to conceal it. Simon Paulli a celebrated physician and botanist at Copenhagen, was the first who pretended to have discovered the genuine Tea plant, in the Myrica Gale, an inhabitant of England, Brabant, and other northern countries of Europe, and known to us by the names of Sweet Gale, Goule or Gaule, Sweet Willow, Wild or Dutch Myrtle. Father Labat thought that he had discovered it in Martinico. He pretended also to have procured Tea seeds from the East Indies, and to have raised the plant in America; but from his own account it appears to be a species of Lysimachia, or what is called West-India Tea.

Many other pretended discoveries of the Chinese Tea-tree have been related; all which have proved erroneous, when properly enquired into. Camellia Sasanqua has the nearest resemblance to it[d]. Linneus says it is so great, that it might deceive a skilful botanist; the only difference being, that those of the Camellia are a little broader. Thunberg says, that the leaves of the true Tea-tree are thicker and recurved; that the flowers are axiliary and two together, the petals smaller and not keeled under the tip. But these two plants cannot be confounded when they are in flower. It is reported that the leaves of the Camellia are mixed with Tea, to give it a fine flavour. This beautiful plant has been repeatedly sent to Europe instead of the true Tea. Linneus endeavoured for many years to procure the Tea-tree for the botanic garden at Upsal; but by a variety of accidents, they were all destroyed on the passage. At length, about the year 1755, Mr. Lagerstroem, a director of the Swedish East India Company, brought him two plants alive, which he had bought in China; but they proved to be the Camellia, the crafty Chinese having taken care to pull off the flowers. In 1769 Linneus received a branch from France, which was brought from China for the true Tea, but that proved also to be the Camellia[e]; which is now not uncommon in our English greenhouses. Before the true Tea-tree was introduced, this or some other shrub was generally shewn for it; and sometimes plants that bore no resemblance to it were endeavoured to be obtruded upon the curious but ignorant enquirer.

PROPAGATION AND CULTURE.

In Japan the Tea-tree is cultivated round the borders of rice and corn-fields, without any regard to the soil. Seeds contained in the seed-vessels, from six to twelve or fifteen, are put into one hole, four or five inches deep. The seeds contain a large proportion of oil, which is liable soon to turn rancid; hence scarcely a fifth part of them germinate, and this makes it necessary to plant so many together. The seeds vegetate without any farther care: but the more industrious annually remove the weeds, and manure the land.

The leaves are not fit to be plucked before the third year's growth. In seven years the tree is usually cut down, and abundance of fresh shoots spring up. Some defer cutting it till it is of ten years growth[f].

In China, wherever it is regularly cultivated, it rises from the seed sown in rows, at the distance of about four feet from each other, in land kept free from weeds. It is seldom sown on flat or marshy ground, which is reserved for rice, but vast tracts of hilly land are planted with it, particularly in the province of Fo-chen. Its perpendicular growth is impeded for the convenience of collecting the leaves. Its long and tender branches spring up almost from the root, without any intervening naked trunk.

The Tea-tree is cultivated in several of the provinces of China, but seldom more northerly than thirty degrees beyond the equator. It thrives best between that parallel and the line that separates the temperate from the torrid zone; though it is to be found also in the province of Yunnan, to the southward of it[g].

The southern countries of Europe, and some provinces of North America would suit it, particularly the latter, the heat there in summer being such, that vegetables make quicker and more early shoots, and therefore acquire more strength and firmness before the winter commences.

To propagate the Tea-tree in Europe it is necessary to procure seeds from China. Care must be taken that they be fresh, sound, ripe, white, plump and moist internally. After being well dried in the sun, they may be inclosed in bees-wax: or, left in their capsules, they may be put into very close canisters of tin or tutenague. Thouin, in his directions to Perouse, recommends these and other seeds to be placed in alternate layers of earth or sand, in tin boxes, closed up exactly, and placed in solid cases, covered with waxed cloth; the boxes to be placed in a part of the ship the least accessible to moisture, and the most sheltered from extreme heat or cold. Mr. Sneyd was very successful in having seeds packed up in absorbent paper, and surrounded by raisins or moist sugar, which kept them in a state fit for vegetation. American seeds are frequently brought over, by putting them into a box, not made too close, upon alternate layers of moss, in such a manner as to admit the seeds to vegetate. This might be tried with the seeds of the Tea-tree: and to succeed more certainly, some of the seeds might be sown in pots or boxes, when the vessel arrives at St. Helena, and after passing the tropic of Cancer, near the latitude of thirty degrees north.

But the best method seems to be, to sow ripe seeds in good light earth in boxes, at leaving Canton; covering them with wire, to prevent rats and other vermin from coming to them; and taking care that the boxes be not exposed to too much air, nor to the spray of the sea. A little fresh or rain water should be sprinkled over them now and then; and when the seedling plants appear, they should be kept moist, and out of the burning sun. If young plants can be procured in China, they may be sent over in a growing state in boxes, forty inches long, by twenty broad, and as much in depth, having a few holes bored through the bottom.

When the trees arrive in England, they must be kept in a green-house during the winter, and in the open air during the summer. If they come in bad condition, it may not be amiss to plunge the pots into which they are transplanted, in a gentle hot-bed, or to set them in the tan-pit, to make them strike and shoot more freely.

Though the Tea-tree will not at present bear the rigour of our winters, in the open air, yet it is not impossible but it may gradually become naturalized to

[a] Robertson's India, p. 252. [b] Embassy, 1. 22.
[c] Lettsom, p. 101. [d] Idem, p. 40. [e] Ellis, p. 28.
[f] Kæmpfer. Lettsom, p. 26.
[g] Staunton, Embassy, 2. 464. 466.

our climate, like the Magnolia, among ſeveral other trees and ſhrubs; eſpecially if it were to be brought from the coldeſt provinces of China where it grows, or from the parts of Europe a little to the ſouthward of us, when it ſhall have been naturalized there[4].

The Tea-tree may be increaſed freely from cuttings, in the ſame manner with Gardenia: and it will alſo probably grow from layers.

THEKA. See *Theca.*]

THELYGONUM. (*From* θηλυ γονυ, *genu femineum. —It is a name from Pliny.*)

Lin. gen. n. 1068. *Reich. n.* 1166. *Schreb. n.* 1444. *Juſſ.* 405. Cynocrambe *Tournef. t.* 485. *Gærtn. t.* 75.

Claſſ. 21. 7. Monoecia Polyandria.

Nat. order of *Scabridæ. Urticæ* Juſſ.

GENERIC CHARACTER.

* *Male flower.*

CAL. *Perianth* one-leafed, turbinate, ſemibifid, *ſegments* revolute.

COR. none.

STAM. *Filaments* very many (twelve or more), erect, length of the corolla. *Anthers* ſimple.

* *Female flower* on the ſame plant.

CAL. *Perianth* one-leafed, very ſmall, erect, bifid, permanent at the ſide of the germ.

COR. none.

PIST. *Germ* globular. *Style* filiform, long. *Stigma* ſimple.

PER. *Capſule* coriaceous, globular, one-celled.

SEED one, globular, with a callous appendicle.

ESSENTIAL CHARACTER.

MALE. *Cal.* bifid. *Cor.* none. *Stam.* commonly twelve.

FEM. *Cal.* bifid. *Cor.* none. *Piſt.* one. *Capſ.* coriaceous, one-celled, one-ſeeded.

SPECIES.

1. Thelygonum Cynocrambe. *Purſlain-leaved Thelygonum*, or *Dog's Cabbage.*

Lin. ſpec. 1411. *Juſſ.* 857. *Reich.* 4. 157. *Sauv. monſp.* 129. *Gouan monſp.* 489. *Fabric. helmſt.* 367. *Allion. pedem. n.* 2091. *Desfont. atlant.* 2. 346. *Kniph. cent.* 4. *n.* 89.

Cynocrambe proſtrata. *Gærtn. fruct.* 1. 362.

C. Dioſcoridis. *Bauh. pin.* 122. *prodr.* 59. *ic. Park. theat.* 295. *n.* 3. *t.* 396. *f.* 3.

C. Alſines folio. *Barr. ic.* 335.

Alſines facie planta nova. *Col. phyt.* 2. 28. *t.* 30.

Alſine fœtida, Fabio Columnæ Dioſcoridæa. *Bauh. hiſt.* 3. 365. *Raii hiſt.* 206.

DESCRIPTION, *&c.*

It is an annual plant, which decays as ſoon as the ſeeds are ripe. The ſtalks trail on the ground like thoſe of Chickweed; they grow about a foot long, their joints are pretty cloſe, and have ovate acute-pointed leaves, on pretty long bordered foot-ſtalks. One of theſe leaves is placed at each joint, and from the ſame point come out ſeveral ſmaller leaves of the ſame ſhape, on ſhorter foot-ſtalks. Flowers axillary in cluſters ſitting very cloſe, ſmall, and of an herbaceous white colour, male and female from the ſame joint.

[Stems round, diffuſed, flexuoſe, ſucculent. Branches oppoſite, divaricate, from the axils of the oppoſite leaves. Leaves ovate, bluntiſh, even, nerved, ſlightly marked with lines, oleraceous, rugged at the edge; the lower ones oppoſite, the upper alternate, ending in the petioles, which are the length of the leaves, and connected on each ſide by a three-toothed, membranaceous, wide, ſhort ſtipule. Male flowers two together, oppoſite to a leaf, on very ſhort one-flowered pedunculeſ: anthers from thirteen to nineteen, linear. Female flowers ſolitary, ſeſſile, axillary[5].

Gærtner conſiders the pericarp as a ſmall ſuperior nut, of an ovate-globular form, coriaceous, of a blackiſh-brown colour, lengthened out at the baſe into a ſhort hollow proceſs; one-celled, valveleſs. Seed one, globular, pale, faſtened to the bottom of the nut by a ſmall umbilical tubercle at its baſe.

Native of the South of France, near Montpelier, Italy in the iſland of Capræa, county of Nice, &c. and Sicily. Said by Linnæus to be common in the Eaſt Indies. Found by Desfontaines in the kingdom of Tunis, on mount Zowan. Mr. Miller adds Tartary. It was cultivated by him in 1759[1].]

PROPAGATION AND CULTURE.

Sow the ſeeds in autumn, where the plants are to remain, for when ſown in the ſpring, the plants rarely come up the ſame year. They require no culture but to be kept clean from weeds, and to be thinned where they are too cloſe.

THELYPTERIS. See *Polypodium.*

THEOBRÖMA. (Θεων βρωμα, *the food of the gods.*)

Lin. gen. n. 900. *Reich. n.* 972. *Schreb. n.* 1215. *ſuppl.* 341. *Sonnerat nov. guin. t.* 61, 62. *Houtt. veg.* 3. *t.* 14. *Juſſ.* 276. Cacao *Tournef. t.* 444. *Aubl. t.* 275.

Claſſ. 18. 1. Polyadelphia Decandria.

Nat. order of *Columniferæ. Malvaceæ* Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* five-leaved: *leaflets* lanceolate, acute, ſpreading, deciduous.

COR. *Petals* five, ſmaller than the calyx: *claws* wide, arched, concave like a helmet, emarginate at the tip, ſcored internally with a thick triple line, inſerted into the nectary at the baſe: *borders* roundiſh, acuminate, ſpreading, each narrowed at the baſe into a ſmall claw which is from upright recurved, and faſtened into the claw.

Nectary a ſhort little pitcher, putting forth five little horns, which are awl-ſhaped, long, erect, acuminate, bent in and converging, decurrent along the pitcher.

STAM. *Filaments* five, filiform, erect, bent outwards at top, lying within the claws of the petals, growing externally to the nectary, alternate with and ſhorter than the horns. *Anthers* on each filament two, (one on each ſide at the tip,) vertical, one cell ſuperior, the other inferior.

PIST. *Germ* ovate. *Style* filiform, (ſtriated, *Aubl.*) a little longer than the ſtamens. *Stigma* five-cleft.

PER. *Capſule* oblong, coriaceous, unequal, five-cornered, five-celled, valveleſs, not opening.

SEEDS very many, ſubovate, neſtling in a buttery pulp, faſtened to a central columnar *Receptacle.*

ESSENTIAL CHARACTER.

Cal. five-leaved. *Petals* five, arched. *Nect.* five-horned. *Filam.* five, within the calyx of the petals, growing externally to the nectary, having two anthers on each.

SPECIES.

1. Theobroma Cacao. *Chocolate Nut Tree.*

Lin. ſpec. 1100. *Juſſ.* 696. *Reich.* 3. 582. *hort. cliff.* 397. *mat. med.* 176. *Jacq. obſ.* 1. *p.* 2. *amer. pict.* 104. *Browne. jam.* 306. 2. 3.

Cacao. *Cluſ. exot.* 55. *Sloan. jam.* 2. 15. *t.* 160. *Merian ſurin.* 26. *t.* 26 & 63. *Geoffr. mat.* 409. *Cateſb. car.* 3. *t.* 6. *Ger. emac.* 1551. *Park. theat.* 1642. *Raii hiſt.* 1670. *Blackw. t.* 373. *Mill. dict.*

C. americæ ſ. Avellana mexicana. *Bauh. hiſt.*

Arbor cacavifera americana. *Pluk. phyt. t.* 268. *f.* 3.

Amygdalis ſimilis guatimalenſis. *Bauh. pin.* 442.

DESCRIPTION, *&c.*

[The Cacao or Chocolate-nut tree grows in a very handſome form, to the height of twelve or ſixteen feet: the trunk is upright and about as high as a man before the head ſpreads out: the wood is light and of a white colour, and the bark is browniſh and even. Leaves lanceolate-oblong, bright green, quite entire, alternate, from nine to ſixteen inches long, and three or four inches wide at moſt, on a petiole an inch in length and thickened at both ends. Pedunculeſ ſlender, about eight or ten together, chiefly from the ſcars of the fallen leaves; one of them only for the moſt part fruitful, the reſt abortive. Flowers ſmall, reddiſh, inodorous. Fruits ſmooth, yellow, red, or of both colours, about three inches in diameter: rind fleſhy, near half an inch in thickneſs, fleſh-coloured within: pulp whitiſh, the conſiſtence of butter, ſeparating from the rind in a ſtate of ripeneſs, and adhering to it

[4] Lettſom, p. 54 to 58.

[5] Linn. ſpec.

[1] Hort. kew.

only by filaments, which penetrate it and reach to the ſeeds. Hence it is known when the ſeeds are ripe, by the rattling of the capſule when it is ſhaken. The pulp has a ſweet and not unpleaſant taſte, with a ſlight acidity; it is ſucked and eaten raw by the natives: it may be eaſily ſeparated into as many parts as there are ſeeds, to which it adheres ſtrongly, and they are wrapped up in it, ſo that each ſeed ſeems to have its own proper pulp. The ſeeds are about twenty-five in number: when freſh they are of a fleſh-colour: gathered before they are ripe, they preſerve them in ſugar, and thus they are very grateful to the palate: they quickly loſe their power of vegetation, if taken out of the capſule, but kept in it, they preſerve that power for a long time. The tree bears leaves, flowers and fruit all the year through; but the uſual ſeaſons for gathering the fruit are june and december. In two years from the ſeed it is above three feet high, and ſpreads its branches, not more than five of which are ſuffered to remain: before its third year is complete it ſhows for fruit. A tree yields from two to three pounds of ſeeds annually.

It is thus deſcribed by Dampier. The Cacao tree has a body about a foot and half thick, and ſeven or eight feet high to the branches, which are large and ſpreading, with a pretty thick, ſmooth, dark-green leaf, ſhaped like that of a Plum-tree, but larger. The nuts are incloſed in cods as big as both a man's fiſts put together: at the broad end is a ſmall, tough, limber ſtalk, by which they hang pendulous from the body of the tree, in all parts of it from top to bottom, ſcattered at irregular diſtances, and from the great branches a little way up; eſpecially at the joints or partings, where they hang thickeſt; but never on the ſmaller boughs. There may be ordinarily twenty or thirty of theſe cods upon a well-bearing tree; and they have two crops of them in a year, one in december, but the beſt in june. The ſhell is almoſt half an inch thick, brittle, yet harder than the rind of a lemon; like that, its ſurface is grained or knobbed, but more coarſe and unequal. The cods at firſt are of a dark green, but the ſide next the ſun of a muddy red. As they grow ripe, the green turns to a fine bright yellow, and the muddy to a more lively red. They do not ripen all at once, but for three weeks or a month in the ſeaſon, the overſeers of the plantations go every day to cut thoſe which are turned yellow. They lay them in heaps to ſweat, and then burſting the ſhell with their hands, they pull out the nuts, of which there are generally near a hundred in a cod; drying them in the ſun upon mats.

According to Browne, the Cacao or Chocolate tree ſeldom exceeds ſix or ſeven inches in diameter, or riſes above fifteen or ſixteen feet in height. It is very beautiful, and in general extremely engaging to the ſight, when charged with fruit, which grows from all parts of the trunk and larger branches indiſcriminately. When the ſeeds are looſe and rattle in the pods, they are picked off, opened, and the kernels picked out and expoſed daily to the ſun, until they are thoroughly cured, and fit for the ſtore or market.

Theſe ſeeds are remarkably nouriſhing, and agreeable to moſt people; which occaſions them to be commonly kept in moſt houſes in America, as a neceſſary part of the proviſions of the family: they are generally ground or pounded very fine, and made into paſte: they are much charged with oil, but mix well with milk or water. Chocolate is much eſteemed in all the ſouthern colonies of America; and well known to make the principal part of the nouriſhment of moſt old people in thoſe parts, as well as of a great number of Jews.—It was in uſe among the native Indians, before the arrival of the Spaniards.]

Native of South America, and found in great plenty in ſeveral places between the tropics, but particularly at Caracca and Carthagena, on the river Amazons, the iſthmus of Darien, at Honduras, Guatimala and Nicaragua.

[Dampier ſays that the Cacao tree grows no where in the north ſeas but in the bay of Campeachy, on Coſta Rica, between Portabel and Nicaragua, chiefly up Carpenter's river, and on this coaſt as high as the iſland of Trinidada. In the South Seas it grows by the river of Guiaquil, and in the valley of Collima, on the ſouth ſide of Mexico. The nuts of the coaſt of Caracoos, though leſs than thoſe of Coſta Rica, which are large and flat, are better and fatter. —In many places the nuts went for current money before the arrival of the Spaniards[c]; and ſince that, tribute has been paid them in ſome provinces, in Chocolate nuts.]

This tree is cultivated in many of the Weſt India iſlands, belonging to the French and Spaniards, and formerly in ſome of thoſe belonging to the Engliſh; but it has been ſo neglected in the latter for many years paſt, that we are now ſupplied with Chocolate from the French and Spaniards. [The reaſon probably has been, the difficulty of raiſing the young trees, and their unfitneſs to reſiſt the force of thoſe hurricanes, to which the Weſt India iſlands are ſubject.

Blome, who publiſhed a ſhort account of Jamaica in 1672, ſpeaks of Cacao as being at that time one of the chief articles of exportation: "there are, ſays he, in the iſland at this time, about ſixty Cacao walks, and many more now planting."

At preſent (ſays Edwards, 2. 306.) I believe there is not a ſingle Cacao plantation from one end of Jamaica to the other. A few ſcattered trees here and there are all that remain of thoſe flouriſhing and beautiful groves which were once the pride and boaſt of the country.

There is reaſon to apprehend that our ſugar iſlands can never again enter into competition with the Spaniſh Americans in the cultivation of Cacao. At preſent the only plantations of any account, in our colonies, are in Grenada and Dominica, and the export from them cannot be eſtimated at more than four thouſand bags of a hundred weight each[h].

Browne ſays that Chocolate trees are often found wild in the woods of Jamaica, where doubtleſs they had been cultivated in the time of the Spaniards. The trees are very delicate, and rarely ſurvive, when once they are looſened in the ground, which is generally the caſe, when they are not well ſheltered, in hurricane times. The Spaniards, to prevent this, uſed to intermix many of the Erythrina or Coral Bean trees, hence called Mader di Cacao, in their walks. Many however thrive well, without any ſhelter of this kind, but probably they were protected while young, and they have been generally planted in a good deep mould, and a warm ſheltered ſituation.

Jacquin informs us, that ſince the great hurricane in 1725, which deſtroyed the Cacao trees in Martinico and the neighbouring iſlands, they have been ſo little cultivated as ſcarcely to ſupply the home conſumption. He thinks that the culture of Coffee, which is more certain, has contributed much to this neglect. A young plant of that ſhrub was firſt introduced into Martinico by De Clieux, a captain in the French infantry, in the year 1720, from the royal garden at Paris; and it increaſed ſo much, that in 1756, when Jacquin was there, one hundred and eighty hundred thouſand pounds were exported to Europe from that iſland alone.

The Chocolate-nut tree was cultivated by Mr. Miller in 1739[i].

There are two principal varieties of the fruit; one long, of an oval-oblong form, obtuſely attenuated at the end, ten-grooved, and having the ſurface irregular with little bumps, or ſomewhat warted, as it is figured by Cateſby; this is called in Martinico *Cacao du pays*: the other ovate, not at all warted, ſcarcely grooved, as thick as the other but ſhorter; this is called *Cacao de Cayenne*, being ſuppoſed to come from that country. The latter was introduced into Martinico after the hurricane[k]. Both are frequent wild in Jamaica[l].]

PROPAGATION AND CULTURE.

As the Chocolate-nut tree may be cultivated to advantage in the Weſt India iſlands, where Sugar-

[c] Jacquin.

[h] Edwards's hiſt. of the Weſt Indies. 2. 306. ed. 2.
[i] Hort. kew. [k] Jacquin. [l] Browne.

canes do not thrive, I ſhall therefore ſubjoin the beſt account of the culture which it requires in thoſe countries, with the profits which have ariſen from it to thoſe who have planted ſome of theſe trees of late years, by way of experiment, in order to excite others to follow their example; and ſhall afterwards give directions for cultivating it in England, by way of curioſity.

In making a plantation of Chocolate-trees, you muſt firſt be very careful in the choice of the ſituation, and the ſoil, otherwiſe there will be ſmall hopes of ſucceſs. As to the ſituation, it ſhould be in a place where the trees may be protected from ſtrong winds, to which if they are expoſed, they will ſoon be deſtroyed: ſo that in ſuch places where torrents of water have waſhed away the earth ſo as to leave broad and deep furrows (which the inhabitants of thoſe iſlands call gullies,) theſe trees will thrive exceedingly: and as theſe are very frequently to be found in thoſe iſlands, and many of them are of large extent, and not much cultivated, it may be a great improvement to ſome eſtates, which, at preſent, are of ſmall value. The ſoil in theſe gullies is generally rich and moiſt, which is what theſe trees require; ſo that they will make great progreſs in theſe places, as hath been experienced by thoſe perſons, who have lately made trials of the plants in theſe ſituations; but where there are not a ſufficient number of theſe gullies, choice ſhould be made of a ſituation which is well ſheltered by large trees; or, if there are not trees already grown, there ſhould be three or four rows planted round the ſpot which is deſigned for the Chocolate-trees, of ſuch ſorts which are of quickeſt growth; and within theſe rows there ſhould be ſome Plantain-trees, planted at proper diſtances, which being very quick of growth, and the leaves very large, will afford a kindly ſhelter to the young Chocolate-trees placed between them.

The Chocolate-trees which are cultivated, ſeldom grow to more than fourteen or fifteen feet in height, nor do they ſpread their branches very wide; ſo that if the Plantain-trees are placed in rows, about twenty-four feet aſunder, there will be room enough for two rows of Chocolate-trees between each row of Plantains; and if they are placed at ten feet diſtance in the rows, it will be ſufficient room for them. Thoſe trees which are found wild in uncultivated places, are generally of much larger growth, which may be occaſioned by the other trees, amongſt which theſe are found growing; for, being protected from the winds by thoſe, they are not ſo much in danger therefrom, as thoſe which are cultivated: and the other trees cloſely ſurrounding them, will naturally draw them up to a greater height: however, that is not a deſirable quality in theſe trees; for the lower they are, the better the fruit may be gathered without hurting the trees, and the leſs they are expoſed to the injuries of the weather; ſo that the inhabitants never deſire to have their trees above twelve or fourteen feet high.

The ſoil upon which theſe trees thrive to moſt advantage, is a moiſt, rich, deep earth; for they generally ſend forth one tap root, which runs very deep into the ground, ſo that wherever they meet with a rocky bottom near the ſurface, they ſeldom thrive, nor are they of long continuance; but in a rich, deep, moiſt ſoil, they will produce fruit in pretty good plenty the third year from ſeed, and will continue fruitful for ſeveral years after.

Before the plantation is begun, the ground ſhould be well prepared by digging it deep, and clearing it from the roots of the trees, and noxious plants, which, if ſuffered to remain in the ground, will ſhoot up again after the firſt rain, and greatly obſtruct the growth of the plants; ſo that it will be almoſt impoſſible to clear the ground from thoſe roots, after the Chocolate plants are come up, without greatly injuring them.

When the ground is thus prepared, the rows ſhould be marked out by a line, where the nuts are to be planted, ſo as that they may be placed in a quincunx order, at equal diſtance every way, or at leaſt that

the Plantain-trees between them may form a quincunx, with the two rows of Chocolate-trees, which are placed between each row of them.

In making a plantation of Chocolate-nut-trees, the nuts muſt be planted where the trees are to remain; for if the plants are tranſplanted, they ſeldom live; and thoſe which ſurvive it, will never make thriving trees; for, as I before obſerved, theſe trees have a tender tap root, which, if broke, or any way injured, the tree commonly decays.

The nuts ſhould always be planted in a rainy ſeaſon, or at leaſt when it is cloudy weather, and ſome hopes of rain falling ſoon after. As the fruit ripens at two different ſeaſons, viz. at Midſummer and at Chriſtmas, the plantation may be made at either of thoſe; but the chief care muſt be to chooſe ſuch nuts as are perfectly ripe and ſound, otherwiſe the whole trouble and expence will be loſt. The manner of planting the nuts is, to make three holes in the ground, within two or three inches of each other, at the place where every tree is to ſtand; and into each of theſe holes ſhould be one ſound nut planted about two inches deep, covering them gently with earth. The reaſon for putting in three nuts at every place is, becauſe they ſeldom all ſucceed; or, if moſt of them grow, the plants will not be all equally vigorous; ſo that when the plants have had one year's growth, it is very eaſy to draw up all the weak unpromiſing plants, and leave the moſt vigorous; but in doing this, great care ſhould be had of the remaining plants, ſo as not to injure or diſturb their roots in drawing the others out.

It is very proper to obſerve, that the Chocolate-nuts will not retain their growing faculty long after they are taken from the trees, ſo that there is no poſſibility of tranſporting them to any great diſtance for planting; nor ſhould they be kept long out of the ground, in the natural places of their growth. There are ſome authors, who have written the hiſtory of this tree, and diſtinguiſh three different ſorts of the nuts, from the colour of their ſkins, one of which is of a whitiſh green colour, one of a deep red, and the third of a red and yellow colour; but theſe are not ſpecifically different, but all ariſe from ſeeds of the ſame tree, as is the caſe of our Filberts, which differ in the colour of their ſkins, but are of the ſame colour within, and have the ſame taſte. There are others, who would diſtinguiſh theſe nuts by their ſize and form, ſome being large and thick, others almoſt as flat as Beans; but theſe differences, I have been credibly informed, ariſe from ſome accident, as thoſe trees which are young and vigorous, and grow upon a deep rich ſoil will always produce larger and better nouriſhed fruit, than thoſe which ſtand on a ſhallow dry ground, and are unthriving trees: as will alſo the age of a tree make a great alteration in the ſize of the fruit; for old trees are generally obſerved to produce ſmaller and flatter nuts than thoſe which are young, or than the ſame trees did bear while they were vigorous.

When the Chocolate-trees firſt appear above ground, they are very tender, and ſubject to great injuries from the ſtrong winds, the ſcorching ſun, or great droughts, for which reaſon the planters are obliged to guard againſt all theſe enemies, firſt, by making choice of a ſheltered ſituation, or at leaſt by planting trees to form a ſhelter; and, if poſſible, to have the plantation near a river, for the conveniency of watering the plants the firſt ſeaſon, until they have made ſtrong roots, and are capable of drawing their nouriſhment from ſome depth in the earth, where they meet with moiſture. But in order to ſhelter the plants from the ſcorching rays of the ſun, they generally plant two rows of Caſſada between each row of Chocolate-trees, which will grow about ſeven or eight feet high, and ſcreen the young plants from the violence of the ſun the firſt ſeaſon; after which time, they will be in leſs danger of injury therefrom; and the following ſeaſon, when the Caſſada is taken up for uſe, the ground ſhould be worked between the young plants, being very careful not to injure their roots by this operation. This method of plant-

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ing the Caſſada between the young Chocolate-trees, is of great advantage to the planter; for when the roots of the Caſſada are taken up for uſe, it will defray the expence of keeping the ground clean from weeds, without which the young plants will come to nothing. The Plantains alſo, which will be fit to cut in about twelve months after planting, will defray the whole expence of preparing the ground, ſo that the produce of the Chocolate-trees will be neat profit; for as the Plantains produce fruit and decay, they will be ſucceeded by ſuckers, which will produce fruit in eight months after; whereby there will be a continual ſupply of food for the negroes, which will more than pay for keeping the ground wrought, and clear from weeds, until the Chocolate-trees begin to produce fruit, which is generally the third year after planting.

The planters uſually ſet the Plantain-trees two or three months before the Chocolate-nuts are ripe, that they may be large enough to afford ſhelter to the young plants when they come up; and the Caſſada is always planted a month or ſix weeks before the Chocolate-nuts, for the ſame reaſon. Some people plant Potatoes, others Cucumbers and Melons, or Water Melons, between the rows of Chocolate plants, which, they ſay, will prevent the weeds from riſing to injure the young plants: for as all theſe trail on the ground, they occupy the whole ſurface, and prevent the weeds from growing: but where this is practiſed, it ſhould be done with great caution, leſt, by being over-covetous, you injure the young Chocolate-nuts ſo much, that they may never recover it; therefore great care ſhould be taken to reduce the ſhoots of theſe plants, whenever they approach the Chocolate-trees; otherwiſe they will ſoon greatly injure, if not totally deſtroy them.

In about ſeven or eight days after the Chocolate-nuts are planted, the young plants will begin to appear above ground; when they ſhould be carefully looked over, to ſee if any of them are attacked by inſects; in which caſe, if the inſects are not timely deſtroyed, they will ſoon devour all the young plants; or if there ſhould be any weeds produced near the plants, they ſhould be carefully cut down with a hoe; in doing which, great care ſhould be taken that neither the tender ſhoot, nor the rind of the bark are injured.

About twenty days after the plants have appeared, they will be five or ſix inches high, and have four or ſix leaves, according to the ſtrength of the plants. Theſe leaves are always produced by pairs, oppoſite to each other, as are alſo the branches; ſo that they make very regular handſome heads, if they are not injured by winds. In ten or twelve months they will be two feet and a half high, and have fourteen or ſixteen leaves. By this time the Caſſada, which was planted between the rows of Chocolate plants, will have large roots fit for uſe, therefore ſhould be taken up; and the ground being then wrought over again, will greatly encourage the young plants.

In two years time the plants will have grown to the height of three feet and a half, or ſometimes four feet, many of which will begin to flower; but the careful planters always pull off all theſe bloſſoms; for if they are permitted to remain to produce fruit, they will ſo much weaken the trees, that they ſeldom recover their ſtrength again, ſo as to become vigorous. When theſe plants are two years and a half old, they will produce flowers again, ſome of which are often left to bear fruit; but the moſt curious planters pull off all theſe, and never leave any to produce fruit until the third year; and then but a few, in proportion to the ſtrength of the trees; by which method, their trees always produce larger and better nouriſhed fruit, than thoſe which are ſuffered to bear a larger quantity, and will continue much longer in vigour. The fourth year they ſuffer their trees to bear a moderate crop, but they generally pull off ſome flowers from thoſe trees which are weak, that they may recover ſtrength before they are too old.

From the time when the flowers fall off, to the maturity of the fruit, is about four months. It is eaſy to know when the fruit is ripe by the colour of the pods, which become yellow on the ſide next the ſun. In gathering the fruit, they generally place a negro to each row of trees; who, being furniſhed with a baſket, goes from tree to tree, and cuts off all thoſe which are ripe, leaving the others for a longer time to ripen. When the baſket is full, he carries the fruit, and lays it in a heap at one end of the plantation; where, after they have gathered the whole plantation, they cut the pods lengthways, and take out all the nuts, being careful to diveſt them of the pulp which cloſely adheres to them; and then they carry them to the houſe, where they lay them in large caſks, or other veſſels of wood, raiſed above ground, and cover them with leaves of the Indian Reed and mats, upon which they lay ſome boards, putting ſome ſtones thereon to keep them down cloſe, in order to preſs the nuts. In theſe veſſels the nuts are kept four or five days; during which time, they muſt be ſtirred and turned every morning; otherwiſe they will be in danger of periſhing from the great fermentation they are uſually in. In this time they change from being white to a dark red or brown colour. Without this fermentation, they ſay the nuts will not keep; but will ſprout, if they are in a damp place, or ſhrivel and dry too much, if they are expoſed to heat.

After the nuts have been thus fermented, they ſhould be taken out of the veſſels and ſpread on coarſe cloths, where they may be expoſed to the ſun and wind; but at night, or in rainy weather, they muſt be taken under ſhelter, otherwiſe the damp will ſpoil them. If the weather proves fair, three days time will be long enough to dry them, provided they are carefully turned from time to time, that they may dry equally on every ſide. When they are perfectly dry they may be put up in boxes or ſacks, and preſerved in a dry place until they are ſhipped off, or otherwiſe diſpoſed of. The freſher theſe nuts are, the more oil is contained in them; ſo that the older they are, the leſs they are eſteemed.

Theſe trees do not produce their fruit on the young branches, or at their extremities, as moſt other trees do; but from the trunk, and the larger branches, come out the buds for flowers and fruit. While the trees are young, they do not produce their fruit in great plenty; for before the trees are eight years old, they reckon it a good crop to have twenty-eight or thirty pods on each tree at one gathering, eſpecially that at Midſummer; which is always a much worſe crop than the Chriſtmas ſeaſon, which is occaſioned by the much greater drought of the ſpring; for the autumns being the rainy ſeaſons, the Chocolate-trees produce a much greater quantity of fruit. When the trees are full grown and vigorous, they will ſometimes produce two hundred, or two hundred and forty pods at one ſeaſon: which will make ten or twelve pounds of Chocolate, when dried; ſo that it is a very profitable commodity, and can be managed with very little charge, when compared with ſugar. I have been credibly informed by a perſon of great worth and integrity, who reſided ſome years in America, that he has ſeen as much Chocolate gathered from one tree in a year, as hath been worth thirty ſhillings ſterling on the ſpot: ſo that the trouble of gathering and preparing for the market, being much leſs than for many other commodities which are manufactured in the Britiſh colonies, it is ſurpriſing it ſhould be neglected, eſpecially as it yields ſo large a ſhare of ſuſtenance to the wealthier inhabitants of thoſe colonies, that they cannot live comfortably without it, and purchaſe it from the French and Spaniards at a conſiderable price; which in time muſt greatly impoveriſh the colonies.

The Chocolate-trees, if planted on a good ſoil, and properly taken care of, will continue vigorous and fruitful twenty-five or thirty years: therefore the charge of cultivating a plantation of theſe trees, muſt be much leſs than that of Sugar; for although the ground between the rows of plants will require to be often hoed and wrought, yet the firſt working of a ground to make a new plantation of Sugar, Indigo, Caſſada, &c. is a larger expence than the after-workings

ings are. Beſides, Sugar-canes require as much labour in their cultivation, as any plant whatever; and ſince the inſects which deſtroy the Sugar-canes, have ſpread ſo much in the Britiſh colonies, nothing is a more uncertain crop than Sugar; for which reaſon, I think it would be greatly worth thoſe planters care, who are poſſeſſed of proper lands for the Chocolate trees, to make ſome ſmall trials at leaſt, to be convinced of the truth of this fact.

The leaves of theſe trees being large, make a great litter upon the ground when they fall; but this is not injurious, but rather of ſervice to the trees; for the ſurface of the ground being covered with them they preſerve the moiſture in the ground, and prevent its evaporating; which is of great uſe to the young tender roots, which are juſt under the ſurface; and when the leaves are rotten, they may be buried in digging the ground, and it will ſerve as good manure. Some planters let the pods, in which the Chocolate is incloſed, lie and rot in a heap (after they have taken the nuts out) which they alſo ſpread on the ground inſtead of dung. Either of theſe manures are very good, provided they are well rotted before they are laid on the ground; and great care ſhould be had, that no vermin ſhould be carried on the plantation with the dung.

Beſides the ordinary care of digging, hoeing, and manuring the plantations of Chocolate-trees, there is alſo another thing requiſite in order to their doing well; which is, to prune the decayed branches off, and to take away ſmall ill placed branches, wherever they are produced. But you ſhould be cautious how this work is performed; for there ſhould be no vigorous branches ſhortened, nor any large amputations made on theſe trees; becauſe they abound with a ſoft, glutinous, milky juice, which will flow out for many days whenever they are wounded, which greatly weakens the trees. However, ſuch branches whoſe extreme parts are decayed, ſhould be cut off, to prevent the infection from proceeding farther; and ſuch branches as are much decayed, ſhould be taken off cloſe to the ſtem of the tree; but this ſhould be performed in dry weather, ſoon after the crop of fruit is gathered.

Some people may perhaps imagine, that what I have directed, is a tedious laborious work, and not to be performed by a few ſlaves: but this is a great miſtake, for I have been credibly informed, that five or ſix negroes will cultivate a plantation of ten thouſand of theſe trees, provided they are properly inſtructed; which is a ſmall number, when compared to the quantity neceſſary to cultivate a Sugar plantation of the like extent of ground. And when the profits of both are compared, there will be a great difference: for, ſuppoſing we ſet the price of five ſhillings per annum, for the produce of each tree, when grown, (which I am of opinion is very moderate, conſidering what has been related;) then a plantation of ten thouſand trees will produce twenty-five hundred pounds a year; which, managed by ſix or ſeven negroes, without the expence of furnaces, &c. is a much greater profit than, I think, can be drawn from any other production.

In order to cultivate this plant in Europe, by way of curioſity, it will be neceſſary to have the nuts planted into boxes of earth (in the countries where they grow) ſoon after they are ripe; becauſe if the nuts are ſent over, they will loſe their growing quality before they arrive. Theſe boxes ſhould be placed in a ſhady ſituation, and muſt be frequently watered, in order to forward the vegetation of the nuts. In about a fortnight after the nuts are planted, the plants will begin to appear above ground; when they ſhould be carefully watered in dry weather, and protected from the violent heat of the ſun, which is very injurious to theſe plants, eſpecially while they are young: they ſhould alſo be kept very clear from weeds; which, if ſuffered to grow in the boxes, will ſoon overbear the plants and deſtroy them. When the plants are grown ſtrong enough to tranſport, they ſhould be ſhipped and placed where they may be ſcreened from ſtrong winds, ſalt water, and the violent heat of the ſun. During their paſſage they muſt be frequently refreſhed with water; but it muſt not be given them in great quantities, leſt it rot the tender fibres of their roots, which will deſtroy the plants; and when they come into a cool latitude, they muſt be carefully protected ſom the cold, when they will not require ſo frequently to be watered: for in a moderate degree of heat, if they have gentle waterings once a week, it will be ſufficient.

When the plants arrive in England, they ſhould be carefully taken out of the boxes, and each tranſplanted into a ſeparate pot filled with light rich earth, and plunged into a moderate hot-bed of tanners bark, being careful to cover the glaſſes in the heat of the day, to ſcreen the plants from the ſun: they muſt alſo be frequently watered, but it muſt be done with caution, not to rot their roots. In this hot-bed the plants may remain till Michaelmas, when they muſt be removed into the bark-ſtove, and plunged into the tan, in the warmeſt part of the ſtove. During the winter ſeaſon the plants muſt be frequently refreſhed with water, but it muſt be given to them in ſmall quantities, yet in ſummer they will require a more plentiful ſhare. Theſe plants are too tender to live in the open air in this country, even in the hotteſt ſeaſon of the year; therefore muſt conſtantly remain in the bark-ſtove, obſerving in very warm weather to let in a large ſhare of freſh air to them, and in winter to keep them very warm. As the plants increaſe in bulk, they ſhould be ſhifted into larger pots: in doing of which, there muſt be particular care taken not to tear or bruiſe their roots, which often kills the plants; nor muſt they be placed in pots too large, becauſe that is a ſlow, but ſure death to them. The leaves of theſe plants muſt be frequently waſhed to clear them from filth, which they are ſubject to contract by remaining conſtantly in the houſe; and this becomes an harbour for ſmall inſects, which will infeſt the plants, and deſtroy them, if they are not timely waſhed off. If theſe rules are duly obſerved, the plants will thrive very well, and may produce flowers in this climate: but it will be very difficult to obtain fruit from them; for, being of a very tender nature, they are ſubject to many accidents in a cold country.

[When the trees are obtained, they may be increaſed by cuttings, in the ſame manner as the Gardenia.

According to Dampier, (in South America) they raiſe the young trees of nuts, ſet in fine black mould, and in the ſame places where they are to bear, which they do in four or five years. There are ordinarily from five hundred to two thouſand and upwards of theſe trees in a plantation or Cacao-walk; and they ſhelter the young trees with Plantains for two or three years, deſtroying them, when the Cacao-trees are large enough to endure the heat.

Browne ſays, that it requires a great deal of care, to raiſe the Chocolate-tree with ſucceſs. It is generally planted and cultivated in the following manner. Take a full-grown pod, that has lain by ſome days, and cut off the top at the pointed extremity, ſo that the ſeeds may be fully expoſed to view; then bury it two thirds or deeper in mould, in ſome moiſt ſhady place. In a few days the ſeeds begin to germinate: then take them out, and ſet them in beds, where the mould is rich, well divided and free, moiſt and properly ſhaded; diſpoſing them at ſuch diſtances as will leave room for the roots and branches to ſpread in. On each bed ſet one or two ſeeds, with the root-part downwards, ſcarcely covering them at the top: moiſten the mould gently about them, and cover the bed with ſome large leaves, to protect the young plants from the ſun; they ſhould be alſo guarded by ſome little ambient bulwark againſt heavy rain, or blowing weather. They ſeldom require to be watered after the firſt day, but if this ſhould become neceſſary, it is beſt done, by laying a piece of wet cloth, or ſome watered weeds, gently round the plant: taking great care not to break off the ſeed-leaves, for the loſs of them would wholly prevent its further growth.

The Plantain-walks afford the moſt natural and agreeable ſhade for theſe plants, while young; but as

they riſe, they ſhould be ſupplied with a more ſubſtantial guard, to protect them from the inclemencies of the weather: theſe ought to be continued until the Chocolate-trees grow to full perfection, and even then muſt be removed with caution.

THEOBROMA GUAZUMA. See *Bubroma.*

THEODORA. See *Schotia.*

THEOPHRASTA. (*So named in honour of the celebrated Grecian Philoſopher and Botaniſt* Theophraſtus Ereſius.)

Lin. gen. n. 207. *Reich. n.* 221. *Schreb. n.* 271. *Juſſ.* 150. Ereſia. *Plum.* 25.

Claſſ. 5. 1. Pentandria Monogynia.

Nat. order of *Apocineæ* Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* one-leafed, five-parted, permanent: *ſegments* oblong, ciliate at the edge.

COR. one-petalled, permanent: *tube* length of the calyx, bell-ſhaped: *ſegments* oblong, erect, ſpreading.

STAM. *Filaments* five, below the middle of the tube, inſerted into a membrane which ſurrounds the bottom internally, ſhorter than the corolla. *Anthers* acuminate.

PIST. *Germ* roundiſh. *Style* length of the ſtamens, thick. *Stigma* blunt, perforated.

PER. *Fruit* large, roundiſh, corticoſe, one-celled, many-ſeeded.

SEEDS oblong, ſhining, faſtened to a fleſhy juicy receptacle which is ſituated at the baſe.

ESSENTIAL CHARACTER.

Cor. bell-ſhaped, with oblong erect ſpreading ſegments. *Fruit* one-celled, very large, roundiſh, many-ſeeded.

SPECIES.

1. Theophraſta americana.

Lin. ſpec. 212. *Reich.* 1. 424. *Willd.* 1. 824. *Swartz obſ.* 59.

Ereſia foliis Aquifolii longiſſimis. *Plum. gen.* 8. *ic.* 126.

Leaves repand-toothed ſharpiſh.

2. Theophraſta longifolia.

Lin. ſpec. ed. Willd. 1. 824. *Jacqu. collect.* 4. 136.

Leaves mucronate-toothed acuminate.

DESCRIPTIONS, *&c.*

1. Stem fruteſcent, one or two feet high, ſimple, erect, leafy from the middle to the top (like a frondoſe trunk, as in the Palms), tomentoſe-ferruginous, ſpiny. Leaves on very ſhort petioles, oppoſite, or inſerted into the ſtem in whorls; erect, elongated, attenuated at the baſe, blunt at the end, very rigid, ſerrate, the ſerratures ſpiny, alternately inflected and reflected. Spines ſtanding out ſmall but rigid, black at the outmoſt tip. Petioles preſſed cloſe to the ſtem, thick, ruſous. Racemes ſhort, terminating, from the middle of the terminating leaves, many-flowered: pedunckes numerous, curved, ſhort, one-flowered. Seeds black, hard, faſtened at the baſe but free above. The fruit is not properly a berry, nor is it a capſule, for it does not open; but it is corticoſe, and the greater part of it is often empty; when ripe it is yellow, and brittle, with the receptacle of the baſe juicy.—Native of South America; in dry coppices of Hiſpaniola [a].

2. This is very like the preceding, but yet it is diſtinct, in having the leaves attenuated at both ends, with the teeth acute and mucronate. In T. americana the teeth are ſhort, and the ſpace between them is excavated.—Native of America, at the Caraccas [b].

THESIUM (*of Pliny. Derivation unknown.*)

Lin. gen. n. 292. *Reich. n.* 315. *Schreb. n.* 410. *Gærtn. t.* 86. *Juſſ.* 75.

Claſſ. 5. 1. Pentandria Monogynia.

Nat. order of *Vepreculæ. Elæagni* Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* one-leafed, turbinate, permanent, half-five-cleft: *ſegments* half-lanceolate, erect, obtuſe.

COR. none; unleſs the calyx internally coloured may be regarded as ſuch.

STAM. *Filaments* five, awl-ſhaped, inſerted into the baſe of the calycine ſegments, ſhorter than the calyx. *Anthers* roundiſh.

PIST. *Germ* inferior, growing upon the baſe of the calyx. *Style* filiform, length of the ſtamens. *Stigma* thickiſh, obtuſe.

PER. none. The calyx contains the ſeed in its bottom, and does not open.

SEED one, roundiſh, covered.

OBS. T. alpinum *takes one fifth from the fructification.*

ESSENTIAL CHARACTER.

Cal. one-leafed, into which the ſtamens are inſerted. *Nut* inferior, one-ſeeded.

SPECIES.

1. Theſium linophyllum. *Flax-leaved Theſium* or *Baſtard Toad-flax.*

Lin. ſpec. 301. *Reich.* 1. 585. *Willd.* 1. 1211. *hort. cliff.* 41. *Hudſ. angl.* 101. *Wither. arr. ed.* 3. 268. *Smith brit.* 269. *engl. bot. t.* 247. *Relh. cant. ed.* 2. *n.* 217. *ed.* 1. *t.* 1. *Sibth. oxon. n.* 1171. *app. Dickſ. hort. ſicc.* 11. 5. *Pollich pal. n.* 239. *Scop. carn. n.* 172. *Moench. hoſſ. n.* 204. *Krock. ſileſ. n.* 363. *Villars dauph.* 2. 559. *Allion. pedem. n.* 1895. *Gmel. ſib.* 3. 38. *Desfont. atlant.* 1. 205. *Knigh. cent.* 9. *n.* 90.

α. Theſium pratenſe.

Schrad. ſpicil. ſ. germ. 1. 26. *Hoffm. germ.* 82.

T. floribus ſparſis. *Sauv. monſp.* 48.

Linaria montana, floſculis albicantibus. *Bauh. pin.* 213.

L. adulterina. *Tabern. ic.* 826. *Ger.* 442. 7. *emac.* 555. *Raii hiſt.* 399. *ſyn.* 202. *Pet. brit. t.* 9. *f.* 5.

Pſeudo-Linaria montana alba. *Park. theat.* 459. 6.

Linariæ ſimilis. *Bauh. hiſt.* 3. 461. 3.

Alchimilla Linariæ folio, calycæ florum albo. *Tournef. inſt.* 509.

Seſamoides procumbens montanum, Linariæ folio, floribus albicantibus. *Mor. hiſt.* 3. 601. *ſ.* 15. *t.* 1. *f.* 3.

Anonymos Lini folio. *Cluſ. hiſt.* 1. 324. *f.* 1.

β. Theſium intermedium.

Schrad. ſpicil. 1. 27.

γ. Theſium montanum.

Schrad. ſpicil. 1. 27. *Ehrh. herb. n.* 2. *Hoffm. germ.* 82.

T. bavarum. *Schrank. bavar. n.* 420.

T. *Hall. helv. n.* 1573.

Spike branched, bractes in threes, leaves linear-lanceolate, calyx-tube very ſhort.

2. Theſium alpinum. *Alpine Theſium.*

Lin. ſpec. 301. *ſyſt.* 249. *Reich.* 1. 585. *Willd.* 1. 1212. *Gærtn. fruct.* 2. 40. *Jacqu. auſtr.* 5. *t.* 416. *vind.* 213. *Hoffm. germ.* 82. *Roth. germ.* 1. 110. 2. 282. *Pollich pal. n.* 240. *Scop. amn.* 2. 44. *carn. n.* 173. *Krock. ſileſ. n.* 364. *Ger. prov.* 422. *t.* 17. *f.* 1. *Villars dauph.* 2. 559. *Allion. pedem. n.* 1896. *Hall. helv. n.* 1574. *Schrad. ſpicil.* 1. 25. *Desfont. atlant.* 1. 206.

Linophyllum collinum lignoſum minus, flore albicante. *Ponted. anthol.* 261. *Seguier veron.* 3. 90.

Alchimilla alpina, linariæ foliis, calyce florum albo in foliorum alis. *Tilli piſan.* 6.

A. linariæ folio, floribus & vaſculis in foliorum alis ſeſſilibus. *Shaw afr.* 14.

Raceme leafed, leaves linear.

3. Theſium humile. *Dwarf Theſium.*

Lin. ſpec. ed. Willd. 1. 1212. *Vahl ſymb.* 3. 43.

Alchemilla linariæ folio, floribus & vaſculis in foliorum alis ſeſſilibus. *Shaw afr.* 14.

Leaves linear ſomewhat fleſhy, flowers axillary ſeſſile five-cleft.

4. Theſium lineatum.

Lin. ſyſt. 250. *Willd.* 1. 1212. *ſuppl.* 162. *Thunb. prodr.* 45.

Leaves linear, ſtem round angular leafleſs below, branches erect divaricating, flowers axillary peduncled.

5. Theſium ſquarroſum.

Lin. ſyſt. 250. *Willd.* 1. 1213. *ſuppl.* 162. *Thunb. prodr.* 46.

[a] Swartz. [b] Willdenow.

Leaves linear ſubulate recurved and reflexed, ſtem round, flowers axillary ſeſſile.

6. Theſium Friſea.
Lin. ſyſt. 249. *Reich.* 1. 586. *Willd.* 1. 1213. *mant.* 213. *Thunb. prodr.* 46.
Flowers ſubſpiked directed one way ciliate-woolly, leaves awl-ſhaped.

7. Theſium funale. *Flexible Theſium.*
Lin. ſpec. 302. *Reich.* 1. 586. *Willd.* 1. 1213. *Thunb. prodr.* 45. *Retz. obſ.* 5. 3.
Flowers in ſpikes, calyxes ciliate, ſtem ſuffruticoſe, leaves awl-ſhaped very ſhort.

8. Theſium ſpicatum. *Spike-flowered Theſium.*
Lin. ſyſt. 249. *Reich.* 1. 586. *Willd.* 1. 1214. *mant.* 214.
Flowers in ſpikes even, leaves awl-ſhaped very ſhort and very remote.

9. Theſium capitatum. *Head-flowered Theſium.*
Lin. ſpec. 302. *Reich.* 1. 587. *Willd.* 1. 1214. *Thunb. prodr.* 46. *Rey. lugdb.* 214.
Flowers in heads ſeſſile terminating, leaves three-ſided even, bractes ovate.

10. Theſium ſtrictum. *Straight Theſium.*
Lin. ſyſt. 249. *Reich.* 1. 587. *Willd.* 1. 1214. *mant.* 214. *Berg. cap.* 73. *Thunb. prodr.* 45.
Flowers in umbels, leaves linear decurrent.

11. Theſium umbellatum. *Umbelled Theſium.*
Lin. ſpec. 302. *Reich.* 1. 587. *Willd.* 1. 1214. Centaurium luteum aſcyroides virginianum. *Plak. mant.* 43. *t.* 342. *f.* 1.
Flowers in umbels, leaves oblong.

12. Theſium fragile. *Brittle Theſium.*
Lin. ſyſt. 250. *Willd.* 1. 1215. *ſuppl.* 162. *Thunb. prodr.* 45.
Leaves ovate-three-ſided keeled decurrent, ſtem angular, flowers axillary ſeſſile.

13. Theſium ſcabrum. *Rugged Theſium.*
Lin. ſpec. 302. *Reich.* 1. 587. *Willd.* 1. 1215. *Berg. cap.* 72. *n.* 1. *Thunb. prodr.* 45.
Heads of flowers peduncled, leaves three-ſided very rugged along the edge and keel.

14. Theſium paniculatum. *Panicled Theſium.*
Lin. ſyſt. 250. *Reich.* 1. 588. *Willd.* 1. 1215. *mant.* 51. *Thunb. prodr.* 45.
Wholly panicled: leaves lanceolate remote, branches angular diffuſed, flowers terminating.

15. Theſium amplexicaule. *Heart-leaved Theſium.*
Lin. ſyſt. 250. *Reich.* 1. 588. *Willd.* 1. 1216. *mant.* 213.
Flowers ſubſpiked directed one way ciliate-woolly.

16. Theſium triflorum. *Three-flowered Theſium.*
Lin. ſyſt. 250. *Willd.* 1. 1216. *ſuppl.* 162. *Thunb. prodr.* 46.
Leaves lanceolate, ſtem angular, peduncles axillary trichotomous compound.

17. Theſium euphorbioides. *Euphorbium-like Theſium.*
Lin. ſyſt. 250. *Reich.* 1. 588. *Willd.* 1. 1216. *mant.* 214. *Berg. cap.* 74. *Thunb. prodr.* 46. *Pluk. amalth.* 173. (Planta africana, &c.)
Peduncles three-flowered terminating, leaves ſubovate fleſhy.

18. Theſium Colpoon. *Tree Theſium.*
Lin. ſyſt. 250. *Willd.* 1. 1216. *ſuppl.* 161. *Thunb. prodr.* 46.
Fuſanus compreſſus. *Lin. ſyſt. ed.* 13. 765.
Colpoon compreſſum. *Berg. cap.* 38. *t.* 1. *f.* 1.
Leaves oppoſite petioled obovate flat quite entire, corymb terminating leafleſs.

19. Theſium ſpinoſum. *Thorny-leaved Theſium.*
Lin. ſyſt. 250. *Willd.* 1. 1217. *ſuppl.* 161. *Thunb. prodr.* 45.
Leaves awl-ſhaped mucronate, flowers axillary ſolitary.

DESCRIPTIONS, &c.

1. Root woody, branched, crooked, whitiſh, perennial. Herb rigid, and ſmooth, except that the edges of the leaves, bractes, and angles of the ſtem appear rough under the microſcope. Stems aſcending, angular, five or ſix inches high, little branched; clothed with numerous alternate linear leaves, all pointing one way, ſomewhat glaucous and ſucculent, entire. Flowers in ſpikes (moſtly branched, and ſometimes ſo compound as to form a panicle), ſolitary, on alternate erect pedicels; with three lanceolate acute bractes cloſe to each flower, in the lower part of the ſpike one being much larger than the other two. Tube of the calyx very ſhort and open, the margin acutely five-cleft, toothletted, white. Stamens very ſhort, oppoſite to the ſegments of the calyx. Style erect, equal to the ſtamens. Stigma emarginate. Seed oval, five-angled, ſtriated, bony, inveſted with the hardened baſe of the calyx. The herb is ſcarcely bitter, but a little ſaltiſh.

This without doubt is T. linophyllum, but when cultivated, as Linneus had it, the whole herb becomes luxuriant, the ſpike panicled and leafy, according to his definition. T. alpinum differs from this in having a long tubular calyx; otherwiſe they are much alike. The intermediate variety mentioned in Withering, ſeems to be the proper wild appearance of this plant [e].

Dr. Withering remarks that in a ſpecimen of T. alpinum from Switzerland, the leaves are not only broader than in our linophyllum, but ſtanding more upright they cloath and nearly hide the ſtem, which is never the caſe with our plant.

Having ſometimes four ſtamens, Scopoli refers this plant to the claſs Tetrandria, but it has much more frequently five ſtamens than four, and the calyx five-cleft than four-cleft.

Wilkdenow gives three varieties from Schrader and other German writers, which are owing to a difference of ſoil and ſituation. The panicle, he remarks, in this ſpecies, is formed of ſimple bracted racemes placed in the axils of the upper leaves.

Native of Europe, Siberia and Barbary: chiefly in a calcareous ſoil. It has been long obſerved in ſeveral parts of Cambridgeſhire; more lately in Suffolk and Norfolk; in Oxfordſhire by Dr. Sibthorp; in Dorſetſhire by Dr. Pulteney; in the Iſle of Wight by Dr. Stokes; and by the ferry leading to Portland iſland by Mr. Stackhouſe. It flowers in july.

2. Root perennial, fibrous, of a dirty white colour. Stems many, decumbent in a ring, ſometimes but ſeldom a little upright, half a foot long, round, ſmooth, commonly ſimple. Leaves linear, flat, acute, ſcattered, ſmooth, ſeſſile, numerous. The upper half of the ſtem becomes a looſe raceme, compoſed of ſhort ſcattered peduncles, naked at the baſe not axillary, having two or three leaflets above, and in theſe a ſingle ſubſeſſile flower, glaucous green on the outſide, and white within. The pedicel is elongated in the fruit [d].

The fruit is deſcribed by Gærtner as an inferior nut, formed from the indurated belly of the calyx, cruſtaceous, ſpherical, ſtriated with ſomewhat branched longitudinal nerves, one-celled, valveleſs. Seed globular, pale, faſtened by the baſe.

According to Haller, the flower is moſt frequently four-cleft, and ſometimes only three-cleft. Scopoli obſerved the flowers in Auſtria to be four-cleft, but in other ſpecimens to be three-cleft and five-cleft. Jacquin, in examining numerous plants, did not find any with five ſtamens; but obſerved the calyx to be moſt commonly cut into four ſegments, very ſeldom into three, with the number of ſtamens correſponding with the ſegments. The calyx is three or four-cleft, according to Pollich.

Scopoli diſtinguiſhes this ſpecies by the following marks: the buds proceed from the old ſtems; the leaves are more ſpreading, quite linear, nerveleſs, more rigid and fewer; the ſtems are half a foot long; the panicle equals half the length of the whole ſtem, and points one way; the fruits are oval, ſtriated, and furniſhed with a ſort of neck by the contraction of the calycine ſegments.

Native of the mountains of Italy, Germany, Auſtria, Switzerland, the South of France, Mount Atlas and Siberia.

It varies, according to Wilkdenow, with an erect and decumbent ſtem. The raceme is formed of one-flowered bracted axillary peduncles on the upper part of the ſtem.

[e] Smith. brit. & engl. bot. [d] Jacqu. vind.

3. Root

3. Root annual. Stem herbaceous, erect, ſcarcely a hand in height, branching immediately from the baſe. Branches ſmooth, ſomewhat ſubdivided, angular, height of the ſtem. Leaves thick, an inch and half long, frequent, acute. Tube of the calyx ſcarcely any, not elongated as in T. alpinum. Capſules globular, wrinkled, the ſize of a Coriander ſeed. —Native of the kingdom of Tunis [a].

4. Native of the Cape of Good Hope, where it was found by Thunberg.

5. This is very ſquarroſe with the recurved leaves. Found at the Cape by Thunberg [b].

6. Stems ſimple, a hand high, hardiſh. Leaves alternate, narrower at the baſe, ſpreading. Raceme or ſpike terminating. Flowers alternate, ſeſſile, approximating: with two lateral bractes to each. Calyx five-cleft: ſegments lanceolate, concave, ciliate at the top and along the edge, with inflexed fibrils, covering the diſk of the calyx, like wool. Stamens from the ſinuſes of the calyx, inſerted into the cavity of it. Fruit ovate, much wrinkled, the ſize of a Coriander ſeed, villoſe at the tip within with the permanent calyx. Found at the Cape by Koenig [c].

7. This is a little ſhrub, having the appearance of Reſtis capenſis, and almoſt naked. Branches numerous, cluſtered, wand-like, ſimple, round, filiform. Leaves alternate, remote, very ſmall. Spikes terminating, two or three, alternate.—Native of the Cape [d].

8. Stem erect, ſtiff, ſomewhat angular, proliferous, three feet high, the thickneſs of a quill. Leaves even, very ſmall and remote. Spikes oblong, the thickneſs of the little finger. Flowers diſtinct, with three acuminate bractes membranaceous at the edge. —It is very diſtinct from T. fumale; the ſtem not being flexible like a cord; the ſpikes not very narrow; the bractes between the flowers not ſlender like a needle.—On mountains near the Cape [e].

9. Stems ſhrubby hard. Branches alternate, remote, the upper ones gradually longer. Leaves alternate, ſmall, awl-ſhaped, mucronate. Heads of flowers terminating, with a branch growing out below. Segments of the flowers very ſharp-pointed, and internally villoſe their whole length.—Native of the Cape [e].

10. Stem ſhrubby, branched, angular as in Broom. Leaves alternate, remote, ſhorter than the interſtices, glued at the baſe and decurrent. Umbels peduncled compound, with an involucre and involucrets. Calyx even within.—Native of the Cape [f].

11. Root perennial. Leaves alternate, oval-lanceolate, quite entire. Branches alternate, at the top of the ſtem. Umbellets racemed, terminating, with a ſmall four-leaved involucret. Florets five or three. —Native of Virginia and Penſylvania, in dry paſtures [g]. Introduced in 1782, by John Hope, M. D. It flowers here in June [g].

12. Habit of Salſola. Leaves ſo ſhort, that at firſt ſight it ſeems to have none. It is a very brittle plant. Found at the Cape of Good Hope by Thunberg [a].

13. This very much reſembles T. capitatum, but the heads are on a long naked peduncle. Flowers bluntiſh, villoſe on the inſide only at the tips. Leaves roughened with a triple angle having cartilaginous teeth. Native of the Cape [a].

14. Stem ſomewhat woody, a foot high, the whole panicled as in Galium. Leaves minute, linear, alternate; the upper ones awl-ſhaped. Flowers minute, peduncled. Calyx inferior, three, four or five-cleft, but removed by a ſpace, whence it is not a proper one. True calyx ſuperior, as in its congeners. Fruit like that of the Coriander. Many of the flowers are abortive.—Native of the Cape.

15. Stem ſomewhat woody, erect, ſlightly angular, four feet high, even. Leaves alternate, ſeſſile, embracing, cordate, quite entire, ſharpiſh, even, thickiſh, an inch long. Racemes terminating. Flowers minute mixed with larger ovate bractes.—Native of high mountains near the Cape [a]. Introduced in 1787, by Mr. Francis Maſſon [a].

16. Peduncles three-flowered, ſometimes bifid or trifid, much divaricated. Found at the Cape by Thunberg [a].

17. Branches dichotomous at top. Leaves alternate, rounded-ovate, even. Flowers pedicelled. It has the appearance of an Euphorbium.—Native of the Cape [a].

18. This is a tree with compreſſed ancipital branchlets. Leaves on ſhort petioles, blunt with a point, ſmooth. Racemes from the axils of the branches, erect, compreſſed, ſcarcely longer than the leaves. Number of parts in the flower four or five. There does not ſeem to be any neceſſity to ſeparate this from the Theſiums.—Native of the Cape.

19. This is ſingular in having the leaves ſpreading, channelled, terminating in a ſpine. Found at the Cape by Thunberg [a].

THEVETIA. See *Cerbera*.

THIRMNE. See *Cytinus*.

THISTLE. See *Carduus* and *Serratula*.

——— Bleſſed. See *Centaurea*.

——— Carline. See *Atractylis*, *Carlina*, *Carthamus*.

——— Diſtaff. See *Atractylis* and *Carthamus*.

——— Fiſh. See *Carduus* and *Carlina*.

——— Fuller's. See *Dipſacus*.

——— Globe. See *Echinops*.

——— Golden. See *Scolymus*.

——— Melon. See *Cactus*.

——— Milk or our Lady's. See *Carduus*.

——— St. Barnabas's. See *Centaurea*.

——— Sow. See *Sonchus*.

——— Star. See *Centaurea*.

——— Torch. See *Cactus*.

——— Woolly. See *Onopordium*.

——— Yellow. See *Argemone*.]

THLASPI (*of Pliny.* Θλασπι *of Dioſcorides, Perhaps from* Θλαω, *comprimo. The ſeed veſſel being compreſſed or flatted.*)

Lin. gen. n. 802. *Reich. n.* 866. *Schreb. n.* 1078. *Tournef. t.* 101. F.—I. *Dill. gen.* 6. *Juſſ.* 241. *Gærtn. t.* 141. Burſa Paſtoris. *Tournef. t.* 103.

Claſſ. 15. 1. Tetradynamia Siliculoſa.

Nat. order of *Siliquoſæ* or *Cruciformes*. *Cruciferæ* Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* four-leaved: *leaflets* ovate, concave, from erect patulous, deciduous.

COR. four-petalled, cruciform: *petals* obovate, twice as long as the calyx; with narrow claws.

STAM. *Filaments* ſix, ſhorter by half than the corolla, of theſe two oppoſite ones are ſtill ſhorter. *Anthers* acuminate.

PIST. *Germ* roundiſh, compreſſed, emarginate. *Style* ſimple, length of the ſtamens. *Stigma* obtuſe.

PER. *Silicle* compreſſed, obcordate, emarginate, with the ſtyle the length of the notch, two-celled: *partition* lanceolate: *valves* boat-ſhaped, margined and keeled.

SEEDS ſeveral, nodding, faſtened to the ſutures.

OBS. Burſa Paſtoris of Tournefort *has an obcordate ſilicle, without any margin.*

Thlaſpi of Tournefort *has an obcordate ſilicle, with an acute margin.*

ESSENTIAL CHARACTER.

Silicle emarginate, obcordate, many-ſeeded: valves boat-ſhaped margined and keeled.

SPECIES.

1. Thlaſpi peregrinum. *Foreign Boſtard Creſs. Lin. ſpec.* 901. *Reich.* 3. 222. *Willd.* 3. 442. *hort. cliff.* 330. *Scop. carn. n.* 809.
T. capſula cordata, peregrinum. *Baub. hiſt.* 2. 927. *Mor. hiſt.* 2. 297. *ſ.* 3. *t.* 18. *f.* 30.
Silicles ſuborbiculate, leaves lanceolate quite entire.

[2. Thlaſpi arabicum. *Arabian Boſtard Creſs. Lin. ſpec. ed. Willd.* 3. 442. *Vahl ſymb.* 2. 76.
Iberis arabica. *Lin. ſpec.* 906. & *Diſſ. noſtr.*

[a] Vahl. [b] Linn. ſuppl. [c] Linn. mant. [d] Linn. ſpec. [e] Linn. mant. [f] Linn. ſpec. [g] Linn. mant. [h] Linn. ſpec. [i] Hort. kew. [k] Linn. ſuppl. [l] Linn. ſpec.

[a] Linn. mant. [b] Hort. kew. [c] Linn. ſuppl. [d] Linn. mant. [e] Linn. ſuppl.

Subularia purpurea. *Forſk. deſcr.* 117.
Silicles oval ſtyled, lower leaves wedge-ſhaped, upper cordate oblong embracing.]

3. Thlaſpi arvenſe. *Field Baſtard Creſs, Penny Creſs* or *Smooth Mithridate Muſtard.*
Lin. ſpec. 901. *ſyſt.* 587. *Reich.* 3. 222. *Willd.* 3. 442. *fl. lapp. n.* 251. *ſuec. n.* 574. *hort. cliff.* 330. *mat. med.* 159. *Gærtn. fruct.* 2. 280. *Hudſ. angl.* 281. *Wither. arr. ed.* 3. 568. *Smith brit.* 683. *Curt. lond.* 6. *t.* 43. *Lightf. ſcot.* 340. *Relh. cant. ed.* 2. *n.* 533. *Sibth. oxon. n.* 561. *Fl. dan. t.* 793. *Hoffm. germ.* 227. *Roth. germ.* 1. 279. 2. 92. *Pollich pal. n.* 608. *Ludw. elt. t.* 173. *Krock. ſilef. n.* 1025. *Neck. gallob.* 274. *Villars dauph.* 3. 298. *Allion. pedem. n.* 909. *Scop. carn. n.* 810. *Thunb. jap.* 259.
T. arvenſe ſiliquis latis. *Baub. pin.* 105. *Baub. hiſt.* 2. 923. *Mor. hiſt. ſ.* 3. *t.* 17. *f.* 12.
T. majus. *Tabern.* 458.
T. latius. *Dod. pempt.* 712. *Blackw. t.* 68.
T. Dioſcoridis. *Ger.* 204. 1. *emac.* 262. 1. *Raii hiſt.* 831. *ſyn.* 305. *Petiv. brit. t.* 50. *f.* 9.
T. Drabæ foliis. *Park. theat. t.* 836. *f.* 1.
T. ſecundum. *Matth.* 567. *valgr.* 1. 519. *Camer. epit.* 337.
Naſturtium. *Hall. helv. n.* 511.
Silicles orbicular compreſſed even, leaves oblong toothed ſmooth.
4. Thlaſpi alliaceum. *Garlick Baſtard Creſs.*
Lin. ſpec. 901. *Reich.* 3. 223. *Willd.* 3. 443. *Jacqu. ic. rar.* 1. *t.* 121. *miſc.* 2. 330. *Crantz auſtr.* 22. *n.* 3. *Hoffm. germ.* 227. *Roth. germ.* 1. 280. 2. 93. *Allion. pedem. n.* 910. *Krock. ſilef. n.* 1029.
T. allium redolens. *Mor. hiſt.* 2. 297. *ſ.* 3. *t.* 18. *f.* 28. *Tournef. inſt.* 212.
Scorodo-Thlaſpi Ulyſſis Aldrovandi. *Baub. hiſt.* 2. 932. *Raii hiſt.* 834.
Silicles ſubovate ventricoſe, leaves oblong obtuſe toothed ſmooth.
[5. Thlaſpi Pſychine. *Long-ſtyled Baſtard Creſs.*
Lin. ſpec. ed. Willd. 3. 443.
Pſychine ſtyloſa. *Deſfont. atlant.* 2. 69. *t.* 148.
Burſa Paſtoris hirſuta Erucæ folio, ſtylo prominente. *Shaw ofr. n.* 91.
Silicles obovate-deltoid ſtyled, leaves lanceolate cordate toothed embracing pubeſcent.
6. Thlaſpi ſaxatile. *Rock Baſtard Creſs.*
Lin. ſpec. 901. *ſyſt.* 587. *Reich.* 3. 223. *Willd.* 3. 444. *Hoffm. germ.* 227. *Roth. germ.* 1. 280. 2. 93. *Krock. ſilef. n.* 1031. *Crantz auſtr.* 24. *Jacqu. auſtr.* 3. 21. *t.* 236. *Sauv. monſp.* 53. 71. *Gouan monſp.* 316. *Ger. prov.* 348. 2. *Villars dauph.* 3. 299. *Allion. pedem. n.* 916. *Hebenſtr. in act. petrop.* 5. 330. *f.* 6. *Barr. ic.* 845. *Kniph. cent.* 1. *n.* 92.
T. parvum ſaxatile, flore rubente. *Baub. pin.* 107. *Tournef. inſt.* 212. *Park. theat.* 843. *n.* 8. *Raii hiſt.* 833. *Mor. hiſt. ſ.* 3. *t.* 18. *f.* 29.
Lithonthlaſpi parvum, carnoſo rotundo folio. *Col. ecphr.* 1. 279. *t.* 277. *f.* 2.
Naſturtium. *Hall. helv. n.* 512.
Silicles roundiſh, leaves lanceolate-linear obtuſe fleſhy.]
7. Thlaſpi hirtum. *Hairy Baſtard Creſs.*
Lin. ſpec. 901. *Reich.* 3. 223. *Willd.* 3. 444. *Smith brit.* 684. *Gouan illuſtr.* 40. *Crantz auſtr.* 22. *Sauv. monſp.* 120. *Villars dauph.* 2. 299. *Allion. pedem. n.* 911.
T. capſulis hirſutis. *Baub. hiſt.* 2. 922. *Tournef. inſt.* 212.
T. vaccariæ iocano folio perenne. *Raii ſyn.* 305. *ed.* 2. 175.
T. villoſum capſulis hirſutis. *Baub. pin.* 106. *prodr.* 47. *ic.*
Hoary Creſs. *Petiv. brit. t.* 50. *f.* 10.
Silicles elliptic-oblong hairy undotted margined above, ſtem-leaves ſagittate villoſe.
8. Thlaſpi campeſtre. *Wild Baſtard Creſs* or *Common Mithridate Muſtard.*
Lin. ſpec. 902. *Reich.* 3. 224. *Willd.* 3. 444. *hort. cliff.* 330. *fl. ſuec. n.* 575. *Hudſ. angl.* 281. *Wither. arr. ed.* 3. 569. *Smith brit.* 684. *Lightf. ſcot.* 341. *Curt. lond.* 5. *t.* 45. *Sibth. oxon. n.* 562. *Hoffm. germ.* 227. *Roth. germ.* 1. 280. 2. 94. *Crantz auſtr.* 23. *Scop. carn. n.* 807. *Pollich pal. n.* 609. *Krock. ſilef. n.* 1026. *Villars dauph.* 3. 299. *Allion. pedem. n.* 912. *Gouan illuſtr.* 40. *Deſfont. atlant.* 68.
T. vulgatius. *Baub. hiſt.* 2. 921. *Raii hiſt.* 830. *ſyn.* 305. *Tournef. par.* 1. 396. *inſt.* 212.
T. arvenſe, vaccariæ incano folio, majus. *Baub. pin.* 106.—item, minus. *Baub. pin.* 106. *prodr.* 47. *Raii hiſt.* 831.
T. latifolium. *Fuchſ. hiſt.* 306.
T. ſecundum. *Tabern. ic.* 458.
Naſturtium. *Hall. helv. n.* 509.
Common Cow-creſs. *Petiv. brit. t.* 50. *f.* 7.
β. Thlaſpi Vaccariæ folio glabrum. *Raii ſyn.* 305. *ed.* 2. 175. 5.
T. vulgatiſſimum. *Ger. emac.* ex icone.
T. arvenſe Acetoſæ folio. *Baub. pin.* 105. *Blackw. t.* 407.
Smooth Cow-creſs. *Petiv. brit. t.* 50. *f.* 8.
γ. Thlaſpi hirtum. *Hudſ. angl.* 281.
Silicles roundiſh glandular dotted margined above, leaves ſagittate toothed hoary.
[9. Thlaſpi montanum. *Mountain Baſtard Creſs.*
Lin. ſpec. 902. *ſyſt.* 587. *Reich.* 3. 224. *Willd.* 3. 445. *Hoffm. germ.* 227. *Roth. germ.* 1. 280. 2. 94. *Pollich pal. n.* 620. *Lœrs herborn. n.* 506. *Krock. ſilef. n.* 1027. *Crantz auſtr.* 23. *n.* 7. *Jacqu. auſtr.* 3. 22. *t.* 237. *Villars dauph.* 3. 300. *Allion. pedem. n.* 913.
T. montanum, glaſti folio, minus. *Baub. pin.* 106.
T. mont. 2. *Cluſ. hiſt.* 2. 131.
β. Thlaſpi præcox.
Wulff. in Jacqu. collect. 2. 124. *t.* 9.
T. montanum. *Scop. carn. n.* 811. *Sauv. monſp.* 121. *Gouan monſp.* 317.
T. mont. burſæ paſtoris fructu. *Col. ecphr.* 1. 275. *t.* 276.
Lepidium. *Hall. helv. n.* 518.
Silicles obcordate, leaves ſmooth, root-leaves ſomewhat fleſhy obovate quite entire, ſtem-leaves oblong embracing ſubſagittate, corollas larger than the calyx.
10. Thlaſpi alpinum. *Alpine Baſtard Creſs.*
Lin. ſyſt. 587. *Willd.* 3. 446. *Jacqu. auſtr.* 3. *t.* 238.
Silicles obcordate, ſtem-leaves cordate ſmooth quite entire, petals twice as long as the calyx, ſtem ſimple.]
11. Thlaſpi perfoliatum. *Perfoliate Baſtard Creſs* or *Shepherd's Purſe.*
Lin. ſpec. 902. *ſyſt.* 588. *Reich.* 3. 225. *Willd.* 3. 447. *Hudſ. angl. ed.* 1. 246. *Wither. arr. ed.* 3. 569. *Smith brit.* 683. *Sibth. oxon. n.* 563. *Jacqu. auſtr.* 4. 19. *t.* 337. *vind.* 259. *Crantz auſtr.* 22. *Roth. germ.* 1. 280. 2. 95. *Hoffm. germ.* 228. *Pollich pal. n.* 611. *Krock. ſilef. n.* 1028. *Ger. prov.* 349. *Villars dauph.* 3. 302. *Allion. pedem. n.* 914.
T. alpeſtre. *Hudſ. angl. ed.* 2. 282. *Dickſ. hort. ſicc.* 6. 5.
T. arvenſe perfoliatum majus. *Baub. pin.* 106.—& minus. *Mor. hiſt. ſ.* 3. *t.* 17. *f.* 15, 16.
T. arv. perfol. minus. *Baub. pin.* 106. *Raii ſyn. ed.* 2. 176. *ed.* 3. 305. 6.
T. alterum mitius rotundifolium Burſæ Paſtoris fructu. *Col. ecphr.* 278. *t.* 276. *f.* 2.
T. cordatum minus, flore albo, inſipidum. *Barrel. ic. t.* 815.
T. tertium pumilum. *Cluſ. hiſt.* 2. 131.
T. minus Cluſii. *Ger.* 210. *emac.* 268.
T. rotundifolium. *Ger. emac.* 266. *opt.*
Small Thorow Creſs. *Petiv. brit. t.* 50. *f.* 12.
Naſturtium. *Hall. helv. n.* 510.
Silicles obcordate, ſtem-leaves ſagittate-cordate embracing, ſtem branched, ſtyle very ſhort.
12. Thlaſpi alpeſtre. *Dwarf Baſtard Creſs* or *Shepherd's Purſe.*
Lin. ſpec. 903. *ſyſt.* 588. *Reich.* 3. 225. *Willd.* 3. 447. *Wither. arr. ed.* 3. 570. *Smith. brit.* 686. *engl. bot. t.* 81. *Hoffm. germ.* 228. *Roth. germ.*

germ. 1. 280. 2. 96. *Krock. filef. n.* 1030. *Gouan. monſp.* 470. *illuſtr.* 49. *Villars dauph.* 3. 301. *Allion. pedem. n.* 915.

T. montanum. *Hudſ. angl.* 282. *With.* 570. *Curt. cat. in fl. lond.* 1. *n.* 85. *Mill. dict. n.* 8.

T. foliis Globulariæ. *Bauh. hiſt.* 2. 926. *Raii hiſt.* 832. *ſyn. ed.* 2. 175. *ed.* 3. 305.

T. montanum ſecundum. *Cluſ. hiſt.* 2. 131.

T. albi ſupini varietas. *Ger. emac.* 268. *f.* 2.

T. præcox. *Jacqu. collect.* 2. 124. *t.* 9? *v.* 9. β.

Lepidium. *Hall. helv. n.* 519.

Silicles obovate retuſe many-ſeeded, ſtem-leaves ſagittate, ſtems ſimple, ſtyle ſtretched out.

13. Thlaſpi Burſa Paſtoris. *Common Shepherd's Purſe* or *Pouch.*

Lin. ſpec. 903. *ſuſt.* 588. *Reich.* 3. 226. *Willd.* 3. 447. *fl. lapp. n.* 252. *ſuec. n.* 576. *hort. cliff.* 330. *mat. med.* 159. *Hudſ. angl.* 283. *Wither. arr. ed.* 3. 571. *Smith brit.* 687. *Curt. lond.* 1. *t* 50. *Lightf. ſcot.* 342. *Relh. cant. ed.* 2. *n.* 534. *Sibth. oxon. n.* 564. *Fl. dan. t.* 729. *Hoffm. germ.* 228. *Ludw. eſſ. t.* 186. *Pollich pal. n.* 612. *Krock. ſilef. n.* 1032. *Scop. carn. n.* 808. *Villars dauph.* 3. 303. *Allion. pedem. n.* 918. *Deſcont. atlant.* 2. 68. *Thunb. jap.* 259. *Leur. cochinch.* 395. *ed. Willd.* 480. *Gærtn. fruct.* 2. 281. *Berg. phyt.* 2. 45.

Naſturtium Burſa paſtoris. *Roth. germ.* 1. 281. 2. 96. *Hall. helv. n.* 514.

Iberis Burſa paſtoris. *Crantz auſtr.* 20.

Burſa paſtoris. *Fuchſ. hiſt.* 611. *Matth.* 569. 1. 521. *Trag.* 215. *Lob. obſ.* 110. 1. *ic.* 1. 221. 1. *Dod. pempt.* 103. 1. *Camer. epit.* 340. *Ger.* 214. 1. *emac.* 276. 1. *Park. theat.* 866. 1. *Bauh. hiſt.* 2. 936. *Raii hiſt.* 838. *ſyn.* 306. *Petiv. brit. t.* 49. *f.* 4—7. *Blackw. t.* 5. *Mill. dict.*

Burſa paſtoris major folio ſinuato. *Baub. pin.* 108. *Mor. hiſt. ſ.* 3. *t.* 20. *f.* 2. *ord.* 1.

β. Burſa paſtoris media. *Baub. pin.* 106. *Mor. ſ.* 4.

γ. Burſa paſtoris major, folio non ſinuato. *Baub. pin.* 108.

Hirſute, filicles deltoid-obcordate, root-leaves pinnatifid.

[14. Thlaſpi ceratocarpon. *Siberian Baſtard Creſs.*

Lin. ſyſt. 588. *Willd.* 3. 448. *ſuppl.* 295. *Murr. in nov. comm. gotting.* 5. 26. *t.* 1. *Scop. inſubr.* 1. 10. *t.* 4. *Ait. kew.* 2. 377.

Lepidium ceratocarpon. *Pallas it.* 2. 740. *t.* U.

Very ſmooth, ſtem grooved, leaves ſagittate lanceolate ſubſerrate, filicles two-lobed.

DESCRIPTIONS, *&c.*

1. Stems a ſpan high, hard, branched, by age becoming red, as do alſo the leaves, which are on ſhort petioles. Flowers ſmall, red, with ovate entire petals. Stamens red. Anthers yellow. Style ſhort, yellow. Stigma yellow, flat at top. Seeds ovate, yellowiſh, ſomewhat wrinkled, ſhining, ſaftened to a ſickle-ſhaped partition [a].]

It is a biennial plant, riſing eight or nine inches high, branching out towards the top. Leaves thick, blunt, of a grayiſh colour, oppoſite, ſeſſile, having a bitter warm taſte. The flowers are produced in looſe terminating ſpikes; they are ſmall and of a purple colour. Silicles heart-ſhaped, of a fine green colour, having three or four ſmall, oblong, yellowiſh ſeeds in each cell, which have an acrid taſte. It flowers in june, and the ſeeds ripen in auguſt.

[Native of Carniolia. Cherlerus was the firſt who obſerved this plant in Zuinger's garden [b]. Mr. Miller cultivated it in 1739. He makes it a native of Sicily.

2. Stems herbaceous, diffuſed, branched, very ſmooth, as is the whole plant. Leaves two inches long; the lower ones narrowed a little towards the baſe and ſeſſile; the upper oblong, heart-ſhaped, embracing, ſhaped almoſt like thoſe of Braſſica orientalis; the uppermoſt narrower at the baſe, cordate-oblong, embracing, for the moſt part quite entire but ſometimes remotely toothletted; all veinleſs. Raceme terminating, with a branch growing out beyond it. Flowers at firſt corymbed, afterwards racemed. Calyx-leaves lanceolate. Petals longer than the calyx; borders roundiſh, purple, two ſcarcely larger than the other two. The ſilicle has a wide membranaceous margin, and an awl-ſhaped permanent ſtyle one fourth only of the length of the ſilicle; it has a ſinus at each end. The petals being ſcarcely irregular, and the ſilicle being altogether that of a Thlaſpi, this plant belongs rather to this genus than to Iberis, where Linneus had placed it. It ſeems difficult to conceive why Forſkahl made it a Subularia, with which it has nothing in common [c].

3. Root annual, ſmall. Herb ſmooth. Stem a foot or more in height, upright, round, leafy, with ſeven or eight membranaceous edges, and having a few branches at top. Leaves blunt iſh, diſtantly toothed, arrow-ſhaped at the baſe, embracing, ſomewhat glaucous beneath. Flowers ſmall, in racemes. Peduncles alternate, nearly horizontal, one-flowered. Petals white, entire, twice the length of the calyx. Silicle length of the peduncle, very broad, orbicular, deeply notched, a little convex in the middle on each ſide, ſmooth, having a very wide winged margin [d]. Seeds from five to ſeven (or four to nine) in each cell, ovate, narrowed and beaked towards the navel, ſcored with furrows that are parallel to the margin and very minutely crenulated, ſomewhat ſhining and of a very dark cheſtnut colour [e]. Gærtner obſerves that the ſtriated ſeed is rare and perhaps the only inſtance in this family.

This plant is obviouſly diſtinguiſhed, as Ray obſerved, by its ſmoothneſs, and large flat round pods, whence it acquired the name of Penny-creſs. The ſeeds are ſaid to produce twice as much oil as linſeed. They have an acrimony approaching to that of Muſtard, but with an unpleaſant flavour ſomewhat like Garlic. The whole plant has alſo the taſte of Garlic, ſo that when cows eat it, their milk gets a bad taſte.

It flowers at the beginning of june, and the ſeeds are ripe by the end of the month, hence they are not liable to be ground with corn, to which they might otherwiſe communicate their ill flavour [f].

Native of Europe and Japan, in corn-fields, eſpecially in a ſtrong moiſt ſoil, ſometimes in gravel. Ray obſerved it in Eſſex, Suffolk and Staffordſhire, Mr. Miller near Godalmin in Surry, Mr. Curtis, near Hampſtead, Mr. Roſe near Norwich, Mr. Relhan in Waterbeach-fen, Cambridgeſhire, Mr. Morton in Wadenhoe-field, Northamptonſhire, Dr. Sibthorp and Dr. Goodenough in Oxfordſhire, Dawſon Turner, Eſq. and Mr. Sowerby about Ayleſbury.

4. The whole plant has the ſmell of garlic, and a taſte ſlightly acrid; it is ſmooth and annual. Root-leaves many, ſpatulate, on long petioles, quite entire or ſlightly toothletted below: the ſtem and branch-leaves are acutely haſtate and ſeſſile. Stems few, upright, round, half a foot high, little branched, ending in fruiting racemes as long as themſelves. Flowers corymbed, ſmall. Petals white, ſcarcely bigger than the calyx. Siliciles obcordate-ovate, obtuſe, gibbous on both ſides but eſpecially on the back, with ſcarcely any margin. Seeds commonly three in each cell, ſomewhat acrid [g]. It reſembles the preceding, but the ſilicles are ovate and ventricoſe with little or no margin [h]. Native of Auſtria and Germany.

5. This is an annual plant, with an upright branched ſtem, hiſpid with white hairs. Leaves pubeſcent; the lower ones obtuſe, the upper ones acute. Flowers racemed, pedicelled. Bractes ovate, toothed, longer than the pedicel. Flower the ſize of Braſſica oleracea. Calyx-leaves pubeſcent, linear, preſſed cloſe, deciduous. Corolla pale yellow; claws linear, longer than the calyx; border elliptic, netted-veined, quite entire, rounded at the top. Style permanent, awl-ſhaped, longer than the ſilicle; which is large, triangular, gibbous on both ſides in the middle, hirſute, two-winged; wings ſtiffiſh, increaſing above, tranſverſely ſtriated. Seeds numerous, ſmall, ruſeſ-

[a] Scopoli. [b] Moriſon. [c] Vahl. [d] Curtis and Smith. [e] Gærtner. [f] Curtis and Withering. [g] Jacqu. miſc. [h] Willdenow.

cent. It flowers early in ſpring. Native of Barbary near Mayane, on the borders of fields[f]. Desfontaines has made this plant a diſtinct genus, under the name of Pſychine, from ψυχη a butterfly; the winged ſeed-veſſel having ſomething of the ſhape of that inſect: but it has nothing that entitles it to be conſidered as generically ſeparate from the other Thlaſpis.

6. This alſo is annual, and reſembles Iberis ſaxatilis[g]. Stems trailing, hard and woody. Leaves a little fleſhy and entire. Flowers ſmall, fleſh-coloured. Silicles large, convex below, concave above, with a leafy margin, and toothed at their upper edge[h].

Native of the South of Europe: Germany, Auſtria, the South of France, and Italy.—Cultivated by Mr. Miller in 1748[i].

7. This is diſtinguiſhed by Ray from the campeſtre, with which it has been confounded, by having the flowers three times as large, the ſilicles longer and more hairy. Linneus's plant is certainly diſtinguiſhed in having the ſilicles more oblong, little gibbous, hirſute, by no means glandular-dotted. It is probably biennial[k].

According to Villars, the ſtems are many, ſimple and decumbent at bottom. Lower leaves entire, with ſome hairs on their edges; ſtem-leaves more villoſe. Flowers white, ſmall. Silicles hirſute, rather ſmall.

Native of Italy, the South of France and Auſtria. Ray obſerved it on the mountains of Wales and elſewhere.]

Mr. Miller ſays it grows naturally on the ſide of a bank beyond Wandſworth in the road to Putney; but he probably miſtook a variety of the campeſtre for it, as other Engliſh botaniſts have done. He deſcribes it as having a perennial creeping root; the lower leaves oblong and hoary, ſlightly ſinuated but not indented on their edges; the ſtalks five or ſix inches long, and bent towards the ground; the flowers rather larger than thoſe of campeſtre; the pods hoary but not hairy. It flowers in may, and the ſeeds ripen in july.

8. Root annual, ſimple. Herb more or leſs pubeſcent. Stems a foot or more in height, upright, round, very ſlightly angular, thickly cloathed with leaves, undivided except at the top, where it ſeparates into ſeveral (ſeven or eight) branches, and forms a panicle: above the branches it is naked. Root-leaves oblong-ovate, on long flat petioles, ſometimes pinnatifid at the baſe, but for the moſt part entire, ſoon decaying: ſtem-leaves ſagittate, embracing, alternate, toothed or ſometimes quite entire. Pedunculs horizontal, round, a little longer than the ſilicles. Flowers very ſmall and white, in long upright racemes. Petals ſpatulate, a little longer than the calyx, entire. Silicle roundiſh or ovate, convex on the lower, concave on the upper ſurface, the border very wide at the top, emarginate, having glandular dots on both ſides, commonly ſmooth but ſometimes hairy, containing one ſeed in each cell[l].

Native of Europe and Barbary, in corn-fields. About Comb-wood near Kingſton, in Gunnerſbury-lane near Ealing, South Leigh and Stanton-Harcourt in Oxfordſhire, Dorſetſhire, &c. Flowering in june.

β. A variety was obſerved by Ray near Beccles in Suffolk, with ſmooth broader leaves not ſo tapering to a point, and ſmooth pods.

γ. Another variety, ſoft like velvet to the touch, with the ſilicles cottony in a ſlight degree, has been miſtaken for the hirtum of Linneus; which is not above half ſo high as this, and has the root-leaves inverſely ovate and broad at the end; the ſilicles in that are hirſute.

This variety has been obſerved on Dartmoor[m]: and by Mr. Dawſon Turner near Warrington.

The campeſtre as well as the arvenſe has been uſed for the ſame purpoſes as Muſtard-ſeed. This has not ſo much of the Garlic flavour as the arvenſe[n].

9. Stems erect, a finger or a hand, ſeldom a foot in height, ſingle or in a cluſter from the ſame root, not branched, round and ſmooth. Root-leaves in a tuft forming a roſe, wedge-obovate, running into the petiole, ſometimes very ſlightly ſubſinuate, bright green; ſtem-leaves alternate, embracing, cordate-lanceolate or ovate, quite entire or very ſlightly crenulate: all glaucous and very ſmooth. The flowers at firſt form a ſmall umbel, but afterwards are drawn out into a long raceme. Calyx browniſh, with a white margin. Petals twice as long as the calyx, blunt at the end, white, nearly of the ſame ſize as in the arvenſe. Silicles cordate, oblong, as in Burſa paſtoris, convex on one ſide, flat on the other[o].

Linneus remarks, that the corollas are almoſt equal or regular, and that the fruit together with the habit or appearance of this genus diſtinguiſh it from Iberis[p].

β. Willdenow conſiders the præcox of Wulffen in Jacquin's Collectanea as a variety of this, and refers the montanum of Scopoli and Lepidium, n. 518. of Haller to it. He remarks, that in the montanum the leaves are oblong, ſeſſile, and ſcarce apparently ſagittate; whereas in præcox they are deeply ſagittate and glaucous. The ſilicles in the former are obtuſely cordate, in the latter deeply cordate. But he does not diſcern any certain limits between them; for the leaves in montanum are ſometimes more deeply ſagittate with blunt earlets, and that on the ſame plant. —Probably the montanum of other authors beſides Scopoli may be referred to this plant. Dr. Smith ſuſpects that this præcox may be the ſame with the alpeſtre: to which the montanum of Miller, n. 8. muſt alſo be referred.

Native of Germany, Auſtria, the South of France and Italy.

10. A ſmall ſpecies, ſcarcely more than four or five inches high: differs from Thlaſpi perfoliatum in the ſize of the petals and perennial root, which is ſlender, ramified, and produces ſeveral circles or roſes of leaves, and afterwards ſeveral ſtems, which are ſmooth, ſimple, of a pale green, and ſometimes procumbent: the leaves are alternate, ovate, ſmooth and ſlightly pointed: the flowers are of moderate ſize and milk white, ſtanding in cluſters on the top of each ſtem[q].

11. Root annual, fibrous. Stem branched, except in a barren ſoil, a ſpan high, ſpreading, roundiſh, ſtriated, ſmooth, leafy. Leaves ſmooth, glaucous, obſcurely toothed: root-leaves petioled, ovate, obtuſe; ſtem-leaves alternate, embracing, cordate, ſubſagittate, bluntiſh. Corymbs terminating, ſmall, cloſe; afterwards racemed, very long. Calyx ſpreading, reddiſh. Petals white, twice as long as the calyx, obtuſe, entire. Silicle ſmooth, obcordate, with the lobes far ſurpaſſing the very ſhort ſtyle. Stigma headed. Seeds many[r]: according to Pollich, four in each cell.—Linneus ſays, that the ſtem is ſmooth, the corolla white and hardly larger than the calyx, the ſtamens longer than the flower, and the ſilicle like that of the common Shepherd's-purſe.—According to Withering, the ſtem is about eight inches high, upright and ſimple, except in a rich ſoil and in gardens, where it is branched; the lower leaves ovate, petioled; the others embracing, glaucous.

Native of Germany, Switzerland, Auſtria, the South of France, Italy and England. Found among the ſtone-pits between Witney and Burford, by Bobart, and on Burford downs by Sibthorp. It flowers in april and may.

12. Root very long, branched, commonly ſaid to be perennial, but doubtful whether it be more than biennial. Stems ſeveral, almoſt upright, a ſpan high, ſimple or very ſeldom divided, round, ſmooth, leafy. Leaves ſmooth, glaucous, quite entire, ſcarcely toothed: root-leaves numerous, forming a thick tuft, petioled, ovate or obovate, obtuſe; ſtem-leaves alternate, ſeſſile, ſlightly embracing, ſagittate, ſharpiſh. Corymbs as in the preceding. Petals white, varying in ſize. Silicle ſcarcely obcordate, but rather obovate, retuſe, gibbous, with the ſtyle lengthened

[f] Desfontaines. [g] Linn. ſyſt. [h] Villars. [i] Hort. kew. [k] Smith brit. [l] Smith brit. Curtis, Withering. [m] Withering. [n] Curtis [o] Pollich. [p] Syſt. [q] Jacquin. [r] Smith brit.

out and prominent far beyond the lobes, mucronate. Seeds ſeveral (three or four) in each cell[1].

One ſtem, ſeldom branched, ariſes from the tuft of leaves, and flowers early in ſummer; the lateral ſtems are afterwards numerous, moſtly unbranched, and produce a ſecond crop of flowers in july and auguſt, as in Iberis nudicaulis. The whole herb is glaucous, ſomewhat ſucculent, bitter and pungent in taſte and ſmell, yet horſes and cows ſeem to feed it down.—This plant is certainly the montanum of Hudſon: but the Linnean montanum has much larger petals, leaves more entire, a creeping root, and only one or at moſt two ſeeds in each cell. Alpeſtre of Hudſon is really the perfoliatum of Linneus, as it ſtood in the firſt edition of the Flora Anglica, and is an annual branched plant, with dentated leaves and ſmall flowers[2].

It is remarked in Engliſh Botany, that Dr. Withering (in his ſecond edition), having taken up theſe plants from Hudſon, has much confuſed their hiſtory. To this accuſation Dr. Withering, with a degree of ingenuity not very common among authors, pleads guilty, in the third edition of his arrangement: in which he ſays that the ſpecies have been there given without any view to Mr. Hudſon's opinions, and are founded on the indiſputable veracity, and well known accuracy of Ray, who (ſyn. 305. n. 4. and 6.) records two ſpecies, referring to the ſame figures which Linneus (in Spec. plant.) has quoted to T. montanum and alpeſtre; ſo that he muſt believe Ray to have ſeen both thoſe ſpecies. He alſo particularly notices the creeping root of T. montanum; which in Engliſh Botany is treated as a miſtake; and ſo it certainly muſt be, upon the ſuppoſition that Linneus's montanum is not a native of England, as there preſumed.

Gerard and Jacquin unite this plant with the perfoliatum. Haller ſeparates them. Willdenow thinks it may be a variety of that. Gouan ſeems to have deſcribed the right plant. The ſtem, ſays he, is ſimple and ſtraight. In a garden it became ſmaller, but perennial and evergreen, and produced ſeveral ſtems from the ſame root, ſome upright, others diffuſed.

Native of Germany, Switzerland, Auſtria, the South of France, Italy and England. Mr. Ray found it near Settle in Yorkſhire (where Mr. Curtis and Dr. Smith have alſo gathered it,) and between that place and Malham. At Matlock, where it grows abundantly on the lime-ſtone rocks and about the lead mines, with Arenaria verna, as obſerved by Mr. Curtis near Settle. Gathered by Dr. Smith, july 4th, 1792. Dr. Withering thinks it highly probable that the plant found by Merret in Yorkſhire, and by Nicholſon on moſt limeſtone paſtures in Weſtmoreland and Cumberland, is the true alpeſtre.—He refers the plant found by Ray near Settle and in many paſtures between that and Malham, by Curtis on the road from Settle to Malham, and by Mr. Woodward on Ingleborough, to the montanum; but they are all probably the alpeſtre.—It flowers in june and july.

13. Root annual, fibrous. Stem about a foot high, upright, round, branched, leafy, rough. Root-leaves pinnatifid, the ſegments varying much in form. Stem-leaves oblong, embracing, toothed. All more or leſs hairy. Flowers in corymbs, lengthening out into racemes. Calyx ſlightly hairy, with membranous edges. Petals white, a little longer than the calyx, rounded at top. Silicles ſmooth, deltoid-obcordate, without any margin, terminated by a ſhort ſtyle. Seeds numerous, yellowiſh, on pedicels which connect them with the edge of the partition[3].

Gærtner remarks, that the valves are keeled, and attenuated into a margin above only; that the partition has frequently a perforation in the middle; and that there are about twelve ſeeds in each cell, which are ovate, beaked, ſmooth and ſaffron-coloured.

This plant, which grows naturally in moſt parts of the world, is a ſtrong inſtance of the influence of ſoil and ſituation; ſometimes not being more than two or three inches high, when it flowers and perfects its ſeeds, whilſt in other ſituations it attains the height of as many feet. On walls and in dry ſituations the root-leaves are more deeply divided, and the ſegments become much narrower: in cultivated ground they are broader and leſs jagged: in a dry barren chalk the plant becomes very ſmall with a ſingle undivided ſtem, and the leaves all entire.

March and april are the months in which it is moſt generally found in flower; yet like the Groundſel (Senecio vulgaris) and Poa annua, it may be found in this ſtate at almoſt any time of the year. Small birds are very fond of the ſeeds[4].

Dr. Withering remarks, that this and the other ſpecies of this genus begin to flower long before they have attained their full ſize; the flowers at firſt forming a corymb, which after a while ſhoots out and aſſumes the form of a long ſpike-like raceme. The ſtem alſo, at firſt ſimple, in time becomes branched; the firſt branches iſſuing from its upper part.

14. This is an annual plant a ſpan in height. Stem upright, round, grooved, branching at top into corymbs. Leaves ſeſſile, very ſlightly ſerrate, veined, very ſmooth. Corymbs lengthened into racemes. Flowers ſmall, white. Silicles ovate, roundly emarginate at the top, with the lobes divaricating produced acute, reſembling the ſeeds of Ceratocarpus.—Native of the ſalt plains of Siberia[5]. Introduced in 1779, by Jonas Dryander, M. A. It flowers in july[6].]

PROPAGATION AND CULTURE.

Sow the ſeeds where the plants are to remain, either in ſpring or autumn; but the latter ſeaſon is to be preferred. When the plants come up, thin them where they are too cloſe, and keep them clean from weeds.

If the campeſtre and arvenſe be cultivated for uſe, ſow them thin upon beds of light ground; hoe and thin them as directed for carrots, onions, &c. ſo as to leave them three or four inches apart.

If the ſeeds of any of the ſorts be permitted to ſcatter, the plants will come up without care.

13. Shepherd's Purſe is a common weed every where. It increaſes ſo faſt by ſeeds, that a garden is not eaſily cleared of it, when they are permitted to ſhed. There are generally four crops of this plant from ſeed in a year; it cannot therefore be too ſoon or too carefully rooted out of a garden, [which is eaſily done by hoeing in dry weather. In fallows it is inſignificant, and affords food for cattle and ſheep.

THLASPI. See *Alyſſum*, *Anaſtatica*, *Biſcutella*, *Cheiranthus*, *Clypeola*, *Cochlearia*, *Draba*, *Iberis*, *Lepidium*, *Myagrum*, *Peltaria*.

THLASPIDIOIDES. See *Dodonæa*.

THLASPIDIUM. See *Biſcutella* and *Iberis*.

THOA.

Lin. gen. Schreb. n. 1454. *Aubl. t.* 336. *Juſſ.* 406.

Claſſ. 21. 7. Monoecia Polyandria.

Nat. order of *Urticæ* Juſſ.

GENERIC CHARACTER.

* *Male Flowers* in ſpikes.

CAL. none.

COR. none.

STAM. *Filaments* at the top of each joint in the ſpike, numerous, ſhort. *Anthers* very ſmall.

* *Female Flowers*, at the baſe of the ſpike, one on each ſide ſeſſile.

CAL. none.

COR. none.

PIST. *Germ* ovate. *Style* ſcarcely any. *Stigma* three or four-cleft, very ſmall.

PER. *Capſule?* oblong, brittle, one-celled.

SEED one, oblong, in a brittle ſhell, covered with very ſmall rigid pungent briſtles, weaved into a ſort of dry aril.

ESSENTIAL CHARACTER.

Cal. and *Cor.* none.

MALE. *Stam.* numerous, at the joints of the ſpike.

FEM. *Germs* two, at the baſe of the male ſpike, one on each ſide ſeſſile. *Stigma* three or four-cleft.

SEED in a brittle ſhell, covered with a briſtly web.

[1] Smith brit. [2] Engl. bot. [3] Curtis & Smith. [4] Curtis & Withering. [5] Willdenow. [6] Hort. kew.

SPECIES.

1. Thoa urens.
Aubl. guian. p. 875. *t.* 336.

DESCRIPTION, *&c.*

This is a ſhrub, riſing with a tortuous ſtem to about the length of ten feet, and emitting ſeveral twiſted and climbing branches upon the neighbouring trees: the bark is rough and greyiſh: the wood white and ſpongy: the leaves oppoſite, ſmooth, green, entire, and oval, terminating in a ſharp point: the largeſt are about five inches and a half long, and about three inches wide: the ſpikes of male flowers ſpring from the boſoms of the leaves and the tips of the branches, and on each ſide the baſe of the male flowers is a female one: the female flowers are each ſucceeded by a ſmooth reddiſh capſule, under the bark of which is found a dry ſubſtance compoſed of ſtiff recumbent briſtles which ſeparate eaſily and cauſe a ſevere itching when rubbed on the ſkin. The native name of the plant is Thoa[a].

THORA. See *Cytiſus* and *Ranunculus*.
THORN-APPLE. See *Datura*.
THORN, Black. See *Prunus*.
——— Box. See *Lycium*.
——— Chriſt's. See *Rhamnus*.
——— Cockſpur. See *Cratægus*.
——— Egyptian. See *Acacia*.
——— Evergreen. See *Meſpilus*.
——— Glaſtonbury. See *Cratægus*.
——— Goat's. See *Tragacantha*.
——— Haw. See *Cratægus*.
——— Lily. See *Cateſbæa*.
——— Purging. See *Rhamnus*.
——— White. See *Cratægus*.
THORNY TREFOIL. See *Fagonia*.
THOROW-WAX. See *Bupleurum*.

THOUINIA. (*So named by Dr. Smith, in honour of Monſ. André Thouin, fellow of the National Inſtitute, and Profeſſor of Horticulture in the French Muſeum.*—" Pulcherrimum genus e plantis Commerſonianis, Linnæo filio ab optimo Thouinio liberaliter oblatis, ſelegi, lætiſſimus equidem quod in tam gratum reſervatus ſim officium, quo obſervantiam erga amicum optimum teſtificer, et botanicum digniſſimum honoribus dudum meritis condecorem." *Smith ic. ined.*)
Lin. gen. Schreb. n. 1731. *p.* 793. *Smith ic.* 7. Humbertia *Commers.* Endrachium *Juſſ.* 133.
Claſſ. 5. 1. Pentandria Monogynia.
Nat. order of *Convolvuli*. Juſſ.

GENERIC CHARACTER.

CAL. five-leaved, permanent: *leaflets* roundiſh; three outer thicker wrinkled naked, two inner membranaceous at the edge, ſilky at the back.
COR. one-petalled, bell-ſhaped, plaited, twice as long as the calyx, five-cleft, the ſegments very blunt, hiſpid on the outſide with very frequent rigid fulgid briſtles, within and along the edge between the plaits ſmooth, tomentoſe-ciliate at the top.
STAM. *Filaments* five round naked, twice as long as the corolla, declining. *Anthers* biggiſh, cordate, two-lobed, ſmooth.
PIST. *Germ* ovate, very hairy, ſuperior. *Style* length, form and ſituation of the ſtamens. *Stigma* ſimple, obtuſe.
PER. *Drupe* globular, ſize of a Plum, ſupported by the permanent calyx.
SEED.

ESSENTIAL CHARACTER.

Cor. one-petalled, bell-ſhaped, inferior, hiſpid on the outſide. *Style* ſimple. *Drupe*.

SPECIES.

1. Thouinia ſpectabilis.
Lin. ſpec. ed. Willd. p. 935. *Smith ic. ined.* 1. 7. Humbertia madagaſcarienſis. *Lamarck encycl.* 2. 353. *t.* 103.

DESCRIPTION, *&c.*

This is a tree with a hard wrinkled bark: the branches are round, ſilky towards the top, terminated by leaves and flowers in bundles. Leaves ſcattered, obovate-lanceolate, obtuſe, very ſmooth, with a ſtout midrib; quite entire, often emarginate: petioles ſhort, channelled, when young ſilky. Stipules none. Flowers axillary, ſolitary, large and handſome, nodding a little, on roundiſh peduncles thickened at the top, ſilky towards the baſe, having in the middle two ſmall acute ſilky oppoſite bracles[b].

According to Commerſon's manuſcripts, the fruit is a drupe; but Juſſieu and Lamarck conſider it as a two-celled capſule, with two ſeeds in each cell[c].

Native of Madagaſcar, where it was found by Commerſon.

Thouinia of Swartz. See *Linociera*.
Thouinia of Linn. ſuppl. See *Chionanthus zeylanica*.

THRASI. See *Cyperus*.
THREE-SEEDED MERCURY. See *Acalypha*.
THRIFT. See *Statice*.

THRINAX. (Θρινξ *or* τριναξ, *a trident or three-tined fork, from* τρεις *three.*)
Lin. gen. Schreb. n. 1686. *Swartz prodr.* 57.
Claſſ. 25. 1. Appendix Palmæ.—6. 1. Hexandria Monogynia *Swartz* and *Willdenow*.
Nat. order of *Palms*.

GENERIC CHARACTER.

CAL. *Spathe* univerſal, compound. *Spadix* ſimply branched, imbricate with proper *Spathes*, in deciſſated *ſpikes*.
Perianth minute, ſix-toothed.
COR. none.
STAM. *Filaments* ſix, ſhort, filiform, inſerted into the baſe of the germ. *Anthers* large (larger than the piſtil) erect, bifid at the baſe and top.
PIST. *Germ* half-inferior, ovate, ſurrounded by the calyx. *Style* thickiſh, ſhort. *Stigma* widiſh, compreſſed, retuſe, emarginate.
PER. *Berry* one-celled, naked.
SEED a ſingle kernel covered with a bony ſhell.

ESSENTIAL CHARACTER.

Cal. ſix-toothed. *Cor.* none. *Stigma* funnel-form, oblique. *Berry* one-ſeeded.

SPECIES.

1. Thrinax parviflora. *Palmeto Royal* or *Palmeto Thatch*.
Lin. ſpec. ed. Willd. 2. 202. *Swartz prodr.* 57. *deſcr.* 1. 614. *Brown. jam.* 190. *n.* 1.

DESCRIPTION, *&c.*

Trunk from ten to twenty feet high, ſwelling at the baſe, unarmed. Fronds terminating, palmate-plaited, from one to two feet long: *diviſions* lanceolate, nerved and marked with lines, rigid, almoſt equal. Stipes longer than the leaves, round-flatted, ſmooth, flexile, unarmed. Spadix terminating, almoſt upright, two or three feet long, panicle-branched: branches alternate, ſubdivided, ſpreading: branchlets or ſpikes deciſſated, oppoſite or in threes. Flowers pedicelled, oppoſite or in threes, placed on the rachis, ſmall, hermaphrodite. Berry roundiſh, the ſize of a ſmall pea, almoſt juiceleſs. Kernel white within, red in the middle.

Native of Jamaica and Hiſpaniola, on the coaſt and in dry places[d].

Browne ſays, that this tree covers whole fields in many parts of Jamaica; that it grows both in the rocky hills, and low moiſt plains near the ſea, but ſeems to thrive beſt in the former. It ſhoots by a ſimple ſtalk, and riſes generally from four or five to ten or fourteen feet in height. It is always furniſhed with leaves in form of a fan, ſuſtained by ſlender compreſſed footſtalks, and bears a great abundance of ſmall berries, which ſerve to feed both the birds and beaſts of the wood, when they are in ſeaſon. The trunk ſeldom exceeds four or five inches in diameter: it is much uſed for piles in wharfs and other buildings made in the ſea; for it ſtands the water well, and is never touched by the worms. The foot-ſtalks of the leaves, ſplit and pared, ſerve to make baſkets, bow-ſtrings, ropes, &c. where ſtrength and toughneſs are required. The leaves are called Thatch, and are uſed as ſuch, eſpecially for out-houſes, and ſtand the weather many years; but ſuch coverings are apt to harbour rats and other vermin.

[a] Aublet. [b] Smith. [c] Willdenow. [d] Swartz deſcr.

THROATWORT. See *Campanula*.

THRYALLIS. (Θρυαλλὶς, *ellychnium, a wick: hence a plant ſo named, becauſe the leaves are fit to make wicks for lamps.* Dioſcor. 4. 99. Plin. 25. 10.)

Lin. gen. n. 533. *Reich. n.* 581. *Schreb. n.* 733. *Juſſ.* 251.

Claſſ. 10. 1. Decandria Monogynia.

Nat. order of *Tricoccæ*. *Acera* Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* five-parted: *ſegments* lanceolate, erect, permanent.

COR. *Petals* five, roundiſh, ſpreading.

STAM. *Filaments* ten, awl-ſhaped, longer than the calyx. *Anthers* roundiſh.

PIST. *Germ* obtuſe. *Style* filiform, length of the ſtamens. *Stigma* ſimple.

PER. *Capſule* three-ſided, triangular, obtuſe, tripartile: cells opening by the exterior angle.

SEEDS ſolitary, very ſmooth, obovate, obtuſe at the baſe, mucronate and curved inwards.

ESSENTIAL CHARACTER.

Cal. five-parted. *Pet.* five. *Capſ.* tricoccous.

SPECIES.

1. Thryallis braſilienſis.

Lin. ſpec. 554. *Reich.* 2. 278. *Willd.* 2. 570.

Fruticeſcens herba Piſonis. *Marcgr. braſil.* 97. *f.* 3.

DESCRIPTION, *&c.*

This is a little ſhrub, with round jointed branches. Leaves oppoſite, petioled, ovate, quite entire. Stipules briſtle-ſhaped. Raceme terminating, from the fork of the branches, ſimple, a foot long: with very ſhort briſtle-ſhaped bractes; and filiform pedicels, longer than the flower. Flowers ſmall, yellow. Fruits tricoccous or three-grained.—Native of Braſil *.]

THUJA. (*Corrupted from* Θυα *of Theophraſtus*, Thya *of Pliny.*)

Lin. gen. n. 1078. *Reich. n.* 1176. *Schreb. n.* 1457. *Tournef. t.* 358. *Juſſ.* 413. *Gærtn. t.* 91.

Claſſ. 21. 8. Monoecia Monadelphia.

Nat. order of *Coniferæ*.

GENERIC CHARACTER.

* *Male flower.*

CAL. *Ament* ovate, compoſed of a common rachis, on which oppoſite flowers are placed in a triple oppoſition. *Each flower* has for its baſe a ſubovate, concave, obtuſe *ſcale*.

COR. none.

STAM. *Filaments* (in each floret) four, ſcarcely manifeſt. *Anthers* as many, faſtened to the baſe of the calycine ſcale.

* *Female Flower* on the ſame plant.

CAL. *Strobile* common ſubovate, ſurrounded with oppoſite *florets*: compoſed of two-flowered, ovate, convex *ſcales*, converging longitudinally.

COR. none.

PIST. *Germ* very ſmall. *Style* awl-ſhaped. *Stigma* ſimple.

PER. *Strobile* ovate-oblong, obtuſe, opening longitudinally, with oblong ſcales, almoſt equal, convex outwardly, obtuſe.

SEEDS oblong, girt longitudinally with a membranaceous wing, emarginate.

OBS. *This genus is very nearly allied to Cupreſſus.*

ESSENTIAL CHARACTER.

MALE. *Cal.* Scale of an Ament. *Cor.* none. *Stam.* four.

FEM. *Cal.* of a ſtrobile, with a two-flowered ſcale. *Cor.* none. *Piſt.* one. *Nut* one, girt with a membranaceous wing.

SPECIES.

1. Thuja occidentalis. *American Arbor-vitæ.*

Lin. ſpec. 1421. *fuſt.* 861. *Reich.* 4. 178. *hort. cliff.* 449. *upſ.* 289. *Gærtn. fruct.* 2. 62. *Gmel. ſib.* 1. 182. *Kalm. it.* 3. 389. *ed. angl.* 3. 170. *Du Roi barbec.* 2. 455. *Blackw. t.* 210. *Knipb. cent.* 1. *n.* 91.

Thuya Theophraſti, *Bauh. pin.* 488.

Arbor vitæ. *Cluſ. hiſt.* 1. 36. *Dod. pempt.* 630. *Ger.* 1187. *emac.* 1369. *Park. theat.* 1478. *Raii hiſt.* 1408. & 1916.

* Linn. ſpec.

Strobiles ſmooth with blunt ſcales, branches ſpreading.

2. Thuja orientalis. *Chineſe Arbor-vitæ.*

Lin. ſpec. 1422. *fuſt.* 861. *Reich.* 4. 178. *hort. cliff.* 449. *upſ.* 289. *Du Roi barbec.* 2. 458. *Gærtn. fruct.* 2. 61. *Thunb. jap.* 266. *Lour. cochinch.* 580. *ed. Willd.* 712.

Strobiles ſquarroſe with ſharp ſcales, branches erect.

[3. Thuja articulata. *African Arbor-vitæ.*

Vahl ſymb. 2. 96. *t.* 48. *Deſfont. atlant.* 2. 353.

Cupreſſus fructu quadrivalvi, foliis Equiſeti inſtar articulatis. *Shaw itin. n.* 188. *ic.*

Strobiles four-cornered four-valved, fronds compreſſed jointed leafleſs.

4. Thuja dolabrata. *Japaneſe Arbor-vitæ.*

Lin. ſyſt. 861. *ſuppl.* 420. *Thunb. jap.* 266.

Strobiles ſquarroſe, leaves imbricate three ways, beneath excavated and ſnow white.]

DESCRIPTIONS, *&c.*

1. The common Arbor-vitæ has a ſtrong woody trunk, which riſes to the height of forty feet or more: the bark, while young, is ſmooth and of a dark brown colour, but as the trees advance, the bark becomes cracked and leſs ſmooth: the branches are produced irregularly on every ſide, ſtanding almoſt horizontal, and the young ſlender ſhoots frequently hang down; theſe branches ſtand but thin, and the younger branches only have leaves, ſo that when the trees are grown large, they make but an indifferent appearance, being ſo thinly clothed with the leaves. The young branches are flat, and the ſmall leaves are placed over each other like the ſcales of fiſh. The flowers are produced from the ſide of the young branches, pretty near to the foot-ſtalk: the males grow in oblong katkins, and between theſe the females are collected in form of cones. When the former have ſhed their farina, they ſoon drop off; but the latter are ſucceeded by oblong cones or ſtrobiles, having obtuſe ſmooth ſcales, containing one or two oblong ſeeds.

[Gærtner deſcribes the ſtrobile as elliptic-globular, with coriaceous ſcales, marked on the outſide under the tip with a ſmall indiſtinct tubercle, within ſimply concave. Seeds (nuculæ) oblong, of a bay colour, ſurrounded on each ſide with a widiſh membranaceous wing, emarginate at the top and bottom.

Native of Siberia and Canada, where it is very plentiful, but not much farther ſouth. The moſt ſoutherly place that Kalm ſaw it in, was a little to the ſouth of Saratoga, in the province of New York, and near Caſſes, in the ſame province, which places are in 42°. 10'. north latitude. Mr. Bartram found a ſingle tree in Virginia, near the falls in the river James. Dr. Colden alſo ſaw it in many places round his ſeat of Coldenham, between New York and Albany, in about 41°. 30'. north latitude. The French in Canada call it *Cedre blanc*. The Engliſh and Dutch in Albany call it the White Cedar.

It generally ſucceeds in grounds where the roots have ſufficient moiſture. In ſwamps and marſhes it grows pretty tall. Stony hills, and places where many ſtones lie together, covered with moſſes, ſeem to ſuit it next to the former ſituations. When the ſea ſhores are hilly, and covered with moſſy ſtones, it ſeldom fails to grow on them. It is likewiſe ſeen now and then on hills near rivers and other high grounds; but ſuch places commonly carry a ſouriſh water with them, or receive moiſture from the upper countries. In very dry places it never comes to any conſiderable ſize. It is pretty frequent in the cleſts of mountains, but cannot grow there to any remarkable height or thickneſs. The talleſt trees in the woods of Canada are about thirty or thirty-ſix feet high. A tree of ten inches diameter had ninety-two rings round the ſtem; and another of fourteen inches had a hundred and forty-two rings.

Being reckoned the moſt durable wood in Canada, incloſures of all kinds are ſcarcely made with any other wood; eſpecially the poſts which are driven into the ground. The paliſades round the forts are made of this wood. It furniſhes planks or boards for houſes. The thin narrow pieces which form the ribs and bottom of the bark-boats commonly uſed in Canada

nada are taken from this tree, becauſe it is pliant enough for the purpoſe, eſpecially whilſt it is freſh, and becauſe it is very light. It is reckoned one of the beſt woods for the uſe of the lime-kilns. The branches are uſed all over Canada for beſoms, which the Indians bring to the towns for ſale. The freſh branches have a peculiar agreeable ſcent, which is perceived ſtrongly in houſes where ſuch beſoms are uſed. Mr. Miller ſays that the leaves have a rank oily ſcent when bruiſed.

This Thuja is uſed in Canada for rheumatic pains; the leaves being made into a ſalve with hog's-lard, and applied to the part. For violent wandering pains they uſe the cones with four-fifths of Polypody, both powdered coarſely, made into a poultice with water milk-warm, and wrapped round the body, with a cloth between, to prevent its ſcorching the ſkin. A decoction of the leaves is employed by the Indians in coughs and intermitting fevers.

The common Thuja flowers early in the ſpring, and the ſeeds are ripe towards the end of ſeptember. Where the trees grow thick they ſeldom bear ſeeds; but a ſingle tree, where the air can freely come at it, is always full of ſeeds[f].

The great value of the wood for bowls, boxes, cups, mortars, peſtles, and various works of the turner and cabinet-maker, make this tree juſtly claim a place in plantations. It bears our ſevereſt winters, and ſoon arrives at a middling ſtature[g].

Cluſius ſays, that he firſt ſaw this tree in the royal garden at Fontainbleau, whither it was ſent from Canada as a preſent to Francis the Firſt, and that he believed this to have been the firſt tree of the kind which had been brought to Europe.

It was cultivated in England before 1596; for Gerarde ſays, "it groweth in my garden very plentifully, and it flowreth about may. The new writers do terme it *Arbor vitæ*, in Engliſh the tree of life; I do not meane that, whereof mention is made in Geneſis."]

2. The branches of the Chineſe Arbor vitæ grow cloſer together, and being much more adorned with leaves, which are of a brighter green colour, make a much better appearance than the former. The branches croſs each other at right angles. The leaves are flat, but the ſingle diviſions are ſlender, and the ſcales are ſmaller, and lie cloſer over each other than thoſe of the firſt ſort. The cones (ſtrobiles) are alſo much larger, of a beautiful gray colour, and their ſcales end in acute reflexed points.

[Gærtner deſcribes them as ovate, obſcurely four-cornered, compoſed of oblong, thick, ſuberoſe ſcales, oppoſite by pairs, armed on the outſide below the tip with a recurved little hook, very ſmooth within, and having a double little excavation near the baſe. The little nut is bony, globular, one-celled, valveleſs, covered with a thin epidermis of a ruſeſcent bay colour, produced on each ſide into a very narrow ſcarcely perceptible margin. There is no proper receptacle except the cavities of the ſcales wherein the nuts lie. Seed elliptic-globular, pale.

Native of China and Japan.—It was cultivated by Mr. Miller in 1752[h].] According to him the ſeeds were firſt ſent to Paris by ſome of the Miſſionaries in China.

[3. Height from two to ſix feet, in a dry ſoil a low ſhrub. Branches round, alternate, ſpreading at a right angle. Fronds roundiſh at the baſe and branched: branches oppoſite, branchletted, jointed, the laſt and thoſe of the branchlets gradually ſmaller, widening a little upwards, having a hollow at the top for the next joint, marked with a line on each ſide. Leaves none, but ſmall ſcales (four or ſix) at the top of the joints, ſharp and unequal. At the baſe of theſe are ſcarcely viſible glands. The male ſtrobile is ſmall, ovate, nodding a little, obtuſely four-cornered: ſcales in four rows, commonly four in each, pedicelled, peltate, pale yellow; anthers three or four, ſeſſile, roundiſh, under each ſcale. Female ſtrobile ſolitary at the end of the branches, four-cornered, with the corners blunt: ſcales four, woody, thick, cordate, on the outſide longitudinally hollowed in the middle, convex within, opening from top to bottom; two of them bigger, oppoſite, fertile, the other two narrower, barren. Seeds ſmall, with a membranaceous margin.

Native of Mount Atlas, and barren hills in Barbary.

Brouſſonet affirms that the reſin commonly called gum Sandarack, flows from this tree in the kingdom of Morocco. It is totally different from Thuja cupreſſoides of Linneus's mantiſſa; that has the ſcales imbricate, and a ſmooth ſtrobile, three times as large as that of this ſpecies[i].

4. This is a very large and lofty tree, and the handſomeſt of all the evergreens. Branches and branchlets alternate, compreſſed, covered with imbricate leaves, which are diſpoſed by threes; they are ovate, obtuſe, entire, compreſſed, above ſhining green and ſmooth, convex with a groove in the middle, beneath concave, margined, ſnow white.

Native of Japan; obſerved by Thunberg[k]; planted every where by the road ſide in Fakonie. He conſiders it as the handſomeſt of the evergreen trees, on account of its height, its ſtraight trunk, and its leaves of a ſilvery hue on the under part. He ſent over to Holland ſeeds and growing plants of it[l].]

PROPAGATION AND CULTURE.

Theſe trees may be propagated by ſeeds, layers, or cuttings. The firſt ſort is commonly propagated by cuttings; theſe ſhould be planted in ſeptember, upon a ſhady border and in a loamy ſoil; the cuttings ſhould be choſen from the ſhoots of the ſame year, with a ſmall joint of the former year's wood at the bottom of each. Theſe ſhould be planted three or four inches deep, in proportion to their length, treading the ground cloſe to them, to prevent the admiſſion of air. If the following ſpring ſhould prove dry, there ſhould be a little mulch laid over the ſurface of the ground to prevent its drying; where this is performed in time, it will ſave the trouble of watering the cuttings, and it will be much better for them, becauſe when theſe are putting out their young fibres, if they are much watered, it will rot them while they are tender. Theſe cuttings will be rooted enough to tranſplant by the next autumn, when they may be either planted in beds, or in nurſery rows to be trained up.

When they are propagated by layers, the young branches only ſhould be laid down in autumn, or march, which will alſo put out roots by the next autumn, when they may be taken up, and tranſplanted in the ſame manner as thoſe raiſed from cuttings: but although theſe are very expeditious methods of propagating this tree, yet thoſe who are deſirous to have large trees, ſhould always propagate them by ſeeds, for the plants ſo raiſed will be much preferable to the other.

There is a variety of the firſt ſort with variegated leaves, which ſome people keep in their gardens for the ſake of variety; but as this proceeds from a weakneſs in the plants, ſo whenever the plants become ſtrong and vigorous, they always return to their plain colour again, to prevent which they generally plant them in very poor ground. This variety can only be preſerved by propagating the plants either by cuttings or layers.

The China ſort is generally propagated by layers in the ſame way as the former; but the cuttings of this, if rightly managed, will take root very freely; but moſt people have over-nurſed them. If theſe are planted in ſeptember in a border of ſoft loam, expoſed to the eaſt, and before hard froſt ſets in, and the ſurface of the ground covered with old tanners bark about two inches thick, it will prevent the froſt from penetrating the ground very deep; and if this remains in the ſpring, it will alſo keep the ground moiſt; for if theſe cuttings, or the layers of this ſort are watered in the ſpring, when they are beginning to put

[f] Kalm. [g] Boutcher. [h] Hort. kew.

[i] Deſfontaines & Vahl. [k] Thunb. jap.
[l] Travels, 3. 160. engl. ed.

out young fibres, it will certainly rot them, as I have frequently experienced; therefore I advise every one not to water these cuttings or layers, nor should the plants be much watered when they are transplanted, for the same reason: but as there are many plants now in England which ripen their seeds, to those who can be supplied with them should prefer this to both the other methods of propagating the plants; for, after the two first years, the seedling plants will greatly outstrip the others in growth, and the plants growing with their branches closer, will be much handsomer.

These seeds should be sown soon after they are ripe, which is in the spring. They should be sown in pots filled with soft loamy earth, and plunged into the ground in an east border, where they may have only the morning sun, observing always to keep the pots clean from weeds. Sometimes these seeds will come up the same year, but they often lie in the ground till the next spring; therefore the pots should be put in a common hot bed frame in winter, and in the spring the plants will come up; these must not be too much exposed to the sun the first year, and if in the next winter they are sheltered under a frame, it will be a good way to preserve them, and the spring following they may be transplanted into beds, and treated in the same way as those propagated by cuttings.

[The plants raised either from cuttings or layers, having got sufficient roots, transplant them to a border screened from the mid-day sun, in rows two feet and a half asunder, and one foot in the row; water them at planting, and continue so to do once in five or six days, when the weather is dry. Here let them remain two years.

Then remove them again, cutting a very little from the ends of the roots. Plant them in rows three feet and a half asunder, and two feet distance in the row; to continue three years, when they will be of a proper size to transplant where they are to remain. This tree however is as patient of removal large as any evergreen.

The Chinese Arbor vitæ, is when young, a little more delicate and slower of growth than the other, neither does it root well by layers in less than two years, or take freely by cuttings in the open ground: it may be advisedable therefore to sow some of the seeds.

If the Chinese sort be propagated by layers, the plants must stand two years to be rooted. The beginning of april plant them in penny-pots, and plunge them in a moderate hot-bed of tanner's bark till the beginning of august; after which inure them to the air by degrees, and place them under some protection during the succeeding winter. In these pots let them remain a second year, when they may be taken out and treated as the common kind. They should be planted, not near, but under the protection of other trees.

The sort with striped leaves may be increased by layers or cuttings, but must be planted on thin dry land, to preserve the variegation strong[a].

THUJA APHYLLA. See *Tamarix articulata*.

THUNBERGIA. (*So named by Retzius, in honour of Charles Peter Thunberg, M. D. knight of the order of Vasa, professor of botany in the university of Upsal, member of several learned societies. Author of Travels into Europe, Africa and Asia; Flora Japonica, &c.*)

Lin. gen. Schreb. n. 1058. *Suppl.* 46. *Thunb. nov. gen.* 22. *Juss.* 103.

Class. 14. 2. Didynamia Angiospermia.

Nat. order of *Personatæ*. *Acanthi* Juss.

GENERIC CHARACTER.

CAL. *Perianth* double; *outer* two-leaved; *leaflets* ovate, obtuse, five-nerved, almost the length of the tube: *inner* one-leafed, many-parted; *segments* about twelve, awl-shaped, three times as short as the outer perianth.

COR. one-petalled, bell-shaped: *tube* widening gradually: *border* five-cleft: *segments* equal, ovate, very obtuse, three times as short as the tube.

STAM. *Filaments* four, inserted into the tube above the base, unequal: the two lower shortest, the two upper shorter than the tube. *Anthers* ovate, adnate.

PIST. *Germ* superior. *Style* filiform, a little shorter than the tube, erect. *Stigma* two-lobed.

PER. *Capsule* globular, beaked, smooth, two-celled, opening longitudinally: *beak* compressed, grooved, linear, obtuse: *partition* obovate, emarginate, perforated below the top, membranaceous at the sides, permanent.

SEEDS in each cell two, reniform, wrinkled, convex on one side, concave on the other with a longitudinal groove.

OBS. *It agrees in many circumstances with the Barlerias. The leaflets of the exterior calyx are named bractes by Thunberg.*

ESSENTIAL CHARACTER.

Cal. double: outer two-leaved; inner twelve-toothed.
Cor. bell-shaped. *Capf.* beaked, two-celled.

SPECIES.

1. Thunbergia capensis.
Lin. spec. ed. Willd. 3. 388. *suppl.* 292. *Retz. act. lund.* 1. 163. *cum. ic. Thunb. nov. gen.* 1. 21.
Leaves ovate obtuse, stem diffused.

2. Thunbergia fragrans.
Lin. spec. ed. Willd. 3. 388. *Roxb. corom.* 1. 47. *t.* 67. *Bot. repos. t.* 123.
Leaves cordate acuminate somewhat angular-toothed at the base, stem scandent.

DESCRIPTIONS, *&c.*

1. This is a singular plant, which nobody would suppose to be different from the Barlerias, if he did not attend to the double calyx. Stem four-cornered, hirsute. Leaves opposite, on very short petioles, quite entire, five-nerved, veined, smooth above, beneath hirsute, erect. Peduncles length of the leaves or longer, solitary, one-flowered. Bractes two ovate, rough-haired, length of the tube. Calyx enlarging into the fruit. Corolla yellow. Capsule smooth, awl-shaped, two-parted.—Native of the Cape of Good Hope, where it was found by Thunberg[a].

2. The root consists of many thick woody fibres. Stem and branches twining, woody, of two or three fathoms in extent, jointed and swelled from the insertions of the leaves or their scars, round: bark light ash-coloured: young shoots downy. Leaves opposite, petioled, three-nerved, scabrous, about three inches long, and an inch and half broad: petiole about three quarters of an inch long, channelled, bent in various directions. Stipules none. Peduncle axillary, solitary, one-flowered, round, club-shaped, downy, one or two inches long. Bractes none. Flowers large of the purest white. Leaves of the exterior calyx acute and many-nerved. Corolla salver-form: tube compressed, enlarged about the middle, a little hairy, longer than the exterior calyx, bent to one side with a curve: border flat, five-parted; divisions equal, obovate, with their extremities truncate, and in general irregularly three-toothed, shorter than the tube. Style length of the tube: lobes of the stigma obcordate, funnel-form. Capsule subglobular, flat-beaked, opening from the base with an elastic jerk. Seeds in general one in each cell, the other seldom or never ripening, round, rugose, with a large cavity (as in the Coculi indici) which penetrates two thirds of the seed.

This plant is common in hedges, among bushes, on the banks of water-courses, about Samulcotah, in the East Indies. It flowers during the wet and cold seasons: when cultivated it flowers all the year. It possesses a peculiar and agreeable fragrance; and the beauty of its flowers, though they are not fragrant, entitles it to a place in the flower garden[a].

Willdenow remarks, that it has the appearance of Convolvulus sepium.

THUYA. See *Thuja*.

THYLACITIS. See *Gentiana*.]

THYMBRA. (*Perhaps from* Θυμὸς; *as being used in sacrifices, on account of its fragrance.*)

Lin. gen. n. 708. *Reich. n.* 766. *Schreb. n.* 962. *Juss.* 115.

[a] Boutcher.

[a] Linn. suppl.

[a] Roxburgh.

Class.

Claſſ. 14. 1. Didynamia Gymnoſpermia.
Nat. order of *Verticillatæ* or *Labiatæ*.

GENERIC CHARACTER.

CAL. *Perianth* one-leafed, ſubcylindrical, keeled at the ſides, two-lipped at the mouth: *upper lip* wider, half-three-cleft, equal, converging; *lower* narrower, two-parted.

COR. ringent: *tube* ſubcylindrical: *upper lip* flat, ſtraight, half-two-cleft, obtuſe; *lower* three-cleft, almoſt equal, flat.

STAM. *Filaments* four, filiform, approaching by pairs: the two lower ones ſhorter. *Anthers* two-lobed: lobes remote, under the upper lip of the corolla.

PIST. *Germ* four-cleft. *Style* filiform, half-two-cleft. *Stigmas* two, acute.

PER. none. *Calyx* unchanged.

SEEDS four.

ESSENTIAL CHARACTER.

Cal. ſubcylindrical, two-lipped, ſcored on each ſide with a villoſe line. *Style* ſemibifid.

SPECIES.

1. Thymbra ſpicata. *Spiked Thymbra.*
Lin. ſpec. 795. *Reich.* 3. 28. *Willd.* 3. 46. *Allion. pedem. n.* 90. *Kniph. cent.* 3. *n.* 94. *Barr. rar.* 281. *t.* 1230. *Pluk. phyt. t.* 116. *f.* 5. (Thymum.) *Mor. hiſt.* 3. 361. *n.* 11. (Hyſſopus.)
Satureia hirſuta purpurea olibani. *Dedart mem.*
Flowers in ſpikes.

2. Thymbra verticillata. *Whorled Thymbra.*
Lin. ſpec 796. *Reich.* 3. 28. *Willd.* 3. 46. *Allion. pedem. n.* 89.
Hyſſopus anguſtifolia montana aſpera. *Baub. pin.* 218.
H. montana. *Dalech. hiſt.* 394.
Flowers in whorls.

[3. Thymbra ciliata. *Headed Thymbra.*
Lin. ſpec. ed. Willd. 3. 47. *Desfont. atlant.* 2. 10. *t.* 122.
Flowers in heads, leaves linear ciliate.]

DESCRIPTIONS, *&c.*

1. This is a low ſhrubby plant like Heath, branching out into ſlender woody ſtalks which are ſix or eight inches long, covered with a brown bark, and garniſhed with narrow acute-pointed leaves about half an inch long, ſitting cloſe to the ſtalks oppoſite; they have an aromatic odour when bruiſed. The ſtalks are terminated by thick cloſe ſpikes of purple flowers, near two inches long. The calyxes are ſtiff and hairy; they are cut half their length into acute ſegments, out of theſe the flowers peep, with their two lips; the upper is concave and arched, the under is cut into three equal portions, and theſe are a little reflexed. They appear in june and july, and in warm ſeaſons they are ſometimes ſucceeded by ſeeds which ripen in autumn.

Native of Mount Libanus, Macedonia, Spain, [and the County of Nice.—Cultivated in 1699, by Mr. Jacob Bobart[b]: who had the ſeeds from Aleppo by Dr. Huntington[a].]

2. The ſecond ſort has a ſhrubby ſtalk which ſeldom riſes much more than a foot high, putting out many ſmall woody branches, which have narrow ſpear-ſhaped leaves with many punctures; they ſtand oppoſite, and are of an aromatic flavour. The flowers grow in whorled ſpikes at the end of the branches. The leaves which ſtand under each whorl, are broader than thoſe below, and are covered with fine hairs. The flowers are purple, and ſit cloſe to the ſtalks; the upper lip is concave and ends with two obtuſe points, the lower ends with three equal points. Theſe appear about the ſame time with the other, and in warm ſeaſons the ſeeds ripen in England.

[Stems ſcarcely a foot high. Leaves linear-lanceolate entire dotted. Floral leaves a little wider and ſharper, but ciliate. This is altogether whorled, with ſeſſile flowers: whereas the preceding is indiſtinctly ſpiked; the ſpike oblong, imbricate with bractes, or ciliate leaves. Perhaps it may be no more than a variety of the firſt[c].

[b] Hort. kew. [a] Hiſt. oxon. [c] Linn. ſpec.

Native of Spain and Italy. Cultivated in 1702, by the Dutcheſs of Beaufort[a].

3. This is an elegant, upright and very branching ſhrub. The younger branches have a very ſhort down upon them; they are round or ſcarcely four-cornered, ſimple or branched, unequal. Leaves ſtiffiſh, ſpreading, oppoſite, ſeſſile, edged with white hairs, and punctured. Flowers in cloſe, ovate-cylindrical, obtuſe heads. Bractes large, ovate, acute, ciliate, nerved beneath, longer than the calyx: which is round, compreſſed a little, two-lipped; teeth ciliate, the two lower longer, briſtle-ſhaped. Corolla violet: tube ſtraight, twice as long as the calyx: upper lip entire, obtuſe, flattiſh; lower three-lobed, lobes roundiſh, entire. Stamens ſcarcely longer than the corolla. Anthers very ſmall. Stigmas acute.

Native of Barbary, on dry barren hills near Maſcar[a].]

PROPAGATION AND CULTURE.

Sow the ſeeds in the ſpring on a bed of light earth, and the plants will appear in ſix or eight weeks. Keep them clean from weeds, and remove them in july, ſome into ſmall pots, and others into a warm dry border; ſhading them from the ſun, and ſupplying them with water till they have taken new root. If the winter ſhould prove very ſevere, cover the plants in the border with mats or other covering. The pots ſhould be ſheltered under a common frame in winter, where they may enjoy the free air in mild weather, and be protected from froſt. But theſe plants will live in the open air, unleſs in very ſevere winters, eſpecially if they be planted in a poor dry ſtony ſoil.

THYME. See *Thymus*.

THYMELÆA. See *Daphne* [*Globularia, Gnidia,*] *Paſſerina*.

[THYMELÆA Sloan. See *Ernodea littoralis*.

THYMIFOLIA. See *Lythrum*.

THYMO SIMILE. See *Thymus*.

THYMUM. See *Satureia, Thymbra, Thymus*.]

THYMUS. (Θυμος *of Theophraſtus and Dioſcorides. From* Θυμος, *courage, ſtrength, being ſuppoſed to revive the ſpirits: or from* Θυω *ſacrificio, becauſe it was uſed for incenſe in the temples.*

Lin. gen. n. 727. *Reich. n.* 785. *Schreb. n.* 982. *Tournef. t.* 93. *Juſſ.* 115. Acinos. *Dill. gen.* 4.

Claſſ. 14. 1. Didynamia Gymnoſpermia.
Nat. order of *Verticillatæ* or *Labiatæ*.

GENERIC CHARACTER.

CAL. *Perianth* one-leafed, tubular, half-five-cleft into two lips, permanent, having the throat cloſed with villoſe hairs: *upper lip* wider, flat, erect, three-toothed: *lower lip* two-briſtled, of equal length.

COR. one-petalled, ringent: *tube* length of the calyx: *throat* ſmall: *upper lip* ſhorter, flat, erect, emarginate, obtuſe: *lower lip* longer, ſpreading, wider, trifid, obtuſe; middle ſegment wider.

STAM. *Filaments* four, curved in, two of which are longer. *Anthers* ſmall.

PIST. *Germ* four-parted. *Style* filiform. *Stigma* bifid, acute.

PER. none. *Calyx* narrowed at the neck, cheriſhing the ſeeds in its boſom.

SEEDS four, ſmall roundiſh.

OBS. Thymus Tourn. *has the ſtamens very ſhort.*
Serpyllum Tourn. *has the ſtems woody, leſs hard, and lower.*
Acinos Riv. & Dill. *has the middle ſegment of the lower lip in the corolla emarginate.*
Maſtichina Boerh. *has the teeth of the calyx extended into very long villoſe briſtles.*

ESSENTIAL CHARACTER.

Throat of the two-lipped calyx cloſed with villoſe hairs.

SPECIES.

1. Thymus Serpyllum. *Wild Thyme.*
Lin. ſpec. 825. *Juſſ.* 541. *Reich.* 3. 79. *Willd.* 3. 138. *Fl. ſuec. n.* 535. *hort. cliff.* 306. *mat. med.* 152. *Woodv. med. bot.* 301. *t.* 110. *Huds. angl.* 262. *Wither. arr. ed.* 3. 536. *Smith brit.*

[a] Hort. kew. [a] Desfontaines.

639. *Lightf. ſcot.* 318. *Curt. lond.* 2. *t.* 47. *Relh. cant. n.* 904. *Sibth. oxon. n.* 536. *Hall. helv. n.* 235. *Hoffm. germ.* 211. *Reth. germ.* 1. 259. 2. 38. *Pollich pal. n.* 574. *Ludw. eſſ. t.* 121. *Krock. ſileſ. n.* 953. *Neck. gallob.* 260. *Crantz auſtr.* 277. *Scop. carn. n.* 736. *Villars dauph.* 2. 354. *Allion. pedem. n.* 76. *Kniph. cent.* 6. *n.* 91. *Berg. phyt.* 143. *Regnault bot.*

Serpyllum vulgare. *Dod. pempt.* 277. *Ger.* 455. 1, 2. *emac.* 570. 1. *Raii hiſt.* 521. *ſyn.* 230. *Vaill. par. t.* 32. *f.* 9, 7. *Blackw. t.* 418.

S. vulgare minus. *Baub. pin.* 220. *Mor. hiſt. ſ.* 11. *t.* 17. *f.* 1. *Park. theat.* 8. 10.

S. vulg. repens. *Cluſ. hiſt.* 1. 359. 1.

S. alterum. *Matth.* 725.

S. flore minore. *Rivin. mon.* 42. 2.

β. S. vulgare flore albo. *Tournef. inſt.* 197. *White-flowered Wild Thyme.*

γ. S. vulg. flore amplo. *Vaill. par. t.* 32. *f.* 8.

S. vulg. ſecundum genus. *Baub. hiſt.* 3. 2. 269. *Raii ſyn.* 230. *Petiv. brit. t.* 31. *f.* 2. *Riv. mon.* 42. 3. *Large-flowered Wild Thyme.*

δ. S. vulg. majus. *Baub. pin.* 220. *Raii ſyn.* 231. *Petiv. brit. t.* 31 *f.* 3. *Sabb. hort.* 3. *t.* 69.

S. majus. *Park. theat.* 7. 7. *Raii hiſt.* 522.—flore purpureo & albo. *Ger.* 456. 3. *emac.* 570. 3. & 573. 7.

Thymus glaber. *Mill. dict. n.* 6. *Broad-leaved Wild Thyme.*

1. S. citratum. *Ger.* 458. 2. *emac.* 571. 7. *Park. theat.* 8. 9. *Raii hiſt.* 522. *ſyn.* 231. *Petiv. brit. t.* 31. *f.* 4.

S. foliis citri odore. *Baub. pin.* 220.

S. citrei odore. *Baub. hiſt.* 3. 2. 270. *Cluſ. hiſt.* 359. *Lemon Thyme.*

ζ. S. anguſtifolium glabrum. *Baub. pin.* 220. *Raii hiſt.* 522. *ſyn.* 231.

S. odore Jugiandis. *Baub. hiſt.* 3. 2. 270.

S. anguſto glabroque folio. *Cluſ. hiſt.* 359.

S. pannonicum Cluſii. *Park. theat.* 8.

Thymus Serpyllum. *Woodv. t.* 110. *Narrow-leaved Smooth Wild Thyme.*

κ. S. vulg. hirſutum. *Raii ſyn.* 231. *Hoary Wild Thyme.*

ϑ. S. hirſ. minus repens inodorum. *Raii ſyn.* 231. *Scentleſs Wild Thyme.*

ι. S. villoſum fruticoſius, floribus dilute rubentibus. *Raii ſyn.* 231.

S. latifolium hirſutum. *Baub. pin.* 220. *prodr.* 108. *Raii hiſt.* 522. *Woody Wild Thyme.*

Flowers in heads, ſtems decumbent, leaves flat ovate obtuſe ciliate at the baſe.

2. Thymus lanuginoſus. *Woolly Wild Thyme.* *Lin. ſpec. ed. Willd.* 3. 138. *Schkuhr bot. handb.* 2. 164. *ic. Mill. dict. n.* 8.

T. Serpyllum ϑ. *Lin. ſpec.* 825.

T. Serpyllum anguſtifolium hirſutum. *Baub. pin.* 220. *Knipb. cent.* 6. *n.* 92.

S. anguſto lanuginoſoque folio. *Baub. hiſt.* 3. 270. *Raii hiſt.* 522.

Flowers in heads, ſtems creeping hirſute, leaves obtuſe villoſe.

[3. Thymus lævigatus. *Smooth Thyme.* *Lin. ſpec. ed. Willd.* 3. 139. *Vahl ſymb.* 2. 65.

T. Serpyllum. *Forſk. deſcr.* 107.

Flowers in heads, ſtems procumbent, leaves linear obtuſe ſeſſile narrowed at the baſe.]

4. Thymus vulgaris. *Garden Thyme.* *Lin. ſpec.* 825. *ſyſt.* 542. *Reich.* 3. 80. *Willd.* 3. 139. *hort. cliff.* 305. *upſ.* 160. *mat. med.* 152. *Woodv. med. bot.* 299. *t.* 109. *Sauv. monſp. Ger. prov.* 262. 2. *Villars dauph.* 2. 356. *Krock. ſileſ. n.* 954. *Allion. pedem. n.* 78. *Aſſo arag.* 541. *Gmel. ſib.* 3. 247. *Pallas it.* 72. *Kniph. cent.* 5. *n.* 89. *Ludw. eſſ.* 123. *Berg. phyt. t.* 227. *Blackw. t.* 211. *Regnault bot.*

κ. T. vulg. folio tenuiore. *Baub. pin.* 119. *Tournef. inſt.* 196.

T. tenuifolius. *Mill. dict. n.* 2. *Narrow-leaved Garden Thyme.*

β. T. vulg. folio latiore. *Baub. pin.* 219. *Raii hiſt.* 521. *Sabb. hort.* 3. *t.* 68.

Thymum durius. *Dod. pempt.* 276. *Ger.* 458. *emac.* 573. 1.—vulgare. *Park. theat.* 7. *f.* 2.

T. vulgaris. *Mill. dict. n.* 1. *Broad-leaved Garden Thyme.*

γ. T. ſupinus candicans odoratus. *Magnol. Tournef. inſt.* 196.

Thymum durius candidius. *Park. theat.* 6. *n.* 3. *Raii hiſt.* 521. *Hoary Garden Thyme.*

δ. T. capitulis minoribus, maſſilienſis. *Tournef. inſt.* 196. *Flowers whorl-ſpiked, ſtems erect, leaves ovate rolled back.*

[5. Thymus lanceolatus. *Lance leaved Thyme.* *Lin. ſpec. ed. Willd.* 3. 140. *Deſfont. atlant.* 2. 30. *t.* 128. *Flowers whorl-ſpiked, ſtem ſuffruticoſe erect, leaves oblong flat, pubeſcent.*

6. Thymus numidicus. *Barbary Thyme.* *Lin. ſpec. ed. Willd.* 3. 140. *Deſfont. atlant.* 2. 29. *Poiret itin.* 2. 187. *Flowers in heads, calyxes hirſute, bractes ovate-lanceolate ciliate, ſtem fruticuloſe erect, leaves linear patulous ſmooth.*

7. Thymus Zygis. *Linear-leaved Thyme.* *Lin. ſpec.* 826. *ſyſt.* 542. *Reich.* 3. 80. *Willd.* 3. 140. *mant.* 413. *Kniph. cent.* 8. *n.* 94.

Thymo vulgatiori rigidiori ſimile. *Baub. hiſt.* 3. 2. 271.

Thymum anguſto longioreque folio. *Barr. ic.* 777.

Serpyllum ſylveſtre Zygis Dioſcoridis. *Cluſ. hiſt.* 1. 358.

S. folio Thymi. *Baub. pin.* 220? *Raii hiſt.* 523. *Flowers whorl-ſpiked, ſtem ſuffruticoſe erect, leaves linear very blunt nerveleſs rolled back at the edge, ciliate at the baſe.*

8. Thymus marſchallianus. *Marſhall's Thyme.* *Lin. ſpec. ed. Willd.* 3. 141.

T. Zygis. *Pallas in nov. act. petrop.* 10. 313. *Flowers whorl-ſpiked, ſtem ſuffruticoſe erect, leaves linear-lanceolate bluntiſh flat obſcurely triple-nerved ciliate at the baſe.*

9. Thymus inodorus. *Scentleſs Thyme.* *Lin. ſpec. ed. Willd.* 3. 141. *Deſfont. atlant.* 2. 30. *t.* 129. *Stem ſhrubby very much branched, leaves needle-form bundled ſhorter than the flower.*

10. Thymus Acinos. *Baſil Thyme.* *Lin. ſpec.* 826. *Reich.* 3. 81. *Willd.* 3. 142. *fl. ſuec. n.* 478. *hort. cliff.* 306. *Hudſ. angl.* 263. *Wither. arr. ed.* 3. 537. *Smith brit.* 641. *engl. bot. t.* 411. *Lightf. ſcot.* 319. *Curt. lond.* 1. *t.* 43. *Relh. cant. ed.* 2. *n.* 505. *Sibth. oxon. n.* 537. *Abbot bedf. n.* 443. *Dickſ. hort. ſicc.* 11. 8. *Pollich pal. n.* 575. *Crantz auſtr.* 277. *Scop. carn. n.* 735. *Neck. gallob.* 260. *Villars dauph.* 2. 356. *Krock. ſileſ. n.* 955. *Allion. pedem. n.* 79. *Kniph. cent.* 8. *n.* 93.

Clinopodium. *Hall. helv. n.* 237.

C. arvenſe, ocymi facie. *Baub. pin.* 225.

C. vulgare. *Lob. ic.* 1. 506. 1. *Cluſ. hiſt.* 1. 354. 1.

C. minus ſ. vulgare. *Park. theat.* 21. 1.

Acinos. *Rivin. mon. t.* 43. *f.* 2.—multis. *Baub. hiſt.* 3. 259. *Raii hiſt.* 553. *ſyn.* 238. *Petiv. brit. t.* 32. *f.* 10. *Mill. dict. n.* 1. *ed.* 7.

A. ſ. Ocymum ſylveſtre. *Mor. hiſt.* 3. 404. *ſ.* 11. *t.* 18. *f.* 1.

Ocimum ſilveſtre, Acinos. *Dod. pempt.* 280.

Ocymum ſylveſtre. *Ger.* 548. 1. *emac.* 675. 1.

Ocimaſtrum. *Fuchſ. hiſt.* 896.

Whorls ſix-flowered, peduncles ſimple, ſtem aſcending branched, leaves acute ſerrate, calyx gibbous.

11. Thymus patavinus. *Great-flowered Thyme.* *Lin. ſpec. ed. Willd.* 3. 142. *Jacqu. obſ.* 4. 7. 1. 87. *Ait. kew.* 2. 314. *Deſfont. atlant.* 2. 28.

Clinopodium perenne pulegii odore, majoranæ folio, patavinum. *Bocc. muſ.* 60. *t.* 45. *f.* B.

Flowers in whorls, throat inflated longer than the calyx, leaves ovate ferrate, ſtems ſuffruticoſe.

12. Thymus alpinus. *Alpine Thyme.*
Lin. ſpec. 826. *ſyſt.* 542. *Reich.* 3. 81. *Willd.* 3. 142. *Jacqu. auſtr.* 1. 60. *t.* 97. *Scop. carn. n.* 734. *Krock. ſilef. n.* 956. *Villars dauph.* 2. 356. *Allion. pedem. n.* 80.
T. montanus. *Crantz auſtr.* 278.
Clinopodium. *Hall. helv. n.* 238.
C. montanum. *Bauh. pin.* 225. *Bocc. muſ.* 2. 50. *t.* 45.
Acini pulchra ſpecies. *Bauh. hiſt.* 3. 620. *Mill. dict. n.* 2. *ed.* 7.
Whorls ſix-flowered, leaves roundiſh bluntiſh concave ſerrate, corollas inflated.

13. Thymus montanus. *Mountain Thyme.*
Lin. ſpec. ed. Willd. 3. 143. *Waldſt. & Kitaib. rar. Hung. ined.*
T. pannonicus. *Allion. pedem. n.* 77.
T. *Hall. helv. n.* 236.
Serpyllum anguſto & lanuginoſo folio. *Cluſ. pann.* 628. *Bauh. hiſt.* 3. 267.
S. pannonicum 3. *Cluſ. hiſt.* 235.
Flowers in whorls, peduncles one-flowered, ſtem erect branched, leaves ovate quite entire, calyxes ſmooth.

14. Thymus Piperella.
Lin. ſyſt. 542. *Reich.* 3. 81. *Willd.* 3. 143. *Allion. pedem. n.* 81. *t.* 37. *f.* 3. *Vahl ſymb.* 2. 65. *Deſfont. atlant.* 2. 28.
T. imbricatus. *Forſk. deſcr.* 108.
Marum hiſpanicum nigrum. *Bocc. muſ.* 2. 166. *t.* 117. *Barr. rar.* 354. *t.* 694.
Peduncles many-flowered lateral, leaves ovate obtuſe ſmooth nerved quite entire.

15. Thymus Brownei. *Jamaica Thyme.*
Lin. ſpec. ed. Willd. 3. 144. *Swartz prodr.* 89. *Brown jam.* 259. *n.* 1.
Leaves orbicular crenate, flowers peduncled axillary.

16. Thymus filiformis. *Small-leaved Thyme.*
Lin. ſpec. ed. Willd. 3. 144. *Ait. kew.* 2. 313.
Flowers axillary ſolitary peduncled, leaves cordate acute quite entire petioled, ſtems filiform decumbent.]

17. Thymes cephalotus. *Great-headed Thyme.*
Lin. ſpec. 826. *Reich.* 3. 82. *Willd.* 3. 144. *Vahl ſymb.* 3. 77.
T. luſitanicus cephalotos, ſquamis capitularum amplioribus. *Tournef. inſt.* 196.
Tragoriganum dictamni capite hiſpanicum. *Barr. ic.* 788. *Bocc. muſ.* 2. 50. *t.* 43.
Heads looſely imbricate, bractes broad-ovate coloured undotted, leaves linear quite entire.

[18. Thymus ſtriatus. *Striated Thyme.*
Lin. ſpec. ed. Willd. 3. 144. *Vahl ſymb.* 3. 78.
Heads cloſely imbricate, bractes ovate and the leaves linear-lanceolate ſtriated dotted at the edge.]

19. Thymus villoſus. *Hairy Thyme.*
Lin. ſpec. 827. *Reich.* 3. 82.
T. luſitanicus, folio capillaceo villoſo, capite magno purpuraſcente oblongo et rotundo. *Tournef. inſt.* 196.
Heads imbricate large, bractes toothed, leaves briſtle-ſhaped hairy.

20. Thymus Maſtichina. *Maſtick Thyme.*
Lin. ſpec. 827. *ſyſt.* 542. *Reich.* 3. 82. *Willd.* 3. 145. *mant.* 413. *hort. cliff.* 306. *upſ.* 160. *Gron. orient.* 73. *Alſo aragon. n.* 543. *Deſfont. atlant.* 2. 29.
Sampſucus ſ. Marum maſtichen redolens. *Bauh. pin.* 224.
Marum vulgare ſ. Clinopodium. *Dod. pempt.* 271. *Blackw. t.* 134.
Marum. *Tabern. ic.* 341. *Ger.* 544. 1. *emac.* 670. 1. *Raii hiſt.* 520. *Rivin. mon.* 40.—vulgare. *Park. theat.* 12. 7.
Maſtichina. *Mill. dict. ed.* 3. & 4.
Flowers in whorls, calyxes lanuginoſe, tooth of the calyx ſetaceous villoſe.

21. Thymus Tragoriganum. *Goat's-Thyme.*
Lin. ſyſt. 542. *Reich.* 3. 82. *Willd.* 3. 145. *mant.* 84. *Turr. farſet.* 11.
Tragoriganum creticum. *Bauh. pin.* 223. *Park. theat.* 16. *n.* 1. 17. *f.* 1. *Raii hiſt.* 523.
T. cretenſe. *Ger. emac.* 668. *f.* 3.
T. magnum. *Alp. exot.* 79. *t.* 78.
T. 2. altera ſpecies. *Cluſ. hiſt.* 1. 355.
Flowers in whorls, ſtem ſuffruticoſe erect, leaves hiſpid acuminate.]

22. Thymus virginicus. *Virginian* or *Savory Thyme.*
Lin. ſyſt. 542. *Reich.* 3. 83. *Willd.* 3. 145.
Satureia virginiana. *Lin. ſpec.* 793. *Herm. par. t.* 218. *Mill. dict. n.* 4.
Pulegium erectum virginianum anguſtifolium, floribus in cymis oppoſitis. *Mor. hiſt.* 3. 371. *ſ.* 11. *t.* 7. *f.* 8.
Clinopodium. *Lin. hort. cliff.* 304. *Gron. virg.* 65. *Pluk. phyt. t.* 54. *f.* 3.
Serpentaria virginiana. *Bocc. muſ.* 2. 161. *t.* 115.
Heads terminating, ſtem erect, leaves lanceolate.

DESCRIPTIONS, *&c.*

1. [Root woody, fibrous, brown, perennial. Stems numerous, woody, branched, leafy, pubeſcent, commonly tinged with red: branches alternate. Leaves petioled, elliptic or ovate, obtuſe, quite entire, hollow-dotted with little pellucid glands, ciliate at the baſe and on the petiole with a few fine white hairs; otherwiſe it is commonly ſmooth, though ſometimes hairy all over. Heads of flowers terminating, roundiſh, with little leaves among them. Flowers pedicelled. Calyx ſtriated or ribbed, dotted like the leaves; the two lower teeth deeply gaſhed, narrower, acute, ciliate; the mouth cloſed with white converging villoſe hairs: according to Withering, it is coloured, with a circle of white hairs running round the inſide at the baſe of the ſegments, which, while the plant is in flower, lie flat to the ſides of the calyx, but when the corolla falls off, expand and cloſe up its mouth.—Corolla purpliſh red; the upper lip erect and turning back a little; lower divided into three obtuſe ſegments, the middle one longeſt. Stamens divaricating; the pair inſerted below the upper lip ſhorter than the tube, that below the under lip longer than the tube. Anthers very minute. Style longer than the corolla and turning upwards. Seeds of a brown colour and very ſmall.

Native of Europe, on heaths and dry downs, flowering in july and auguſt.

The whole plant of Wild Thyme is fragrant, and yields an eſſential oil that is very heating. An infuſion of the leaves removes the head-ach occaſioned by a debauch. It has the ſame ſenſible qualities as Garden Thyme, but the flavour is milder, and rather more grateful. Its eſſential oil is both ſmaller in quantity and leſs acrid, and its ſpirituous extract comes greatly ſhort of the penetrating warmth and pungency of the other.

It is a common notion that the fleſh of ſheep, that feed upon aromatic plants, particularly Wild Thyme, is ſuperior in flavour to other mutton. The truth is, that ſheep do not crop theſe aromatic plants, unleſs now and then by accident, or when they are firſt turned on hungry to downs, heaths or commons; but the ſoil and ſituations favorable to aromatic plants, produce a ſhort ſweet paſturage beſt adapted to feeding ſheep, whom nature deſigned for mountains, and not for turnep grounds and rich meadows.

The attachment of bees to this and other aromatic plants is well known.

Few plants are ſubject to more varieties than Wild Thyme. In its moſt natural ſtate, on dry expoſed downs, it is ſmall and procumbent; but when it grows among furze or other plants, it runs up with a ſlender ſtalk to a foot or more in height. It differs alſo very much in the ſmoothneſs or hairineſs of its leaves. The flowers are ſometimes larger than ordinary; and of a paler purple colour, or even white.

The varieties β, γ and ε are not uncommon: δ depends principally upon the authority of Petiver, who found it in Okeyhole, Somerſetſhire. According to Miller, if it be his *glaber*] the leaves are broader and ſmoother than thoſe of the common ſort; the ſtalks grow much longer; the joints are farther diſtant, the heads of flowers are larger, and the corolla is of a brighter purple colour. There is a variety of it with variegated leaves, which was formerly planted for

edgings

edgings to borders, and is frequently brought in pots to the London markets.

1. Lemon Thyme is frequently kept in gardens, for the agreeable odour of its leaves: when this is propagated by ſeeds, the plants have not the ſame ſcent, it is therefore an accidental variety, which is preſerved by means of ſlips or cuttings. It is found wild in Kent, and at Downton-caſtle, Shropſhire.

ζ. Is known by its narrow ſmooth leaves, ſmelling like thoſe of the Walnut tree. [Dr. Woodville's figure correſponds beſt with this variety.

ε. The Hoary Wild Thyme, obſerved by Ray on Gogmagog hills, and the like barren places, ſcarcely differs in any thing from the common except in its hairineſs. The *anguſtifolium hirſutum* of Bauhin is different from this, and is perhaps a diſtinct ſpecies, n. 2.

3. The ſmall creeping Wild Thyme, without ſcent, was ſent to Plukenet from Ireland, by Bonavert.

ι. The more ſhrubby hairy Mother of Thyme, or Wild Thyme, was found by Lhwyd near Llanberys, and by James Sherard on Snowdon.

Another variety is mentioned by Linneus, with woolly heads, which are the nidus of ſome inſect. This is not uncommon in England. Veronica Chamædrys, Glecoma hederacea, Valeriana Locuſta, and other plants, are frequently diſtorted, from a ſimilar cauſe [a].

The Latin name of *Serpyllum*, and the Greek ἑρπυλλος, is derived from ἑρπω, to creep.

2. This, which is conſidered as a variety of the preceding by Linneus, is not changed into that by culture, according to Willdenow. It is a native of Germany and France, on rocks. Miller deſcribes his *lanuginoſus*] as having trailing ſlender ſtalks, with ſmall, ovate-lanceolate, hoary leaves, and the young ſhoots of the ſame year very white and hoary. The leaves are ſtiffer than thoſe of the other ſorts. The flowers, which are in round terminating heads, are of a bright purple colour. According to him, it grows naturally in the foreſt of Fontainbleau.

[3. Stems fruticuloſe, filiform, ſmooth below, villoſe above, aſh-coloured, branched: branches jointed, and forming a ring after the leaves are fallen. Leaves very ſmooth, nerveleſs, hollow-dotted on both ſides, ciliate at the baſe. Head terminating, ſeſſile, hemiſpherical, girt with many leaves of the ſame ſtructure with thoſe on the ſtem but larger. Calyx marked with raiſed hairy lines; teeth awl-ſhaped, ciliate. Corolla ſomewhat hairy. Stamens longer than the corolla [b].—Native of Arabia Felix, on mount Chadra.

4. Garden Thyme is more hoary, higher, harder and more woody than the Serpyllum or Wild Thyme; the leaves are whiter and narrower: and the flowers ſmaller [c].

Native of the South of Europe and Siberia; flowering from may to auguſt.]

Miller makes two ſpecies of the broad-leaved and narrow-leaved Garden Thyme. The latter, he ſays, has ſhorter ſtalks; the leaves are longer, narrower, and end in ſharper points, and the whole plant is hoary; the flowers grow in long whorled ſpikes, and are larger than thoſe of the common (broad-leaved) Thyme.

Tournefort has two other varieties, one very hoary, the other with the heads much ſmaller.

This herb has an agreeable aromatic ſmell, and a warm pungent taſte. The qualities are ſaid by Bergius to be reſolvent, emmenagogue, diuretic, tonic and ſtomachic; but we find no diſeaſe mentioned in which its uſe is recommended either by him or other writers on the Materia Medica. Its aromatic qualities indicate that it may be uſeful in thoſe complaints for which other verticillatæ, as lavender, ſage, roſemary, &c. are employed.—It yields a ſpecies of Camphor in diſtillation with water [d].

Thyme was cultivated in 1596 by Gerarde [e]: and doubtleſs long before; theſe aromatic herbs being ſo much uſed in cookery, before the oriental ſpices were common. In Spain they infuſe it in the pickle with which they preſerve their olives.

5. Stems numerous, branched or ſimple, pubeſcent, roundiſh. Leaves cluſtered, obtuſe, quite entire, petioled, longer than the internodes, nerved underneath, glandular-dotted. Bractes lanceolate, longer than the flower, quite entire. Flowers in whorls, cluſtered into a blunt round ſpike. Calyx round, pubeſcent, ſtriated, dotted; teeth briſtle-ſhaped, ciliate, the two lower ones longer than the other three. Corolla purple, glandular, longer than the calyx, the ſame ſize as in Garden Thyme.

Native of Mount Atlas, about Tlemſen; flowering in ſpring.

6. This is a branching ſhrub: branches ſlender, erect, pubeſcent at the upper part. Leaves quite entire, beneath nerved and dotted. Flowers cluſtered, terminating, in an oblong head. Bractes acute, nerved, length of the flowers. Calyx villoſe, ſtriated, with briſtle-ſhaped teeth. Corolla ſmall, roſe-coloured. It is allied to the next ſpecies, but has the leaves very ſmooth, not ciliate; and the bractes wider at the baſe.—Native of Barbary, near La Calle [f].

7. This has the appearance of common Garden Thyme. Branches many, recurved before flowering. Leaves rolled back longitudinally, pubeſcent above, red underneath. Petioles ciliate. Corolla white [g].—Leaves rugged, thickiſh, dotted. It varies with hairy leaves [h].

Native of Spain. Introduced in 1786, by William Pitcairn, M. D. It flowers in auguſt [i].

8. Stems half a foot high, branched at the baſe, ſeveral from one root, upright, round, pubeſcent towards the top. Leaves oppoſite, eight lines long, and a line and half wide, on very ſhort petioles, attenuated to both ends, ſmooth on both ſides, dotted underneath. Upper floral leaves like thoſe of the ſtem, but ſhorter and three-nerved. Calyxes rough-haired, ſtriated. Corollas longer than the calyx. It varies with leaves narrower by half [k] is abundantly different from the preceding, and is not even like it in habit. It derives the trivial name from L. B. Marſchall ab Biberſtein, a very ſagacious and indefatigable botaniſt, who found it in Tauria. Pallas took it for the T. Zygis [l].

9. This is a very branching, upright ſhrub: branches approximating: bark on the older branches cloven. Leaves very ſmall, perennial, very cloſe together, ſtiffiſh, nerved beneath, with the margin bent downwards and ciliate. Flowers in whorls, axillary, pedicelled, longer than the leaf, numerous. Calyx ſlender, round, ſtriated; teeth briſtle-ſhaped, ciliate, the two lower ones longer. Corolla purple, longer than the calyx, the ſame ſize as thoſe of T. Serpyllum: upper lip entire, obtuſe; the three lobes of the lower almoſt equal, rounded. Stamens ſhorter than the corolla. Style a little longer than the ſtamens. It has no glands, or very few, and flowers in winter. —Native of dry barren hills near Algiers [m].

10. Root annual, ſimple, fibrous. Stems villoſe, branched, aſcending, about ſix inches high, hairy, purpliſh: branches like the ſtalk, long, ſpreading, the bottom ones oppoſite. Leaves in diſtant pairs, ovate, acute, ſhortly petioled, moſtly ſerrate, the inner middle part next the petiole entire, the outer middle part next the point toothed, the edges turned a little back and ciliate: ſometimes quite entire or having only a ſingle notch on each ſide: they vary to roundiſh or oblong, and the upper ones taper very much at the baſe. Flowers about ſix in a whorl, each on a pedicel various in length. Calyx ſwelling at the baſe on the lower ſide, deeply grooved, the prominent ribs fringed with briſtly hairs: upper lip erect, with three broadiſh nearly equal ſegments; lower projecting in two narrow ſharp ones: mouth fringed with white hairs, which pointing inwards completely cloſe it when

[a] Curtis, Smith, Withering, Lewis, Woodville.
[b] Vahl. [c] Villars. [d] Woodville.
[e] Hort. kew. [f] Desfontaines. [g] Linn. mant. [h] Willdenow.
[i] Hort. kew. [k] Willdenow. [l] Desfontaines.

the corolla is fallen. Corolla purple: tube dilated upwards: upper lip ſhorter, blunt, turned back, ſlightly notched; lower of three roundiſh ſegments, the middle one longer, obcordate, marked at the baſe with a raiſed white ſemilunar ſpot, and a ſpot or two of darker purple. Anthers ſmall, red. Style the length of the ſtamens. Seeds oblong.

Native of Europe, in dry hilly fields, eſpecially in a calcareous ſoil: flowering in july and auguſt. Not uncommon in England: as about Charlton, Dartford, and other parts of Kent; in Surry and Norfolk not unfrequent; Gogmagog hills and Newmarket heath in Cambridgeſhire; Barton hill and Aſpley in Bedfordſhire; Headington Wick, Stonesfield and South Leigh in Oxfordſhire; on St. Vincent's rocks near Briſtol; on the ſide of Hamilton, Yorkſhire; &c.

It has a pleaſant aromatic ſmell, but commonly much weaker than in T. Serpyllum, to which it bears very little reſemblance: it is much more like T. alpinus, but the flowers of that are nearly twice as large, and the ſwelling at the baſe of the calyx is not ſo conſiderable [k].

11. From a perennial fibrous root, ariſe many ſtems, from a palm to a foot in height, aſcending, pubeſcent, branched. Leaves ovate or lanceolate, acute, ſomewhat villoſe, more or leſs ſerrate above the middle, petioled. The whorls have about ten flowers. Peduncles one-flowered, axillary, ſhort. Calyx ten-ſtreaked, pubeſcent. Corolla pale red [l]: a little larger than that of T. Acinos, according to Desfontaines.

Willdenow remarks, that it is very nearly allied to the next ſpecies.—It ſeems to be biennial, if not annual.

Suppoſed to be a native of the South of Europe and Hungary. Desfontaines found it near Maſcar in Barbary.—Boccone had the plant from the Padua garden; and Jacquin received the ſeeds at various times from ſeveral botaniſts, under Boccone's name. —It was introduced in 1776, by Joſeph Nicholas de Jacquin, M.D. and flowers here from june to auguſt [k].

12. This is allied nearly to T. Acinos, but it is a larger plant, and the flowers are three times as big, peduncled, four on each ſide.

According to Scopoli, the leaves are ovate, toothed here and there above the middle, on villoſe petioles. Peduncles villoſe, two lines long, ſhorter than the calyxes, and theſe ſhorter than the corolla. Calyx ſtriated, hairy, more or leſs violet-coloured. Corolla red; the middle ſegment emarginate.

Villars ſays, it differs from T. Acinos, in having larger, greener and leſs hard leaves; ſtems lower and leſs branched; flowers twice as large, with the calyx coloured not gibbous.

Krocker ſays, that the flowers are three times as big as thoſe of T. Acinos, and redder; the leaves more orbicular, and leſs ſerrate; almoſt indeed quite entire.

Native of the South of France, Auſtria, Carniolia, Switzerland, and Italy.—It was cultivated in 1731, by Mr. Miller [l]: who ſays that he received the ſeeds from Auſtria, Iſtria and Bohemia. It flowers from june to ſeptember.

Villars ſays, it has an aromatic odour, with an agreeable acid, approaching to that of lemon, in which as well as in its characters it approaches nearer to the Calamints and Meliſſa than to Serpyllum. Accordingly Scopoli has united them, and Dr. Smith has united the Calamints to this genus.

13. Stem half a foot high, erect, branched, pubeſcent at the corners. Leaves petioled, blunt, ſmooth, dotted on both ſides, veined beneath. Whorls many-flowered. Calyxes ſtriated, with the three upper teeth oblong, cuſped, ſmooth, and the two lower lanceolate-ſubulate, longer, ciliate.—Native of the Carpathian mountains, the Valais and Piedmont [m].

Allioni ſays, it conſtantly preſerved its hairineſs, the ſize of its leaves, and its peculiar habit, for many years, when cultivated in the Botanic Garden at Turin.

14. Stem almoſt decumbent, round, ſimple or little branched; the firſt branches oppoſite, the reſt alternate. Leaves ſubſeſſile, with the aromatic odour of Serpyllum. The ſtems and branchlets begin to flower about the middle. From each axil iſſues a ſhort peduncle ſupporting three or five flowers, the two lower of which flower later, the middle one earlier, without any bractes, and on a longer peduncle. Calyx ſtriated, cylindrical, the teeth ending in a ſpinule, the three upper ones a little ſhorter. Corolla purple; tube twice as long as the calyx; upper lip erect, cordate, roundly emarginate; lower trifid, the lateral ſegments ovate, the middle one wider, emarginate. Filaments very ſhort: anthers ſemilunar, purple on the inner, white on the outer part. Style ſhorter than the anthers. This plant is nearer to Meliſſa than to Thymus [n].

Dav. Royen remarks, that it reſembles Meliſſa Nepeta, but is ſmooth, and that the leaves are very ſmall.

Vahl ſays, that he has obſerved numerous individuals of this ſpecies, in ſome places ſcarcely a finger's length and decumbent, with the leaves in cluſters, and fewer flowers in the axils; but for the moſt part half a foot high, with many-flowered peduncles. The leaves are always a little thickened at the edge, and the keel is ciliate.—Forſkahl's plant differs from Linneus's only in being ſmaller in all its parts.

Native of Spain, Barbary and Arabia.

15. This is very ſmall and herbaceous. Flowers ſolitary, acute, on a very ſhort peduncle. Upper lip of the corolla ſlightly bifid, erect; middle ſegment of the lower larger, cordate.—Native of Jamaica, in many parts [o].

16. Native of the Balearic iſlands, Majorica, Minorca and Yvica. Introduced in 1770, by Mr. William Malcolm. It flowers in june and july [p].]

17. This has a low woody ſtem, from which come out many ſtiff branches five or ſix inches long. Leaves ſmall, narrow. Heads of flowers pretty large, terminating. Corolla white and very ſmall. The whole plant is hoary, and has a weak aromatic ſcent.

[Stems filiform, purpliſh, with a few ſimple oppoſite flowering-branches at top, ſomewhat villoſe and of an aſh-colour. Leaves ſeſſile, ſpreading, nerveleſs, ciliate at the baſe, a little bent back at the edge, dotted on both ſides: two under the heads linear-lanceolate, a little longer, obſcurely oblique-nerved. Bundles of leaves in all the axils. Heads at the ends of the ſtem and upper branches, ſolitary, the ſize of a hazel nut. Bractes obliquely nerved, membranaceous, purple, acuminate, quite entire, ciliate. Calyxes purple: the upper lip a little wider: teeth briſtle-ſhaped; the two lower cliate [q].

Native of Spain and Portugal.—Tournefort diſtinguiſhes three varieties: one with very wide bractes; a ſecond with larger heads, and a third with ſmaller heads.

18. This differs from the preceding, in having ſhorter ſtiffer ſtems, not branched at top; wider, upright leaves, ſtriated beneath, ſerrate, dotted only at the edge; the heads ſmaller, cloſely imbricate; the bractes ſtriated, ſmaller, dotted.

Native of the kingdom of Naples, whence it was ſent to Vahl by Cyrillo [r].]

19. This has ſlender, woody, hairy ſtalks, which grow erect about ſix inches high. The lower leaves come out in cluſters, but the upper ones are in pairs. The ſtalks are terminated by ſingle ſcaly heads. The leafy ſcales are indented in acute points, and the purple flowers peep out between them in july; but they do not produce ſeeds in England.—Native of Portugal.

[This and the cephalotus were cultivated by Mr. Miller in 1759.

20. This is an intermediate ſpecies between Satureia and Thymus, but ſince the ſtamens are concealed

[k] Curtis, Engl. bot. [l] Jacqu. obſ. [m] Willdenow. [n] Allioni. [o] Browne. [p] Hort. kew. [q] Vahl. [r] Idem.

in the bottom of the corolla, and the ſtyle is longer than the corolla, Linnæus refers it to this genus. Whorls ſeveral, diſtant. Corollas white, the length of the calyx[s].

It is a ſhrub, a foot in height, or a little more. Leaves heaped on the ſtem, linear or even ovate, the lower hoary beneath, the upper ones ſmooth. Whorls hirſute. Teeth of the calyx hairy and as it were feathered[t].

Native of Spain. Cultivated by Gerarde in 1596[u]. It is omitted in the later editions of Miller's Dictionary.

21. This is a ſweet-ſmelling plant. Stems hirſute, a foot high. Leaves acuminate both ways, and ſtiffiſh.—Native of the iſland of Candia or Crete[x].]

22. Root perennial; but the ſtalk annual, riſing about a foot and half high, ſtiff, angular, branching out towards the top. Leaves ſtiff, pointed, about an inch and half long, and a quarter of an inch broad in the middle, pointed at both ends, and having a ſtrong ſcent of Pennyroyal. Flowers white, collected into globular heads. They appear in july; but the ſeeds ſeldom ripen in England.—Native of North America. [It was cultivated in 1739, by Mr. Miller[y].]

PROPAGATION AND CULTURE.

1. The common Mother of Thyme or Wild Thyme, is very frequent on dry paſtures, and is very rarely admitted into gardens. This plant may be propagated either by ſeeds or parting the roots; the ſeaſon for either is in march or october. If it is propagated by ſeeds, they ſhould be ſown upon a bed of light earth, obſerving not to bury the ſeeds too deep, which will cauſe them to rot, nor to ſow them too thick, for the ſeeds are very ſmall. When the plants are come up, they ſhould be carefully cleared from weeds; and if the ſpring ſhould prove dry, and they are watered twice a week, it will greatly promote their growth. In june the plants ſhould be thinned, leaving them about ſix inches aſunder each way, that they may have room to ſpread; and thoſe plants which are drawn out may be tranſplanted into freſh beds at the ſame diſtance, obſerving to water them until they have taken root; after which they will require no farther care but to keep them clear from weeds, and the winter following they may be drawn up for uſe.

But if the plants are propagated by parting their roots, the old plants ſhould be taken up at the times before mentioned, and ſlipped into as many parts as can be taken off the root; theſe ſhould be tranſplanted into beds of freſh light earth, at ſix or eight inches diſtance, obſerving, if the ſeaſon is dry, to water them until they have taken root, after which they muſt be duly weeded, and they will thrive, and ſoon be fit for uſe.

In order to ſave the ſeeds of theſe plants, ſome of the old roots ſhould remain unremoved in the place where they were ſown the preceding year; theſe will flower in june, and in july the ſeeds will ripen, which muſt be taken as ſoon as ripe, and beat out, otherwiſe the firſt rain will waſh it all out of the huſks.

Theſe plants root greatly in the ground, and thereby draw out the goodneſs of the ſoil ſooner than moſt other plants; ſo that whatever is ſown or planted upon a ſpot of ground whereon Thyme grew the preceding year, will ſeldom thrive, unleſs the ground be trenched deeper than the Thyme rooted, and well dunged.

If this plant grows upon walls, or on dry, poor, ſtony land, it will endure the greateſt cold of this country; but in rich ground where the plants grow vigorouſly, they are ſometimes deſtroyed by ſevere froſt.

There is a variety of this with variegated leaves, which is by ſome preſerved in their gardens.

7. 16. 17. 19. 20. Theſe may be increaſed by ſlips, planted in april, on an eaſt border, and cloſely covered with a bell or hand-glaſs, refreſhing them twice a week with water, in a moderate quantity. When they have put out good roots, tranſplant ſome into pots, to be ſheltered under a frame in winter, and plant the reſt on a warm border of dry ground, obſerving to ſhade and water them till they have taken new root: in ſevere froſt, the latter will generally be deſtroyed. They may alſo be propagated by ſeeds, ſown on a bed of light earth, in the ſame way as common Marjoram.

Moſt of the other ſorts may be increaſed by ſlips or parting the roots. Or the ſeeds may be ſown in the ſpring. They delight in dry undunged ground, where ſome of them will increaſe by their trailing ſtalks.

[THYMUS. See *Cunila*, *Meliſſa*, *Satureia*, *Ziziphora*.

THYRSINE. See *Cytinus*.

THYRSIS. See *Dianthus barbatus*.

THYSSELINUM. See *Selinum*.]

TIARELLA. (*Dimin. from* Tiara.)

Lin. gen. n. 560. *Reich. n.* 609. *Schreb. n.* 765. *Juſſ.* 309.

Claſſ. 10. 2. Decandria Digynia.

Nat. order of *Succulentæ*. *Saxifragæ* Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* one-leafed, five-parted: *ſegments* ovate, acute, permanent.

COR. *Petals* five, oblong, permanent, entire, inſerted into the calyx.

STAM. *Filaments* ten, filiform, longer than the corolla; inſerted into the calyx. *Anthers* roundiſh.

PIST. *Germ* bifid, ending in two very ſhort *Styles*. *Stigmas* ſimple.

PER. *Capſule* oblong, one-celled, two-valved: *valves* flattiſh, one twice as long as the other.

SEEDS numerous, ovate, ſhining.

ESSENTIAL CHARACTER.

Cal. five-parted. *Cor.* five-petalled, inſerted into the calyx: petals entire. *Capſ.* one-celled, two-valved, with one valve larger.

SPECIES.

1. Tiarella cordifolia. *Heart-leaved Tiarella.*
   Lin. ſpec. 580. *Reich.* 2. 322. *Willd.* 2. 659. *amoen.* 3. 17.
   Mitella nudo ſcapo. *Lin. hort. cliff.* 167. *Gron. virg.* 160.
   Cortuſa americana, flore ſpicato, petalis integris. *Herm. par. t.* 129.
   Leaves cordate.
2. Tiarella trifoliata. *Three-leaved Tiarella.*
   Lin. ſpec. 580. *Reich.* 2. 322. *Willd.* 2. 659. *amoen.* 3. 17.
   Mitella foliis ternatis. *Lin. amoen.* 2. 351.
   Leaves ternate.

DESCRIPTIONS, *&c.*

1. This has a perennial fibrous root, which creeps. Leaves of a light green colour, unequally indented on their edges, on ſlender foot-ſtalks, three inches long, ariſing immediately from the root. Flower-ſtalks ſlender, naked, about four inches long, ariſing alſo from the root between the leaves, and terminated by a looſe ſpike of ſmall herbaceous white flowers, which appear in may, but are ſeldom followed by ſeeds in England. Native of North America, [and the northern part of Aſia.

Retzius has a ſpecies (*obſ.* 3. 30. *n.* 48.) which he names *unifolia*, from its having a ſingle leaf upon the ſtem. All the leaves are cordate. It is much ſmaller than the *cordifolia*; the leaves are not lobed, the ſcape is few-flowered, and the ſingle leaf on it is almoſt ſeſſile.

In *cordifolia* the ſcape is quite naked; and the leaves are duſky, ſublobed, and have the notches more frequent.—*T. unifolia* is a native of Newfoundland.]

2. This alſo has a perennial fibrous root, from which ſpring up a few trifoliate petioled leaves, like thoſe of the Bilberry, but much ſmaller. The ſtalk is ſlender, and riſes five or ſix inches high; it is rough and hairy, has two leaves at the bottom, and one towards the top, a little below the ſpike of flowers; they are angular and ſerrate. The ſtalk is terminated by a looſe ſpike of white flowers, which appear early in may; but the plants rarely produce any ſeeds in England. Native of the northern parts of Aſia. Both the ſorts were cultivated by Mr. Miller in 1759.

[s] Linn. mant. [t] Aſſo. [u] Hort. kew.
[x] Linn. mant. [y] Hort. kew.

PROPAGATION AND CULTURE.

Theſe plants are propagated by parting the roots, which ſpread in the ground, and ſhoot up heads, which may be taken off and tranſplanted in the autumn. They love a moiſt ſoil and a ſhady ſituation, and require no other care but to keep them clean from weeds.

TIBOUCHINA. See *Melaſtoma.*

TICKSEED. See *Coriſpermum.*

——— Sun-flower. See *Coreopſis.*

TIERA-KUREN-PULLU. See *Saccharum.*

TIGAREA. See *Tetracera.*

TIOLIUM. See *Croton.*

TIL. See *Laurus ſaſſafras.*

TILIA (*of Pliny, &c. Derivation uncertain.—Papias ſays it is ſo named quaſi* telia, *quod lignum ejus ad* telorum *uſum ſit utile, ob levitatem ejus. Martinius derives it from* πτιλον *penna; on account of the whiteneſs of the bracteæ.* Voſſius. *The Dictionaries derive it from* πτελεα, *Ulmus.*)

Lin. gen. n. 660. *Reich. n.* 717. *Schreb. n.* 894. *Tournef. t.* 381. *Juſſ.* 292. *Gærtn. t.* 113.

Claſſ. 13. 1. Polyandria Monogynia.

Nat. order of *Columniferæ. Tiliaceæ* Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* five-parted, concave, coloured, almoſt the ſize of the corolla, deciduous.

COR. *Petals* five, oblong, obtuſe, crenate at the tip.

STAM. *Filaments* numerous (thirty and more) awl-ſhaped, length of the corolla. *Anthers* ſimple.

PIST. *Germ* roundiſh. *Style* filiform, length of the ſtamens. *Stigma* a blunt pentagon.

PER. *Capſule* coriaceous, globular, five-celled, five-valved, opening at the baſe.

SEEDS ſolitary, roundiſh.

OBS. *One ſeed only commonly comes to maturity, and drives the other abortive ones to one ſide, ſo that, to an incautious obſerver, the capſule appears to be one-celled.*

T. americana *has five ſcales placed round the germ, annexed to the claws of the corolla.*

ESSENTIAL CHARACTER.

Cal. five-parted. *Cor.* five-petalled. *Capſ.* coriaceous, globular, five-celled, five-valved, opening at the baſe, one-ſeeded.

SPECIES.

1. Tilia europæa. *European Lime Tree.*
Lin. ſpec. 733. *ſuſt.* 660. *Reich.* 2. 584. *Willd.* 2. 1161. *mat. med.* 136. *hort. cliff.* 204. *fl. ſuec. n.* 471. *Gærtn. fruct.* 2. 150. *Hudſ. angl.* 231. *Wither. arr. ed.* 3. 490. *Smith. brit.* 571. *engl. bot. t.* 610. *Lightf. ſcot.* 280. *Relh. cant. ed.* 2. *n.* 445. *Sibth. oxon. n.* 477. *Fl. dan. t.* 553. *Hall. helv. n.* 1030. *Roth. germ.* 1. 229. 2. 587. *Leers herborn. n.* 407. *Pollich pal. n.* 510. *Neck. gallob.* 232. *Crantz auſtr.* 96. *Krock. ſileſ. n.* 824. *Villars dauph.* 3. 798. *Allion. pedem. n.* 1626. *Gmel. ſib.* 4. 179. *Ludw. ect. t.* 48. *Knipb. cent.* 10. *n.* 87. *Knorr. del.* 1. *t.* L. 11. *Willd. arb.* 387. *Regnault bot. Hunt. Evel. ſilva ed.* 1. 201. *ed.* 2. 194.

α. T. europæa communis. *Common Lime Tree.*
T. grandifolia. *Hoffm. germ.* 184. *Du Roi barbecc.* 2. 461.
T. platyphyllos. *Scop. carn. n.* 641.
T. vulgaris platyphyllos. *Baub. biſt.* 1. 2. 133. *Raii biſt.* 1694. *ſyn.* 473.
T. fœmina. *Ger.* 1298. *emac.* 1483. *Fuchſ. biſt.* 862. *Matth.* 174.—major. *Park. theat.* 1407. *f.* 2.—folio majore. *Baub. pin.* 426. *Blackw. t.* 469.
T. urbana. *Geſn. t.* 3.
Tilia. *Trag. biſt.* 1110. *Dod. pempt.* 838.

β. T. montana maximo folio. *Baub. pin.* 426. *Raii biſt.* 1695.

γ. T. europæa parvifolia. *Small-leaved Lime Tree. Hoffm. germ.* 185.
T. ulmifolia. *Scop. carn. n.* 642.
T. cordata. *Mill. dict. n.* 1. *Du Roi barbecc.* 2. 466.
T. folio minore. *Baub. biſt.* 1. 2. 137. *Raii biſt.* 1695. *ſyn.* 473.
T. fœmina folio minore. *Baub. pin.* 426.
T. fœmina minor. *Park. theat.* 1407. *n.* 3.

δ. T. ulmifolia, ſemine hexagono. *Merr. pin. Raii ſyn.* 473.

ε. T. europæa corallina. *Red-twigged Lime Tree. Ait. kew.* 2. 229. β.
T. foliis molliter hirſutis, viminibus rubris, fructu tetragono. *Raii ſyn.* 473.

ζ. T. bohemica, foliis minoribus glabris, fructu oblongo utrinque acuminato minimo coſtulato. *Tilii piſan.* 165.
Flowers deſtitute of a nectary, leaves cordate, at the branches of the veins villoſe underneath.

2. Tilia americana. *Broad-leaved American Lime Tree.*
Lin. ſpec. 733. *Reich.* 2. 584. *Willd.* 2. 1162. *Ait. kew.* 2. 229.
T. caroliniana. *Wangenh. amer.* 56. *Du Roi barbecc.* 2. 469.
T. foliis majoribus mucronatis. *Gron. virg.* 58.
T. ampliſſimis glabris foliis, noſtrati ſimilis. *Pluk. mant.* 181.
Flowers furniſhed with nectaries, leaves deeply cordate ſharply ſerrate ſmooth.

3. Tilia pubeſcens. *Pubeſcent Carolina Lime Tree.*
Lin. ſpec. ed. Willd. 2. 1162. *Ait. kew.* 2. 229.
T. caroliniana. *Mill. dict. n.* 4.
T. americana. *Wangenh. amer.* 55.
Flowers furniſhed with nectaries, leaves truncate at the baſe oblique toothlet-ſerrate pubeſcent underneath.

[4. Tilia alba. *White Lime Tree.*
Lin. ſpec. ed. Willd. 2. 1162. *arb.* 389. *Waldſt. et Kitaibel hung. t.* 3.
T. tomentoſa. *Moench. weiſſenſt.* 136.
T. americana. *Du Roi barbecc.* 2. 467.
Leaves deeply cordate ſubſinuate toothed tomentoſe underneath.

DESCRIPTIONS, *&c.*

1. The Lime or Linden is a tall upright tree, with ſmooth ſpreading branches, thickly clothed with alternate, petioled, heart-ſhaped, ſmooth, ſerrate leaves, pointed at the end, oblique at the baſe, glaucous beneath, and the veins, where they branch off from the nerve, being furniſhed with a tuft of glandular wool, as in the Laurus-tinus. The flowers, which are delightfully fragrant, eſpecially at night, come forth in July, in umbels or cymes, (from three to five together,) on long axillary peduncles, with a ſingular oblong, blunt, membranaceous, pale, entire bracte, nearly as long as the peduncle, and attached to it for about half its length, and falling off with it. Calyx green with a downy edge. Petals yellowiſh, obtuſe, concave. Stamens filiform. Stigma five-cleft. Germ villoſe, depreſſed. Capſule ſmooth, with from four to eight unequal angles: commonly one-celled and one-ſeeded, ſpongy within, with moſt of the cells abortive. Seed roundiſh*.

Gærtner deſcribes the capſule as coriaceous, ſubturbinate or ovate-globular, terminated by a long permanent ſtyle, indiſtinctly angular with five filiform ribs, of a duſky or ſmoky colour, pubeſcent, five-celled, valveleſs: partitions membranaceous, very thin, white, obverſe to the ribs. Receptacle none: but two ovaries one above the other faſtened to the central angle of the cells. Seeds ſolitary, or ſometimes, but very ſeldom, two in a cell, but it rarely happens that more than one ripens: ſhape ovate-acuminate, convex on one ſide, on the other obſcurely angular, marked on the middle of the belly with an oblong umbilical ſcar, and having a ſmall excavation at the vertex; it is ſmooth and of a pale reddiſh brown colour.

Gærtner could not obſerve that the capſules ever open ſpontaneouſly from the baſe, as Linneus affirms they do, nor could he even diſcover any veſtiges of ſutures, he therefore ſuſpects that they burſt rather than ſeparate regularly.

It is remarkable that the cotyledons of the Lime tree are ſubtrilobate and toothed; and it is peculiar to it, as far as we know, that theſe are already toothed whilſt they are lying within the coats of the ſeed*.

* Smith brit. & engl. bot. * Gærtner.

Native of Europe, and according to Thunberg of Japan.—The ſmall-leaved variety is truly wild in many parts of England, in woods and on graſſy declivities: the common broad-leaved and other varieties are more commonly ſeen cultivated in hedges, avenues, parks and before houſes. It will in ſome degree bear the ſmoke of London[b]. The Lime-trees in St. James's park are ſaid to have been planted at the ſuggeſtion of Mr. Evelyn[c]. Probably with a view to the improvement of the air, and to avert, in part, the evils pointed out in his Fumifugium. The Dutch plant this tree very much by the ſide of their canals. The whole country is perfumed by the flowers during the months of july and auguſt; when the ſtagnant water of the canals in many parts would otherwiſe be very diſagreeable at that ſeaſon. As an ornamental tree it is common in Germany, Switzerland, &c. And in England it was formerly much more cultivated than it is at preſent.] Of late years, ſays Mr. Miller, the Lime tree has been little eſteemed, becauſe it is late in the ſpring before the leaves come out, and they begin to decay firſt in autumn; and when it is planted in a dry ſoil, the leaves frequently fall off in july, and continue to make a litter all the remaining part of the ſummer.

[It was highly eſteemed by the Romans for its ſhade, and the numerous uſes for which it ſerved: "Tiliæ ad mille uſus petendæ."

Mr. Evelyn ſpeaks of it, as "a ſhameful negligence, that we are no better provided of nurſeries, for a tree ſo choice, and univerſally acceptable: for in his time they ſent into Holland and Flanders, to our exceſſive coſt, whilſt our own woods ſpontaneouſly produce them, and though of ſomewhat a ſmaller leaf, yet altogether as good, apt to be civilized, and made more florid."

However the Lime tree may be now gone out of faſhion, it is certainly a handſome tree, having a ſmooth taper ſtraight trunk, and the branches forming a beautiful cone. The foliage alſo is ſmooth and elegant. It will grow to a very large ſize, and the ſhade being reputed excellent, it was proper for avenues, when they were in requeſt. It makes a fine detached object in parks and open lawns, planted ſingly. The branches are ſo tough as ſeldom to be broken by the winds; and if they are, no tree heals its wounds ſooner. To all this we may add the fragrancy of the flowers, which are continually haunted by bees[d].

Lime-tree wood is turned into light bowls and diſhes, and into boxes for the apothecaries. With the twigs they make baſkets and cradles. Formerly the bark was uſed for writing tablets. Shoemakers make dreſſers of the plank to cut leather on.* The truncheons make a far better coal for gunpowder than that of Alder itſelf, and alſo ſcriblets for painters firſt draughts. The wood is ſoft, light and ſmooth, cloſe grained and not ſubject to the worm. The moſt elegant uſe to which it is applied, is for carving. Many of Gibbons's beautiful works in Lime-tree are diſperſed about the kingdom, in our churches and palaces; as in the choir of St. Paul's, the Duke of Devonſhire's at Chatſworth, Trinity College Library at Cambridge, &c.—Mr. Evelyn firſt recommended him to King Charles the Second[e]. The ſap inſpiſſated affords a quantity of ſugar.

Mr. Boutcher remarks, that the timber is ſtronger and lighter than any ſort of Willow; and makes a proper lining for rooms, which when painted will laſt long.]

The Lime-tree will continue growing, and remain ſound a great number of years: in a good loamy ſoil, it will alſo grow to a conſiderable bulk. One of theſe trees was near ten yards in girth two feet above the ground, and was then in a thriving condition. Sir Thomas Brown mentions one of theſe trees which grew at Depeham in Norfolk, that was ſixteen yards in circuit, about half a yard high, almoſt twelve yards near the ground, and in the leaſt part of the trunk eight yards and a half; it was thirty yards in height.

[A Lime-tree is deſcribed by Dr. Turner as growing in a park near Colcheſter; it muſt therefore have been cultivated in England before 1562.

There are or were ſeveral very large trees of this kind in Switzerland: as one near Morges twenty-four feet four inches in circumference; another near the great church at Berne, thirty-ſix feet in girth, planted before 1410; the hollow trunk of which exiſted in 1720; and a third near Morat, at leaſt thirty-ſix feet round, and not leſs than ninety feet high, it was lopped in 1550, and is now, or was lately ſtanding[f].

Mr. Evelyn gives an account of ſeveral enormous Lime-trees in Switzerland, Germany and Hungary[g].

The Italians and French have followed the Latin name in *Tiglio* and *Tilleul*: we have adopted the German Linden, in our *Lime*, or as it is in Gerarde *Line-tree*.

In Lincolnſhire, as Mr. Ray was informed by Dr. Martin Liſter, it is called *Baſt*, becauſe they make ropes of the bark.—This, by maceration, ſeparates into thin tough layers, and is uſed for making the mats uſed by gardeners, and called in the north of Europe *Baſt*. They form a conſiderable part of the exports from Ruſſia. This quality in the bark, and a great degree of viſcidity in the whole tree, evince its acknowledged affinity to the Mallow tribe[h].

Mr. Miller makes two ſpecies of our European Lime tree, the *cordata*, which is the ſmall-leaved one, wild in England, and the *europæa*, to which he gives Ray's ſynonym of the red-twigged Lime tree.] Of the firſt, he ſays, there are two or three varieties, which differ in the ſize and ſmoothneſs of the leaves, ſome having much larger and rougher leaves than others; but they vary from one to the other, when raiſed from ſeed, and it is even doubtful whether the ſecond (europæa) be more than a ſeminal variety. The large-leaved Dutch Lime (maxima β.) was generally preferred to our common ſort, for the ſize of its leaves.

[Scopoli alſo, following Haller, diſtinguiſhes the large-leaved and ſmall-leaved varieties. The former, he ſays, not only has the leaves larger, but ſofter and ſomewhat hairy or villoſe; in the latter they are harder, and no where villoſe: this likewiſe flowers two or three weeks later.

2. Was obſerved by Merret at Whitſtable and near Darking in Surry.—The Red Lime[i] was found growing naturally in Stokenchurch-wood, by Bobart, and lately by Sibthorp.

In Ray's ſynopſis (ed. 3.) three varieties are remarked in St. James's-park. 1. The ſmooth ſmall-leaved. 2. The ſmooth large-leaved. 3. The ſoftly hairy-leaved. 4. There is a fourth with wrinkled leaves not hairy; of which Mr. Doody obſerved ſeveral trees on Enfield-green going to the Chaſe.

Beſides all theſe, there is a variety with ſtriped leaves.]

2. This was brought from New England by the name of Black Lime; the branches being covered with a dark brown bark. The leaves are large, heart-ſhaped, end in acute points, are deeply ſerrate, and of a full green on their upper ſide, but of a pale green and a little hairy on their under ſide; ſtanding upon long ſlender foot-ſtalks. The petals are narrower, and have nectariums growing to their baſe. The flowers do not appear till late in july, a full month after the common ſort. The capſules are ſmaller, rounder, and leſs hairy than in that.

[Native of Virginia and Canada. Cultivated in 1752 by Mr. Miller[k].]

3. This tree ſeems to be of much ſmaller growth than either of the former; the branches ſpread more horizontally; the leaves are ſmaller, and have a ſmoother ſurface, they are heart-ſhaped but the mid-rib runs obliquely to the foot-ſtalk, ſo that one ſide of the leaf is much larger than the other, the edges are ſlightly ſerrate and their ends run out into long acute

[b] Engl. bot.
[c] Gough's accod. of Brit. topogr. 627. See Baukin's hiſtory and Ray's ſynopſis.
[d] Hunter's Evelyn.
[e] Evelyn's ſilva.
[f] Coxe's Switzerl. 2. 64.
[g] Sylva, b. 3. ch. 3.
[h] Engl. bot.
[i] Hort. kew.
[k] Miller's dict.

points.

points. The bunches of flowers ſtand upon long ſlender foot-ſtalks; the petals are narrow, and end in acute points; they have each a narrow nectarium faſtened to their baſe on the inſide ſtanding erect cloſe to the petals. The flowers emit a very fragrant odour, and are continually haunted by bees during their continuance: they come out towards the end of July, and when the ſeaſon proves favourable, the ſeeds ripen in autumn.

The ſeeds were brought from Carolina by Mr. Cateſby: [it was therefore introduced about the year 1726 [k].

4. The leaves are ſnow-white beneath. The flowers as in *T. americana*, but ſmaller. In the *hortus kewenſis* it is ſaid to be a native of North America, but no authority is given; and Kitaibel having lately diſcovered woods of this ſpecies in Hungary, its ſuppoſed American origin muſt be conſidered as doubtful [l].

It was cultivated in 1767, by Mr. James Gordon [m].]

PROPAGATION AND CULTURE.

All theſe trees are eaſily propagated by layers, which in one year will take good root, and may then be taken off, and planted in a nurſery, at four feet diſtance row from row, and two feet aſunder in the rows. The beſt time to lay them down and to remove them, is at michaelmas, or ſoon after, when their leaves begin to fall, that they may take root before the froſt comes on, though they may be laid and tranſplanted any time from ſeptember to march, in open weather; but if the ſoil is dry, it is much the better way to remove them in autumn, becauſe it will ſave a great expence in watering them, eſpecially if the ſpring ſhould prove dry. In this nurſery they may remain four or five years, during which time the ground ſhould be dug every ſpring, and conſtantly kept clear from weeds, and the large ſide ſhoots pruned off, to cauſe them to advance in height; but the ſmall twigs muſt not be pruned off from the ſtems, becauſe theſe are abſolutely neceſſary to detain the ſap, for the augmentation of their trunks, which are apt to ſhoot up too ſlender, when they are entirely diveſted of all their lateral twigs. If the ſoil in which they are planted be a fat loam, they will make a prodigious progreſs in their growth, ſo that in three years time they will be fit to tranſplant out where they are to remain.

They may alſo be propagated by cuttings, but, as this method is not ſo certain as by layers, that method is generally practiſed. In order to obtain proper ſhoots for laying down, a Lime-tree is cut down cloſe to the ground, from the roots of which a great number of ſtrong ſhoots are produced the following year; theſe will be ſtrong enough to lay down the following autumn, eſpecially if the ſmalleſt of them are cut off cloſe early in the ſummer; for when too many ſhoots are ſuffered to grow all the ſummer, they will be much weaker, than if only a ſufficient quantity is left. See LAYING.

There are ſome perſons who raiſe theſe trees from ſeeds, which, although it is a ſlower way, yet when the trees are deſigned to grow large, is the beſt method; and if they are only once tranſplanted, and this performed while they are young, it will be ſtill the better way; for all trees that are tranſplanted when large, are ſhorter lived than thoſe which remain in the places where they aroſe from ſeeds, and their timber will be ſounder, and grow to a much larger ſize.

When this method is practiſed, the ſeeds ſhould be ſown in autumn ſoon after they are ripe, upon a ſhady border of moiſt light ſoil, where the plants will come up the following ſpring; but, when the ſeeds are kept out of the ground till ſpring, the plants will not come up till the year after. When they appear, keep them clean from weeds till the following autumn, and then careſully take them up and tranſplant them into a nurſery, where they may grow two or three years to get ſtrength, and then may be planted where they are deſigned to remain.

[Mr. Boutcher recommends the ſeeds to be gathered at the end of octobet, when they are ripe, and after being quite dry, to mix them with ſand, to protect them from froſt and rain, and to ſow them the beginning of march.

Dr. Hunter directs the ſeeds to be ſown in beds three feet and a half or four feet wide, about an inch aſunder, covering them three quarters of an inch or an inch deep. They will appear in the ſpring; during ſummer they muſt be weeded, and in very dry weather watered a little: before winter ſift ſome aſhes over them to deſtroy the moſs. In two years they will be fit to plant out in the nurſery, in rows two feet and a half aſunder, and each tree at eighteen inches diſtance, ſhortening the roots a little, and cutting off any ſide branches. They will bear removing at any ſize.

If they are wanted to remove large, ſays Mr. Boutcher, they muſt be removed again and again every four years. At eleven years old they will be twenty feet high, and at ſixteen years old, from thirty to thirty-five. This may do for a few trees deſtined to ſome particular purpoſe; but for utility they can hardly be finally tranſplanted too young.

In taking up layers, Mr. Boutcher directs the roots to be moderately ſhortened, and ſuch as croſs each other to be cut away. If the layer be well rooted and thick in proportion to its height, plant it at full length of a foot or ſix inches, according to its ſize and quantity of roots. Plant theſe layers in rows three feet aſunder, and at fifteen inches diſtance in the row.

The Lime-tree will grow in almoſt any ſoil and ſituation; but in thin ſoils the leaves are often infeſted with inſects, and fall early in autumn, eſpecially in dry ſeaſons.

TILIA. See *Boſea*.

TILIÆ AFFINIS. See *Malpighia*.

TILLÆA. (*So named by Micheli, in honour of Michael Angelo Tilli, M. D. F. R. S. born* 1653, *Profeſſor of Botany at Piſa, author of* Horti Piſani catalogus, *Flor.* 1723. *fol. with fifty plates. It contains a few rare plants obſerved by him in two voyages to Conſtantinople and Tunis.*)

Lin. gen. n. 177. *Reich. n.* 189. *Schreb. n.* 237. *Mich.* 20. *Gærtn. t.* 112. *Juſſ.* 307.

Claſs. 4. 3. Tetrandria Tetragynia.

Nat. order of *Succulentæ*. *Sempervivæ* Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* four-parted, flat: *ſegments* ovate, large.

COR. *Petals* four, ovate, acute, flat, commonly ſmaller than the calyx.

STAM. *Filaments* four, ſimple, ſhorter than the corolla. *Anthers* ſmall.

PIST. *Germs* four. *Styles* ſimple. *Stigmas* obtuſe.

PER. *Capſules* four, oblong, acuminate, reflexed, length of the flower, opening longitudinally upwards.

SEEDS in pairs, ovate.

OBS. *In* T. muſcoſa *the parts of fructification are in threes.*

ESSENTIAL CHARACTER.

Cal. three or four-parted. *Pet.* three or four, equal. *Capſ.* three or four, many-ſeeded.

SPECIES.

1. Tillæa aquatica. *Water Tillæa.*
   Lin. ſpec. 186. *Reich.* 1. 361. *Willd.* 1. 720. *ſt. ſuec. n.* 156. *Schkuhr. in Uſt. nov. annal.* 6. *Stuck. p.* 6. *t.* 1.
   Craſſula. *Lin. ſuec. ed.* 1. 259. *hort. cliff.* 497.
   Stem upright, leaves linear, flowers ſeſſile.
2. Tillæa proſtrata. *Proſtrate Tillæa.*
   Lin. ſpec. ed. Willd. 1. 720. *Schkuhr. in Uſt. nov. annal.* 6. *Stuck. p.* 4.—et aquatica. *p.* 21. *t.* 3.
   Stem proſtrate, leaves lanceolate, flowers peduncled, peduncles ſhorter than the leaf.
3. Tillæa Vaillantii. *Vaillant's Tillæa.*
   Lin. ſpec. ed. Willd. 1. 720.
   Sedum minimum annuum, flore roſeo tetrapetalo. *Vaill. par.* 181. *t.* 10. *f.* 2.

Stem

[k] Hort. kew. [l] Willdenow. [m] Hort. kew.

Stem upright dichotomous, leaves oblong acute ſhorter than the peduncled flower.

4. Tillæa capenſis. *Cape Tillæa.*
Lin. ſyſt. 170. *Willd.* 1. 721. *ſuppl.* 129.
Craſſula natans. *Thunb. prodr.* 54.
Leaves ſomewhat oblong, flowers four-cleft.

5. Tillæa perfoliata. *Perfoliate Tillæa.*
Lin. ſyſt. 170. *Willd.* 1. 721. *ſuppl.* 129.
Craſſula inanis. *Thunb. prodr.* 54.
Leaves perfoliate ovate, corymbs terminating, flowers four-cleft.

6. Tillæa umbellata. *Umbelled Tillæa.*
Lin. ſpec. ed. Willd. 1. 721.
Craſſula umbellata. *Thunb. prodr.* 54.
Leaves ſubpetioled ovate obtuſe entire, ſtem capillary upright, flowers umbelled.

7. Tillæa decumbens. *Decumbent Tillæa.*
Lin. ſpec. ed. Willd. 1. 721.
Craſſula decumbens *a*. *Thunb. prodr.* 54.
Decumbent, leaves awl-ſhaped, petals ſhorter than the calyx.

8. Tillæa muſcoſa. *Moſſy Tillæa.*
Lin. ſpec. 186. *Reich.* 1. 361. *Willd.* 1. 721. *hort. upſ.* 24. *Gærtn. fruct.* 2. 147. *Hudſ. angl.* 73. *Wither. arr. ed.* 3. 175. *Roſe elem. app.* 448. *t.* 2. *f.* 2. *Smith brit.* 201. *engl. bot. t.* 116. *Dalib. par.* 43. *Mich. gen.* 22. *t.* 20. *Boec. muſ.* 36. *t.* 22. (Sempervivum) *ſic.* 56. *t.* 29. (Polygonum.) *Guett. ſtamp.* 2. 97. (Craſſula.)
Stems procumbent, flowers ſeſſile moſtly trifid.

DESCRIPTIONS, *&c.*

1. This is a ſmall plant, and annual, as indeed all the ſpecies are. The flowers are commonly four-cleft and four-ſtamened.

Native of Lapland; and very abundant near Upſal, where water ſtagnates on the mountains[a].

2. Native of Germany, in moiſt places.

3. Linneus has given Vaillant's name to the firſt ſpecies, but it is very diſtinct from that in the form of the leaves, and in its long-peduncled flower.—Native of France, in moiſt places[b].

4. Roots capillary, abundant, ſtem an inch high, herbaceous, dichotomous. Leaves oppoſite, ſomewhat fleſhy. Flowers peduncled, ſolitary. Calyx four-parted, ſpreading, with oval leaflets. Petals four, oval, white, twice as long as the calyx. Nectaries purple, triangular.

Native of the Cape of Good Hope[c]. In the Supplement of the younger Linneus this is ſuppoſed to be a mere variety of T. aquatica.

5. 6. 7. Theſe are alſo natives of the Cape, and all found there by Thunberg, who unites them with the Craſſulas; from which they differ, as Sedum does from Sempervivum[d].

It is remarked in the Supplementum Plantarum, that there is a great affinity between this genus and Craſſula, and that ſcarcely any difference is to be found between them except in the number of parts. Gærtner obſerves, that this difference is of little avail in the *Succulentæ*; and that Tillæa differs from Craſſula only in the want of a nectary.

Tillæa decumbens (n. 7.) is a diſtinct plant from Craſſula decumbens.

8. Root annual, ſmall, fibrous. Herb ſucculent, ſmooth, generally red. Stems numerous, filiform, round (becoming quadrangular when dry,) jointed, one or two inches high, but lengthening conſiderably after flowering, at firſt nearly erect but after a while procumbent. Leaves ſtrictly perfoliate, very fleſhy, obtuſe, gibbous, oppoſite, ſometimes three together, concave above, convex beneath, ſometimes as long as the internodes, and ſometimes only half as long. Flowers one or two together in the boſoms of the leaves, nearly ſeſſile, and ſometimes accompanied with a pair of ſmaller leaves, which Mr. Roſe calls bractes. Calyx of three ſtill ſmaller leaves, diſtinguiſhable by their ſharp points. Petals three, ovate, or awl-ſhaped, acute, pellucid, leſs than the calyx. The flowers are ſometimes four-cleft, and even, according to Gærtner, five-cleft. Stamens and ſtyles ſtill ſhorter. Capſules three, ovate, two ſeeded[e]. —They are thus deſcribed by Gærtner. Capſules three, or five in the cultivated plant, oblong, acuminate, erect, knobbed a little where the ſeeds are, one-celled, opening lengthwiſe inwardly. Seeds two, very ſmall, ovate, ſmooth, ferruginous, faſtened to the opening future.

Native of Italy, Sicily, France and England, in dry, barren, ſandy and gravelly ſoil; flowering from the end of may to october.

The moſt dreary ſands are not always unprofitable to a botaniſt. Their looſe and fluctuating ſurface being often arreſted for a while, and deſtined to afford ſupport to a tribe of plants, the conſtitution of which is fitted by the all-wiſe Creator to thrive beſt on the meagre nouriſhment they afford. Thus ſome of the vaſt African deſerts are turned to account by means of Meſembryanthemums, Cotyledons, and other ſucculent vegetables. We have here a production nearly allied to the Cotyledons, which flouriſhes on the drieſt ſandy heaths, where few others would live, and at a ſeaſon when Moſſes and Lichens are dried up. Large tracts of the above deſcription in Norfolk, as Drayton, Cawſton and Mouſhold heaths, as well as Brandon heath in Suffolk, are enlivened by its red colour. Sir Thomas Gery Cullum found it alſo near Bury. Mr. Roſe ſays, it was firſt determined (in England) by the Rev[d]. Mr. Bryant in 1766.

Although this plant is commonly triandrous, yet as the other ſpecies of Tillæa have four ſtamens, it muſt continue with them in the fourth claſs, where Linneus has placed them[f].

TILLÆA. See *Craſſula.*

TILLANDSIA. (*So named by Linneus, in memory of Elias Tillandſius, Profeſſor of Phyſic at Aboa, Author of* Flora Aboenſis, 1673.)
Lin. gen. n. 396. *Reich. n.* 428. *Schreb. n.* 541. *Juſſ.* 50. Caraguata. *Plum.* 33. Renealmia Plum. 38.
Claſſ. 6. 1. Hexandria Monogynia.
Nat. order of *Coronariæ*. *Bromeliæ* Juſſ.

GENERIC CHARACTER.

CAL. *Periamth* one-leafed, trifid, oblong, erect, permanent, *ſegments* oblong-lanceolate, acuminate.
COR. tubular, one-petalled: *tube* long, ventricoſe: *border* trifid, obtuſe, erect, ſmall.
STAM. *Filaments* ſix, as long as the tube of the corolla. *Anthers* acute, in the neck of the corolla, incumbent.
PIST. *Germ* oblong, acuminate both ways. *Style* filiform, length of the ſtamens. *Stigma* trifid, obtuſe.
PER. *Capſule* long, obtuſely three-cornered, acuminate, one or two-celled, three-valved.
SEEDS many, faſtened to a very long capillary pappus.
OBS. Caraguata Plum. *has a trifid corolla.*
Renealmia Plum. *has a three-parted corolla.*

ESSENTIAL CHARACTER.

Cal. trifid, permanent. *Cor.* trifid, bell-ſhaped. *Capſ.* one-celled. *Seeds* comoſe.

SPECIES.

1. Tillandſia utriculata. *Bottle Tillandſia.*
Lin. ſpec. 409. *Reich.* 2. 8. *Willd.* 2. 11. *hort. cliff.* 129. *Brown. jam.* 194. *n.* 5. *Sloan. jam.* 1. 188. *Raii ſuppl.* 405. (Viſcum.)
Viſci modo arboribus indicis adnaſcens. *Bauh. pin.* 423.
Caraguata multiplici ſpica, flore albo. *Plum. gen.* 10. *Culm panicled.*

2. Tillandſia ſerrata. *Serrate-leaved Tillandſia.*
Lin. ſpec. 409. *Reich.* 2. 8. *Willd.* 2. 11. *Brown. jam.* 194. *n.* 7.
Caraguata clavata & ſpicata foliis ſerratis. *Plum. gen.* 10. *ic.* 75. *f.* 1.
Leaves ſerrate-ſpiny above, ſpike comoſe.

3. Tillandſia lingulata. *Tongue-leaved Tillandſia.*
Lin. ſpec. 409. *ſyſt.* 314. *Reich.* 2. 8. *Willd.* 2. 11. *Jacqu. amer.* 92. *t.* 62. *pict.* 48. *t.* 92.

[a] Linn. ſuec. [b] Willdenow. [c] Linn. ſuppl. [d] Willdenow. [e] Roſe, Smith brit. and engl. bot. [f] Engl. bot.

Brown. jam. 194. *n.* 3. *Sloan. jam.* 1. 189. *t.* 110. *Raii ſuppl.* 405. (Viſcum.)

Caraguata latifolia & clavata. *Plum. gen.* 10. *ic.* 74.

Leaves lanceolate-tongue-ſhaped quite entire ventricoſe at the baſe.

4. Tillandſia tenuifolia. *Fine-leaved Tillandſia.*

Lin. ſpec. 410. *ſyſt.* 314. *Reich.* 2. 8. *Willd.* 2. 12. *Swartz obſ.* 121. *deſcr.* 1. 592. *Brown. jam.* 194. *n.* 2. *Sloan. jam.* 1. 190. *t.* 122. *f.* 1. (Viſcum.)

Renealmia ſpica multiplici anguſtifolia, flore cæruleo. *Plum. gen.* 37. *ic.* 238. *f.* 2.

Spikes alternate imbricate, flowers diſtich, leaves linear-filiform erect briſtle-ſhaped at the tip.

5. Tillandſia flexuoſa. *Flexuoſe-ſpiked Tillandſia.*

Lin. ſpec. ed. Willd. 2. 12. *Swartz prodr.* 57. *deſcr.* 1. 590.

T. tenuifolia. *Jacqu. amer.* 92. *t.* 63. *pict.* 48. *t.* 93.

Spikes looſe flexuoſe, flowers diſtich ſomewhat remote, leaves lanceolate-linear reclined, ſtem ſubdivided at the top.

6. Tillandſia ſetacea. *Briſtle-leaved Tillandſia.*

Lin. ſpec. ed. Willd. 2. 12. *Swartz deſc.* 1. 593.

Spike ſimple, ſpathes diſtich imbricate, leaves linear-filiform reclined ſmooth.

7. Tillandſia paniculata. *Panicled Tillandſia.*

Lin. ſpec. 410. *Reich.* 2. 9. *Willd.* 2. 13. *Brown. jam.* 194. *n.* 4.

Renealmia ramoſiſſima, foliis variegatis et circinatis. *Plum. gen.* 27. *ic.* 237.

Leaves radical very ſhort, culm almoſt naked, branches ſubdivided aſcending.

8. Tillandſia faſciculata. *Bundled Tillandſia.*

Lin. ſpec. ed. Willd. 2. 13. *Swartz prodr.* 56. *deſcr.* 1. 586.

T. clavata. *Lamarck encycl.* 1. 610?

Spikes lateral diſtich imbricate, leaves lanceolate-ſubulate erect ſtrict.

9. Tillandſia nutans. *Nodding Tillandſia.*

Lin. ſpec. ed. Willd. 2. 13. *Swartz prodr.* 56. *deſcr.* 1. 588.

Spikes ſubdivided nodding, flowers diſtinct ovate, leaves ovate-lanceolate membranaceous, ſtem almoſt naked.

10. Tillandſia polyſtachya. *Many-ſpiked Tillandſia.*

Lin. ſpec. 410. *ſyſt.* 314. *Reich.* 2. 9. *Willd.* 2. 13. *Cateſb. car.* 2. *t.* 89? (Viſcum.)

Renealmia ſpica multiplici, flore albo. *Plum. gen.* 37.

β. R. ſp. mult. alia anguſtifolia. *Plum. gen.* 37.

Culm with imbricate lateral ſpikes.

11. Tillandſia monoſtachya. *One-ſpiked Tillandſia.*

Lin. ſpec. 410. *Reich.* 2. 9. *Willd.* 2. 13. *Brown. jam.* 194. *n.* 6.

Renealmia non ramoſa ſquamata, et floribus niveis. *Plum. gen.* 37. *ic.* 238. *f.* 1.

Leaves linear channelled reclined, culm ſimple imbricate, ſpike ſimple.

12. Tillandſia pruinoſa. *Froſty Tillandſia.*

Lin. ſpec. ed. Willd. 2. 14. *Swartz deſcr.* 1. 594.

Spike ſimple, ſpathe imbricate, leaves lanceolate-linear reclined, theſe and the ſpathes tomentoſe with little ſcales.

13. Tillandſia caneſcens. *Hoary Tillandſia.*

Lin. ſpec. ed. Willd. 2. 14. *Swartz prodr.* 57. *deſcr.* 1. 595.

Spikes ſubtern, leaves linear erect equalling the ſtem hoary.

14. Tillandſia anguſtifolia. *Narrow-leaved Tillandſia.*

Lin. ſpec. ed. Willd. 2. 14. *Swartz prodr.* 57. *deſcr.* 596.

Spikes in bundles, leaves linear-lanceolate ſubereCt ſmooth ſurpaſſing the ſtem.

15. Tillandſia recurvata. *Recurve-leaved Tillandſia.*

Lin. ſpec. 410. *Reich.* 2. 9. *Willd.* 2. 14. *Swartz obſ.* 121. *Brown. jam.* 194. *n.* 1. *Sloan. jam.* 1. 190. *t.* 121. *f.* 1. *Raii ſuppl.* 406. (Viſcum.)

Leaves awl-ſhaped rugged reclined, culms one-flowered, glume two flowered.

16. Tillandſia uſneoides. *Moſſy Tillandſia.*

Lin. ſpec. 411. *Reich.* 2. 9. *Willd.* 2. 15. *hort. cliff.* 129. *Gron. virg.* 36. *Barr. æquin.* 99. *Brown. jam.* 193. 1. (Renealmia.) *Sloan. jam.* 1. 191. *t.* 122. *f.* 2, 3. *Raii ſuppl.* 406. (Viſcum.) *Pluk. phyt. t.* 26. *f.* 5. (Cuſcuta.) *Marcgr. braſ.* 46. *Petiv. gaz. t.* 62. *f.* 12. (Camanbaya.)

Filiform branched intorted rugged.

DESCRIPTIONS, *&c.*

1. Many brown fibrils encompaſs the arms, or take firm hold on the bark of the trunk of trees, not as Miſleto, entering the bark or wood to ſuck nouriſhment, but only weaving and matting themſelves among one another, and thereby making to the plant a firm and ſtrong foundation, whence riſe ſeveral leaves on every ſide, like thoſe of Aloes or Ananas, which has given occaſion to its name of Wild Pine; they are folded or incloſed one within another, each three feet and a half long, and three inches broad at the baſe, but ending in a point, having a very hollow or concave inward ſide, and a round or convex outward one, forming a baſon or ciſtern, containing about a quart of water, which in the rainy ſeaſon falls upon the upper parts of the ſpreading leaves, and being conveyed down them by channels, lodges in the bottom as in a bottle; for the leaves having ſwelled out at the baſe, bend inwards cloſe to the ſtalk, thus hindering the evaporation of the water by the heat of the ſun. From the midſt of the leaves riſes a round ſmooth ſtraight green ſtalk, three or four feet high, having many branches, and when wounded yielding a clear white mucilaginous gum. The flowers come out here and there on the branches. The corolla is of a yelloviſh white or herbaceous colour; and the calyx is made up of three green viſcid leaves with purple edges. Capſule greeniſh-brown, having under it three ſhort capſular leaves, and within ſeveral long pappoſe ſeeds, which are oblong-pyramidal and very ſmall, have a very ſoft down, as long as the capſule itſelf. By this down the ſeed is not only carried with the wind, but it is enabled by it to ſtick faſt in the bark of trees. As ſoon as it ſprouts, although it be on the under part of a bough, it riſes perpendicularly; for if it had any other poſition, the ciſtern could not hold the water which is neceſſary for the life and nouriſhment of the plant.

In the mountainous as well as dry low woods, this reſervatory is very uſeful to men, birds and inſects, who in ſcarcity of water frequent theſe plants in troops.

Dampier ſays he has many times to his great relief ſtuck his knife into the leaves juſt above the roots, and let out the water into his hat.

Native of South America. In Jamaica it is found every where in the woods, eſpecially on decaying trees, which in time it diſſolves[1].

2. This alſo is a native of South America, and common in Jamaica, where it is called Wild Pine, with all the other ſorts. Browne names it the largeſt Tillandſia or Wild Pine, with a variegated flower-ſpike.

3. This grows on large trees, to which it faſtens itſelf by many long dark brown threads, making all together an oblong root. Culm leafy, ſimple, erect, ſolitary, bearing conglomerate flowers at the top. The radical leaves are linear-tongue-ſhaped, acuminate, ſhining, quite entire, a foot long, numerous, containing water like the firſt ſpecies. Flowers yellow, inodorous, three inches long. Capſules brown[2].

Native of South America, Jamaica and Martinico, where it is called *Ananas de Bois*, or wood Pine-Apple.—Cultivated in 1776, by Mr. James Gordon[3].

4. Stem a foot high, ſimple, ſheathed, leafy. Leaves often the length of the ſtem; the radical and lower ones ſheathed at the baſe, above the baſe attenuated, keeled, convolute, rigid. Stem-leaves or ſheaths cloſely ſurrounding the ſtem, terminated by a very long linear-filiform apex. Spikes three or four, terminating, ſeſſile, ſubdiſtich, an inch long, lanceolate. Spathes oblong, obtuſe. Petals blue.—Native of South America and the Antilles, on trees.

5. Roots filiform, long, rigid. Leaves moſtly ra-

[1] Sloane. [2] Jacquin. [3] Hort. kew.

dical,

dical, wider at the baſe, ſeſſile, ventricoſe, embracing, entire, looſe, ſtriated, membranaceous, beneath whitiſh, ſubtomentoſe or mealy with very minute ſcales which are peltate and hollowed in the middle, ſurrounded by a hyaline ſtriated margin, not to be diſtinguiſhed without a magnifying glaſs. Stem or ſcape longer than the leaves, two or three feet high, looſe, round, with alternate, lanceolate, acute, red ſheaths; the lower ending in linear leaves; ſubdivided at the top, and terminated by two or three ſpikes, which are ſolitary, long, looſe, with a flexuoſe three-ſided rachis, and alternate, diſtich, remotiſh florets. Bractes or ſpathes one-leafed, lanceolate, concave ſtriated. Calyx three-parted, three-cornered at the baſe: ſegments erect, coloured. Petals three, linear, longer than the calyx, turned back at the tip, ſcarlet or blue. Filaments alternately a little ſhorter, inſerted into the receptacle, ſubulate, almoſt the length of the petals. Anthers ovate, bifid at the baſe, whitiſh. Germ ovate, three-cornered, three-keeled, three-celled, three-valved, within ſhining and black. Seeds crowned with a capillary yellowiſh down.

On the branches of old trees near the coaſt in Jamaica, and near Carthagena in New Spain.

6. This reſembles T. tenuifolia, but is quite diſtinct in having the leaves reclined, and the ſpike ſimple; whereas in that the leaves are erect, the ſpikes many and alternate.

Stem a foot high and more, round, almoſt upright, covered from the root up to the ſpike with alternate, ſubimbricate ſheaths, broad-ovate at the baſe, and at the end attenuated into linear-ſetaceous leaves. Radical leaves almoſt the length of the ſtem, ſheathing, imbricate, numerous, ſomewhat mealy with very minute ſcales, aſh-coloured, rigid. Sheaths ſmall, or only the baſe of the leaf widened. Spike terminating, undivided, ovate-lanceolate, with alternate, diſtich flowers. Spathes wide-ovate, acuminate, membranaceous, ſubcoriaceous, equitant. Capſule ovate, acuminate.—Native of Jamaica on trees[7].

7. Native of South America and Jamaica. Browne calls it the looſe-headed Tillandſia or Wild Pine.

8. Roots filiform, rigid. Stem ſimple, from one to two feet high, leafy. Leaves next the root ſheathing at the baſe, broad, concave, towards the end lanceolate, convolute-ſubulate, upright and ſtraight or a little recurved at the tip, pubeſcent on the outſide: ſtem-leaves ſhorter, ſubimbricate, ovate, ending in a long awl-ſhaped point. Spikes terminating and lateral, erect, alternate, ancipital, an inch wide, imbricate in two rows with bractes or ſpathes, which are called glumes by Linnæus, equitant, ovate-acuminate, membranaceous at the edge, ſmooth. Rachis three-ſided. Flowers ſolitary, ſeſſile between the ſpathes. Calyx tubular, three-cornered, or two-keeled at the back, three-parted at the end: after the flower increaſes, it ſurrounds the capſule with two leaves, the ſuperior bifid and two-keeled, the inferior lanceolate and convex. Capſule oblong, acuminate, an inch long, three-cornered, three-celled, three-valved: valves rigid, black within. Seed-down capillary, ſilky.—T. polyſtachya is diſtinct from this, in having the ſpikes ſcattered, (not diſtich) and narrower; leaves reclined not erect.—Native of Jamaica, on trees, near the coaſt.

9. Plant from one to two feet high. All the leaves radical, entire, ventricoſe at the baſe, ſtriated longitudinally, marked with lines, ſmooth, half a foot long. Scape ſheathed, jointed, round, looſe, ſmooth. Sheaths alternate, approximating, ovate-lanceolate, acuminate, ſtriated, ſmooth, membranaceous. Spikes terminating, alternate, ſomewhat remote: rachis angular: flowers ovate, ſcattered, diſtinct, approximating, but not imbricate. Bractes or ſpathes ovate, obtuſe, concave, membranaceous, rigid, ſolitary, incloſing the florets. Calyx three-leaved: leaflets ovate-lanceolate. Petals three ovate-lanceolate, erect, ſhrivelling, white. Filaments awl-ſhaped, from the baſe of the petals, and of the ſame length with them, erect. Anthers ovate, bifid at the baſe, ſubſagittate. Germ three-cornered, acuminate, ſmooth. Style ſhort, three-cornered. Stigmas three, ſimple. Capſule roundiſh-ovate, acuminate, three-cornered, three-keeled, three-celled, three-valved: valves black and ſhining within. Seed-down very long, white ſhining and ſilky.—Native of Jamaica, on the branches of trees in the mountains[8].

10. Native of South America.—See n. 13. 14.

11. Native of South America and Jamaica. Browne calls it the larger Tillandſia with obtuſe leaves.

12. Plant from two to three inches high. Rootlets filiform ſimple rigid curled. Stem very ſhort, leafy. Radical leaves ſheathing at the baſe; ſheaths wide, ovate, ventricoſe, membranaceous, ſtriated: the edges of the leaves are convolute; they are bent different ways; and are tomentoſe with very numerous ſcales, which are ſubimbricate, (not preſſed cloſe,) torn, whitiſh, glittering like hoar froſt. Stem-leaves ſheathed, imbricate, equal to the radical leaves and like them, with embracing ſheaths, not ventricoſe at the baſe. Spike terminating, an inch long, ovate, acute: flowers ſubdiſtich: ſpathes ovate, acuminate, ſcaly-tomentoſe all over. Petals longer than the ſpathes, blue. Capſule oblong, acuminate, three-ſided, ſmooth.—This is not to be confounded with T. recurvata, which has linear-ſubulate leaves, radical peduncles, and two-flowered ſpathes.—Native of Jamaica, on old boughs of trees.

13. Plant about a foot high. Radicles ſhort, ſimple, filiform, curled, brown. Stem ſheathed, leafy, undivided. Radical leaves ſheathed at the baſe, imbricate, whitiſh, rigid. Sheaths very wide, ovate, concave, ventricoſe, membranaceous. Stem-leaves ſheathed looſely, and linear-acute. Spikes terminating, for the moſt part in threes, approximating, ſeſſile, ovate, acute, compreſſed a little, ſubdiſtich: flowers diſtich: ſpathes ovate-lanceolate, imbricate, equitant, ſmooth. Petals long, red. Capſule oblong, acuminate, three-cornered, involved in a ſpathe.—This is different from T. polyſtachya, to which it is near allied: the ſtem in that is higher; the leaves are reclined, flexuoſe and ſmooth; the ſpikes many, lanceolate and ſcattered.—Native of Jamaica, on trees near the coaſt.

14. Plant two feet high. Stem almoſt upright, ſimple, ſheathed, leafy. Radical and ſtem-leaves imbricate, wide and ſheathing at the baſe, lanceolate above and linear at the end, ſtriated, longer than the whole plant, ſtiff and ſtraight. Radical ſheaths wider, ſubventricoſe. Spikes very many, alternate, ſeparated by leafy ſheaths, ſubimbricate, compreſſed, lanceolate, an inch and half long, many-flowered. Flowers diſtich: ſpathes imbricate, equitant, ovate, acuminate, keeled, ſtriated, ſmooth. Capſules elongated, acuminate, three-ſided, ſmooth, longer than the ſpathes.—Diſtinct from T. polyſtachya, in having the leaves longer than the ſtem, and more erect; the ſpikes ſeparated by leafy ſheaths.—Native of Jamaica and Hiſpaniola, on the trunks and branches of trees[9].

15. Roots filiform, cluſtered, whitiſh. Stems aggregate, ſimple; or leaves conſtituting the ſtem, ſheathing at the baſe, ſo that the plant is rather ſtemleſs. Sheaths of the leaves alternate, half-embracing. Leaves filiform-ſubulate, compreſſed, plano-convex, ſlightly channelled, recurved at the end, pubeſcent and mealy with aſh-coloured ſcales. Peduncles terminating from the middle of the leaves, filiform, round, two or three inches long. Spathe two-leaved, two-flowered: leaflets equal, lanceolate-acuminate, concave, erect, mealy: one flower ſeſſile, the other peduncled within the ſpathe. Spathe one-leafed to each flower, ſheathing, lanceolate, ſmooth, aſh-coloured, incloſing the flower. Calyx three-leaved: leaflets lanceolate, concave, ſmooth, duſky red. Petals three, lanceolate, blue, blunt at the end, almoſt incloſed by the calyx. Filaments inſerted into the baſe of the corolla, awl-ſhaped. Anthers oblong, yellow. Style ſhort and thick. Stigma obtuſe, ſimple. Capſule long, round, awl-ſhaped, three-cor-

[7] Swartz, deſcr.

[8] Swartz, deſcr.

[9] Idem, ibid.

nered, three-celled, three-valved: valves revolute. Seed-down capillary. Native of Jamaica, on old rotten trees [b].

16. Stem the bigneſs of a thread; the ſkin whitiſh as if covered with hoar froſt, within tough and black like a horſe-hair. Many of theſe together ſtick on the branches of the Ebony or other tree ſuperficially by the middle, and ſend down on each ſide ſome of the ſame ſtems, very often a yard long, hanging on both ſides, curled or turning and winding one within another, and reſembling an old man's beard, whence its common name in Jamaica. The ſtems are branched, and the branches which are two or three inches long, are ſet with roundiſh, white, froſted leaves. The flowers come out at the end of the branches [c].

This ſlender paraſitical plant is found upon the trees in many parts of Jamaica, but does not grow ſo common there nor ſo luxuriantly, as it does in the more northern provinces of the main continent, where it is ſaid to overrun whole foreſts. It is frequently imported to Jamaica from North America, for the uſe of the ſadlers and couchmakers, who commonly ſtuff their pannels, cuſhions, &c. with it.—In Louiſiana and the neighbouring ſettlements, this plant being very carefully gathered and ſtripped of the bark, is made into mattreſſes, cuſhions, pannels, &c. It is manufactured by tying the ſtalks in bundles, and ſinking them in water, or burying them under ground in a moiſt place, until the bark rots: they are then taken up, boiled in water, and waſhed until the fibres are quite cleared of the pulp. Theſe are not only uſed inſtead of horſe-hair, but are ſo very like it, that a man cannot diſtinguiſh them, without a ſtrict examination, and that even with a glaſs, unleſs he obſerves the branchings of it.

The Bonana bird's neſt is always made of the fibres of this plant, and is generally found hanging by a few threads, from the tops of the moſt expanded branches of the moſt lofty trees, eſpecially thoſe that ſpread over ponds or rivers [c].

The Renealmias of Plumier differing from his Caraguatas only in the fruit, and in that not very greatly, Linneus has united them.

TILO-ONAPU. See *Impatiens.*

TILLS, for Lentils. See *Ervum.*

TIMBER. See *Woods.*

TIMMIA. (*From Joachim Chriſtian Timm, conſul and apothecary in Malchin. Author of* Floræ Megapolitanæ (*Magdeburg*) prodromus. *Lipſ.* 1788. 8.)

This name is applied to a genus of Moſſes by Hedwig, *muſc.* 1. *p.* 83. *t.* 31. *Schreb. gen. n.* 1652.

In Gmelin's edition of the Syſtema Naturæ, *vol.* 2. *p.* 538. it is applied to two ſpecies named Cyrtanthus in *Hort. kew.*, and this editor has repeated them under Crinum, from the younger Linneus's Supplementum Plantarum.

TIMOTHY GRASS. See *Phleum.*

TINDA-PARUA. See *Morus.*

TINGULONG. See *Amyris.*]

TINUS. See [*Cletbra, Decumaria,*] *Viburnum.*

[TIOUANNA. See *Ophioxylum.*

TIRI-PANNA. See *Acroſtichum.*

TIRU-CALLI. See *Euphorbia.*

TITHYMALOIDES. See *Cacalia, Cluytia, Euphorbia.*]

TITHYMALUS. See [*Apocynum, Cluytia,*] *Euphorbia,* [*Hippomane, Tragia.*]

TOAD-FLAX. See *Antirrhinum.*

TOBACCO. See *Nicotiana.*

[TOCOCA. See *Melaſtoma.*

TODDA-PANA. See *Cycas.*

TODDA-VADDI. See *Oxalis.*

TOFIELDIA. See *Anthericum.*]

TOLUIFERA. (*From* Tolu *and* fero, *to bear. Balſam of Tolu-tree.*)

Lin. gen. n. 524. *Reich. n.* 566. *Schreb. n.* 713. *Juſſ.* 372.

Claſſ. 10. 1. Decandria Monogynia.

Nat. order of *Terebintaceæ* Juſſ.

[b] Swartz. obſ. [c] Sloane. [d] Browne.

GENERIC CHARACTER.

CAL. *Perianth* one-leafed, bell-ſhaped, five-toothed, almoſt equal, with one angle more remote.

COR. *Petals* five, inſerted into the receptacle: of which four are equal, linear, a little longer than the calyx; the fifth twice as big, obcordate; claw length of the calyx.

STAM. *Filaments* ten, very ſhort. *Anthers* longer than the calyx.

PIST. *Germ* oblong. *Style* none. *Stigma* acute.

PER. *Berry?* round, four-celled, four-ſeeded. *Mill.*

SEED ſingle, ovate. *Mill.*

ESSENTIAL CHARACTER.

Cal. five-toothed, bell-ſhaped. *Pet.* five, the loweſt twice as big, obcordate. *Style none.*

SPECIES.

1. Toluifera Balſamum. *Balſam of Tolu Tree.*
Lin. ſpec. 549. *Reich.* 2. 267. *Willd.* 2. 545. *mat. med.* 114. *Woodv. med. bot.* 526. *t.* 193.
Balſamum Tolutanum. *Pharm. Lond. & Edinb.*—foliis ceratiæ ſimilibus. *Baub. pin.* 401.
Balſamum de Tolu. *Monarda in Cluſ. exot.* 304. *Bauh. hiſt.* 1. 296. *Park. theat.* 1570. *Raii hiſt.* 1758.

DESCRIPTION, *&c.*

This is a tree of large ſize. The bark is very thick, rough and of a brown colour. The branches ſpread out wide on every ſide. Leaves alternate, oblong-ovate, four inches long, and two inches broad in the middle, rounded at the baſe, acuminate at the end, ſmooth, of a light-green colour, on very ſhort ſtrong foot-ſtalks. The flowers are produced in ſmall axillary racemes or bunches, each on a ſlender pedicel. The corolla has four narrow petals of a yellow colour, a little longer than the calyx, and a fifth, the claw of which is of the ſame length as the other petals, and the top ovate-cordate. Stamens within the tube, and terminated by oblong erect ſulphur-coloured anthers. Fruit roundiſh, the ſize of a large pea, divided into four cells, each containing one oblong-ovate ſeed.

Native of Spaniſh America, in the province of Tolu, behind Carthagena; whence Dr. Houſtoun ſent the ſeeds to England. [Mr. Miller therefore muſt have cultivated this tree before 1733, in which year the Doctor died.

Balſam of Tolu, which is brought to Europe in little gourd-ſhells, is obtained by making inciſions in the bark of the tree, and is collected into ſpoons, which are made of black wax, and from them it is poured into proper veſſels.

This Balſam is of a reddiſh yellow colour; tranſparent, in conſiſtence thick and tenacious: by age it grows ſo hard and brittle, that it may be rubbed into a powder between the finger and thumb. Its ſmell is extremely fragrant, ſomewhat reſembling that of lemons; its taſte is warm and ſweetiſh, and on being chewed it adheres to the teeth. Thrown into the fire it immediately liquefies, takes flame, and diſperſes its agreeable odour. Though it does not diſſolve in water, yet if boiled in it for two or three hours in a covered veſſel, the water receives its odoriferous ſmell: water alſo ſuffers a ſimilar impregnation from the Balſam by diſtillation. With the aſſiſtance of mucilage it unites with water, ſo as to form a milky ſolution. It diſſolves entirely in ſpirit of wine, and eaſily mixes with diſtilled oils, but leſs eaſily with thoſe of the expreſſed kind. Diſtilled without addition, it produces not only an empyreumatic oil, but ſometimes a ſmall portion of a ſaline matter, ſimilar to that of the flowers of Benzoin.

Balſam of Tolu poſſeſſes the ſame general virtues with the balſams of Gilead and Peru; but it is leſs heating and ſtimulating, and may therefore be employed with more ſafety. It has been chiefly uſed as a pectoral, and is ſaid to be an efficacious corroborant in gleets and ſeminal weakneſſes. It is directed by the Pharmacopœias in *ſyrupus tolutanus, tinctura tolutana,* and *ſyrupus balſamicus* [e].]

[e] Woodville.

PROPAGATION AND CULTURE.

Sow the ſeeds in pots filled with light earth, as ſoon as they arrive, and plunge them into the tan-pit. If they are not taken out of their covers, they will be long before they vegetate. When the plants are large enough to remove, tranſplant them carefully, each into a ſeparate pot, and plunge them into a good hot-bed of tanner's-bark, ſhading them from the ſun till they have taken new root. After which treat them in the ſame way as the Coffee Tree.

The ſeeds ſhould be gathered ripe, and whilſt freſh ſhould be put up in ſand; for when ſent over in papers, they are commonly devoured by inſects.

TOMATA. See *Solanum*.

TOMEX. (*From* tomentum, *the whole plant having a nap upon it.*)

Lin. gen. Schreb. n. 802. *Thunb. jap.* 10. *nov. gen.* 65. *Juſſ.* 440.

Claſſ. 11. 1. Dodecandria Monogynia.

GENERIC CHARACTER.

CAL. *Involucre univerſal* five-leaved, five-flowered, permanent: *leaflets* ovate, very concave, externally tomentoſe, very blunt, unequal, imbricate: *outer* ſmaller.

Perianth proper five-leaved, permanent: *leaflets* lanceolate, externally villoſe, from upright ſpreading.

COR. none, unleſs the proper perianth be conſidered as ſuch.

Nectary: ſcales five, between the interior ſtamens, plaited, crenate, ſmooth, length of the filaments.

STAM. *Filaments* twelve, filiform, unequal: *exterior* five, length of the perianth; *interior* ſeven, ſhorter. *Anthers* twin.

PIST. *Germ* three ſided, ſmooth, ſuperior. *Style* none. *Stigma* awl-ſhaped.

PER. Berry.

SEED one.

OBS. *Involucre ſeldom ſix-leaved, ſix-flowered.*

ESSENTIAL CHARACTER.

Involucre four or five-leaved. *Cal.* none. *Cor.* five-petalled. *Nect.* ſcales five, between the lower ſtamens. *Berry* one-ſeeded.

SPECIES.

1. Tomex japonica. *Japoneſe Tomex.*

Lin. ſyſt. 441. *Willd.* 2. 839. *Thunb. jap.* 190.

Floſcules corolled, leaves tomentoſe beneath.

2. Tomex tetranthera. *Laurel-leaved Tomex.*

Lin. ſpec. ed. Willd. 2. 839.

Tetranthera laurifolia. *Jacqu. hort. ſchoenb.* 1. 59. *t.* 113.

Floſcules corolled, leaves ſmooth.

3. Tomex Sebifera. *Glutinous Tomex* or *Tallow Tree.*

Lin. ſpec. ed. Willd. 2. 840.

Berrya chinenſis. *Klein in litt.*

Sebifera glutinoſa. *Lour. cochinch.* 638. *ed. Willd.* 783.

Laurus involucrata. *Retz. obſ.* 6. 27. *Diſſ. noſtr. n.* 27.

Floſcules apetalous, leaves ſmooth.

DESCRIPTIONS, *&c.*

1. Stem arboreous, lofty, branched, more than a fathom in height. Branches and branchlets tomentoſe, knobbed; the end ones angular. Leaves alternate, oblong, obtuſe, quite entire, erect, parallel-nerved, ſmooth and green above, beneath hoary-tomentoſe, a hand in length, the younger ones ſmaller. Petioles angular, ſtriated, tomentoſe, an inch long. Flowers axillary, collected into a head, pedicelled, dioecious. Peduncles angular, ſtriated, ſolitary, tomentoſe: with ſmall oppoſite tomentoſe bractes near the baſe. Pedicels within the head, very ſhort, five rarely ſix, one-flowered, tomentoſe, half a line in length.

Native of Japan; where it flowers in october and november[e].

2. Branches round, yelloviſh, the younger ones rough-haired. Leaves alternate, oblong-obovate, obtuſe, quite entire, veined, ſmooth except the midrib, which appears villoſe under the magnifier. Petioles half an inch long, rough-haired. Peduncles lateral on the naked part of the younger branches, from two to five-flowered. Involucre four-leaved, leaflets roundiſh, concave, pubeſcent, many-flowered, containing about twelve pedicelled flowers. Pedicels rough-haired. Calyx none. Corolla five-petalled, white: petals ſomewhat toothletted at the end. Nectaries club-ſhaped, green, ſhorter than the ſtamens. Filaments from twelve to ſeventeen, awl-ſhaped, hairy. Anthers oblong, flat, having four diſtinct ſegregate cells. Germ oblong. Style very ſhort. Stigma ſimple. Berry globular, red, the ſize of a red Currant, and containing one ſeed.—Native of China.

3. The Tallow Tree is a large tree, with round knobbed branches, covered with a yellow ſhining bark: the branchlets are covered with a fine down. Leaves ſcattered, obovate, obtuſe, or even oblong-lanceolate, quite entire, veined. Petioles an inch long, pubeſcent. Peduncles four-cornered, three or five-flowered, pubeſcent, axillary and lateral. Pedicels four-cornered, very rough-haired.—According to Klein, the involucre is four-leaved; the leaflets ovate, concave, tomentoſe on the outſide; and it incloſes from eight to ten apetalous floſcules on ſhort pedicels. Calyx none except the entire hairy margin, of the pedicel of the floſcules. Corolla none. The nectaries are little bodies at the baſe of the filaments. Theſe are from twelve to fifteen, filiform and hairy. Anthers oblong, ovate, grooved. Germ ovate, ſurrounded cloſely by the ſtamens. Style filiform, twice as long as the ſtamens. Stigma thickened, hollowed, with a reflexed margin. Berry one-ſeeded, globular[f].

According to Loureiro, it is a large tree, with ſpreading branches. Leaves ovate-oblong, quite entire, ſmooth, alternate, petioled. Peduncles lateral and ſubterminating, two or three-flowered. Berries ſmall, ſmooth, blackiſh.—Native of China and Cochinchina, in woods.

The wood, which is light and of a pale colour, is uſed for rafters, ſtuds, &c. in building. The leaves and twigs abound in a viſcid juice, and being bruiſed and macerated in water, render it glutinous; for this reaſon the natives work up their plaſter with it, to render it more tenacious and that it may laſt the longer. A great quantity of a thick white oil is extracted from the berries, of which common candles are made, reſembling ſpermaceti or wax candles, but having an unpleaſant ſmell[g].

For Retzius's deſcription, ſee *Laurus involucrata.*

TOMEX. See *Callicarpa.*

TONCHAT. See *Maranta.*

TONDIN of Schilling is *Paullinia pinnata.*

TONINA. See *Hydrocotyle.*

TONSELLA.

Lin. gen. Schreb. n. 74. Tontelea. *Aubl. guian.* 31. *t.* 10. *Juſſ.* 436.

Claſſ. 3. 1. Triandria Monogynia.

GENERIC CHARACTER.

CAL. *Perianth* one-leafed, bell-ſhaped, permanent, five-parted: *ſegments* ovate, acute.

COR. *Petals* five, ovate, rude, permanent, inſerted into the receptacle, longer than the calyx.

Nectary pitcher ſhaped, quite entire, ſurrounding the germ.

STAM. *Filaments* three, inſerted into the inner wall of the nectary, after flowering ſpreading. *Anthers* roundiſh.

PIST. *Germ* roundiſh, ſurrounded by the nectary. *Style* ſhort. *Stigma* ſimple.

PER. *Berry* ſpherical, one-celled, accompanied by the calyx and corolla.

SEEDS four.

ESSENTIAL CHARACTER.

Cal. five-parted. *Pet.* five. *Nect.* pitcher-ſhaped. *Berry* one-celled, four-ſeeded.

SPECIES.

1. Tonſella ſcandens. *Climbing Tonſella.*

Lin. ſpec. ed. Willd. 1. 194. *Vahl ſymb.* 2. 17.

Tontelea ſcandens. *Aubl. guian.* 1. 31. *t.* 10.

[e] Thunberg.

[f] Willdenow. [g] Loureiro.

Leaves quite entire acuminate.

2. Tonſella africana. *African Tonſella.*
Lin. ſpec. ed. Willd. 1. 194.
Leaves obtuſe glandular-toothed.

DESCRIPTIONS, *&c.*

1. This is a tree with round branches, hairy at top, and covered with a purpliſh ſomewhat rugged bark. Leaves oppoſite, petioled, an inch and half long, diſtant, oblong, ending in a ſhort point, rigid, veined, ſomewhat rugged on both ſides, villoſe on the veins beneath: the younger ones have very minute dots ſcattered over them. Peduncles axillary, oppoſite, ſhorter by half than the leaf, tomentoſe, not at all rugged, branched with a dichotomous tip: branches and branchlets ſhort. Bractes lanceolate, ſmall, oppoſite, at the baſe of the branches and branchlets of the peduncle. Calyx five-cleft, with the ſegments toothletted at the edge. Petals like the calyx hoary, inſerted into the nectary below the margin by a ſhort claw, roundiſh, toothlet-ciliate, two a little ſmaller than the other three. Nectary margined, villoſe and ſomewhat ſilky within. Filaments inſerted into the diſk of the nectary, approximating to the ſtyle, lanceolate, compreſſed, ſhort. Anthers twin. Style conical, the length of the filaments. Stigma obtuſe. Aublet's figure is not a very good one[b].—He found it in Guiana, and von Rohr in the iſland of Trinidad.

2. This reſembles the preceding, but the leaves are ſmaller, obtuſe, and very ſeldom glandular-toothletted; the corollas are larger, and the anthers are ſeſſile.—Native of Guinea[i].

TONTANEA. See *Bellardia.*

TONTELEA. See *Tonſella.*

TOOTHACH TREE. See *Zanthoxylum.*

TOOTHPICK. See *Daucus Viſnaga.*

TOOTH-WORT. See *Dentaria* and *Plumbago.*

TORA. See *Caſſia.*

TORCH-THISTLE. See *Cactus.*]

TORDYLIUM (*of Pliny.* Τορδυλιον *of Dioſcorides. From* τορνος *tornus, and* αλλω, *volvo.* Lin.—*Quod ſemen ferat copioſum, circinatum quaſi toreumatis elaboratum, orbiculatum, compreſſum, geminiſque valvulis conflatum, clypeoli ſpeciem referens.* Bodæus.)
Lin. gen. n. 330. *Reich. n.* 361. *Schreb. n.* 463. *Tournef. t.* 170. *Juſſ.* 224. *Gærtn. t.* 21.
Claſſ. 5. 2. Pentandria Digynia.
Nat. order of *Umbellatæ* or *Umbelliferæ.*

GENERIC CHARACTER.

CAL. *Umbel univerſal* unequal, manifold. *Partial* unequal, manifold, very ſhort, flat.
Involucre univerſal of ſlender undivided leaflets, commonly the length of the umbel. *Partial* halved, outwardly longer than the umbellet.
Perianth proper five, toothed.
COR. *univerſal* difform, radiate. *Florets* all fertile.
Proper of the diſk of five equal inflex-cordate petals.
Proper of the ray ſimilar, but the outmoſt petal very large and two-parted.
STAM. all with five capillary *Filaments. Anthers* ſimple.
PIST. all with a roundiſh inferior *Germ. Styles* two ſmall. *Stigmas* obtuſe.
PER. *Fruit* ſuborbicular, compreſſed, crenulate at the edge, bipartile.
SEEDS two, roundiſh, almoſt flat, with a raiſed crenulate margin.

OBS. T. Anthriſcus *has a ſubradiate umbel, and the florets of the diſk male: it is therefore now removed to the genus Caucalis.*

ESSENTIAL CHARACTER.

Cor. radiate, all hermaphrodite. *Fruit* ſuborbicular, notched at the edge. *Involucres* long, undivided.

SPECIES.

1. Tordylium ſyriacum. *Syrian Hartwort.*
Lin. ſpec. 345. *ſyſt.* 275. *Reich.* 1. 661. *Willd.* 1. 1381. *hort. cliff.* 90. *upſ.* 58. *Gron. orient.* 78. *Jacqu. hort.* 1. 21. *t.* 54. *Gærtn. fruct.* 1. 85. *Riv. pent. t.* 3. *Knipb. cent.* 8. *n.* 95.
T. ſyr. humilius ſemine granulato majore. *Mor. hiſt.* 3. 317. *ſ.* 9. *t.* 16. *f.* 7. *umb. t.* 1. *f.* 28. 28.

[b] Vahl. [i] Willdenow.

T. creticum. *Beſl. eyſt. eſt.* 12. *t.* 9. *f.* 1.
Gingidium foliis paſtinacæ latifoliæ. *Baub. pin.* 151.
G. latifolium. *Ger.* 885. *f.* 1.
G. latif. ſyriacum. *Park. theat.* 891. 4. 890. *f.* 4.
Caucalis ſyriaca cum maximo ſemine. *Baub. hiſt. Raii hiſt.* 412.
Involucres longer than the umbel.

2. Tordylium officinale. *Official Hartwort.*
Lin. ſpec. 345. *Reich.* 1. 661. *Willd.* 1. 1381. *hort. cliff.* 90. *upſ.* 58. *mat. med.* 77. *Huds. angl.* 112? *Wither. arr. ed.* 3. 286? *Smith brit.* 294. *Sauv. monſp.* 230. *Villars dauph.* 2. 641. *Plenck ic.* 177.
T. ſ. Seſeli creticum minus. *Park. theat.* 905. 8. 906. *f.* 8. *Raii hiſt.* 412. *ſyn. ed.* 2. 102.
T. narbonenſe minus. *Tournef. inſt.* 320. *Dill. in Raii ſyn.* 206. *Petiv. brit. t.* 24. *f.* 6.
T. apulum minimum. *Column. ecphr.* 124. *f.* 1?
Seſeli creticum. *Dod. pempt.* 314.—minus. *Baub. pin.* 161. *Ger. emac.* 1050.
Caucalis minor pulchro ſemine, ſ. Bellonii. *Baub. hiſt.* 3. 2. 84.
Involucrets length of the flowers, leaflets ovate gaſhed crenate, ſtem pubeſcent.

[3. Tordylium peregrinum.
Lin. ſyſt. 275. *Reich.* 1. 662. *Willd.* 1. 1381. *mant.* 55.
Caucalis peregrina, ſemine rugoſo. *Baub. pin.* 153.
C. hiſpanica. *Cam. hort.* 37. *t.* 11.
Seeds grooved wrinkled plaited, univerſal involucre one-leafed ſubtrifid.]

4. Tordylium apulum. *Apulian* or *Small Hartwort.*
Lin. ſpec. 345. *ſyſt.* 275. *Reich.* 1. 662. *Willd.* 1. 1382. *hort. cliff.* 90. *Jacqu. hort. t.* 53. *Knipb. cent.* 12. *n.* 96.
Umbellets remote, leaves pinnate, pinnas roundiſh laciniate.

5. Tordylium maximum. *Great Hartwort.*
Lin. ſpec. 345. *ſyſt.* 275. *Reich.* 1. 662. *Willd.* 1. 1382. *mant.* 330. *hort. cliff.* 90. *Wither. arr. ed.* 3. 286. *Smith brit.* 295. *engl. bot. t.* 1173. *Sibth. oxon. n.* 288. *Hall. helv. n.* 811. *Hoffm. germ.* 92. *Roth. germ.* 1. 131. 2. 349. *Scop. carn. n.* 319. *Crantz auſtr.* 153. *Jacqu. auſtr.* 2. 26. *t.* 142. *Sauv. monſp.* 230. 259. *Villars dauph.* 2. 641. *Allion. pedem. n.* 1288. *Riv. pent.* 1. *Tournef. inſt.* 320. *Dill. in Raii ſyn.* 206.
Seſeli creticum majus. *Park. theat.* 906. *f.* 7. *Ger. emac.* 1050. *f.* 2. *Baub. pin.* 161.
Caucalis major. *Cluſ. hiſt.* 2. 201. 1.—ſemine minus pulchro hirſuto. *Baub. hiſt.* 3. 2. 85.
Umbels cluſtered radiate, leaflets lanceolate gaſh-ſerrate, ſtem rough with deflexed briſtles.

[6. Tordylium filifolium.
Lin. ſpec. ed. Willd. 1. 1383. *Scop. carn. n.* 318. *t.* 8.
Umbels cluſtered radiate, leaflets angular toothed pubeſcent.]

7. Tordylium Secacul. *Arabian Hartwort.*
Mill. dict. n. 5. *fig. t.* 266.
T. orientale, Secacul Arabum dictum Rauwolfio. *Niſſol.*
Paſtinaca Secacul. *Ruſſ. Alepp.*
Umbellets remote, leaves doubly pinnate, pinnas gaſhed tomentoſe.

DESCRIPTIONS, *&c.*

1. This is a low plant, the ſtalks ſeldom riſing a foot high. The lower leaves are compoſed of two pairs of ovate leaflets terminated by a large one; they are hairy and ſlightly crenate. The ſtalks branch out into two or three diviſions, and are terminated by umbels of white flowers, which have large involucres, for the moſt part trifid. The points are lanceolate, and at their baſe is a ſmall umbel, compoſed of a few flowers ſitting cloſe to the tails of the involucres. [Seeds orbicular, compreſſed, very ſlightly convex in the middle, ſubpubeſcent, with a thick, ſuberous, white margin, crenulate with tubercles: belly part flat, ſmooth[k].

[k] Gærtner.

Native

Native of Syria. Cultivated in 1597, by Gerarde. It flowers in july, and is annual *.

2. Root annual. Stem almoſt upright, branched, leafy, round, grooved, villoſe with ſoft ſhort deflected hairs. Leaves unequally pinnate, hairy, rugged; the radical ones on very long petioles, with ovate crenate ſublobed leaflets, the end one very large; ſtem-leaves alternate, ſubſeſſile, with oblong leaflets, ſharply ſerrate and gaſhed. Umbels on long peduncles, terminating. Involucres and involucrets briſtle-ſhaped, rugged. Flowers fleſh-coloured, with the outer petals very large and radiant *.

Native of the South of France, Italy and Sicily. Very doubtful whether it be indigenous of England. It is ſaid by Ray to have been found by Mr. Doody about Iſleworth; and Petiver ſays it grows about London. It is ſaid by Dillenius to have been found by Mr. James Sherard growing plentifully on the banks of the road to Headington, about half a mile from Oxford, probably from ſeeds of plants thrown out of a garden. Mr. Miller alſo ſays, that he has found it on the ſide of banks, but that the ſeeds were ſown there by Jacob Bobart. But they perhaps miſtook the T. apulum of Linneus for this plant, from which it is quite diſtinct: or confounded it with T. maximum.

3. Stem ſmooth, branched. Leaves like thoſe of Chervil. Univerſal umbel of about three rays; partial of about ſeven. Involucre of a ſingle linear leaf: involucrets of five leaflets, the length of the florets. All the florets fertile, floſcular, white. Seeds ovate, ſubcompreſſed, with three deep grooves, which are lamellated and plaited on the ſides.—Native of the Levant. *Arduini* °.

4. This is an annual, riſing, when in a garden, to the height of a foot and half: radical leaves growing in a circle, decumbent, and pinnated; with eight leaflets roundiſh or oblong, obtuſely toothed, and ſomewhat downy: ſtem-leaves ſmooth and ſharp: ſtems ſeveral, upright, ſtriated and branched; and at their lower parts clothed with white hairs: flowers white, with broad-lanced petals turning inwards ſo as to appear cordate: the exterior petal, in the exterior florets, bifid, with lanced diviſions: anthers yelloviſh-green, with browniſh ſides. The wild plant is more hairy than the cultivated one: flowers in july and auguſt ‡.

Linneus remarks, that the three marginal florets of each umbellet are larger or radiate.—Native of Italy in Apulia.

5. Root annual, tapering. Stems erect, three or four feet high, branched, leafy, flexuoſe, furrowed, rough with minute rigid briſtles, bent down cloſe, hollow within. Leaves unequally pinnate, rough with briſtles: leaflets of the lowermoſt ovate-oblong, lobed and notched; of the reſt lanceolate, narrow, coarſely but regularly ſerrate. Umbels on long ſolitary rough ſtalks, oppoſite to the leaves. General and partial involucres briſtle-ſhaped, rough. Central partial umbels nearly ſeſſile. Flowers white or roſe-coloured, with the outer petals larger and radiant. Seeds briſtly all over, with a circular pale or reddiſh edge, rugged but not ſo beautifully notched as in ſome other ſpecies ¶.

Native of Germany, Switzerland, Auſtria, France, Italy and England. On the north ſide of the Parks, Oxford; the only ſpot in Britain now known to produce it. Moriſon (umb. 40.) clearly mentions its growing about London in his time; but if Petiver's authority be of any weight, the Iſleworth plant muſt be T. officinale. It flowers from june to auguſt ‖. Miller ſets it down as a biennial plant; according to others the ſpecies, as far as we know, are all annual.

6. Stem a foot high, ſimple, furrowed, almoſt naked. Leaves unequally pinnate: lower ones half a foot long, embracing the ſtem with their membranaceous ſheaths, villoſe: leaflets two pairs, oblong, half-cordate, ſeſſile, toothed: the lower pair often two-lobed at the baſe; the end-leaflet larger and trifid half way. General involucre of one or two leaflets. General umbel of from ſeven to nine rays. Partial involucre ſpreading, linear, many-leaved. Petals red, one of them very large in the outer florets. Fruit ovate, margined, hiſpid. Native of Carniola *.]

7. The bottom leaves are double pinnate, each leaf having four pairs, and an odd one at the end. The pinnæ have ſeven ovate leaflets, ſtanding alternately, and deeply jagged, of a yellowiſh green colour and a little hairy. The ſtalks are taper and not channelled; they riſe two feet and a half high, have a few ſmall hairs ſcattered over them, and have one ſmaller pinnate leaf at each joint: they ſend out one or two ſhort branches towards the top, and are terminated by large umbels of yellow flowers, compoſed of ten umbellets, the rays of which are alternately longer; theſe ſpread open wide from each other. The ſeeds are ovate and compreſſed, ſhaped like thoſe of Parſneps, and of a yelloviſh colour. It flowers in june, and the ſeeds ripen in auguſt.

Native of Syria, eſpecially about Aleppo, where it is known by the name of Secacul, and is eaten crude by the inhabitants.

[TORDYLIUM Anthriſcus, latifolium, nodoſum. See *Caucalis*.

TORENIA. (*So named by Linneus from Olof Toreen, a Swediſh clergyman, who diſcovered this with other plants in China. His voyage to Suratte, China, &c. from 1750 to 1752, is printed with Oſbeck's voyage to China.*)

Lin. gen. n. 754. *Reich. n.* 812. *Schreb. n.* 1011. *Juſſ.* 122.

Claſſ. 14. 2. Didynamia Angioſpermia.

Nat. order of *Perſonatæ*, *Scrophulariæ* Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* one-leafed, tubular, angular, permanent, bifid: *upper lip* three-cuſped; *lower* narrower, quite entire.

COR. one-petalled, ringent: *upper lip* entire; *lower* trifid, the middle ſegment more produced.

STAM. *Filaments* four: the two upper ſimple; the two lower two-parted, the lower branchlet ſhorter and barren. *Anthers* twin, contiguous by pairs.

PIST. *Germ* oblong. *Style* filiform, thicker above. *Stigma* bifid, acute.

PER. *Capſule* oblong, two-celled.

SEEDS very many.

ESSENTIAL CHARACTER.

Cal. two-lipped: upper lip three-cuſped. *Filam.* the lower with a ſterile branchlet. *Capſ.* two-celled.

SPECIES.

1. Torenia aſiatica. *Smooth Torenia.*
Lin. ſpec. 862. *ſyſt.* 559. *Reich.* 3. 143. *Willd.* 3. 265. *amoen.* 3. 25. *Oſb. it.* 210. *ed. angl.* 1. 337. *Lamarck illuſtr. gen. t.* 523. *f.* 1.
Euphraſiæ affinis puſilla planta. *Pluk. amalth.* 85. *t.* 373. *f.* 2.
Aſarinæ foliis et facie capſula bivalvi lignoſa. *Pluk. amalth.* 40.
Hederæ terreſtris ſpecies. *Comm. mal.* 35.
Kaka-pu. *Rheed. mal.* 9. 103. *t.* 53.
Smooth, ſtem creeping, leaves ovate emarginate on long petioles.

2. Torenia hirſuta. *Hairy Torenia.*
Lin. ſpec. ed. Willd. 3. 266. *Lamarck illuſtr. gen. t.* 523. *f.* 1.
Hirſute, ſtem erect, leaves very ſhort petioled.

3. Torenia cordifolia. *Heart-leaved Torenia.*
Roxb. coram. 2. 32. *t.* 161.
Somewhat hairy, erect, leaves heart ſhaped on ſhort petioles.

DESCRIPTIONS, *&c.*

1. The whole plant is ſmooth. Flowers larger than in the next ſpecies ‖.

Native of India and China: where it grows, ſays Oſbeck in the rice-fields, in the Daniſh iſland. It may ſerve now as a monument of the diſcoverer Mr. Toreen, and remind his friends of their loſs.

* Hort. kew. ° Smith. ‡ Linn. ſpec.
† Jacquin. ¶ Smith brit. & engl. bot. ‖ Engl. bot.

* Scopoli ° Willdenow.

2. The whole plant is hirtute. Flowers ſmaller on one-flowered axillary and terminating peduncles; whereas for the moſt part ſolitary peduncled terminating flowers are obſerved in the preceding.—Native of the Eaſt Indies [1].

3. This is a ſmall herbaceous plant. Stem from ſix to eight inches high: branches cruciate, aſcending, purpliſh, a little hairy, leaves ſerrate, little hairy, an inch long and three quarters of an inch broad. Flowers axillary, ſolitary, pedicelled, large in proportion to the plant. Calyx large, bellied, five-angled; upper lip ſlightly three-toothed, under ſimply pointed. Corolla blueiſh purple; upper lip ſlightly emarginate. Nectary cup-form, ſurrounding the baſe of the germ. Filaments ſimply approaching arch-wiſe: anthers double, one above the other, united by pairs. Capſule hid in the calyx.

Native of Coromandel; in moiſt paſture lands about Samulcotah. It flowers during the cold ſeaſon [2].]

TORMENTILLA. (*Dimin. from tormenta or tormina; being ſuppoſed to cure the diſeaſes of the bowels.*)

Lin. gen. n. 635. *Reich. n.* 691. *Tournef. t.* 153. *Juſſ.* 337.

Claſſ. 12. 5. Icoſandria Polygynia.

Nat. order of *Senticoſæ*. *Roſaceæ* Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* one-leafed, flat, eight-cleft: the alternate ſegments ſmaller and more acute.

COR. *Petals* four, obcordate, flat, ſpreading, inſerted by their claws into the calyx.

STAM. *Filaments* ſixteen, awl-ſhaped, ſhorter by half than the corolla, inſerted into the calyx. *Anthers* ſimple.

PIST. *Germs* eight, ſmall, converging into a head. *Styles* filiform, length of the ſtamens, inſerted into the ſide of the germ. *Stigmas* obtuſe.

PER. none. *Receptacle of the ſeeds* very ſmall, loaded with ſeeds, incloſed within the calyx.

SEEDS eight, roundiſh, naked.

OBS. Tormentilla *differs from Potentilla in number only: hence the two genera might be combined: and accordingly are ſo by Schreber and others.*

ESSENTIAL CHARACTER.

Cal. eight-cleft inferior. *Pet.* four. *Seeds* roundiſh naked, wrinkled, faſtened to a ſmall juiceleſs *receptacle.*

SPECIES.

1. Tormentilla erecta. *Common Tormentil.*
   Lin. ſpec. 716. *ſyſt.* 479. *Reich.* 2. 550. *Willd.* 2. 1112. *fl. lapp. n.* 213. *ſuec. n.* 459. *mat. med.* 132. *Woodv. med. bot.* 27. *t.* 9. *Hudſ. angl.* 225. *Lightf. ſcot.* 272. *Fl. dan. t.* 589. *Hoffm. germ.* 180. *Roth. germ.* 1. 220. 2. 566. *Pollich pal. n.* 500. *Ludw. eſt. t.* 174. *Krock. ſileſ. n.* 805. *Villars dauph.* 3. 576. *Allion. pedem. n.* 1072. *Pallas it.* 2. 655. *Blackw. t.* 445. *Kniph. cent.* 6. *n.* 93. *Knorr. del.* 2. *t.* T. 1. *Regnault bot.*

   Tormentilla officinalis. *Curt. lond.* 5. *t.* 35. 337. *Wither. arr. ed.* 3. 476. *Smith brit.* 552. *engl. bot. t.* 863. *Relh. cant. ed.* 2. *n.* 432.

   T. ſylveſtris. *Bauh. pin.* 326.

   Tormentilla. *Camer. epit.* 685. *Matth.* 947. *Dod. pempt.* 118. *Brunf. herb.* 1. 85. *Ger.* 840. *emac.* 992. *Bauh. hiſt.* 2. 398. 2. *Raii hiſt.* 617. *ſyn.* 257. *Petiv. brit. t.* 41. *f.* 9.

   T. vulgaris. *Park. theat. t.* 394. *f.* 1.

   Potentilla Tormentilla. *Sibth. oxon. n.* 468. *Abbot, beſſ. n.* 381.—erecta. *Stop. carn. n.* 620.

   P. ſylveſtris. *Neck. gallob.* 222.

   Fragaria. *Hall. helv. n.* 1117.

   F. Tormentilla officinarum. *Crantz auſtr.* 80.

   Pentaphyllum dictum Tormentilla. *Mor. hiſt.* 2. 190. *ſ.* 2. *t.* 19. *f.* 13.

   Stem ſomewhat upright branched, leaves ſeſſile.

2. Tormentilla reptans. *Trailing Tormentil.*
   Lin. ſpec. 716. *Reich.* 2. 550. *Willd.* 2. 1112. *Wither. arr. ed.* 3. 476. *Smith brit.* 553. *engl. bot. t.* 864. *Hoffm. germ.* 180. *Roth. germ.* 1. 220. 2. 567. *Krock. ſileſ. n.* 806. *Raii ſyn.* 257. *Petiv. brit. t.* 41. *f.* 10.

   Potentilla procumbens. *Sibth. oxon. n.* 467.

   Pentaphyllum reptans alatum, foliis profundius ſerratis. *Plot oxf. t.* 9. *f.* 5. *p.* 146. *Raii hiſt.* 618.

   P. minus viride flore aureo tetrapetalo, radiculas in terram e geniculis demittens. *Mor. hiſt.* 2. 190. *n.* 12.

   Stem proſtrate ſimple, leaves petioled.

DESCRIPTIONS, *&c.*

1. [Root remarkably large and woody, brown on the outſide, red within. Stems weak, ſlender, wiry, naturally procumbent unleſs ſupported by ſurrounding plants; the flowering-branches only erect or aſcending; they are branched, leafy, round, clothed with ſhort ſoft erect hairs, a ſpan or more in length. Leaves alternate, ſeſſile or nearly ſo, ternate, lanceolate, marked with lines, deeply ſerrate, hairy: accompanied by a pair of ſtipules deeply divided into two, three or more lobes. Flowers on long capillary ſolitary peduncles, placed oppoſite to a leaf, or rather in the forks of the branches, ſupporting one flower. Segments of the calyx ovate, hairy, alternately larger and ſmaller, the latter exterior. Petals obcordate, of a golden yellow, frequently having an orange-coloured blotch at the baſe; claws very ſhort. Stamens about ſixteen, or from fourteen to eighteen. Piſtils from ſix to ſixteen. Germs hairy. Seeds few, wrinkled. Receptacle villoſe.

Native of Europe, in dry paſtures, eſpecially on heaths, among ſmall ſhrubs; flowering in june and july [1].

Some flowers are occaſionally found with five petals and ten ſegments of the calyx; yet this happens ſo rarely, and the two ſpecies of Tormentilla accord ſo well in habit, that we are not convinced of the propriety of conſidering them as Potentillæ.

Miſs Johnes obſerved one plant at Haſod, in which all the flowers were double [2].

Tormentil is a plant of conſiderable importance in œconomy and medicine. The roots are uſed in moſt of the Weſtern Iſles of Scotland, and in the Orkneys, for tanning leather; for which they are ſuperior even to oak-bark. They are firſt boiled in water, and the leather is then ſteeped in the cold liquor. In the iſlands of Tirey and Col the inhabitants have deſtroyed ſo much ground by digging them up, that they have been prohibited the uſe of them. They are alſo uſed for dying of a red colour [3]. And Mr. Young informs us, that many ſwine are reared with them on the mountains of Killarney.

The root of Tormentil has been long held in great eſtimation by phyſicians, as a very uſeful aſtringent; and as the reſin it contains is very inconſiderable, it ſeems more particularly adapted to thoſe caſes where the heating and ſtimulating medicines of this claſs are leſs proper; as phthiſical diarrhœas, diarrhœa cruenta, &c. Dr. Cullen thinks it has been juſtly commended for every virtue that is competent to aſtringents; and ſays, I myſelf have had ſeveral inſtances of its virtues in this reſpect; and particularly I have found it, both by itſelf and as joined with gentian, cure intermittent fevers; but it muſt be given in ſubſtance, and in large quantities. Rutty alſo recommends it in old putrid ulcers, in ſores of the mouth, throat and jaws, and in bleeding gums; and to reſtore the tone of the ſtomach. There is no vegetable, ſays he, of more efficacy in fluxes, fluor albus, &c.

This root may be given in powder from half a dram to one dram or more in a doſe, but it is more generally given in decoction. An ounce and half of the powdered root is boiled in three pints of water to a quart, adding, towards the end of the boiling, a dram of cinnamon: of the ſtrained liquor, ſweetened with an ounce of any agreeable ſyrup, two ounces or more may be taken four or five times a day. Tormentil is

[1] Willdenow.
[2] Roxburgh.
[1] Smith brit. & engl. bot. Curt. lond. Withering.
[2] Engl. bot.
[3] Lightf. Curtis, Withering.

ordered in *pulvis e creta compoſitus* of the London Pharmacopœia[a].

Farmers find the root very efficacious in the dyſenteries of cattle[b].

2. Root perennial, ſmall and ſlender. Stems few (one or two) eighteen or twenty inches long, ſimple, or ſometimes divided at top, flagelliform, pubeſcent, leafy, entirely proſtrate, but not taking root. The whole herb hairy, and of a light green. Radical leaves in fives, on long foot-ſtalks; ſtem-leaves in threes, on ſhorter foot-ſtalks; all obovate and deeply ſerrate: floral leaves ſeſſile, narrow and almoſt entire. Stipules lanceolate, commonly undivided. Peduncles ſolitary, longer than the leaves, oppoſite to a leaf or axillary. Corolla bright yellow, twice as large as in the common ſort: petals obcordate-roundiſh. Segments of the calyx ovate-lanceolate, unequal, hairy. Seeds wrinkled[c].

In Engliſh Botany, the ſtipules are ſaid to be more or leſs cut; and by Dr. Withering, that they are entire, with two or three cleſts.

Native of Germany and England: with us it occurs about hedges and the borders of fields in dry places, but is by no means common. Ray remarked it in the borders of the corn-fields between Hockley and Shotover-woods, and elſewhere in Oxfordſhire. Dr. Sibthorp found it in the wood under Shotover-hill, and at Headington. Mr. Ray ſays it was found alſo in Braintree pariſh, Eſſex: and in Gibſon's edition of Camden's Britannia, it is ſaid to grow in a ditch between the Boarded-river and Iſlington-road. From Lightfoot's herbarium it appears that it was found in Surrey. Mr. Woodward obſerved it at Berkhamſtead in Hertfordſhire; Mr. Crowe, at Lakenham near Norwich; Dr. Smith at Brighouſe near Halifax, Yorkſhire; Mr. Caley about Manchester[d]; Dr. Pulteney, in Purbeck, in the cloſes at New Bridge between Ringwood and Wimbourne, under Hod-hill. Mr. Templeton aſſures me that it is not uncommon in Ireland.

Dr. Smith doubts whether Mr. Hudſon ever ſaw this plant; for if he had he could not have made it a variety of *Potentilla reptans*, though it ſometimes bears a corolla with five petals in the beginning of its flowering. The habit and appearance are as little like that ſpecies of Potentilla, as can well be, if accurately examined[e].

Mr. Afzelius remarked to Dr. Withering, that this plant differs from *Potentilla reptans* in having a trailing ſtem, not ſtriking root at the joints; whilſt that has a creeping ſtem, which takes root at every joint.—Here then, if we muſt change, is a better reaſon for changing the trivial name from *reptans* to *procumbens*, than in the caſe of the other ſpecies, from *erecta* to *officinalis*; for the ſtem is abſolutely not creeping in this; whereas it is often erect in the other, at leaſt the flowering-ſtems are aſcending. I have therefore left the trivial names as Linneus gave them. I have alſo, on better grounds, retained the generic diſtinction of *Tormentilla* from *Potentilla*. Haller joined them both with *Fragaria*: and we may thus at any time croud an entire natural order into one genus.

TORMENTILLA. See *Alchemilla*.

TORNOBONIA. See *Nicotiana*.

TORTULA. A genus of Moſſes, in Hedwig's fundam. 2. 92. comprehending ſome ſpecies of Mnium and Bryum. *Schreb. gen. n.* 1647.

TOTA-PIVI. See *Trichoſanthes*.

TOUCHIROA. See *Crudia*.

TOUCH ME NOT. See *Impatiens* and *Momordica*.

TOULICIA. See *Penæa*.

TOUNATEA. See *Swartzia*.]

TOURNEFORTIA. (*So named by Linneus, in memory of Joſeph Pitton Tournefort, the famous author of an elegant Arrangement of Plants, under the title of* Inſtitutiones Rei Herbariæ. 1694. 8vo. and 1700. *in three vols. qu. with figures of all the genera.*—Corollarium Inſtit. &c. 1703.—Catalogue of the plants about Paris, 1698.—Voyage du Levant, 1717. &c.)

Lin. gen. n. 192. *Reich. n.* 205. *Schreb. n.* 253. *Gærtn. t.* 76. *Juſſ.* 129. Pittonia. *Plum.* 3.

Claſſ. 5. 1. Pentandria Monogynia.

Nat. order of *Aſperifoliæ*. *Borragineæ* Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* five-parted, ſmall: *ſegments* awl-ſhaped, permanent.

COR. one-petalled, funnel-form: *tube* cylindrical, globular at the baſe: *border* half-five-cleft, ſpreading; *ſegments* acuminate, horizontal, gibbous in the middle.

STAM. *Filaments* five, awl-ſhaped, at the throat of the corolla. *Anthers* ſimple, in the throat, converging, acuminate.

PIST. *Germ* globular, ſuperior. *Style* ſimple, length of the ſtamens, club-ſhaped. *Stigma* circumciſed, entire.

PER. *Berry* globular, two-celled, perforated by two pores at top.

SEEDS four, ſubovate, ſeparated by pulp.

ESSENTIAL CHARACTER.

Berry two-celled, two-ſeeded, ſuperior, perforated at top by two pores.

SPECIES.

[1. Tournefortia ſerrata. *Serrate-leaved Tournefortia.*
Lin. ſpec. 201. *Reich.* 1. 405. *Willd.* 1. 791.
Pittonia arboreſcens chamædriſolia major. *Plum. gen.* 5. *ic.* 228. *f.* 1.
β. P. arb. chamædriſ. minor. *Plum. gen.* 5. *ic.* 228. *f.* 2.
Leaves ovate ſerrate, petioles ſpineſcent, ſpikes terminating recurved.]

2. Tournefortia hirſutiſſima. *Hairy Tournefortia.*
Lin. ſpec. 201. *Reich.* 1. 405. *Willd.* 1. 791. *Swartz obſ.* 56. *Brown. jam.* 169. *n.* 1.
Pittonia hirſutiſſima & ramoſiſſima, baccis albis. *Plum. gen.* 5. *ic.* 209.
Heliotropii flore frutex baccifer ramoſus, &c. *Sloan. jam.* 2. 108. *t.* 212. *f.* 1. *Raii dendr.* 75.
Leaves ovate-petioled acuminate, ſtem hirſute, ſpikes branched terminating, berries hirſute.

3. Tournefortia volubilis. *Climbing Tournefortia.*
Lin. ſpec. 201. *Reich.* 1. 405. *Willd.* 1. 791. *hort. cliff.* 48. *Gærtn. fruct.* 1. 365.
Pittonia ſcandens, baccis niveis nigris maculis notatis. *Plum. gen.* 5. *ſec. Gærtn.*
Bryonia nigra fruticoſa, racemi ramulis varie implicatis. *Sloan. jam.* 1. 234. *t.* 143. *f.* 2.
Virga aurea americana fruteſcens glabra, foliis ſubtus cæſiis. *Pluk. phyt. t.* 235. *f.* 6. *Raii ſuppl.* 348.
Leaves ovate acuminate ſmooth, petioles reflexed, ſtem twining.

[4. Tournefortia ſyringæfolia. *Lilac-leaved Tournefortia.*
Lin. ſpec. ed. Willd. 1. 793. *Vahl ſymb.* 3. 23.
Leaves ſubcordate-ovate acuminate ſmooth, ſpikes branched.]

5. Tournefortia fœtidiſſima. *Fetid Tournefortia.*
Lin. ſpec. 201. *Reich.* 1. 405. *Willd.* 1. 792. *hort. cliff.* 48.
Pittonia racemoſa, nicotianæ foliis fœtidiſſimis. *Plum. gen.* 5. *ic.* 220.
Heliotropium maximum jamaicenſe, limonii mali folio, &c. *Pluk. alm.* 182. *Mor. hiſt.* 3. 452.
Leaves ovate-lanceolate rough-haired, pedunckes branched, ſpikes pendulous.

6. Tournefortia humilis. *Dwarf Tournefortia.*
Lin. ſpec. 202. *Reich.* 1. 406. *Willd.* 1. 792.
Heliotropium fruticoſum. *Lin. ſpec.* 187. *Mill. dict. n.* 9. *dict. noſtr. n.* 8.
Pittonia humilis. *Plum. gen.* 5. *ic.* 227. *f.* 2.
Leaves lanceolate ſeſſile, ſpikes ſimple recurved lateral.

[7. Tournefortia bicolor. *Two-coloured Tournefortia.*
Lin. ſpec. ed. Willd. 1. 793. *Swartz prodr.* 40. *obſerv.* 1. 344.
Leaves ovate acuminate ſmooth ſomewhat wrinkled above, ſpikes cymed erect recurved.

8. Tournefortia cymoſa. *Broad-leaved Tournefortia.*
Lin. ſpec. 202. *Reich.* 1. 406. *Willd.* 1. 793. *Gærtn. fruct.* 1. 365. *Jacqu. collect.* 1. 96. *ic. rar.* 1. *t.* 31. *Swartz obſ.* 57. *Brown. jam.* 169. *n.* 2.
Pittonia ſcandens, baccis niveis nigris maculis notatis. *Plum. gen.* 5?

[a] Woodville. [b] Withering. [c] Smith brit. and engl. bot. [d] Smith brit. and Withering. [e] Engl. bot.

Heliotropii flore frutex, folio maximo oblongo acuminato glabro. *Sloan. jam.* 2. 109. *t.* 212. *f.* 2. *Raii dendr.* 76.

Leaves ovate quite entire naked, ſpikes cymed.

9. Tournefortia argentea. *Silvery Tournefortia.* *Lin. ſyſt.* 191. *Willd.* 1. 793. *ſuppl.* 133. *Forſt. prodr. n.* 64.

Bugloſſum lanuginoſum. *Rumph. amb.* 4. 119. *t.* 55.

Leaves ovate obtuſe tomentoſe-ſilky, ſpikes terminating compound.

10. Tournefortia ſericea. *Silky Tournefortia.* *Lin. ſpec. ed. Willd.* 1. 794. *Vahl ecl.* 1. 17. Frutex. *Marcgr. hiſt.* 78.

Leaves ovate-lanceolate beneath tomentoſe-ſilky, ſpikes lateral and terminating dichotomous-panicled.]

11. Tournefortia ſuffruticoſa. *Hoary-leaved Tournefortia.* *Lin. ſpec.* 202. *Reich.* 1. 406. *Willd.* 1. 794. *Brown. jam.* 170. *n.* 5. *Sloan. jam.* 2. 29. *t.* 162. *f.* 4. *Raii dendr.* 96. (Thymelæa.)

Leaves ſublanceolate hoary, ſtem ſuffruticoſe.

DESCRIPTIONS, *&c.*

[1. This, and moſt of the other ſpecies are natives of South America. Many of them were firſt diſcovered by Father Plumier, who gave them the name of Pittonia, which Linneus changed to Tournefortia.

2. Stem ſhrubby, ſomewhat ſcandent, branched, covered with a ferruginous ſhagginess. Leaves oblong, entire, nerved, hairy all over, but extremely ſo beneath. Spikes or racemes very much branched, ſtiff and ſtraight, ſpreading a little: flowers white, directed all one way. Filaments very ſhort. Anthers blackiſh green. Germ ovate. Stigma headed. Berry rugged-hirſute, when ripe white, two-celled with two ſeeds in each cell[f].

Browne ſays, this plant raiſes itſelf generally by the help of the neighbouring trees, and ſhoots ſometimes to a conſiderable height in the woods.]

According to Miller, it riſes to the height of eight or ten feet; the leaves are about four inches long, and two inches and a half broad, having many tranſverſe veins running from the midrib to the ſides; they are of a deep green on their upper ſide, and ſtand on ſhort hairy foot-ſtalks. The branches are terminated by very branching ſpikes of flowers; which are ſucceeded by ſmall, roundiſh, ſucculent fruit.—Native of the iſlands in the Weſt Indies.

[Cultivated by Mr. Miller in 1739.]

3. This has a twining woody ſtalk, which twiſts about the neighbouring trees for ſupport, and riſes to the height of ten or twelve feet, ſending out ſeveral ſlender woody branches. The flowers are produced in branching ſpikes from the ſide and top of the branches; they are ſmall and white; and are ſucceeded by ſmall white ſucculent berries, having one or two black ſpots on each.

[Gærtner deſcribes the berry as ſuperior, pulpy, globular flatted a little, ſubdiaphanous, one-celled, four-ſeeded, white with dark round ſpots correſponding in number and ſituation with the ſeeds. Stones diſtant, ſubglobular narrowing downwards, tubercled and wrinkled, two-celled. Seed one in each cell, curved inwards, brittle, pale.

Native of Jamaica. Cultivated in 1739 by Mr. Miller. It flowers in july and auguſt[g].

4. Branches, petioles, midrib of the leaves on both ſides, nerves beneath, and peduncles villoſe. Leaves petioled, alternate, two inches long, lower ones of the branches ſmaller, almoſt like thoſe of Lilac, (Syringa vulgaris) nerved, veinleſs, quite entire, very ſmooth except on the nerves. Peduncle terminating, erect, ſeveral times divided dichotomouſly. Spikes pubeſcent, two inches long, reflexed as in the other ſpecies. Flowers alternate, approximating. Corollas ſomewhat villoſe on the outſide; the ſegments of the border very narrow and ſomewhat briſtle-ſhaped. Found in Cayenne by von Rohr[h].]

[f] Swartz. [g] Hort. kew. [h] Vahl.

5. Stems ſhrubby, ten or twelve feet high, ſending out many branches. Leaves alternate, five inches long, two inches and a half broad in the middle, hairy on their under ſide, ſtanding upon ſhort foot-ſtalks. The branches are terminated by long branching ſpikes of flowers, ranged on one ſide like thoſe of the Heliotrope or Turnſol. Some of the foot-ſtalks ſuſtain two, others three, others again four ſpikes of flowers, near five inches in length, reflexed at the top. The flowers are of a dirty white colour, ſmall, and cloſely ſet. They are ſucceeded by ſmall ſucculent fruit, incloſing four oblong ſeeds.

Native of Jamaica and other iſlands of the Weſt Indies. Cultivated by Mr. Miller in 1739.

6. This plant has low ſhrubby ſtalks, which ſeldom riſe more than three feet high, ſending out a few ſlender woody branches. Leaves rough, dark green on their upper, but pale on their under ſurface. The flowers come out in ſingle axillary ſpikes; they are white, and are ſucceeded by ſmall ſucculent berries.

Native of South America: found at Campeachy by Dr. Houſtoun; [and therefore cultivated by Mr. Miller, not only in 1739, but probably before 1733.

This plant is repeated in Linneus's ſpecies under the name of *Heliotropium fruticoſum*, and has been already deſcribed in this work from Miller, Swartz and Browne, under that title.

7. This is a ſhrub, a fathom in height. Trunk round, branched, even: branches alternate, almoſt upright, round, ſmooth. Leaves alternate, entire, nerved, veined, ſmooth on both ſides, ſomewhat wrinkled above and ſometimes but very ſeldom rough-haired, even beneath and pale; hence the trivial name of *bicolor* or two-coloured: petioles of a middling length and even. Spikes terminating, branched; branchlets recurved, rough-haired, many-flowered. Calyx even. Corollas greeniſh-white, with a hirſute hoary tube.

It differs from *fœtidiſſima*, in having ſmaller leaves, ſomewhat ſmooth; and ſpikes in cymes, reflexed, upright:—from *cymoſa*, in its leaves, and in the ſpikes not being pendulous, looſe: from *hirſuta*, in the leaves not being hirſute; the ſpikes leſs branched, with the flowers more crouded together.

Native of Jamaica, in coppices[i].

8. Stem a fathom in height. Branches herbaceous, angular, grooved, ſmooth. Leaves ovate-lanceolate, long, petioled, ſmooth, wrinkled beneath. Flowers ſeſſile, on one ſide, diſpoſed in two rows. Corollas longer, five-cornered, greeniſh-white. Stigma headed. Berry roundiſh, white, with one pore at the top, two-celled, with two ſeeds in each cell[k].

Gærtner deſcribes the berry (when old and dry) to be tranſverſely oblong, acuminate at both ends, reſembling a double cone, grooved, of a ſmoky reddiſh colour. Stones irregularly conical, grooved, three-celled; the two inner cells fertile, the third outer conſtantly empty. Seeds oblong, narrowing downwards, ſlightly curved, ſnow-white.

Gærtner remarks, that the radicle in Tournefortia being inferior, it approaches nearer to the Verbenæ of Adanſon, than the Aſperifoliæ. He ſays that he never could diſcover the double pore in the top of the berry; and therefore concludes that the character is erroneous, or at leaſt not general. Perhaps this may be owing to his having examined none but dry berries. Swartz, as we have ſeen, deſcribes one pore in this ſpecies. This author obſerves that the whole plant is fetid.

Native of Jamaica; where Browne ſays it is ſometimes obſerved in the woods; that it generally riſes from five to ſeven or eight feet in height, and is remarkable for the thickneſs of its upper branches, and the length of its pendulous flower-ſpikes: the leaves are very large, ſometimes a foot or more in length.

It was cultivated in 1777, by Mr. William Malcolm; and flowers in july[l].

9. This is a ſhrub, ſcarcely the height of a man. Trunk very ſhort, covered with a deeply cloven bark. Branches ſpreading very much, hirſute. Leaves at

[i] Swartz, deſcr. [k] Swartz, obſ. [l] Hort. kew.

the

the ends of the branches, alternate approximating into a roſe as in Sempervivum canarienſe, ovate or tongue-ſhaped, (being narrowed into the petiole,) ſeſſile, rounded at the end, white all over with a ſilky hairineſs preſſed cloſe to them. Panicle large; divided into ſpikes, directed one way, and rolled back. Flowers ſnow-white; tube ſhort; border recurved. Berries not perforated. It is the handſomeſt ſpecies of the genus.

Native of the ſhores of the ſea of Ceylon[m]. Alſo of the Friendly Iſles[n].

10. This has the appearance of T. volubilis. Branches ſlender, round, ſmooth below, villoſe-aſh-coloured above. Leaves petioled, alternate, an inch and half long, little attenuated, acute, quite entire, above ſimply veined, ſmooth, beneath ſomewhat ſilvery, with veins a little branched. Peduncles flexuoſe, villoſe, aſh-coloured, with ſpreading branches. Flowers ſmall, diſtinct, alternate. Corolla villoſe on the outſide; with briſtle-ſhaped ſegments. Found in Monſerrat by Ryan[o].]

11. This has woody ſtalks which riſe five or ſix feet high, from which ſpring out many ſlender woody branches. Leaves about two inches long, and an inch broad in the middle, rounded at each end but having acute points; of a dark green on their upper ſurface, but having a white down on their under ſide, and ſitting cloſe to the branches. Flowers terminating and axillary, in ſlender branching ſpikes, which are recurved; and the flowers are ranged on one ſide of them; they are white, and are ſucceeded by ſmall ſucculent berries, which contain two or three ſeeds.

[Native of Jamaica. Dr. Browne ſays it is found by the ſea-ſide, near the borough in St. James's; and ſeldom riſes above three or four feet. According to Mr. Miller, it was diſcovered by Mr. Robert Millar near Carthagena in New Spain.—He cultivated it in 1768[p], and probably much ſooner, if it was ſent him by Robert Millar.

Mr. Miller has three other ſpecies, one found by Houſtoun, a ſecond by Robert Millar, and a third by Plumier.]

1. Tournefortia ſcandens. *n.* 4.
Pittonia ſcandens racemoſa, flore fuſco. *Houſt. MSS.*
Leaves cordate hirſute, ſpikes racemed reflexed, ſtem twining.
Stems ſhrubby, branching, riſing to the height of ten or twelve feet. Leaves near three inches long, and an inch and half broad near the baſe, ending in acute points; they are of a thinner texture than in T. volubilis, and ſtand upon ſhort foot-ſtalks. The flowers come out at the ends of the branches in very ſlender branching ſpikes; they are ſmall, and of a dirty brown colour, ranged along the upper ſide of the peduncle. Berries ſmall, pulpy, containing four ſeeds. Diſcovered in Jamaica by Dr. Houſtoun, who ſent the ſeeds to England.

2. Tournefortia tomentoſa. *n.* 5.
Pittonia ſcandens racemoſa, foliis ſubrotundis ſubtus incanis. *Houſt. MSS.*
Leaves cordate tomentoſe beneath, ſpikes racemed ſhort, ſtem twining.
This has climbing ſtalks, which twine about any neighbouring ſupport, and riſe to the height of ten or twelve feet. Leaves two inches long, and an inch and quarter broad near their baſe, on very ſhort foot-ſtalks. Spikes axillary. Flowers of a dirty white colour, ſmall; ſucceeded by ſmall ſucculent berries, incloſing two, three and ſometimes four ſeeds. Found by Mr. Robert Millar near Carthagena in New Spain.

3. Tournefortia carnoſa. *n.* 6.
Pittonia fruteſcens, folio carnoſo hirſuto & obtuſo.
Plum. gen. 5.
Leaves ovate wrinkled petioled, ſpikes racemed axillary, ſtem ſhrubby.
This has a ſtrong woody ſtalk, which riſes near twenty feet high, ſending out ſeveral ſtrong woody branches, covered with a light-brown rough bark. Leaves thick, four inches long and three broad; very rough and of a dark green colour on their upper ſurface, but pale and ſmoother on their under ſide, ſtanding upon pretty long foot-ſtalks. Flowers in branching axillary ſpikes, ſmall and white; ſucceeded by ſmall ſucculent berries, incloſing two or three oblong ſeeds. Found by Mr. Robert Millar, near Carthagena in New Spain.

[Loureiro has a ſpecies which he names *Tournefortia montana*. Willdenow doubts whether it may not be a *Meſſerſchmidia*.]

PROPAGATION AND CULTURE.

Theſe plants are propagated by ſeeds, which muſt be procured from the countries where they grow naturally; theſe ſhould be ſown in ſmall pots filled with light earth, and plunged into a hot-bed of tanners bark. Theſe ſeeds ſometimes grow the firſt year, but they often remain in the ground a whole year; therefore, if the plants ſhould not come up the ſame ſeaſon, the pots ſhould be plunged in autumn into the tan-bed in the ſtove, where they ſhould remain all the winter, and in the ſpring they ſhould be removed out, and plunged into a freſh tan-bed, which will ſoon bring up the plants if the ſeeds were good. When theſe are fit to remove, they ſhould be each planted in a ſmall pot, and plunged into a tan-bed, where they muſt be ſhaded from the ſun till they have taken new root, and then they muſt be treated in the ſame way as other tender plants from the ſame countries, which require to be kept conſtantly in the bark-ſtove. They may alſo be increaſed by cuttings.

[TOURNEFORTIA. See *Anthoſpermum*, *Heliotropium*, *Meſſerſchmidia*.

TOUROULIA. See *Robinſonia*.

TOURRETTIA. (*So named by Dombey from Monſ. de la Tourrette, author of* Chloris Lugdunenſis, & botanicæ Scholæ Veterinariæ Lugd. prælectiones.)
Lin. gen. Schreb. n. 1009. *Juſſ.* 139. *Dombey.* Dombeja. *L'Herit. t.* 17.
Claſſ. 14. 2. Didynamia Angioſpermia.
Nat. order of *Perſonatæ*. *Bignoniæ* Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* one-leafed, tubular, before flowering coloured, two-lipped: *upper* lip acute; *lower* indiſtinctly four-toothed, having a membrane internally: permanent.

COR. one-petalled: *tube* compreſſed, length of the calyx: *upper lip* galeate, compreſſed, with the margins converging: *lower lip* none, but in place of it a double toothlet.

STAM. *Filaments* four, filiform, concealed under the upper lip, two of them ſhorter. *Anthers* two-lobed.

PIST. *Germ* oblong, ſomewhat four-cornered, tubercled. *Style* filiform, length and ſituation of the lip. *Stigma* bifid.

PER. *Capſule* oblong, coriaceous, muricate with ſpines, (ſome of which are hooked,) four-celled, two-valved.

SEEDS few (four to ſix) in each cell, ſubtriquetrous, ovate, girt with a membranaceous margin, emarginate and crenulate at the baſe, covered with a common membrane.

ESSENTIAL CHARACTER.

Cal. two-lipped. *Cor.* lower lip none, but two toothlets inſtead of it. *Capſ.* echinate, four-celled, two-valved.

SPECIES.

1. Tourettia lappacea.
Lin. ſpec. ed. Willd. 3. 263.
Dombeja lappacea. *L'Herit. ſtirp. nov.* 1. 33. *t.* 17.

DESCRIPTION, *&c.*

Root annual. Stem two cubits high ſcandent four-cornered ſiſtulous, branched. Leaves oppoſite the primordial ones ternate, lateral leaflets two-parted, at the next knot double-ternate without a tendril, at the upper knots of the ſtem ternate-decompound or pedate, with the common petiole growing out into a convoluted branched tendril. Flowers in a naked terminating raceme, of a duſky violet colour. At the baſe of the peduncles, which are alternate and very ſhort, there is a briſtle-ſhaped bracte[q].

[m] Linn. ſuppl. [n] Forſter. [o] Vahl. ecl. [p] Hort. kew. [q] Willdenow.

Native of Peru, where it was found by Dombey, and the ſeeds ſent over by him to the Paris garden, where it flowered in 1784, but ſo late, that it was killed by the froſt[1].

TOWER-MUSTARD. See *Turritis*.

TOXICODENDRON. See *Rhus*.

TOZZIA. (*So named by Micheli in honour of Bruno Tozzi, Abbot of Vallumbroſa, F.R.S. and Soc. Florent. Micheli's companion in his botanical excurſions, in one of which he found this plant.*)

Lin. gen. n. 745. *Reich. n.* 803. *Schreb. n.* 1002. *Mich. t.* 16. *Juſſ.* 97.

Claſſ. 14. 2. Didynamia Angioſpermia.

Nat. order of *Perſonatæ*. *Lyſimachiæ* Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* one-leafed, tubular, very ſhort, five-toothed, permanent.

COR. one-petalled, ringent: *tube* cylindrical, longer than the calyx: *border* ſpreading: *upper lip* bifid: *lower* trifid: *ſegments* all nearly equal, rounded.

STAM. *Filaments* four, concealed beneath the upper lip. *Anthers* roundiſh.

PIST. *Germ* ovate. *Style* filiform, ſituation and length of the ſtamens. *Stigma* headed.

PER. *Capſule* globular, one-celled, one-valved.

SEED ſingle, ovate.

ESSENTIAL CHARACTER.

Cal. five-toothed. *Capſ.* one-celled, globular, one-ſeeded.

SPECIES.

1. Tozzia alpina.

Lin. ſpec. 844. *ſyſt.* 551. *Reich.* 3. 114. *Willd.* 3. 202. *Hall. helv. n.* 298. *Crantz auſtr.* 305. *Jacqu. auſtr.* 2. *t.* 165. *Villars dauph.* 2. 412. *Allion. pedem. n.* 202.

T. alp. lutea, alſines folio, radice ſquamata. *Mich. gen.* 20. *t.* 16.

Euphraſia lutea alſinefolia, radice ſquamata. *Bauh. pin.* 234. *prodr.* 111. *Park. theat.* 1329. *Raii hiſt.* 773.

Dentaria buguloides, radice globoſa, ſquamulis myontoideis, alpina. *Mentz. pug. t.* 9. *f.* 3, 4.

Orobanche bugloſſoides, radice rotunda, ſquamulis myontoideis, alpina. *Mor. hiſt.* 3. *ſ.* 12. *t.* 16. *f. antepenult.*

Anonyma ſ. Gregorii, radice dentariæ. *Col. ecphr.* 2. 49. *t.* 50.

DESCRIPTION, *&c.*

Root formed of roundiſh ſcales. Stem ſquare, branched. The whole habit tender and ſucculent. Leaves round, bluntly notched, pale. Pedunceles axillary, ſhort, one-flowered. Flowers yellow, with the three lower ſegments ſpotted of a deeper yellow, ſerrate. Fruit globular drawn out into a conical point[1].

Native of the mountains of Switzerland, Auſtria, South of France, Italy, and the Pyrenees, in rough moiſt places.

TRACES, Ladies. See *Ophrys*.]

TRACHELIUM. (*From τραχηλος, the neck.*)

Lin. gen. n. 221. *Reich. n.* 234. *Schreb. n.* 293. *Tournef. t.* 50. *Juſſ.* 165. *Gærtn. t.* 31.

Claſſ. 5. 1. Pentandria Monogynia.

Nat. order of *Campanaceæ*. *Campanulaceæ* Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* five-parted, very ſmall, ſuperior.

COR. one-petalled, funnel-form: *tube* cylindrical, very long, very ſlender: *border* patulous, ſmall, five-parted: *ſegments* ovate, concave.

STAM. *Filaments* five, capillary, length of the corolla. *Anthers* ſimple.

PIST. *Germ* three-ſided-roundiſh, inferior. *Style* filiform, twice as long as the corolla. *Stigma* globular.

PER. *Capſule* roundiſh, obtuſely three-lobed, three-celled, opening by three holes at the baſe.

SEEDS numerous, very ſmall.

ESSENTIAL CHARACTER.

Cor. funnel-form. *Stigma* globular. *Capſ.* three-celled, inferior.

[1] L'Heritier.

SPECIES.

1. Trachelium cæruleum. *Blue Throatwort.*

Lin. ſpec. 243. *ſyſt.* 212. *Reich.* 1. 472. *Willd.* 1. 926. *vir. cliff.* 17. *hort. cliff.* 66. *upſ.* 41. *ſuppl.* 143. *Knipb. cent.* 10. *n.* 89. *Gærtn. fruct.* 1. 155. *t.* 31.

Valeriana cæruleæ urticæ folio. *Barr. ic.* 683, 684.

Cervaria valerianoides cærulea. *Bauh. pin.* 95.

Branched, erect, leaves ovate ſerrate flat.

[2. Trachelium diffuſum. *Spreading Throatwort.*

Lin. ſyſt. 212. *Willd.* 1. 926. *ſuppl.* 143. *Thunb. prodr.* 38.

Very much branched, diffuſed, branches divaricating recurved, leaves awl-ſhaped.

3. Trachelium tenuifolium. *Fine-leaved Throatwort.*

Lin. ſyſt. 212. *Willd.* 1. 927. *ſuppl.* 143. *Thunb. prodr.* 38.

Nearly upright, leaves linear ciliate biſpid.]

DESCRIPTIONS, *&c.*

1. Root perennial, fleſhy, tuberous, ſending out many fibres which ſpread wide on every ſide. Leaves about two inches long, and one inch broad in the middle, ending in acute points. The ſtalks riſe a foot and half high, with leaves on them ſhaped like thoſe at the bottom. Sometimes there are two pretty large leaves, and one or two ſmaller from the ſame point, or one large and three ſmaller; theſe come out alternate, and the upper part of the ſtalk, immediately under the umbel, is naked, except two or three narrow leaves, which are cloſe to the foot-ſtalks of the flowers: theſe are diſpoſed in form of an umbel compoſed of many ſmall ones. The flowers are ſmall, and of an azure blue colour, appearing in June and July. The ſeeds ripen in ſeptember.

[Capſule inferior, crowned with a ſhort calyx, ſmall, ſubglobular, rounded-three-cornered, and flatted at the ſides, as it were three-lobed, triple-nerved at the lobes. Receptacle ovate-globular, ſmall, excavated, flattened to the internal angle of each cell about the middle. Seeds of an oblong elliptic form, compreſſed like a lens, ſmooth, ſhining, of a pale ruſt-colour[1].

Native of Italy and the Levant, in ſhady places. Cultivated by Mr. Miller in 1739. Biennial[2].

It has the name of Trachelium and Throatwort from the length of the neck, throat or tube of the corolla.

2. The branches are frequently ſo divaricated as to be recurved.

3. This and the preceding are natives of the Cape of Good Hope, where they were found by Thunberg[3].]

PROPAGATION AND CULTURE.

1. This plant is propagated by ſeeds, which ſhould be ſown in autumn when they are ripe, for when they are kept out of the ground till ſpring, they frequently fail, or if they do grow, it is not before the following ſpring. When the plants come up, they ſhould be kept clean from weeds, and as ſoon as they are big enough to remove, they ſhould be tranſplanted on an eaſt-aſpected border of light undunged earth, placing them in rows ſix inches apart, and four inches diſtant in the rows, ſhading them from the ſun till they have taken new root; after which they require no other care but to keep them clean from weeds till autumn, when they may be tranſplanted into the borders of the flower-garden, where they will flower the following ſummer.

But as theſe plants will thrive better on old walls, when by accident they have ariſen from ſeeds, ſo their ſeeds, when ripe, may be ſcattered on ſuch walls as are old, or where there is earth lodged ſufficient to receive the ſeeds; where the plants will come up and reſiſt the cold much better, and continue longer than when ſown in the full ground; and when a few of the plants are eſtabliſhed on the walls, they will ſhed their ſeeds, ſo that they will maintain themſelves without any farther care. I have obſerved ſome plants of this kind, which have grown from the joints of a wall, where there has not been the leaſt earth to ſupport them, which have reſiſted the cold, though they

[1] Gærtner. [2] Hort. kew. [3] Linn. ſuppl.

have been greatly expoſed to the winds, when moſt of thoſe in the full ground were killed; ſo that theſe plants are very proper to cover the walls of ruins where they will have a very good effect.

[TRACHELIUM. See *Campanula, Lobelia, Phyteuma.*]

TRADESCANTIA. *(So named by Ruppius, in his Flora Jenenſis from John Tradeſcant, who firſt introduced it in Europe. There were two Tradeſcants, father and ſon: the former (about 1629) gardener to Charles I.; the latter went to Virginia, and returned with many new plants. They had a famous Muſeum, the catalogue of which was printed in 1656, with heads of both by Hollar. The ſon died in 1662, and gave the Muſeum to Aſhmole, from whom it came to the Univerſity of Oxford, bearing his name.)*

Lin. gen. n. 398. *Reich. n.* 430. *Schreb. n.* 543. *Gærtn. t.* 15. *Juſſ.* 45. Ephemerum. *Tournef. t.* 193.

Claſſ. 6. 1. Hexandria Monogynia.

Nat. order of *Enſatæ*. *Juncí* Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* three-leaved: *leaflets* ovate, concave, ſpreading, permanent.

COR. *Petals* three, orbicular, flat, ſpreading very much, large, equal.

STAM. *Filaments* ſix, filiform, length of the calyx, erect, villoſe, with jointed hairs. *Anthers* kidney-form.

PIST. *Germ* ovate, obtuſely three-cornered. *Style* filiform, length of the ſtamens. *Stigma* three-cornered, tubulous.

PER. *Capſule* ovate, covered by the calyx, three-celled, three-valved.

SEEDS few, angular.

OBS. *The form of the ſtyle varies. Some of the ſpecies* (8. 10. 11. 12. 19.) *have naked filaments.* T. monandra *has only one ſtamen, and* cordifolia *three.*

ESSENTIAL CHARACTER.

Cal. three-leaved. *Pet.* three. *Filam.* equal, with jointed hairs. *Capſ.* three-celled.

SPECIES.

1. Tradeſcantia virginica. *Common Virginian Spiderwort.*
   Lin. ſpec. 411. *ſyſt.* 314. *Reich.* 2. 10. *Willd.* 2. 16. *hort. cliff.* 127. *upſ.* 73. *Gron. virg.* 36. *Gærtn. fruct.* 1. 51. *t.* 15. *Kniph. cent.* 6. *n.* 96. *Curt. magaz. t.* 105.
   Ephemerum phalangoides tripetalum non repens virginianum gramineum. *Mor. hiſt.* 3. 606. *ſ.* 15. *t.* 2. *f.* 4.
   E. virginianum. *Tournef. inſt.* 367. 368.
   Phalangium Ephemerum virginianum. *Park. parad.* 152. *n.* 5. *t.* 151. *f.* 4.
   P. virginianum Tradeſcanti. *Ger. emac.* 49. *f.* 5. *Raii hiſt.* 1193.
   Allium ſ. Moly virginianum. *Baub. pin.* 506.
   Erect, leaves lanceolate ſmooth, flowers heaped in an umbel terminating.

[2. Tradeſcantia craſſifolia. *Thick-leaved Spiderwort.*
   Lin. ſpec. ed. Willd. 2. 17. *Cavan. ic.* 1. 54. *t.* 75.
   Erect, leaves ovate woolly at the edge and beneath, flowers heaped in umbels terminating.

3. Tradeſcantia erecta. *Upright Spiderwort.*
   Lin. ſpec. ed. Willd. 2. 17. *Cavan. ic.* 1. 53. *t.* 74. *Jacqu. collect.* 4. 114. *ic. rar.* 2. *t.* 354.
   T. undulata. *Vahl act. ſoc. hiſt. nat. hafn.* 2. *p.* 2. 27. *t.* 3.
   T. bifida. *Roth. catal. bot.* 1. 42.
   Erect, leaves ovate narrowed at the baſe ſmooth, peduncle terminating naked bifid racemed.]

4. Tradeſcantia Zanonia. *Gentian-leaved Spiderwort.*
   Lin. ſpec. ed. Willd. 2. 17. *Swartz prodr.* 57. *deſcr.* 1. 604.
   Commelina Zanonia. *Lin. ſpec.* 61. *Mill. dict.* and *Dict. noſtr. n.* 7.
   Periclymenum rectum herbaceum gentianæ folio, foliis pediculo caulem ambiente. *Sloan. jam.* 1. 243. *t.* 147. *f.* 1.
   Erect, leaves broad-lanceolate, peduncles lateral ſolitary jointed in the middle many-flowered, bractes in pairs.

[5. Tradeſcantia diſcolor. *Purple-leaved Spiderwort.*
   Lin. ſpec. ed. Willd. 2. 18. *L'Herit. ſert. angl.* 8. *t.* 12. *Swartz deſcr.* 1. 607. *Smith ic. rar. t.* 10. *Ait. kew.* 1. 403.
   T. ſpathacea. *Swartz prodr.* 57.
   Stemleſs even, bractes equitant compreſſed, leaves lanceolate coloured underneath.

6. Tradeſcantia malabarica. *Graſs-leaved Spiderwort.*
   Lin. ſpec. 412. *Reich.* 2. 11. *Willd.* 2. 18.
   Ephemerum tripetalum non repens malabaricum, porraceis foliis, purpureo-cæruleum. *Mor. hiſt.* 3. 606?
   Ephemeri ſ. Phalangii virginiani ſpecies, floribus ſparſis. *Raii ſuppl.* 564?
   Tali-pulli. *Rheed. mal.* 9. 123. *t.* 63.
   Erect even, peduncles ſolitary very long.

7. Tradeſcantia nervoſa. *Nerve-leaved Spiderwort.*
   Lin. ſyſt. 315. *Reich.* 2. 11. *Willd.* 2. 18. *mant.* 223.
   Scape one-flowered.

8. Tradeſcantia divaricata. *Straddling Spiderwort.*
   Lin. ſpec. ed. Willd. 2. 18. *Vahl. ecl.* 1. 34.
   Commelina hexandra. *Aubl. guian.* 1. 35. *t.* 12.
   Stem dichotomous, leaves ovate-lanceolate ſmooth, ſheaths villoſe, flowers panicled, filaments ſmooth.

9. Tradeſcantia geniculata. *Knotted Spiderwort.*
   Lin. ſpec. 412. *ſyſt.* 315. *Reich.* 2. 11. *Willd.* 2. 19. *Jacqu. amer.* 94. *t.* 64. *pict.* 49. *t.* 95.
   Ranunculus ſ. Damaſonium repens, parnaſſiæ foliis villoſis. *Plum. ic.* 116. *f.* 2.
   Procumbent birſute.

10. Tradeſcantia monandra. *One-ſtamened Spiderwort.*
    Lin. ſpec. ed. Willd. 2. 19. *Swartz prodr.* 57. *deſcr.* 1. 597.
    Diffuſed, leaves ovate-acuminate, peduncles axillary many-flowered, flowers one-ſtamened.

11. Tradeſcantia multiflora. *Many-flowered Spiderwort.*
    Lin. ſpec. ed. Willd. 2. 19. *Swartz prodr.* 57. *deſcr.* 1. 599.
    Erect branched, leaves cordate ciliate on the edge and ſheaths, peduncles cluſtered axillary, flowers three-ſtamened.

12. Tradeſcantia cordifolia. *Heart-leaved Spiderwort.*
    Lin. ſpec. ed. Willd. 2. 19. *Swartz prodr.* 57. *deſcr.* 1. 601.
    Creeping ſiliform, leaves cordate, peduncles terminating ſolitary many-flowered.

13. Tradeſcantia procumbens. *Trailing Spiderwort.*
    Lin. ſpec. ed. Willd. 2. 19.
    T. multiflora. *Jacqu. collect.* 3. 226. *ic. rar.* 2. *t.* 355.
    Stem procumbent rooting, leaves ovate ciliate at the baſe ſheathing, peduncles cymed axillary, ſtamens unequal.

14. Tradeſcantia axillaris. *Axillary Spiderwort.*
    Lin. ſyſt. 315. *Reich.* 2. 11. *Willd.* 2. 20. *mant.* 321. *Roxb. coron.* 2. 5. *t.* 107.
    Commelina axillaris. *Lin. ſpec.* 62.
    Ephemerum phalangoides maderaſpatanum minimum, ſecundum caulem quaſi ex utriculis floridum. *Pluk. phyt. t.* 174. *f.* 3.
    E. malabaricum, flore tripetalo in foliorum alis ſeſſili. *Raii ſuppl.* 567.
    Nir-pulli. *Rheed. mal.* 10. 28. *t.* 13.
    Stem branched, flowers ſeſſile lateral.

15. Tradeſcantia formoſa. *Handſome Spiderwort.*
    Lin. ſpec. ed. Willd. 2. 20.
    T. ſpecioſa. *Lin. ſyſt.* 315. *ſuppl.* 192.
    T. nodiflora. *Lamarck, encycl.* 2. 367.
    Commelina ſpecioſa. *Thunb. prodr.* 59.
    Leaves oppoſite connate.

16. Tradeſcantia criſtata. *Creſted Spiderwort.*
    Lin. ſyſt. 315. *Reich.* 2. 12. *Willd.* 2. 21. *Jacqu. hort.* 2. 64. *t.* 137.
    Commelina criſtata. *Lin. ſpec.* 62. *fl. zeyl. n.* 32.
    Ephemerum zeylanicum procumbens inflatum. *Herm. parad.* 148. *Raii hiſt.* 566.
    Creeping even, ſpathes two-leaved imbricate.

17. Tradeſcantia papilionacea. *Papilionaceous Spiderwort.*
    Lin. ſyſt. 315. *Reich.* 2. 12. *Willd.* 2. 21. *mant.* 61. 513. *Burm. ind.* 17. *t.* 7. *f.* 1. *Vahl ſymb.* 1. 27.

Tillandſia decumbens. *Forſk. deſcr.* 72. *n.* 23. *β.*
Creeping even, ſpathes three-leaved imbricate.

18. Tradeſcantia tuberoſa. *Tuberous-rooted Spiderwort.*
Roxb. corom. 2. 5. *t.* 108.
Roots tuberous, joints of the ſtem radical, bractes in two rows, falcate, ciliate.

19. Tradeſcantia paniculata. *Panicled Spiderwort.*
Roxb. corom. 2. 6. *t.* 109.
Stems creeping, panicle terminating many-flowered.]

DESCRIPTIONS, *&c.*

1. Roots compoſed of many fleſhy fibres. Stalks ſmooth, riſing a foot and half high. Leaves long, ſmooth, keeled, embracing. Flowers in cluſters, compoſed of three large ſpreading purple petals: they appear early in june; and though each flower continues but one day, whence this plant had the name of Ephemerum, yet ſuch is the profuſion, that there is a ſucceſſion of them through the greater part of the ſummer. [Some authors have named it *Phalangium*, from its ſuppoſed property of curing the bite of a ſpider.

Capſule ſuperior, wrapped up in the permanent corolla, ſmall, marked with three grooves; the valves bearing the partition in the middle. Seeds two in each cell, of which one only uſually comes to maturity; this is elliptic, plano-convex, aſh-coloured: the belly flat, with a ſlender ridge, near which are tranſverſe wrinkles on each ſide; the back is convex, wrinkled radiately at the periphery, and having a little teat, which bears the embryo, in the middle[f].

Gærtner remarks, that Tradeſcantia and Commelina form but one natural genus.

The fine blue of the corolla, with the hairy filaments of the ſame colour in the middle, tipped with the large yellow anthers, would render this a favourite flower if it were not ſo common.

Native of Virginia and Maryland. Introduced before 1629, by Mr. John Tradeſcant Senior[g]. The Spider-wort, ſays Parkinſon, is of late knowledge, and for it the Chriſtian world is indebted unto that painful induſtrious ſearcher, and lover of all nature's varieties, John Tradeſcant, (ſometimes belonging to the Right Honourable Lord Robert Earle of Saliſbury, Lord Treaſurer of England in his time, and then unto the Right Honourable the Lord Wotton at Canterbury in Kent, and laſtly unto the late Duke of Buckingham,) who firſt received it of a friend, that brought it out of Virginia. Johnſon, the editor of Gerarde's herbal adds: this Virginian is in many of our Engliſh gardens, as with Mr. Parkinſon, Mr. Tradeſcant, and others.]

There are two varieties, one with a deep blue, and the other with a white flower, but they vary from one to another when raiſed from ſeeds.

[2. The whole plant is villoſe or woolly; the ſtem is branched, and a foot and half high; the leaves are thick ovate acute cowled at the baſe or very ſhortly ſheathing nerved, ſmooth above, but woolly beneath and at the edge: the flowers are among the largeſt of the genus[h]: the petals being above half an inch in diameter, orbicular and curled at the edge: the filaments are blue-bearded, and the anthers very dark blue.—Native of Mexico[i]. Cavanilles ſaw it flowering in the royal garden of Madrid in october.

3. Stems herbaceous, thick, round, jointed, three feet high, branched; branches axillary, and while tender villoſe. Leaves alternate, broad-ovate, acuminate at both ends, terminating at the baſe in an embracing ſheath. Both common and partial peduncles villoſe; as are alſo the calyx-leaves on the outſide. Corolla purple-violet, a little bigger than the calyx, petals orbicular with ſhort claws. Filaments red; the three lower ones longer; the loweſt beardleſs, the reſt bearded with little jointed briſtles: thoſe of the upper ones of a golden colour, of the two lateral ones purple: anthers on the longer filaments violet, loaded with pollen; on the ſhorter ones yellow, ſeeming to have no pollen. Germ ſuperior, white, oblong-three-ſided: ſtyle red, ſomewhat bowed. Seeds rough with tubercles, three or four in each cell.—It varies with violet-coloured corollas and ſtamens in the ſame umbel.—This is an annual plant, whereas the preceding is perennial. Native of Mexico[k].—Cavanilles ſaw it flowering and fruiting in the royal garden at Madrid in october.

4. Plant herbaceous, two feet high. Stem ſimple, jointed, round, ſheathed, almoſt naked below, ſmooth, ſucculent. Leaves ſubſeſſile, attenuated at the baſe, ſheathing, alternate, acuminate, entire, nerved longitudinally, ſmooth above, pubeſcent or villoſe beneath, almoſt a foot long: ſheaths ovate, half an inch long, diſtant from the ſtem, membranaceous, nerved, ſhrivelling, at the edge hirſute, ciliate. Peduncles oppoſite to a leaf, round, elongated, length of the leaves, ſurrounded at the baſe with a ſheath, which is cowled, membranaceous, retuſe; they are jointed in the middle, and at the joint there is an acuminate ſheath. Flowers terminating, from ſix to eight, on very ſhort pedicels, which are cluſtered, thickened, and unequal; they gradually erect themſelves as they flower, and are again turned back as the flowers go off. Under each pedicel is a two-leaved involucre, or two bractes, which are oppoſite, ovate, acuminate, entire, nerved, reflexed, ſmooth. Calyx ſomewhat pitcher-ſhaped, trifid at the baſe: leaflets ovate, acute, concave, incloſing the corolla. Petals a little bigger than the calyx-leaves, ovate-acute, erect, waved at the edge, white or hyaline. Filaments length of the petals, villoſe in the middle, equal. Anthers double, three-cornered, uniform. Germ oblong, placed on the middle of the calyx. Capſule berried, oblong, three-cornered, when ripe very dark purple, placed obliquely on the pedicel. Native of the ſouthern parts of Jamaica, in mountain woods; flowering in the ſpring months[l]. Alſo found in Guiana. See farther under *Commelina Zanonia.*

5. Root perennial, vertical, fleſhy, knotty. Leaves radical, numerous, embracing each other, ſpreading, a foot long, ſharpiſh, entire, fleſhy, ſlightly ribbed, ſmooth on both ſides, a little downy at the edges of the baſe, green above, bright purple on the margins and under ſide, the younger ones ſomewhat channelled. Stipules none. Stalks axillary, four times ſhorter than the leaves, ſolitary, erect, ſimple, rarely divided, a little compreſſed, ſmooth, whitiſh. External bractes ſheath-like, ſlightly ribbed, purpliſh, ſmooth, poliſhed on the inſide; of which the loweſt are the ſmalleſt, thinneſt, embracing the ſtalk, and alternate; the uppermoſt ſcarcely ever more than two, very large, formed like a boat, ſomewhat heart-ſhaped at the baſe, embracing each other, ending in a point: internal bractes ſcaly, membranous, white and pellucid, three times ſhorter than the outer ones. Flowers numerous, between the uppermoſt external bractes, which they ſcarcely riſe above, ſeparated and enfolded in diſtinct cluſters by the internal ones, pedicelled, white, ſhort-lived and ſcentleſs. Pedicels ſimple, ſingle-flowered, roundiſh, a little ſwelled in the upper part, whitiſh ſometimes green at the top, ſmooth, poliſhed, curved after flowering. Calyx corolla-like, whitiſh, pellucid, ſmooth: leaflets equal, obtuſe. Petals a little longer than the calyx, and alternate with its leaflets, broad-oval, obtuſe, waved at the margin, when faded rolled inward. Filaments as long as the corolla, nearly equal, almoſt erect, white, clothed a little above the baſe with numerous very ſlender white pellucid hairs, which are moſt beautifully jointed like a Conferva, and are ſomewhat ſhorter than the ſtamen, ſtanding nearly erect. Anthers wedge-ſhaped, vertical, yellow, ſmooth, entire at the top, bearing pollen at their orange-coloured edges. Germ ſuperior, roundiſh, triangular, ſmooth, white. Style erect, cylindrical, white and ſmooth. Stigma ſmall, obtuſe, rough. Capſule ſcarcely ſo large as a pea, ſmooth, turning red. Seeds ſolitary, ſomewhat kidney-ſhaped.

Native of South America, on the Moſquito ſhore; whence it was brought by a ſhip to Jamaica, where it was obſerved and deſcribed by Maſſon[m]; and ſent

[f] Gærtner. [g] Hort. kew. [h] Cavanilles. [i] Willdenow. [k] Cavanilles. [l] Swartz deſcr. [m] Smith.

to Europe in 1783, by Matthew Wallen, Eſq. It flowers moſt part of the ſummer.

6. Native of the Eaſt Indies. Introduced in 1776, by John Fothergill, M. D. It flowers in july and auguſt[a].

7. Stems a hand high, diffuſed. Leaves lanceolate, ſheathing, ſhort or an inch long, cluſtered. Peduncle terminating, filiform, long, one or two-flowered. Bracte obſolete, remote from the flower. Flower large. Calyx-leaves lanceolate, ſcarioſe, five-nerved, ſhorter than the corolla. Petals ovate, broad, many-nerved. Filaments with violet-coloured hairs. Style hooked at the end. Suppoſed to be a native of Suratte. From Mutis[a].

8. Stem dichotomouſly branched. Branches round, divaricating, broken in at bottom, jointed: joints two inches and more, gradually ſhorter upwards, ſmooth below, little villoſe above, ſheathed. Sheaths tubular, ſhorter by half than the joint, membranaceous, dry in ſummer, ciliate at the edge with long hairs, more villoſe on the alternate ſides. Leaves from the margin of the ſheaths, alternate, ſubpetioled, two inches long or more, the lower ones a little ſmaller, attenuated, acute, quite entire, flat, marked with about fifteen very fine nerves. Panicle terminating, erect, two inches long. Pedicels ſhort, three or four-flowered, reflexed, villoſe. Bractes lanceolate, membranaceous, villoſe, length of the pedicels. Calyx inferior: leaflets oblong, obtuſe, appearing a little villoſe under the magnifier, equal. Petals equal, ovate, acute, longer than the calyx, blue. No nectary. Filaments inſerted at the baſe of the petals, ſhort, very ſmooth. Anthers erect, awl-ſhaped, twice as long as the filaments, but ſhorter than the corolla. Germ ſmooth, ſubglobular-three-ſided, with obtuſe angles. Style permanent, a little ſhorter than the anthers. Stigma ſimple, obtuſe. Capſule rounded-three-cornered, twice as large as a pea, muricated on the outſide with ſmall ſcattered tubercles: valves membranaceous, oblong, mucronate, flatted longitudinally at the back in the part correſponding with the partition within: partition ventral. Seeds two, ſeldom three in each cell, arilled, all coming to maturity, ovate-ſubtriangular, flat where they touch each other, blunt at the other end, convex at the back, flat at the belly on each ſide. Aril looſely covering the whole ſeed, membranaceous and ſomewhat pulpy, when the ſeed is dry collapſing and aſſuming the ſhape with the inequalities of the ſeed, but eaſily ſeparating from it. Seed itſelf oblong, plano-convex, ferruginous, dry, brown, flattiſh on the belly, tranſverſely wrinkled on both the ſides, having in the middle a ſmall excavation with a teatlet, to which the aril adheres; convex on the back, with a navel-ſhaped excavation in the middle, and wrinkled at the ſides, as on the belly.—It differs therefore both from Commelina and Tradeſcantia in having an aril or looſe membranaceous coat adhering to the umbilicus: and ſince it has no nectaries, and the filaments are not bearded, might it not conſtitute a genus ſeparate from both[b]?

Found on the banks of rivers in Guiana and Cayenne by Aublet, and in the iſland of Trinidad by Ryan.

9. This is a tender plant, with herbaceous round jointed ſtems, creeping at bottom, otherwiſe nearly upright. Leaves cordate, acuminate, embracing, ſheathing, quite entire, alternate, hirſute eſpecially at the edges. Panicles dichotomous, terminating and axillary, erect. Flowers ſmall, with white corollas.—In Plumier's figure, the plant is repreſented too hairy, which is a common fault in his plates[c].

Native of South America—Martinico, in moiſt hedges.

10. Root annual. Radicles very long, whitiſh. Stem herbaceous, aſcending, jointed, putting out fibres, half a foot high, looſe, round, pellucid, ſmooth, ſpotted: branches nearly upright, looſe, round, ſpotted. Leaves ſubpetioled, alternate, entire, very thin, longitudinally and very finely nerved, very ſmooth. Petioles (or the baſe of the leaf attenuated) ſheathed: ſheaths ſhort, cowled, or diſtant from the ſtem, membranaceous, whitiſh, rough-haired or ciliate at the edge. Peduncles principally from the ſheaths of the terminating leaves, often longer than the leaves, looſe; flowers in umbellets, eight or ten together: involucrets or little bractes three or four-leaved: leaflets minute ovate acute whitiſh villoſe. Pedicels ſhorter than the peduncle, capillary pubeſcent one-flowered. Flowers minute, whitiſh. Calyx-leaves lanceolate, after flowering upright, rough-haired. Petals lanceolate, leſs by half than the calyx-leaves, whitiſh and diaphanous, caducous. Filament one, length of the petals: anther roundiſh, twin, yellow. Style very ſhort and thick, diaphanous. Stigma villoſe (perhaps three). Capſule roundiſh-three-cornered, retuſe, ſize of a muſtard-ſeed: cells two-ſeeded. Seeds roundiſh, ſhining; —Native of the weſtern part of Hiſpaniola, in mountain woods.

11. Plant from one to two feet high. Stem herbaceous, ſomewhat jointed, round, ſtriated, ſmooth. Branches from the ſheaths of the leaves, ſhortiſh, erect. Leaves alternate, ſeſſile, ſheathing at the baſe, cordate-ovate acute, an inch long, ſomewhat ſtriated with longitudinal nerves, ſmooth on both ſides, ſomewhat ciliate at the edge. Sheaths ſhort, ſubcylindric or ovate, ſomewhat ventricoſe, membranaceous, ſtriated, ciliate at the edge. Peduncles from the ſheaths of the terminating leaves, two or three together, commonly ſhorter than the leaves, erect, many-flowered, rough-haired. Flowers ten to twelve, in little umbels, pedicelled, ſmall: pedicels unequal, ſhorter than the peduncles. There are a few little ciliate bractes at the baſe of the pedicels. Calyx-leaves acute, browniſh-green, pubeſcent. Petals leſs than the calyx, or equal to it, ovate, white, caducous. Filaments three, ſhorter than the petals. Anthers cordate. Germ roundiſh-three-cornered. Style thick, very ſhort. Stigmas three, white-villoſe. Capſule roundiſh, acuminate, placed on the permanent calyx. Seeds ſolitary? roundiſh, flatted a little, umbilicate, hollow-dotted, black. Native of Jamaica, in mountain woods.

12. This is a ſmall herbaceous annual plant. Radicles numerous, whitiſh. Stem tender, ſheathed, jointed at the baſe, round, ſucculent: branchlets ſhort, coming out below the ſheaths of the leaves, depreſſed, aſcending, rooting. Leaves ſubſeſſile, ſheathing at the baſe, alternate, ſmall, cordate-ovate, with a very ſhort point, entire, nerveleſs, netted-veined, bright green, ſubdiaphanous. Sheaths ſhort, ſurrounding the ſtem, ciliate at the jaws. Peduncles longer than the leaves, erect, flowering at the top: flowers three to five, minute, on ſhort pedicels, cluſtered in umbellets; with two or three very minute ovate bractes, ciliate at the edge, under their baſe: pedicels bent down after flowering. Calyx-leaves pubeſcent, green except the baſe which is brown. Petals bigger than the calyx-leaves, cordate-ovate acute, white, caducous. Nectaries none. Filaments very ſhort, uniform, naked at the baſe, not hairy. Anthers twin, pellucid, with roundiſh cells. Germ roundiſh-three-cornered, pellucid. Style thickiſh. Stigma ſubcapitate, trifid, pubeſcent. Capſule three-cornered, opening at the top: cells two-ſeeded. Seeds roundiſh.—Native of Jamaica, in moiſt ſhady graſſy parts of high mountains; flowering in autumn[e].

13. This, which is the multiflora of Jacquin, ſeems to be diſtinct from that of Swartz, in having a procumbent ſtem, and fix ſtamens to the flowers, three of which are longer and bearded.—Native of the Caraccas. Perennial[f].

14. Stem creeping at the baſe, aſcending. Leaves linear, acute, ſpreading, having coloured ſheaths ciliate with long hairs. Flowers axillary, ſolitary. Calyx three-parted, keeled, ciliate at the ends. Corolla one-petalled, funnel-form, of a deep blue purple:

[a] Hort. kew. [b] Linn. mant. [c] Vahl. [d] Jacquin. [e] Swartz. [f] Willdenow.

tube

tube twice as long as the calyx: ſegments three, ſhorter, blue. Filaments with jointed hairs. Style club-ſhaped. *Koenig.*—Rheede and other authors erroneouſly deſcribe the corolla as three-petalled. Native of the Eaſt Indies; where cattle are very fond of it. Annual[t].

15. Stem a foot high, even, woolly under the joints. Flowers in ſeveral remote whorls. Leaves under the whorls enſiform-lanceolate, a little woolly at the edge. Petals ſix; outer three lanceolate more rigid; inner three, more tender. Filaments length of the corolla, woolly at top: anthers erect. Germ ſuperior, three-ſided. Style length of the corolla, bearded at the tip. Stigma oblong, three-ſided.—Native of the Cape of Good Hope. Thunberg[u].

16. Root annual. Stems round, even, branched, diffuſed, creeping. Leaves lanceolate, recurved, even, ſheathed at the baſe with ſtriated ſheaths. Spathes two-flowered with the flowers ſeſſile, creſcent-ſhaped, ſix pairs, directed all the ſame way. Calyx ſhorter than the corolla. Petals ovate, ſeſſile, blue. Filaments hairy on the outſide with blue jointed hairs. Style club-ſhaped. Stigma tubular, crenate[x].—Native of Ceylon. Introduced in 1770, by Monſ. Richard. It flowers from july to ſeptember[y].

17. Root annual, fibrous. Stems three inches long, jointed, rooting at the joints. Leaves linear-lanceolate, hairy underneath, erect, ſeſſile, ſubciliate at the baſe: ſheath widiſh, very ſhort. Spathe terminating, cordate, folded downwards, ſubciliate at the edge; under which are two lanceolate-creſcented leaflets, the upper one ſhorter; between theſe is the flower; inſtead of a keel, between the above two leaflets, another ſpathe comes out afterwards, which is alſo ſhort, and together with its leaflets not yet viſible; and thus the ſpathe reſembles a papilionaceous flower. Corolla violet-coloured (not blue). Filaments blue, with jointed hairs globular at the tip, longer at the top. Stem green, not rufeſcent; in other reſpects ſo like to T. criſtata, that it may be conſidered as a variety of that; but this differs from it in having the ſtamens longer than the corolla[z].

Vahl remarks, that the flowers are not only terminating but axillary.

Native of the Eaſt Indies.

18. Root tuberous, perennial. Stems ſeveral, creeping, round, jointed, from ſix to thirty-ſix inches long; beſides a tuft of three or four liliaceous, ſword-form leaves iſſuing immediately from the heads of tuberous roots, or rather their ſheaths, form a head, from which iſſue the roots and procumbent ſtems. Leaves on the ſtem linear-lanceolate, ſheathing, ſtriated, under ſide tinged with purple, downy. Spikes terminating, or from the exterior axils, one or two together, peduncled, beautifully imbricate, as in T. criſtata, with two rows of falcate, ciliate bractes. Flowers one in the axil of each bracte, ſmall, blue-purple. Corolla, ſtamens and piſtils as in T. axillaris.

19. Root fibrous, annual. Stems creeping, with their extremities erect, jointed, ſmooth. Leaves lanceolate, ſheathing; mouth of the ſheath woolly. Panicle terminating, globular, many-flowered, hairy. Flowers ſmall, blue. Calyx three-leaved, hairy. Corolla three-parted; the two upper diviſions large and ovate, the third lanceolate. Filaments ſimple, inſerted round the germ, as long as the petals, without hairs or ſwelling.—It is called Conda Amadicada by the Telingas. Both are natives of Coromandel, in moiſt vallies[a].

Swartz obſerves, that T. cordifolia much reſembles Calliſia; and he would bring C. repens into this genus, under the name of Tradeſcantia Calliſia.]

PROPAGATION AND CULTURE.

1. Virginian Spiderwort multiplies ſo faſt by its roots, as alſo from the ſeeds, if permitted to fall, that it muſt be yearly reduced, to keep it within bounds. The beſt time to remove and part the roots is in the autumn.

[2. to 14. and 16. to 19. The other ſpecies, from the Eaſt and Weſt Indies, require the heat of a ſtove, in which ſome of them may be abundantly increaſed both by ſeeds and offsets. Some of the ſpecies are annual, and can be propagated only by ſeeds; but the greater part is perennial.

N. 15. being a native of the Cape of Good Hope, requires only the protection of the dry ſtove.

TRAGACANTHA, and Tragacanthæ affinis. See *Aſtragalus.*]

TRAGIA. (*So named by Plumier, in memory of* Hieronymus Tragus, *whoſe real name was* Jerome Bock. *A German Divine and Phyſician. He publiſhed* Kreuterbuch, *or a hiſtory of plants with wooden cuts, in folio,* 1539, (*without figures*) 1550 *and* 1553, *figures alone:* 1546, 1551, 1556, 1560, 1572, 1577. *&c. and* Nomenclatura Stirpium, Argent. 1552. 4°. *He died in* 1554.)

Lin. gen. n. 1048. *Reich. n.* 1140. *Schreb. n.* 1410. *Plum. gen.* 12. *Jacqu. amer.* 245. *Juſſ.* 390.

Claſſ. 21. 3. Monoecia Triandria.

Nat. order of *Tricoccæ. Euphorbiæ* Juſſ.

GENERIC CHARACTER.

* *Male flowers.*

CAL. *Perianth* three-parted: *ſegments* ovate, acute, flat, ſpreading.

COR. none.

STAM. *Filaments* three, length of the calyx. *Anthers* roundiſh.

OBS. *Plumier calls the calyx a funnel-form petal.*

* *Females* on the ſame plant.

CAL. *Perianth* five or ſix-parted: *leaflets* ovate, concave, acute, permanent.

COR. none.

PIST. *Germ* roundiſh, three-grooved. *Style* ſingle, erect, longer than the calyx. *Stigma* trifid, ſpreading.

PER. *Capſule* tricoccous, roundiſh, three-celled, hiſpid: each cell marked on the outſide at the baſe with two dots.

SEEDS ſolitary, globular.

ESSENTIAL CHARACTER.

MALE. *Cal.* three-parted. *Cor.* none.

FEM. *Cal.* five-parted. *Cor.* none. *Style* trifid. *Capſ.* tricoccous, three-celled. *Seeds* ſolitary.

SPECIES.

1. Tragia volubilis. *Twining Tragia.*
   Lin. ſpec. 1390. *Reich.* 4. 118. *Loeſl. it.* 233. *Burm. ind.* 264. *Swartz obſ.* 353. *Brown. jam.* 336. 1. *Plum. gen.* 14. *ic.* 252. *f.* 2.
   Urtica racemoſa ſcandens anguſtifolia, fructu tricocco. *Sloan. jam.* 1. 123. *t.* 82. *f.* 1. *Raii ſuppl.* 105.
   Funis urens. *Rumph. amb.* 5. 13. *t.* 9.
   β. Tragia ſcandens, longo betonicæ folio. *Plum. gen.* 14. *ic.* 252. *f.* 1.
   Leaves cordate-ovate acuminate, ſtem twining.
[2. Tragia cordifolia. *Heart-leaved Tragia.*
   Vahl ſymb. 1. 76.
   Jatropha pungens. *Forſt. deſcr.* 163.
   Leaves cordate, ſtem twining, female bractes five-leaved pinnatifid.]
3. Tragia involucrata. *Involucred Tragia.*
   Lin. ſpec. 1391. *Reich.* 4. 119. *fl. zeyl. n.* 34. (Acalypha.) *Burm. zeyl.* 202. *t.* 92. (Ricinocarpos.)
   Schorigeram. *Rheed. mal.* 2. 72. *t.* 39. *Raii hiſt.* 160.
   Leaves lanceolate, female bractes five-leaved pinnatifid.
[4. Tragia Mercurialis. *Ovate-leaved Tragia.*
   Lin. ſpec. 1391. *ſyſt.* 847. *Reich.* 4. 119. *fl. zeyl. n.* 334. *amoen.* 5. 409. *Swartz obſ.* 534. *Pluk. phyt. t.* 205. *f.* 4. (Mercurialis.)
   Pee-cupameni. *Rheed. mal.* 10. *t.* 82. *Raii ſuppl.* 205.
   β. Croton foliis cordatis ſerratis petiolatis, floribus ſpicatis. *Gron. virg.* 153.
   Manihos minima chamædrifolia. *Plum. ſpec.* 20. *ic.* 172. *f.* 2.
   Leaves ovate.

[t] Linn. mant. [u] Linn. ſyſt. [x] Linn. ſuppl. et ſyſt. and Roxb. corom. [y] Hort. kew. [z] Roxburgh. [a] Linn. mant.

5. Tragia urens. *Stinging Tragia.*
Lin. ſpec. 1391. *Reich.* 4. 120. *Pluk. phyt. t.* 107. *f.* 5. (Ricinus.)
Leaves lanceolate obtuſe ſomewhat toothed.
6. Tragia Chamælea. *Lance-leaved Tragia.*
Lin. ſpec. 1391. *Reich.* 4. 120. *ſt. zeyl. n.* 335. *Burm. zeyl.* 59. *t.* 25. (Chamælea.)
Codi avanacu. *Rheed. mal.* 2. 63. *t.* 34. *Raii hiſt.* 1170.
Tithymalus tenuifolius aquaticus, foliis raris. *Burm. zeyl.* 225. *ind.* 205. *ſec. Reich.*
Leaves lanceolate obtuſe quite entire.
7. Tragia cannabina. *Hemp-leaved Tragia.*
Lin. ſyſt. 847. *ſuppl.* 415.
Croton haſtatum. *Lin. ſyſt. ed.* 13. 722.—item.
C. urens. *Lin. ſyſt. ed.* 13. 722.
Leaves three-parted.
8. Tragia corniculata. *Horn-fruited Tragia.*
Vahl ecl. 2. 55.
Leaves ſubcordate-ovate attenuated almoſt quite entire, valves of the capſules two-horned.

DESCRIPTIONS, *&c.*

1. Stem ſuffrutеſcent, looſe, round, ſtinging with its briſtles: branches filiform, all directed one way, ſimple. Leaves petioled, alternate, ſerrate, bent down, nerved, hiſpid with briſtles. Stipules lanceolate, oppoſite by the ſide of the petioles; which are long and hiſpid. Racemes peduncled, axillary, ſolitary, longer than the leaves, filiform, looſe, compoſed of numerous very ſmall male flowers, on very ſhort pedicels; with minute awl-ſhaped bractes under the pedicels: and females at the baſe, pedicelled, ſolitary, larger. Calyx of the male three-leaved; leaflets coloured of a dark purple; filaments very ſhort, contiguous:—calyx of the female, five-parted; germ hirſute, ſtyle trifid, ſtigmas revolute [b].

Linneus remarks, that the ſtem twines in a direction contrary to the ſun's apparent motion; that the leaves are cordate, oblong-acuminate, ſharply ſerrate, with ſtiff hairs ſcattered over the ſurface; that the male flowers are green and trifid, the female axillary, ſolitary, on a long, jointed, incurved peduncle; and that the capſule is covered with ſtiff ſtinging briſtles, each cell marked on the outſide at the baſe with two calluſes.

Native of the Eaſt and Weſt Indies. It is very common in Jamaica, and is well known there on account of its ſharp ſtinging hairs, with which the whole plant is covered. The root is looked upon as a good aperient and diuretic; both the decoction and juice are frequently uſed among the negroes for thoſe purpoſes [c].

Cultivated by Mr. Miller in 1739.

2. Stem ſhrubby, twining, hiſpid as is the whole plant. Leaves cordate, ſerrate, acuminate, paler underneath. Spikes terminating.—The preceding ſpecies differs from this in having the leaves groſsly ſerrate, and the bractes entire. The next ſucceeding ſpecies is diſtinguiſhed by the leaves being ſharp at both ends [d].]

3. This riſes with an erect woody ſtem about three feet high, and rarely ſends out any ſide branches. Leaves oblong-lanceolate running out in very long acute points, ſharply ſerrate, alternate, cloſely covered with yellowiſh ſtinging hairs. Flowers in ſmall axillary cluſters, ſtanding ſeveral together upon the ſame foot-ſtalk; the upper ones all male, and the under female; the latter ſucceeded by roundiſh capſules, with three cells, each incloſing one ſeed. Native of the Eaſt Indies.

[Cultivated by Mr. Miller in 1759.

4. The American plant, here conſidered only as a variety of the Eaſt Indian, is probably a diſtinct ſpecies. Sloane's ſynonym, given by Linneus, belongs to Acalypha reptans [e].

5. This is an annual plant, native of Virginia. Introduced in 1778, by John Fothergill, M. D. It flowers in auguſt [f].

6. Stem erect, divided into long erect branches. Leaves narrower at the baſe. Above the diviſions of the ſtem a ſpike ariſes, with a ſingle female flower having no involucre, and many male flowers forming a ſmall ſpike [g].

Root annual, very ſlender, fibrous, blackiſh. Stem round, dark green. Leaves alternate, on ſhort petioles, ſmooth, long, paler underneath, very finely and ſlightly ſerrate. Capſule echinate or covered with unarmed ſpinules. Seeds oblong aſh-coloured [h].—The leaves in Burman's figure are rather linear than lanceolate, and he ſays they are *perfectе linearia*. He finds fault with the figure in Hortus Malabaricus, for having the teeth at the edges of the leaves too large: and in his figure they are not diſcoverable.—Native of the Eaſt Indies.

7. Stem erect, round, hiſpid. Leaves alternate, petioled, three-parted, hiſpid: ſegments lanceolate, ſinuate. Stipules two, lanceolate, ſhort. Peduncles lateral, ſolitary, one-flowered, length of the leaves. Female calyx ſix-leaved, pectinate.—Native of Malabar. Koenig.

Two Crotons, ſuppoſed in the 13th edition of Syſtema Vegetabilium to be diſtinct ſpecies, are here united, being mere varieties [i].

8. Root annual, fibrous. Stem herbaceous, erect, a foot and half high, hairy, round: branches alternate, ſpreading, ſimple. Leaves alternate, from an inch to two inches in length, entire except that they have ſometimes an obſcure tooth or two at the baſe, pubeſcent, veinleſs, indiſtinctly nerved: petiole half an inch in length. Male flowers a little below the petiole or lateral, in a filiform ſpike, peltate half an inch in length, very ſmall: calyx three-parted; ſegments erect, converging, obovate: one filament hanging out between each ſegment of the calyx, anther globular. Female flowers below the male ſpike, nearer to the antecedent leaf, ſolitary, peduncled: calyx ſix-parted, deciduous; ſegments ovate, minute: Germ oblong; ſtyle trifid; ſtigmas ſimple. Capſule three-ſided, oblong, truncate at each end, ſmooth; valves above and below two-horned. Found in the iſland of Trinidad by Ryan.]

PROPAGATION AND CULTURE.

Theſe plants, being of no great beauty, are ſeldom preſerved except in the ſtoves of botanic gardens. Sow the ſeeds on a hot-bed early in the ſpring: when the plants are in a proper ſtate tranſplant each into a ſeparate pot, plunge the pots into a hot-bed of tanner's bark, and treat them in the ſame manner as other tender plants, which require to be kept in the bark ſtove.

[TRAGIUM. See *Hypericum hircinum*.

TRAGŌDES. See *Fagara*.]

TRAGOPŌGON (*of Pliny.* Τραγοπωγων *of Dioſcorides. From* τραγος *a goat, and* πωγων, *a beard. On account of the large down to the ſeed.*)
Lin. gen. n. 905. *Reich. n.* 984. *Schreb. n.* 1229. *Vaill. act. gall.* 1721. 44. 13. 21. 14. *Tournef. t.* 270. *Juſſ.* 170. *Gærtn. t.* 159. Tragopogonoides. *Vaill. act. gall.* 1721. 43. 15. 14.
Claſs. 19. 1. Syngeneſia Polygamia Æqualis.
Nat. order of *Compoſitæ Semiflоſculoſæ. Cichoraceæ* Juſſ.

GENERIC CHARACTER.

CAL. *Common* ſimple, eight-leaved: *leaflets* lanceolate, equal, alternately interior, all united at the baſe.
COR. *Compound* imbricate, uniform: *corollets* hermaphrodite, many, exterior ones a little longer.
Proper one-petalled, ligulate, truncate, five-toothed.
STAM. *Filaments* five, capillary, very ſhort. *Anther* cylindrical, tubulous.
PIST. *Germ* oblong. *Style* filiform, length of the ſtamens. *Stigmas* two, revolute.
PER. none. *Calyx* converging, acuminate, length of the ſeeds, ventriculoſe, at length reflexed.
SEEDS ſolitary, oblong, attenuated to both ends, angular, rugged, terminated by a long awl-ſhaped down-bearing ſtipe. *Down* feathered, flat, with about thirty-two rays.
REC. naked, flat, rugged.

[b] Swartz. [c] Browne. [d] Vahl. [e] Swartz obſ. [f] Hort. kew. [g] Linn. zeyl. [h] Burm. zeyl. [i] Linn. ſuppl. [k] Vahl ecl.

Obs. Tragopogon. *Vaill. has the ſeeds ſtraight, and the calyx longer than the corolla.*

Tragopogonoides *Vaill. has the ſeeds covered inwards, and the calyx ſhorter than the corolla.*

ESSENTIAL CHARACTER.

Cal. ſimple. *Down* feathered. *Recept.* naked.

SPECIES.

1. Tragopogon pratenſis. *Common yellow Goat's-beard. Lin. ſpec.* 1109. *Reich.* 3. 611. *hort. cliff.* 382. *fl. ſuec. n.* 684. *mat. med.* 178. *Gærtn. fruct.* 2. 368. *Huſſ. angl.* 335. *Wither. arr. ed.* 3. 672. *Smith brit.* 812. *engl. bot. t.* 434. *Hull.* 172. *Lightf. ſcot.* 426. *Relh. cant. ed.* 2. *n.* 626. *Sibth. oxon. n.* 657. *Abbot bedf. n.* 551. *Fl. dan. t.* 906. *Hall. helv. n.* 8. *Pollich pal. n.* 722. *Scop. carn. n.* 946. *Neck. gallob.* 322. *Krock. ſileſ. n.* 1238. *Villars dauph.* 3. 68. *Allion. pedem. n.* 841. *Gmel. ſib.* 2. 1. *Ludw. eſt. t.* 49. *Knorr. del.* 2. *t.* T. 3. *Kniph. cent.* 9. *n.* 91.

Tragopogon. *Fuchſ. hiſt.* 821. *Matth.* 537. 490. *Dod. pempt.* 256. 2. *Camer. epit.* 312. *Park. par.* 514.

T. luteum. *Ger.* 595. 2. *emac.* 735. 2. *Raii hiſt.* 252. *ſyn.* 171. *Petiv. brit. t.* 15. *f.* 6, 7.

T. flore luteo. *Baub. hiſt.* 2. 1059. 1.

T. pratenſe luteum majus. *Baub. pin.* 274. *Mor. hiſt. ſ.* 7. *t.* 9. *f.* 1.

T. minus. *Mill. dict. n.* 2.

Barbula hirci. *Trag. hiſt.* 280.

Hirci barba. *Cord. hiſt.* 156.

Calyxes nearly equal to the ray of the corollas, leaves entire keeled acuminate dilated at the baſe, peduncle round.

[2. Tragopogon mutabilis. *Changeable Goat's-beard. Lin. ſyſt.* 709. *Jacqu. miſc.* 2. 316. *icon. rar. t.* 20.

Calyxes eight-leaved equalling the ray of the corolla, leaves entire ſtiff lanceolate-acuminate.

3. Tragopogon undulatus. *Wave-leaved Goat's-beard. Lin. ſyſt.* 709. *Jacqu. miſc.* 2. 317. *t.* 20.

Calyxes equalling the ray of the corolla, leaves entire ſublinear, thoſe on the ſtem waving very much.

4. Tragopogon orientalis. *Oriental Goat's-beard. Lin. ſpec.* 1109. *Reich.* 3. 612. *hort. upſ.* 243. *Gmel. it.* 2. 198. *Krock. ſileſ. n.* 1241.

T. orient. anguſtifolium, flore maximo luteo. *Tournef. cor.* 36.

Barba hirci. *Camer. epit.* 312. *fig.*

Calyxes ſhorter than the ray of the corolla, leaves entire ſomewhat waved.]

5. Tragopogon major. *Great yellow Goat's-beard. Lin. ſyſt.* 710. *Jacqu. auſtr.* 1. 19. *t.* 29. *Ait. kew.* 3. 111. *Krock. ſileſ. n.* 1239.

T. pratenſe. *Mill. dict. n.* 1.

Calyxes longer than the ray of the corolla, leaves entire ſtiff, peduncles thickened at top, corollets rounded at the end.

6. Tragopogon porrifolius. *Purple Goat's-beard. Lin. ſpec.* 1110. *ſyſt.* 710. *Reich.* 3. 612. *hort. upſ.* 243. *Jacqu. collect.* 1. 99. *ic. rar.* 1. *t.* 159. *Huſſ. angl.* 335. *Wither. arr. ed.* 3. 672. *Smith. brit.* 813. *engl. bot. t.* 638. *Hull.* 172. *Fl. dan. t.* 797. *Hall. helv. n.* 9. *Krock. ſileſ. n.* 1240. *Villars dauph.* 3. 69. *Kniph. cent.* 7. *n.* 93.

T. purpureum. *Ger.* 595. 1. *emac.* 735. 1. *Park. par.* 302. *t.* 297. *f.* 7. *t.* 511. *f.* 8. *theat.* 412. *Raii hiſt.* 252. *ſyn.* 171. *Petiv. brit. t.* 15. *f.* 8. *Dod. pempt.* 256. *f.* 1.

T. flore purpureo. *Baub. hiſt.* 2. 1059.

T. alterum. *Matth.* 491. 538.—*f.* Barba hirci. *Dalech. hiſt.* 1079.

T. purpureo-cæruleum, porri folio, quod Arteſi vulgo. *Baub. pin.* 274. *Mor. hiſt.* 3. 8. *ſ.* 7. *t.* 9. *f.* 5.

Barba hirci altera. *Camer. epit.* 313.

β. Tragopogon folio oblongo ſinuato. *Baub. pin.* 274.

Calyxes half as long again as the ray of the corollas, leaves entire ſtiff, peduncle thickened at top.

[7. Tragopogon crocifolius. *Crocus-leaved Goat's-beard. Lin. ſpec.* 1110. *ſyſt.* 710. *Reich.* 3. 612. *mant.* 456. *Gouan monſp.* 405. *illuſtr.* 52. *Villars dauph.* 3. 70. *Allion. pedem. n.* 842.

T. purpureo-cæruleum crocifolium. *Baub. pin.* 275. *Raii hiſt.* 253. *Mor. hiſt. ſ.* 7. *t.* 9. *f.* 8.

T. croci folio montanum, flore nigro-purpureo. *Col. ecphr.* 1. 229. *t.* 230.

T. crocifolium purpureum. *Park. theat.* 412. *n.* 8.

Calyxes longer than the ray of the corolla, leaves entire, root-leaves and peduncles villoſe at the baſe.

8. Tragopogon villoſus. *Hairy Goat's-beard. Lin. ſpec.* 1110. *ſyſt.* 710. *Reich.* 3. 613. *Pallas it.* 2. 332. *Krock. ſileſ. n.* 1242.

T. caule tomentoſo. *Hall. goett.* 418.

Calyxes half as long again as the ray of the corolla, ſtem and leaves villoſe.)

9. Tragopogon Dalechampii. *Great-flowered Goat's-beard.*

Lin. ſpec. 1110. *Reich.* 3. 613. *hort. cliff.* 382. *upſ.* 224. *Sauv. monſp.* 295. *Gouan hort. monſp.* 404. *Villars dauph.* 3. 70. *Gærtn. fruct.* 2. 369. *Deſfont. atlant.* 218. *Allion. pedem. n.* 843.

Hieracium aſperum, flore magno dentis leonis. *Baub. pin.* 127.

H. foliis et floribus dentis leonis bulboſi. *Lob. ic.* 238. *Park. theat.* 788.

H. magnum. *Dalech. hiſt.* 569. *Tournef. inſt.* 470.

H. ſulphureum, inciſis foliis, montanum. *Barr. rar.* 1043. *t.* 209.

Hedypnois monſpeſſulana. *Baub. hiſt.* 2. 1036. *Raii hiſt.* 228.

Tragopogonoides perennis, calthæ folio, magno flore. *Vaill. acad.* 1721. 204.

Calyxes one-leafed ſhorter than the corolla unarmed, leaves runcinate.

10. Tragopogon picroides. *Prickly-cupped Goat's-beard. Lin. ſpec.* 1111. *Reich.* 3. 613. *hort. cliff.* 382. *Gouan hort. monſp.* 405. *illuſtr.* 52. *Villars dauph.* 3. 72. *Gærtn. fruct.* 2. 369. *Allion. pedem. n.* 844.

Picris. *Lin. hort. upſ.* 241. *Sauv. monſp.* 295.

Sonchus aſper laciniatus creticus. *Baub. pin.* 124. *prodr.* 60.

Hieracium majus, folio ſonchi, ſemine incurvo. *Baub. pin.* 127.

Chondrillæ creticæ nomine miſſa, ſemine criſpo. *Baub. hiſt.* 2. 1022. *Raii hiſt.* 229.

Calyxes one-leafed ſhorter than the corolla prickly, leaves runcinate toothletted.

[11. Tragopogon aſper. *Rough Goat's-beard. Lin. ſpec.* 1111. *Reich.* 3. 614. *Sauv. monſp.* 82. *Gouan monſp.* 405. *illuſtr.* 52.

Sonchus aſper, ſubrotundo folio, major et minor. *Baub. pin.* 124. *prodr.* 60.

Calyxes ſhorter than the corolla hiſpid, leaves entire, ſtem-leaves oblong.

12. Tragopogon Dandelion. *Dandelion Goat's-beard. Lin. ſpec.* 1111. *ſyſt.* 710. *Reich.* 3. 614. *Gron. virg.* 114. (Leontodon.)

Leaves enſiform entire even, ſcapes radical.

13. Tragopogon lanatus. *Woolly Goat's-beard. Lin. ſpec.* 1111. *Reich.* 3. 614. *amoen.* 4. 287. (Leontodon.)

Leaves enſiform waved villoſe, ſcapes radical.

14. Tragopogon virginicus. *Virginia Goat's-beard. Lin. ſpec.* 1111. *Reich.* 3. 614. *Gron. virg.* 1. 91. 2. 113.

Radical leaves lyrate rounded, ſtem-leaves undivided.

DESCRIPTIONS, &c.

1. Root biennial, fuſiform or fleſhy tapering, abounding with milk, which is ſweet not acrid. Whole herb ſmooth and very even. Stems ſeveral, branched, eighteen inches or two feet high, leafy, round, often tinged with purple. Branches elongated into a ſimple naked peduncle. Leaves alternate, ſeſſile, ſome radical, others embracing the ſtem and branches, all broad and ſomewhat inflated at the baſe, but terminating in a long narrow point, which is flaccid or apt to hang down; very generally the margin towards the bottom is more or leſs waved or curled. Peduncles terminating, ſolitary, one-flowered, not ſwelling out at top, but of an equal thickneſs through-

out. Flowers large and handſome, opening at day-break, and cloſing before noon, (between nine and ten, *Linn.*) unleſs, as Mr. Relhan obſerves, the weather be cloudy. Calyx-leaves lanceolate, acuminate, flat, equal though ranged alternately or in two rows. Florets yellow with browniſh nerves, eſpecially on the upper ſide, five-toothed, the outermoſt row much larger than the reſt, varying in length, but generally as long as or longer than the calyx. Anthers brown or purpliſh. Germ pencilled or having a tuft of hairs at the ſummit. Receptacle dotted. Seed crooked, furrowed, and rugged. Seed-down radiated and feathered, ſtanding on an awl-ſhaped ſtipe or footſtalk[1].

Such, ſays Dr. Smith, is our Engliſh plant, which in ſo many reſpects agrees with the character, and even with the ſpecimen of Linnæus's T. orientale, that we are not ſure of their being diſtinct; yet there can be ſtill leſs doubt of ours being his T. pratenſe. In fact, the length of the outer florets is very variable[m]. Mr. Woodward ſays, that in ſpecimens gathered in Huntingdonſhire the calyx was always exactly equal with the outer florets, but that in Norfolk it invariably exceeded them. Mr. Stackhouſe alſo remarks, that the calyx in Corniſh plants is always much longer than the florets[n]. According to Reichard, the corolla is often ſhorter than the calyx; and that it is ſometimes ſo is obſerved by Mr. Relhan. Pollich makes the florets ſhorter than the calyx or equal to it; and Scopoli on the contrary affirms, that the calyx is equal to the ray, or ſhorter than it. May not the proportion between their lengths vary at different periods of the flowering?

The whole plant, according to Withering, is ſmooth, ſtiff, ſtrong, upright: leaves very long and narrow, tapering: calyx-leaves purpliſh at the edge: anthers purple, with yellow pollen: ſeeds crooked: in the receptacle there are glandular ſubſtances in the little hollows at the baſe of each floret, which, when the florets fall, turn brown, the receptacle remaining white.

Gærtner remarks, that the receptacle is at firſt flat, but becomes a little convex. He deſcribes the ſeeds as very long, fuſiform-club-ſhaped, ſtriated, ſmooth or rugged with acute dots, whitiſh, ending in the ſtipe; the ſeed-down white and caducous, the rays chaffy, unequal, the length of the ſtipe, which is of a ſubulate-ſetaceous form, ſolid, and nearly equal to the ſeed in length.

Native of Europe and Siberia. Not unfrequent in Britain among graſs; flowering in june.

In ſome parts of England it is called Buck's-beard, from the German; and Go-to-bed at noon, from the circumſtance of the flowers cloſing about that time:—Gerarde has Joſeph's flower, from the Dutch, and Star of Jeruſalem.

Before the ſtems ſhoot up, the roots, boiled like Aſparagus, have the ſame flavour, and are nearly as nutritious[o]. Villars relates, that the children in Dauphiné univerſally eat the ſtems and leaves of the young plant before the flowers appear, with great avidity: that the freſh juice of theſe tender herbs is the beſt diſſolvent of the bile: and that both animals and children invite us to make uſe of this remedy, which relieves the ſtomach without danger, and without introducing into the blood an acrid corroſive ſtimulant, as is frequently done by ſalts, ſoaps, and reſins, which are uſed for this purpoſe.

Mr. Miller names our common Goat's-beard *T. minus*, and comparing it with his *pratenſe*, which is the *major* of Jacquin, he ſays that] the lower leaves are almoſt as long as in that, but not more than a third of the breadth, of a deep green colour, and ending in acute points; that the ſtalks riſe about a foot high, and ſuſtain one yellow flower at the top, not more than half ſo large as the other; that the calyx is longer than the ray of the corolla, and the ſeeds much ſmaller than thoſe of the other.

[2. Root biennial. The whole plant ſmooth and milky. Stem round, upright, branched at all the axils from the very root. Leaves ſeſſile, having innumerable very ſmall teeth along the edge, ſcarcely waved; the lower and larger ſtem-leaves two inches wide at the baſe, and near a foot in length. The ſubdiviſions of the branches are terminated in one-flowered peduncles. Flowers ſpreading very much, nod towards the ſun; they open nearly at ſun-riſe, and cloſe about ten o'clock, and ſo continue for three days, during which the florets ſucceſſively expand: the firſt day, the outer row of florets only is expanded, and thus at firſt the flower is compoſed of a ſingle ray, with the interior florets converging into an upright cone. The whole corolla during this time is augmented; ſo that if we are to determine the ſpecies by the relative length of the calyx and corolla, we ſhould wait till the flower is in perfection, that is, when all the florets are expanded: for this is the caſe in all the ſpecies. Corollas five-lined, five-toothed, for the moſt part white on both ſides: but ſome are roſe-coloured with red ſtreaks, others yellow with purple ſtreaks, and of different ſhades. Hence the trivial name of *mutabilis*. Anthers yellow with ſtreaks brown at top. Stigmas yellow. Seeds ſmooth, aſh-coloured. Down ſtiped, like a ſpider's web, with five longer briſtles. It flowers from the end of may to july. Jacquin had the ſeeds from Pallas, it is probably therefore a native of Siberia.

3. Root fuſiform, biennial, the thickneſs of a finger. The whole plant is milky. Stem erect, from four to ſeven feet high, clothed with a ſhort wool, which falls off, and it is then ſmooth. Lower ſtem-leaves a foot long and more, ſcarcely an inch wide at the baſe, not waved; thoſe on the branches are very much waved, and are often rolled back at the ends: all lanceolate-linear, acute, rugged at the edges, ſeſſile or embracing: the branchlets end in one-flowered peduncles. Calyx-leaves from eight to thirteen. Corollets ſulphur-coloured on both ſides, often paler. Anthers browniſh. Styles yellow. Seeds appear extremely muricate when examined with a magnifier, and are aſh-coloured. Seed down cobwebbed, with five longer briſtles, on a very ſhort ſtipe. It flowers in june and july. Jacquin has often had the ſeeds under the name of T. orientalis; but Tournefort attributes a very large flower and deep yellow colour to that, and Linnæus ſays it is larger than that of the common ſort[p].

4. This differs from T. pratenſis in having a larger flower; the calyx where it is turned back as it were broken; the ray of the corolla yellow underneath, not brown ſtriated; and the anthers yellow, not brown.—Native of the Levant[q].

5. Root biennial, long, tapering or round-fuſiform, that and the whole plant abounding with a ſweet milky juice, which ſoon turns to a brown reſin, from the evaporation of its watery particles. Herb ſmooth, glaucous, about four feet high. Stem round, erect, branching, leafy. Leaves lanceolate, ſcarcely waved, ending in a tapering ſtraightiſh point. Flowers ſolitary, terminating, the ſtalk which ſupports them tapering from the calyx downwards. Calyx-leaves equal, linear-lanceolate, almoſt twice as long as the corolla; which is of a dull purple hue. Anthers darker. A few hairs may be obſerved at the orifice of the tube of each floret. The feathery crown of the ſeed, at firſt ſeſſile, is ſoon raiſed on a long taper ſtalk, as in the other ſpecies[r].

Mr. Woodward remarks that the leaves on the ſtem are ſhorter than in the pratenſis, being ſcarcely longer than the internodial ſpaces:—and Dr. Smith, that the flowers cloſe early in the day.

Native of ſeveral parts of Europe. In England not very common. Gerarde ſays, it grows only in Lancaſhire, upon the banks of the river Chalder, two miles from Whawley. Dr. Gunthorp found it in many parts of Cornwall. *Merret's pinax.*—Mr. Nicholſon in fields about Carliſle and Roſe Caſtle in Cumberland.—Mr. Blackſtone in marſhes below Woolwich, and near Edmonton.—Mr. Sowerby and

[1] Smith brit. & engl bot.
[m] Engl. bot.
[n] Withering.
[o] Idem.
[p] Jacquin.
[q] Linn. ſpec.
[r] Smith brit. and engl. bot.

Mr.

Mr. Dawſon Turner, in meadows below St. Vincent's rocks, Briſtol.—According to Mr. Woodward, it is not unfrequent in upland paſtures[a].]

It is cultivated in gardens by the name of Salſafy. The roots boiled or ſtewed, have a mild ſweetiſh flavour. Some perſons cultivate it for the ſtalks, which are cut in the ſpring, when they are four or five inches high, which are dreſſed like Aſparagus, in the ſame manner as the common ſort. The ſtalks of this are much longer and more tender than that. [It is not much cultivated for the table at preſent. Neither Gerarde nor Parkinſon hint that this plant was kept in our gardens in their times for any other purpoſe but for the flowers: but they recommend the common yellow ſort as excellent for the table.

7. This reſembles the preceding, but is ſcarcely a foot high, whereas that ſometimes attains ſix feet. The leaves are villoſe at the baſe, but become ſmooth by age. Calyx five-leaved. Flowers violet, of two rows only, but in the middle rather yellow.—Native of Italy and the South of France. Biennial[b].

Villars ſays, the ſtems are ſhort and little branched, the leaves narrow, procumbent, and villoſe at the baſe, the flowers ſmall, blue with a little yellow at the end of the rays, the ſeeds a little flatted, toothed on the ſides, terminated by a ſupport widened at its upper part, where the ſeed-down is inſerted on a brown depreſſed circle. Biennial.

Gouan found it a cubit in height, and obſerves that the calyxes have from five to ſeven leaves.

It was cultivated in 1739 by Mr. Miller[c].

8. Root biennial. Size of T. porrifolius, but the whole plant is pubeſcent with white villoſe hairs, eſpecially the ſtem, and the leaves underneath more copiouſly. Peduncles cylindrical. Calyx nine-leaved, not imbricate. Corolla paler yellow than the reſt, eighteen-rayed. Anthers browniſh. The plant finally puts forth flowering branches its whole length from the axils of all the leaves, whence it becomes corymbed. The flower when expanded nods a little.—Native of Spain and Siberia[d]: and according to Krocker, of Sileſia.

9. Root perennial, thick and ſucculent. Stems about a foot high, ſometimes leſs. Leaves large, thick, villoſe, toothed and ſinuated; the upper ones often entire. From the centre of the root-leaves, which ſpread in a roſe, riſes a naked thick flower-ſtalk, villoſe and thicker in the upper part, where it terminates in a very large flower, of a pale yellow or ſulphur colour. Calyx of one piece, cut at the upper part into ſeveral ſegments. Florets large, pale yellow above, red or purple underneath. Seeds rugged, flatted, ſupported on a ſmall pedicel, and terminated by a ſeed-down, on a long, round ſtipe ſwollen at the baſe and jointed with the ſeed[e].

According to Linneus, the ſtem is very ſhort, the leaves tomentoſe and rugged, not toothletted, the corolla purple underneath, the florets yellow with purpliſh tips.]

Mr. Miller ſays, the leaves are ſix or ſeven inches long and two broad, indented on their ſides, and the flower-ſtalk ariſing immediately from the root is a foot in length, and ſupports one large ſulphur-coloured flower.

[Gærtner deſcribes the ſeeds as ſhort in proportion to the ſtipe, oblong, compreſſed, muricated with three or four rows of acuminate tubercles, and whitiſh: the ſtipe thicker than the ſeed and three times as long, awl-ſhaped, indiſtinctly ſtriated and wrinkled, compreſſed, hollow within, not cruſtaceous as in T. picroides: ſeed-down caducous, rufous or red-purple.

Native of Spain, the South of France, and Barbary.—Cultivated in 1739 by Mr. Miller. It flowers from june to october[f].

10. This is an annual plant, with hollow tender ſtems little branched. Leaves rude, of a dark green, covered with long ſtiff hairs. Calyx of one piece like the preceding, but rude and rough with hairs. Flowers yellow. Seeds jointed, on one ſtipe terminated by another, as in the preceding ſpecies[g].]

Mr. Miller ſays, it is very like the Sowthiſtle in ſtalk and leaf, but that the calyx is prickly.

[Gouan remarks, that this ſpecies varies in ſhady places, like the Sowthiſtle, with the leaves entire or runcinate, the root-leaves often obovate and entire; the ſtem ſcarcely branched and low, ſo that it might eaſily be taken for the aſper; but it differs manifeſtly in having the ſtem-leaves always dilated at the baſe.

Gærtner deſcribes the ſeeds as differing ſomewhat in ſhape; thoſe of the ray being curved inwards, thoſe of the diſk ſtraightiſh: both compreſſed at the baſe, either muricated on both ſides with a triple row of ſcalelets ſpreading horizontally, or crenulate only at the upper margin. Stipe much thicker than the ſeed, curved, inflated below, hollow, attenuated and filiform above, rugged all over with ſharp points, together with the ſeed itſelf of a red ruſt colour. Seed down ſilky white, caducous.

From this ſingularity of a double or jointed ſtipe, Scopoli has ſeparated this and the preceding ſpecies from the Tragopogons, under the name of *Urospermum*[h].

Native of the South of Europe. Cultivated in 1683, by Mr. James Sutherland. It flowers in july and auguſt[i].

11. According to Gouan, this ſpecies varies ſo much in open expoſed ſituations, as to have the appearance of a different ſpecies; from which it differs eſpecially in having the ſtem-leaves wider at the end, narrower at the baſe; which in T. picroides are more dilated, embracing and toothed, wider at the end. The calyxes are prickly with hiſpid hairs in both[k].

Native of Montpelier. Introduced in 1774. by Monſ. Richard. It flowers in july and auguſt. Annual[l].

12. Leaves long, ſmooth, quite entire. Scapes one-flowered, entirely leafleſs, pubeſcent at the top. Seed-down hairy.—Native of Virginia.

13. The ſcapes in this have a leaflet in the middle, but ſcarcely apparent; and they bear a ſingle flower. The figure in Rauwolff (it. 217.) rather repreſents this plant than Erigeron tuberoſum.—Native of Paleſtine.

14. Root-leaves very many, ſmooth. Stems almoſt naked, upright, ſtiff, with one or two lanceolate embracing leaves on them; and few branches: theſe are terminated by three peduncles, at the baſe of which are two lanceolate oppoſite leaves, with one ſmaller. Calyx divided into twelve leaves to the baſe: equal, ſhorter than the corolla. Florets deep yellow. It has the habit of Arniea Gerberia. The ſeed-down is not feathered, but ſimple, nor is it ſtiped. It has the ſtature of Hyoſeris; the calyx of Tragopogon, and the ſeeds of Hieracium.—Native of Virginia and Canada[m].]

PROPAGATION AND CULTURE.

Theſe plants are propagated from ſeeds, which ſhould be ſown in april upon an open ſpot of ground, in rows about nine or ten inches diſtance, and when the plants are come up, they ſhould be hoed out, leaving them about ſix inches aſunder in the rows. The weeds ſhould alſo be carefully hoed down as they are produced, otherwiſe they will ſoon overbear the plants and ſpoil them. This is all the culture required, and if the ſoil be light and not too dry, the plants will have large roots before winter, at which time the Salſafy, whoſe roots are eaten at that ſeaſon, will be fit for uſe, and may be taken up any time after their leaves begin to decay; but, when they begin to ſhoot again, they will be ſticky and not fit for uſe; but many perſons cultivate this ſort for the ſhoots.

The common yellow ſort, whoſe ſhoots are ſold in the market, will be fit for uſe in april or may, according to the forwardneſs of the ſeaſon. The beſt time to cut them is, when their ſtems are about four inches long, for if they ſtand too long, they are never ſo tender as thoſe which are cut while young.

[a] Smith brit. and Withering. [b] Linn. mant. [c] Hort. kew. [d] Linn. ſpec. [e] Villars. [f] Hort. kew. [g] Villars. [h] Gærtner. [i] Hort. kew. [k] Gouan illuſtr. [l] Hort. kew. [m] Linn. ſpec.

Some people, in cultivating theſe plants, ſow their ſeeds in beds pretty cloſe, and when they come up, they tranſplant them out in rows at the before-mentioned diſtance; but, as they form a tap-root, which abounds with a milky juice, when the extreme part of their roots are broken by tranſplanting, they ſeldom thrive well afterward; therefore, it is by far the better way to make ſhallow drills in the ground, and ſcatter the ſeeds therein, as before directed, whereby the rows will be at a due diſtance; and there will be nothing more to do than to hoe out the plants when they are too thick in the rows, which will be much leſs trouble than the other method of tranſplanting, and the plants will be much larger and fairer.

[TRAGOPOGON. See *Geropogon*, *Scorzonera*.

TRAGOPOGONOIDES. See *Tragopogon*.

TRAGOPYRON. See *Polygonum*.

TRAGORCHIS. See *Orchis*.

TRAGORIGANUM. See *Thymus*.]

TRAGOSELINUM. See *Pimpinella*.

[TRAGUM. See *Ephedra* and *Salſola*.

TRAGUS. See *Cenchrus* and *Salſola*.

TRAILING ARBUTUS. See *Epigæa*.

TRAPA. (*From* trapes *or* trapetum, *an oil-mill, from* τραπω, *calco. So named from the fruit.*)

Lin. gen. n. 157. *Reich. n.* 165. *Schreb. n.* 208. *Gærtn. t.* 26. 95. *Juſſ.* 68. Tribuloides. *Tournef. t.* 431.

Claſſ. 4. 1. Tetrandria Monogynia.

Nat. order of *Hydrocharides* Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* one-leafed, four-parted, acute, permanent, growing to the baſe of the germ: *leaflets* two lateral and two at the angles of the germ.

COR. *Petals* four, obovate, larger than the calyx.

STAM. *Filaments* four, length of the calyx. *Anthers* ſimple.

PIST. *Germ* ovate, two-celled. *Style* ſimple, length of the calyx. *Stigma* headed, emarginate.

PER. none.

SEED. *Nut* ovate-oblong, one-celled, armed with four *ſpines*, in the middle of the ſide, oppoſite, ſpreading, (which were the leaves of the calyx,) acute, thick.

ESSENTIAL CHARACTER.

Cal. four-parted. *Cor.* four-petalled. *Nut* girt with four oppoſite ſpines, which were the leaves of the calyx.

SPECIES.

1. Trapa natans. *Four-horned Water Caltrops.*

Lin. ſpec. 175. *Syſt.* 163. *Reich.* 1. 341. *Willd.* 1. 681. *mant.* 332. *ſuppl.* 128. *hort. cliff.* 483. *fl. ſuec. n.* 140. *mat. med.* 52. *Gærtn. fruct.* 1. 127. *Roth. germ.* 1. 68. 2. 192. *Hoffm. germ.* 55. *Pollich pal. n.* 166. *Hall. helv. n.* 527. *Krock. ſileſ. n.* 246. *Villars dauph.* 2. 340. *Allion. pedem. n.* 872. *Gmel. ſib.* 4. 116. *Thunb. jap.* 65. *Pleuck ic. t.* 66.

Tribulus aquaticus. *Bauh. pin.* 194. *Camer. epit.* 715. *Bod. a Stapel in Theophr. l.* 4. *c.* 11. *p.* 455. *Raii hiſt.* 1321. *Bauh. hiſt.* 3. 775. *Dod. pempt.* 581.

Tribuloides vulgare aquis innaſcens. *Tournef. inſt.* 655.

Panover Tsjeraua. *Rheed. mal.* 11. 65. *t.* 33.

Nuts four-horned, ſpines ſpreading.

2. Trapa biconis. *Two-horned Water Caltrops.*

Lin. ſyſt. 162. *Willd.* 1. 681. *ſuppl.* 128. *Gærtn. fruct.* 2. 84. *t.* 95.

Siliqua fuſca chinenſis. *Plum. ic.* 56. *t.* 67. *f. inf.*

Nuts two-horned.

DESCRIPTIONS, *&c.*

1. The immerſed leaves are multifid and capillary, like thoſe of Myriophyllum: the floating leaves are rhomb-ſhaped, with bladdery petioles. The four leaves of the calyx ſurround the germ, two at the ſides and two at the angles of it, whence the horns of the fruit[a].

Root round, very long, brown, putting forth oppoſite, round, green roots, which have oppoſite round fibrils, cloſely placed, ſo as to reſemble pinnate leaves, (and they are the immerſed leaves of Linneus.) Petioles round, long, near the leaves inflated into a tumour, and then again round. From the axils of the leaves a ſingle peduncle: this and the petioles villoſe. Calyx-leaves at firſt converging, afterwards ſpreading. The floreſcence is completed within the converging calyx. Petals white, pellucid, gaſhed and emarginate, with very ſhort purple claws below the nectary; which is a permanent yellowiſh, then white, finally green membrane, plaited like a ſtar, with eight angles. Anthers yellow, twin, large. Stigma hollow, round, red, perforated[b]. Nut inferior, coriaceous, hard, ſubturbinate, rhombed, armed in the middle with four very ſtrong ſpines curved in upwards, indiſtinctly grooved, not opening, but germinating through a hole in the top, which is cloſed by a thin pellicle and converging briſtles. Receptacle of the ripe ſeed none, but the two young germs have a very ſhort umbilical chord deſcending from the upper part of the partition, and keeping them ſuſpended. Seed ſingle, fleſhy, large, the ſize and form of the internal cavity of the nut. It has two cotyledons, one very large and thick, forming almoſt the whole bulk of the embryo; the other very ſmall, in ſhape of a roundiſh ſcalelet at the baſe of the radicle: ſo that this plant, like the Nelumbo, is in a ſort of middle ſtation between the monocotyledones and dicotyledones; for though there be a ſecond lobe in the embryo, it is very minute, and does not make its appance in the germination[c].

The nuts are eſteemed farinaceous, nouriſhing and pectoral. The ſkin with the ſpines being removed, there is a white ſweet kernel within, ſomewhat like a cheſtnut. They are ſold in the market at Venice under the name of Jeſuits nuts. At Vercelli they are called Galarin, and are much eaten there by the children and common people[d]. Pliny ſays (l. 22. c. 10.) that the Thracians made them into bread. According to Thunberg, the roots are commonly boiled in broth in Japan, though the taſte is by no means pleaſant.

Native of Europe and Aſia.—Introduced in 1781, by Daniel Charles Solander, L. L. D. It flowers from june to auguſt, and is annual[e].

Villars condemns the figures of Tragus, Cordus, Lobel, Dodonæus, Matthiolus, &c.

This ſingular plant was called by old writers *Tribulus*, but this name being aſſigned to another genus, Tournefort altered it to *Tribuloides*; but that not being a legitimate name, according to Linneus's idea, he entided it *Trapa*.

2. The nut of this is woody-coriaceous, black-brown, inverſely pyramidal, rhombed, below beautifully areolated with ribs and grooves, branched, ocellated, and variouſly conſluent, terminated at top with a four-cornered head, radiantly ſtriated, having a round hole punched through it, armed on each ſide with a very thick horn, ſpreading horizontally and moderately curved back. Cell one, correſponding in form to the body of the nut[a].

Though the preceding ſpecies varies with three and even two horns, yet this is not a variety of it, for in that the horns are always acuminate, whereas in this they are obtuſe and have quite a different appearance[a]. —Native of China.

Loureiro has given two ſpecies of Trapa, which he names *cochinebinenſis* and *chinenſis*. They are certainly diſtinct from the European plant; but the latter is probably the ſame with our ſecond ſpecies, and he himſelf allows that the former may be only a variety of the latter.

The Chineſe cultivate the plant in their moſt barren marſhes for the food of the inhabitants[a].

TRAVELLER'S JOY. See *Clematis*.

TREACLE-MUSTARD. See *Clypeola*.

TREE CELANDINE. See *Bocconia*.

TREE GERMANDER. See *Teucrium*.

TREE MALLOW. See *Lavatera*.

TREE PRIMROSE. See *Oenothera*.

TREFOIL. See *Trifolium*.

[a] Linn. mant. & ſyſt.

[b] Allioni.
[c] Hort. kew.
[d] Gærtner.
[e] Gærtner.
[a] Linn. amoen.
[a] Villars & Allioni.
[b] Willdenow.

TREFOIL Bean. See *Anagyris.*
——— Bird's-foot. See *Lotus.*
——— Marſh. See *Menyanthes.*
——— Moon. See *Medicago.*
——— Shrubby. See *Ptelea.*
——— Snail. See *Medicago.*
——— Strawberry. See *Trifolium.*
——— Thorny. See *Fagonia.*
TREMATE. See *Baccharis.*
TREMELLA. (*Dimin. from* tremo, *to tremble.*)
Lin. gen. Schreb. n. 1669. *Dill. muſc.* 41.
Cryptogamia Algæ.

GENERIC CHARACTER.

Subſtance uniform, membranaceous, gelatinous, pellucid.

Eleven ſpecies are enumerated in the fourteenth edition of Syſtema Vegetabilium: nine by Relhan: and nineteen by Withering.

Tremella Noſtoc is not uncommon after rain in graſs fields, and on gravel walks; and is vulgarly ſuppoſed to be the remains of a meteor or fallen ſtar. It is ſomewhat gelatinous, conſiſting of ſeveral leaves variouſly lobed and waved, ſlightly adhering to the ground by a central root; the ſubſtance very thin. It varies in colour, but is uſually ſome ſhade of olive. When dry, it is of a dark brown and brittle. Micheli deſcribes the ſeeds as lying in the form of little ſtrings of beads coiled up within the folds of the plant, and only to be diſcovered by the microſcope [*].

This and three other ſpecies, viz. granulata, meſenterica, and Sabinæ are figured in Engliſh Botany.

TRETORRHIZA. See *Gentiana Cruciata.*
TREWIA. (*So named by Linneus in honour of Chriſt. Jac. Trew, phyſician at Nurimberg: born* 1695, *died* 1769. *Author of numerous papers in the German Acts, and of a ſplendid work entitled* Plantæ Selectæ, *with coloured figures from Ehret's drawings,* 1750, &c.)
Lin. gen. Reich. n. 712. *Schreb. n.* 890. *Juſſ.* 442.
Claſſ. 13. 1. Polyandria Monogynia,—rather Monoecia Polyandria.

GENERIC CHARACTER.

CAL. *Perianth* three-leaved: *leaflets* ovate, reflexed, coloured, permanent.
COR. none, unleſs the calyx be taken for it.
STAM. *Filaments* numerous, capillary, length of the calyx. *Anthers* ſimple.
PIST. *Germ* inferior. *Style* ſimple, length of the ſtamens. *Stigma* ſimple.
PER. *Capſule* turbinate, three-ſided, crowned, three-celled, three-valved.
SEEDS ſolitary, convex on one ſide, angular on the other.

ESSENTIAL CHARACTER.

Cal. three-leaved, ſuperior. *Cor.* none. *Capſ.* tricoccous.

SPECIES.

1. Trewia nudiflora.
Lin. ſpec. app. 1661. *Juſſ.* 492. *Reich.* 2. 581.
Arbor racemola malabarica, fructu triquetro. *Comm. mal.* 3.
Canſchi. *Rheed. mal.* 1. 76. *t.* 42. *Burm. ind.* 298.

DESCRIPTION, *&c.*

This is a lofty tree, with a trunk as thick as a man can embrace, covered with an aſh-coloured bark. Leaves on long round petioles, a ſpan and more in length, and almoſt two hands wide, oblong-ovate, cordate, attenuated at the point, thin and ſoft, duſky green on the upper ſurface, but brighter on the lower. Flowers on round pale-green peduncles, axillary, of an herbaceous colour, void of ſmell [†].—Native of the Eaſt Indies.]

TRIANTHEMA. (*Three-flowered.*)
Lin. gen. n. 537. *Reich. n.* 606. *Schreb. n.* 762. *Sauv.* 127. *Juſſ.* 314. *Gærtn. t.* 128. Portulacaſtrum. *Juſſieu.*
Claſſ. 10. 2. Decandria Digynia.
Nat. order of *Succulentæ. Portulaceæ* Juſſ.

[*] Withering. 4. 80. ed. 3.

[†] Rheed. mal.

GENERIC CHARACTER.

CAL. *Perianth* five-leaved: *leaflets* oblong, coloured within, mucronate below the tip, permanent.
COR. none: unleſs the calyx formed of a calyx and corolla together be ſo called.
STAM. *Filaments* ten, (in ſome five to twelve,) capillary, length of the calyx. *Anthers* roundiſh.
PIST. *Germ* rather ſuperior, oblongiſh, retuſe. *Style* one or two, filiform, length of the ſtamens, hiſpid on one ſide. *Stigmas* ſimple.
PER. *Capſule* oblong, truncate, retuſe, cut round: *cells* two ſuperior, and two inferior.
SEEDS ſolitary or two, ſubovate.
OBS. *The number of ſtamens and ſtyles in diſtinct ſpecies is different.*

ESSENTIAL CHARACTER.

Cal. mucronate below the tip. *Cor.* none. *Stam.* five or ten. *Germ* retuſe. *Capſ.* cut round.

SPECIES.

1. Trianthema monogyna.
Lin. ſyſt. 410. *Reich.* 2. 506. *Willd.* 2. 635. *mant.* 69.
T. Portulacaſtrum. *Lin. ſpec.* 325. *Sauv. meth.* 117. *Knipb. orig.* 4. *præf.*
T. procumbens. *Mill. dict. n.* 1.
Portulaca curaſſavica, &c. *Herm. par. t.* 213. *Raii ſuppl.* 506.
Portulacæ affinis, folio ſubrotundo, flore pentapetalo dilute purpureo. *Sloan. jam.* 1. 205. *Raii ſuppl.* 506.
Kali curaſſavicum procumbens, foliis ſubrotundis. *Pluk. phyt. t.* 95. *f.* 4.
Flowers five-ſtamened one-ſtyled.
[2. Trianthema cryſtallina.
Lin. ſpec. ed. Willd. 2. 635. *Vahl ſymb.* 1. 32.
Papularia cryſtallina. *Forſk. deſcr.* 69.
Flowers five-ſtamened one-ſtyled heaped, leaves oval, ſtem ſhrubby.
3. Trianthema pentandra.
Lin. ſyſt. 410. *Reich.* 2. 306. *Willd.* 2. 636. *mant.* 70. *Gærtn. fruct.* 2. 213.
Racoma. *Forſk. ægypt.* 71.
Portulacæ affinis polygonoides, bliti folio & facie maderaſpatenſis. *Pluk. phyt. t.* 120. *f.* 3.
Flowers five-ſtamened two-ſtyled.
4. Trianthema fruticoſa.
Lin. ſpec. ed. Willd. 2. 636. *Vahl ſymb.* 1. 32.
Gymnocarpos decandrum. *Forſk. deſcr.* 65. *t.* 10. *Deſfont. atlant.* 1. 203.
Shrubby one-ſtyled, alternate filaments anther-bearing.
5. Trianthema humifuſa.
Lin. ſpec. ed. Willd. 2. 636. *Thunb. prodr.* 80.
One-ſtyled, leaves lanceolate, ſtem fruteſcent round.
6. Trianthema anceps.
Lin. ſpec. ed. Willd. 2. 636. *Thunb. prodr.* 80.
One-ſtyled, leaves lanceolate, ſtem fruteſcent ancipital.]
7. Trianthema decandra.
Lin. ſyſt. 410. *Reich.* 2. 307. *Willd.* 2. 636. *mant.* 70.
T. diffuſa. *Mill. dict. n.* 2.
Zaleia decandra. *Burm. ind.* 110. *t.* 31. *f.* 3.
Flowers ten-ſtamened two-ſtyled.

DESCRIPTIONS, *&c.*

1. This ſends out many trailing branches which lie flat on the ground, ſpreading two feet or more each way, and having much the appearance of Purſlane; with fleſhy ſucculent leaves almoſt oval: the flowers come out from the joints of the ſtalks, they are ſomewhat of a purple colour, not much unlike thoſe of Purſlane, and are ſucceeded by capſules having two horns, with one cell incloſing eight or ten ſeeds.

[Stems depreſſed, ſubdichotomous, jointed, even, pubeſcent on the upper ſide. Leaves oppoſite, petioled, oval, obtuſe, quite entire with a red margin: one of the leaves always leſs than the other. Petioles two-toothed, ſhorter than the leaf. Flowers axillary, ſeſſile, five-leaved, oval, compoſed as it were of calyx and corolla together; under them two awl-ſhaped, permanent bractes. Filaments ſix to ten, ſhorter than the calyx. Anthers oval, twin. Germ half inferior, retuſe, two-horned. Style length of the flower. It

is

is an annual plant, native of Jamaica and Curaſſao[f].] Mr. Miller ſays, it grows naturally in moſt of the iſlands in the Weſt Indies, and is often a troubleſome weed there.

[Linneus remarks, that there is ſcarcely any genus more irregular than this: ſo it is, according to his arrangement; and ſo it muſt be when we aim at forming natural genera in an artificial ſyſtem.

2. Stems branched, procumbent, diffuſed: branches filiform, ſmooth, round, jointed. Leaves oppoſite, oval, quite entire, veinleſs, thickiſh, ſhorter on one ſide, one of them ſmaller than the other, as in the congeners. The ſtem and leaves are beſet with pellucid bladders. Petiole length of the leaf, two-toothed at the baſe. Flowers alternate, ſmall. Calyx five-cleft[g].—Native of Arabia and the Eaſt Indies.

3. This is an annual plant, with the ſtem a foot high, round, erect, ſomewhat rugged. Leaves oppoſite, petioled, elliptic, bluntiſh, quite entire, from upright ſpreading, olereaceous. Branches alternate, ſhorter. Flowers axillary, from every other axil, between the branch and the ſtem: ſubſeſſile, many, heaped; pale within, greeniſh without. Calyx bell-ſhaped, five-parted, purpliſh within, permanent; ſegments lanceolate. Filaments five, briſtle-ſhaped, erect, diſtant, length of the corolla. Germ ſuperior, very blunt, red. Styles two, length of the germs, recurved, longitudinally pubeſcent above[h]. Capſule ovate, retuſe at top and defended by two compreſſed diſtant horns, having a longitudinal groove on each ſide, two-celled, cut round a little above the baſe, the upper valve much longer than the lower. Seeds in each cell two, rounded kidney-form or beaked, lenticular or indiſtinctly angular, wrinkled, dark-coloured; faſtened one above the other in a vertical poſition to the partition on each ſide. Linneus ſpeaks of many ſeeds, but perhaps that is in ſome other ſpecies; in this certainly there are not always even two[i]. Gærtner never could obſerve four cells, as mentioned by Adanſon, or a ſingle one only as Linneus, in his genera, deſcribes.—Native of Arabia.

4. This is a branched and very ſmooth little ſhrub: branches ſpreading, jointed: joints a little thickened at top, dotted with brown, aſh-coloured below. Leaves oppoſite, ſeſſile, fleſhy, round, marked with two lines; the point pungent: ſometimes there is a bundle of leaves in the axils. Stipule on each ſide ovate, acute, three times ſhorter than the leaves, pellucid. Flowers terminating the branchlets, four or five, ſeſſile, with pellucid bractes interpoſed between them. Calyx five-cleft, tubulous: ſegments linear, membranaceous at the edge, obtuſe. Filaments ten at the baſe of the ſegments, five only alternately antheriferous. Germ oblong: only one ſtyle: ſtigma acute[k]. Vahl had an opportunity of ſeeing only the unripe fruit, in which he obſerved that the ſeed was covered with a membrane ſeparating with the ſtyle; there is therefore another covering beſides the indurated calyx. The calyx alſo and ſtipulation being the ſame as in the other ſpecies of Trianthemum, he has rightly reduced this plant to that polymorphous genus. He remarks, that there may alſo ſometimes be two ſeeds one above the other, for although in the fruit which he examined there was only one, yet it filled only half the cavity, the remainder being empty.

Native of the kingdom of Tunis:—found in the deſert near Caſsa by Desfontaines; who adopts Forſkal's name, and ſeparates it from the Trianthemas, notwithſtanding Vahl's reaſons given above. He marks it as annual, which muſt be a miſtake.

5. 6. Natives of the Cape of Good Hope; where they were found by Thunberg[l].

7. Annual. Herb the ſtature of Glinus. Stem herbaceous, diffuſed alternately. Leaves oppoſite, petioled, elliptic, quite entire, ſmooth. Petioles membranaceous on each ſide. Bractes membranaceous. Flowers axillary, on ſhort peduncles. Calyx five-leaved, permanent; leaflets oval, membranaceous at the edge. Filaments ten or thereabouts, the length of the calyx. Anthers roundiſh. Germ ſuperior, retuſe. Styles two, filiform, patulous. Stigmas obtuſe.—Native of the Eaſt Indies[m].

Is this Trianthema diffuſa, n. 2. of Miller's Dictionary, which he ſays,] grows in the Eaſt Indies, and has ſucculent diffuſed ſtalks, near two feet long, with oval leaves, leſs ſucculent than thoſe of the firſt. The flowers are white, and are produced in cluſters ſitting cloſe to the ſtalks: they are ſucceeded by capſules containing ſeveral ſeeds.

PROPAGATION AND CULTURE.

Sow the ſeeds on a good hot-bed in the ſpring, and when the plants are fit to remove, plant them on another hot-bed, to bring them forward, otherwiſe the ſeeds will not ripen. In June they may be tranſplanted into a warm border, where they will grow until the froſt in autumn kills them.

TRIBULOIDES. See *Trapa*.

TRIBULUS. (Τριβολος of *Dioſcorides*. *Tribulus of Virgil: a triplici cuſpide: απο τριων βολων ουτω, from its having three ſpikes to the fruit.*)

Lin. gen. n. 532. *Reich. n.* 580. *Schreb. n.* 732. *Tournef. t.* 141. *Juſſ.* 296. *Gærtn. t.* 69.

Claſſ. 10. 1. Decandria Monogynia.

Nat. order of *Gruinales*. *Rutaceæ* Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* five-parted, acute, a little ſhorter than the corolla.

COR. *Petals* five, oblong, obtuſe, ſpreading.

STAM. *Filaments* ten, awl-ſhaped, very ſmall. *Anthers* ſimple.

PIST. *Germ* oblong, length of the ſtamens. *Style* none. *Stigma* headed.

PER. roundiſh, prickly, of five or ten *Capſules*, gibbous on one ſide, often armed with three or four dagger-points, angular on the other, converging, with tranſverſe cells.

SEEDS many, turbinate, oblong.

OBS. T. ciſtoides *has ten wrinkled fruits without lateral ſpines.*

ESSENTIAL CHARACTER.

Cal. five-parted. *Pet.* five, ſpreading. *Style* none. *Capſ.* five, gibbous, ſpiny, many-ſeeded.

SPECIES.

1. Tribulus maximus. *Great Caltrops.*
   Lin. ſpec. 553. *Reich.* 2. 277. *Willd.* 2. 566. *hort. cliff.* 160. *Læfl. it.* 208. *Jacqu. collect.* 4. 110. *ic. rar. 3. t.* 462. *Brown. jam.* 220. *n.* 2. *t.* 21. *f.* 3.
   T. terreſtris major, flore maximo odorato. *Sloan. jam.* 1. 209. *t.* 132. *f.* 1. *Raii ſuppl.* 650.
   T. terreſtris fructu turbinato, foliis lanuginoſis. *Plum. ſpec.* 7. *ic.* 254. *f.* 1.
   Leaves about four-paired, outer leaflets larger, pericarps ten-ſeeded awnleſs.
2. Tribulus lanuginoſus. *Woolly Caltrops.*
   Lin. ſpec. 553. *ſyſt.* 401. *Reich.* 2. 277. *Willd.* 2. 566. *mant.* 380. *fl. zeyl. n.* 168. *Burm. zeyl.* 226. *t.* 106. *f.* 1.
   Leaves about five-paired, leaflets almoſt equal, ſeeds two-horned.]
3. Tribulus terreſtris. *Small Caltrops.*
   Lin. ſpec. 554. *Reich.* 2. 278. *Willd.* 2. 567. *hort. cliff.* 160. *upſ.* 103. *Sauv. monſp.* 227. *Brown. jam.* 220. 1. *Gmel. it.* 1. 172. *Desfont. atlant.* 1. 339. *Lour. cochinch.* 270. *ed. Willd.* 331. *Hall. helv. n.* 947. *Gærtn. fruct.* 1. 335. *Knipb. cent.* 6. *n.* 95. *Krock. ſilef. n.* 620. *Villars dauph.* 3. 584. *Allion. pedem. n.* 1624.
   T. terreſtris. *Lob. ic.* 2. 84. *Dod. pempt.* 557. *Camer. epit.* 714. *Matth.* 692. *Dalech. hiſt.* 513. *Ger.* 1066. *emac.* 1246. *Park. theat.* 1097. *Baub. hiſt.* 2. 352. *Raii hiſt.* 1344. *Mor. hiſt. ſ.* 2. *t.* 8. *f.* 9.
   T. terr. Ciceris folio fructu aculeato. *Baub. pin.* 350. *Zanich. iſt. t.* 222.
   T. terr. Cic. folio, ſeminum integumento aculeato. *Tournef. inſt.* 266.
   T. terr. minor hiſpanicus. *Barrel. t.* 558.

[f] Linn. mant. [g] Vahl. [h] Linn. mant. [i] Gærtner. [k] Vahl. [l] Thunb. prodr. [m] Linn. mant.

Leaves

Leaves ſix-paired almoſt equal, ſeeds four-horned.

4. Tribulus ciſtoides.

Lin. ſpec. 554. *Reich.* 2. 278. *Willd.* 2. 567. *Jacqu. hort. Schoenbr.* 1. 54. *t.* 103. *collect. ſuppl.* 109. *Swartz obſ.* 171. *Brown. jam.* 220. 1.

T. terreſtris major curaſſavicus. *Herm. par. t.* 136.

T. terr. americanus, argemones flore flavo. *Pluk. phyt. t.* 67. *f.* 4. *Raii ſuppl.* 649.

Leaves eight-paired, leaflets almoſt equal.

DESCRIPTIONS, *&c.*

1. This is an annual plant, with pretty thick, compreſſed, channelled ſtalks, which trail upon the ground, and are near two feet long. Leaves pinnate, oppoſite; of three or commonly four pairs of ſmooth ſeſſile leaflets; the outer of which are largeſt. Flowers axillary: petals large, yellow. They have an agreeable odour; and are ſucceeded by roundiſh prickly fruit, ending in a long point.—Native of Jamaica, and ſome of the other iſlands in the Weſt Indies.

[Browne ſays, it grows in all the paſtures of Jamaica, is frequently gathered with other fodder-plants, and fed upon indiſcriminately by all ſorts of cattle.

It was cultivated by Mr. Miller in 1739, and flowers in june and july[a].

2. Stems aſcending, long, round, hairy, jointed. Leaves oppoſite, (except the uppermoſt, which are alternate,) petioled, one ſmaller than the other: leaflets oval-oblong, ſharpiſh, hairy on each ſide. Petioles alſo hairy. * Each leaf is accompanied by a lanceolate ſhrivelling ſtipule. Peduncle from the alternate axils, or that of the ſmaller leaf, (together with a branchlet,) one-flowered, hairy, ſhorter than the leaves. Fruit angular, hairy. Native of Ceylon[b].]

3. This has a ſlender, fibrous, annual root, from which ſpring four or five ſlender ſtalks, ſpreading flat on the ground; they are hairy, and extend two feet and a half in length. At each joint are pinnate leaves, compoſed of ſix pairs of narrow hairy leaflets, almoſt of equal ſize, thoſe on the lower part of the ſtalk ſtand alternately, but towards the top they are oppoſite. Flowers axillary, on ſhort peduncles, compoſed of five broad obtuſe yellow petals. They appear in june and july; and are ſucceeded by roundiſh, five-cornered, prickly fruit, which, when ripe, divides into five cells, each containing one or two ſeeds, which ripen in auguſt and ſeptember.

[Leaves oppoſite, abruptly pinnate: leaflets ten to fourteen, ovate-oblong, quite entire, obliquely cut out at the baſe. Stipules in fours, ſmall, lanceolate, deciduous. Flowers ſolitary, on ſhort pedicels. Calyx villoſe, deciduous: ſegments ovate-lanceolate. Petals obovate. Style none or very ſhort. Stigma obtuſe, thickiſh, five-grooved. Capſules five, aggregate, cruſtaceous, bony, wedge-ſhaped on one ſide, convex on the other, muricate with rigid, awl-ſhaped, unequal, diverging prickles, commonly four in number; three or four-ſeeded, in as many obliquely tranſverſe parallel cells. Seeds ſmall, oblong, ſubcylindrical, obtuſe in front, very acute behind[c].

Gærtner deſcribes the fruit as compoſed of five nuts, united into a ſubglobular whorl, wrinkled and tubercled, armed above the baſe with four rigid prickles, which are ſtraight and bent down; thence cuneiform-compreſſed, and merely wrinkled: they are of a pale ſtraw colour, and four-celled, but valveleſs: the cells are tranſverſe, diſpoſed in a longitudinal row. Seeds ſolitary, of a parallelopiped form, flattened a little, remarkably acuminate in front, but truncate behind, marked with a little brown ſpot like a wart, pale ſtraw-coloured; they are faſtened to the central angle of the cells.

Native of moſt of the hot and temperate parts of the world; as the South of Europe, Barbary, Siberia, the coaſt of Coromandel, China, Cochinchina, and the Weſt Indies. Browne ſays, it is common about Kingſton in Jamaica; and is planted in many gardens there for the ſake of its flowers, which have an agreeable ſmell. The ſowls are obſerved to feed much on them, and it is thought to heighten their flavour, as well as to contribute to fatten them. They call it Turkey Bloſſom. See n. 4. The name in French is *la Croix de Chevalier*.] Our Engliſh appellation of *Caltrops* is taken from the form of the fruit, which reſembles the machines that are caſt in the way to obſtruct an enemy's cavalry. [The Greek and Latin names have the ſame origin. The *tribula* or *tribulum*, which was uſed for threſhing, or rather rubbing out corn, is derived from τριβω, *tero*, and has the firſt ſyllable long; whereas the name of this plant has that, as well as the ſecond, ſhort.

The common Caltrops was cultivated by Gerarde in 1596[d]. He ſays that he found it growing in a moiſt meadow adjoining to the wood or park of Sir Francis Carew near Croyden; but it is not indigenous of England.] In the South of France, Spain and Italy, it is a common weed on arable land, and is troubleſome to cattle, by the prickly fruit running into their feet.

4. This has a perennial woody root, from which ſpring out many hairy, jointed, trailing ſtalks, near two feet long. At each joint are two pinnate leaves, which differ greatly in ſize, one being compoſed of eight, and the other only of four pairs of leaflets. Peduncles axillary, hairy, near two inches long, ſuſtaining one pale-yellow flower, compoſed of five large petals, with narrow tails, but very broad and rounded at their points. Fruit roundiſh, armed with very acute ſpines.

Native of South America, and the Weſt India iſlands. Houſtoun found it at the Havanna. [Mr. Miller cultivated it before 1733. According to Swartz, the plant which Browne ſuppoſed to be the *terreſtris*, is this ſpecies. Perhaps the ſame miſtake may have been made by other writers; for it rarely happens that any plant grows ſo generally wild as that is ſaid to do.]

PROPAGATION AND CULTURE.

3. Sow the ſeeds in autumn on an open bed of freſh light earth, where the plants are deſigned to remain; for they do not bear tranſplanting very well, unleſs whilſt they are very young. In the ſpring carefully clear them from weeds; and thin them where they come up too cloſe. In june they will begin to flower; and their ſeeds will ripen in auguſt and ſeptember. If theſe be permitted to ſcatter, the plants will come up the following ſpring, and maintain their place, if they be not overborne with weeds.

1, 2, 4. The other ſorts being natives of hot countries, are very tender, and the ſeeds muſt be ſown on a hot-bed early in the ſpring. When the plants come up, tranſplant each into a ſeparate pot, filled with rich light earth, plunge them into the tan-pit, and treat them in the ſame manner as other tender exotic plants; being careful to bring them forward as early as poſſible in the ſummer, otherwiſe they will not perfect their ſeeds in this country.

4. The laſt ſort will live through the winter, if it be plunged in the bark ſtove. The following ſummer it will flower earlier, and there will be more time for the ſeeds to ripen.

[TRICERA. (*From* τρις *and* κερας, *a horn. Three-horned. So named from its capſule.*)

Lin. gen. Schreb. n. 1416. *Swartz defcr. t.* 7.

Crantzia *ejuſd. prodr.* 38.

Claſſ. 21. 4. Monoecia Tetrandria.

Nat. order of *Tricoccæ*. *Euphorbiæ* Juſſ.

GENERIC CHARACTER.

Umbel ſimple: with the *male flowers* peduncled; and a *female* in the middle ſeſſile.

Involucre none.

* *Males.*

CAL. *Perianth* one-leafed, four-parted to the baſe: *ſegments* lanceolate, acute, erect, permanent, coloured.

COR. none.

STAM. *Filaments* four, erect, longer than the calyx, ovate! *Anthers* ſitting on the top of the filaments lanceolate, acute, channelled in the middle, after flowering recurved.

* *Female.*

[a] Hort. kew.

[b] Linn. ſyſt. and mant.

[c] Desfontaines.

[d] Hort. kew.

* *Female.*

CAL. *Perianth* five-leaved: *leaflets* ovate, acute, erect, coloured.

COR. none.

PIST. *Germ* ſubtrigonal. *Styles* three, ſhort, roundiſh, conical, after flowering bipartile. *Stigmas* longer than the ſtyles, recurved, patulous, channelled, permanent.

PER. *Capſule* oblong, trigonal, three-horned, three-celled, three-valved.

SEEDS in pairs, oblong, obtuſe.

ESSENTIAL CHARACTER.

MALE. *Cal.* four-leaved. *Cor.* none. *Filam.* ovate.

FEM. *Cal.* five-leaved. *Cor.* none. *Styles* conical. *Capſ.* three-horned, three-celled.

SPECIES.

1. Tricera lævigata.
Swartz deſcr. 1. 333.
Crantzia lævigata. *Swartz prodr.* 38. *Vahl ſymb.* 2. 99.

DESCRIPTION, *&c.*

This is a branching ſhrub, two or three feet high. Branches almoſt ſimple, long, ſpreading, four-cornered, leafy, even. Leaves on ſhort round petioles, oppoſite, diſtich, ovate-lanceolate, acute, convex, quite entire, veined above, marked with lines at the edge, veinleſs beneath, ſtiffiſh, very ſmooth. Flowers in ſimple, axillary, oppoſite umbels; the common peduncle four-cornered, three times ſhorter than the leaves. Of the males there are from four to eight oppoſite pedicels, approximating in form of an umbel, a quarter of an inch long, one-flowered, deciduous. There are two very ſmall whitiſh bractes at the baſe and in the middle of the pedicels. Female flower larger: ſtyles three, ſometimes but rarely four. Capſule the ſize of a large pea; the valves burſting with a ſpring. Seeds black, ſhining, girt with a membranaceous whitiſh aril.

This genus ſhould be placed between Cicca and Buxus. It is very nearly allied to the latter; but differs in having no corolla, in the form of the filaments and ſtigmas, and in the aril of the ſeed; alſo in its peculiar inflorescence.

Native of Jamaica, in mountain coppices in the weſtern parts of the iſland; flowering in the ſpring months*.

TRICHIA. See *Clathrus* and *Mucor*.

TRICHILIA.

Lin. gen. n. 528. *Reich. n.* 573. *Schreb. n.* 721. *Brown.* 279. *Loeſl.* 188. *Gærtn. t.* 95. *Juſſ.* 265. Porteſia. *Cavan. diſſ.* 7. *Juſſ.* 265. Quiviſia. *Cavan. diſſ.* 7? *Juſſ.* 264?

Claſſ. 10. 1. Decandria Monogynia.

Nat. order of *Tribilatæ*. *Meliæ* Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* one-leafed, tubular, moſtly five-toothed, ſhort.

COR. *Petals* five, lanceolate, ſpreading.
Nectary cylindrical, tubular, with a ten-toothed mouth, ſhorter than the petals, connate of ten filaments.

STAM. *Filaments* none. *Anthers* ten, erect, riſing, from the margin of the tube of the nectary, deciduous.

PIST. *Germ* obovate, ſubtrilobate. *Style* ſhort. *Stigma* headed, three-toothed.

PER. *Capſule* roundiſh, ſubtrigonal, three-celled, three-valved.

SEEDS ſolitary, berried.

ESSENTIAL CHARACTER.

Cal. moſtly five-toothed. *Pet.* five. *Nect.* toothed, cylindrical, bearing the anthers at the top of the teeth. *Capſ.* three-celled, three-valved. *Seeds* berried.

SPECIES.

1. Trichilia hirta.
Lin. ſpec. 550. *Willd.* 2. 552. *Swartz. obſ.* 171. *Brown. jam.* 278. *Sloan. jam.* 2. 128. *t.* 220. *f.* 1. *Raii ſuppl. dendr.* 43. *n.* 7. (Pruno affinis.)

* Swartz deſcr.

Leaves pinnate, leaflets fewer elliptic acuminate ſmooth, racemes cluſtered.]

2. Trichilia ſpondioides.
Lin. ſpec. ed. Willd. 2. 553. *Swartz prodr.* 67. *deſcr.* 2. 730. *Jacq. amer.* 128. *pict.* 64. *hort. ſchœnbr.* 1. 54. *t.* 102.
Euonymus pinnatus. *Mill. dict. n.* 4. *Sloan jam.* 2. 103. *t.* 210. *f.* 2. *Raii ſuppl. dendr.* 70. *n.* 13.
Leaves unequally pinnate ſubbriſtute, pinnas numerous, the lower ones larger, racemes axillary.

[3. Trichilia emetica.
Lin. ſpec. ed. Willd. 2. 553. *Vahl. ſymb.* 1. 31.
Elcaja. *Forſk. deſc.* 127.
Leaves pinnate villoſe underneath, leaflets elliptic.

4. Trichilia glabra.
Lin. ſyſt. 399. *Reich.* 2. 270. *Willd.* 2. 553.
T. havanenſis. *Jacqu. amer.* 129. *n.* 2. *t.* 175. *f.* 38. *pict.* 65. *t.* 260. *f.* 35.
Leaves pinnate ſmooth, outmoſt leaflets larger.

5. Trichilia pallida.
Lin. ſpec. ed. Willd. 2. 553. *Swartz. prodr.* 67. *deſcr.* 2. 733.
Porteſia ovata. *Cavan. diſſ.* 7. 369. *t.* 215.
Leaves unequally pinnate membranaceous, racemes axillary and terminating, flowers eight-ſtamened, capſules two-valved.

6. Trichilia moſchata.
Lin. ſpec. ed. Willd. 2. 553. *Swartz. prodr.* 67. *deſcr.* 2. 735.
Leaves alternately pinnate, racemes axillary, flowers ſubdecandrous one-petalled, capſules one-ſeeded.

7. Trichilia ſpectabilis.
Lin. ſpec. ed. Willd. 2. 554. *Forſt. prodr. n.* 188.
Leaves pinnate, leaflets obovate, racemes axillary compound.

8. Trichilia alliacea.
Lin. ſpec. ed. Willd. 2. 554. *Forſt. prodr. n.* 189.
Leaves pinnate, leaflets lanceolate acute, racemes axillary ſuper decompound.

9. Trichilia heterophylla.
Lin. ſpec. ed. Willd. 2. 554.
Porteſia mucronata. *Cavan. diſſ.* 7. 370. *t.* 216.
Leaves pinnate and ternate, leaflets ovate acuminate, racemes axillary, flowers eight-ſtamened.

10. Trichilia trifoliata.
Lin. ſpec. 551. *Syſt.* 399. *Reich.* 2. 270. *Willd.* 2. 554. *Jacqu. amer.* 189. *t.* 82. *pict.* 65. *t.* 123. *Vahl. ſymb.* 1. 31. *Gærtn. fruct.* 2. 87.
T. Haleſia. *Loeſl. it.* 188.
Leaves ternate, leaflets obovate ſhining.

11. Trichilia nervoſa.
Lin. ſpec. ed. Willd. 2. 554. *Vahl ſymb.* 1. 31.
Melia Koetjape. *Burm. ind.* 101.
Leaves ternate, leaflets ovate.

12. Trichilia ſpinoſa.
Lin. ſpec. ed. Willd. 2. 554.
Turnæa virens. *Hellenius act. holm.* 1788. *p.* 294. *t.* 10. *f.* 1.
Leaves ſimple ovate emarginate, branches thorny.

DESCRIPTIONS, *&c.*

1. This tree riſes about twenty feet high, with a ſtraight trunk, covered with an almoſt ſmooth grayiſh or light brown bark, having ſome white ſpots on it. About ſeven feet or more from the ground it ſends forth ſeveral branches, the ends of which have a few unequally pinnate leaves, the rachis of which is about three inches long: leaflets oppoſite, an inch and three quarters broad near the pedicel, which is an eighth of an inch in length; they are almoſt an inch aſunder, of a dark green colour and ſmooth. The ends of the twigs are branched into ſeveral green ſtalks, two inches long, which, juſt at the bottom are branched into others, ſuſtaining ſeveral whitiſh-green flowers, with purple-headed ſtamens.—Native of Jamaica; plentifully between Paſſage-Fort and St. Jago de la Vega*.

2. This is a ſmall tree, ten feet high, or much lower, with an upright ſtem, and divided into very few branches. (Sloane ſays it has ſeveral trunks as thick as one's arm, by which it riſes to twenty feet in

* Sloane.

height; without any branches, and is covered with a reddiſh-brown ſmooth bark.) Leaves ſmooth or ſomewhat hairy, a foot long, ſcattered alternately at the ends of the branches: leaflets about ten on each ſide, the end one ſometimes wanting, lanceolate-ovate, bluntly acuminate, quite entire, petioled, two inches long, the intermediate ones gradually larger. Racemes axillary, ſolitary, three inches long whilſt in flower, but often lengthening to half a foot when fruiting: peduncles ſimple or branched. Flowers inodorous, ſmall, about thirty in a raceme. Calyx half-five-cleft, ſpreading flat, very ſmall. Petals whitiſh, ſpreading. Filaments hairy internally. Germ villoſe: ſtyle thick. Capſule browniſh, three-grooved. Seeds in the larger fruit ſometimes two in the ſame cell, lying one upon the other, or ſide by ſide [x]. According to Sloane, the leaflets are at an inch diſtance from each other, oppoſite with an odd one at the end, an inch and half long, and an inch broad in the middle, pointed at both ends, ſmooth, dark green, on pedicels an eighth of an inch in length. Fruit round, firſt green, then purpliſh, when ripe as big as a great garden pea, breaking into three membranes, expanding themſelves, each having a creſt or riſing in the middle, and ſhowing three almoſt triangular diſtinct kernels, covered over with a thin ſcarlet pulp.

This ſpecies was not diſtinguiſhed from the preceding. Mr. Miller has it under the name of Euonymus pinnatus.

Gærtner, under the name of Trichilia hirta, deſcribes the capſule as ſubglobular, rounded-three-cornered, three-celled, opening into three parts at the top, quite entire at the baſe, ſpreading out horizontally when it opens. Seeds ſolitary, or very rarely two together, ovate, beaked at top, ſomewhat berried, ſcarlet, faſtened to the central margin of the partitions, and hanging from it.

Native of Jamaica, St. Domingo and Carthagena, flowering there principally in november. The French in the Weſt Indies call it *Mombin batard* [a].

3. Branches villoſe, round. Leaflets moſtly oppoſite, on very ſhort petioles, elliptic, villoſe underneath, the outer ones larger, two inches long. Peduncles from the uppermoſt axils, ſeveral times ſhorter than the petioles. Flowers corymb-panicled, twice as large as in the preceding ſpecies. Bractes ovate, minute. Calyx five-cleft; ſegments rounded, villoſe. Petals oblong, a little narrower at the baſe, villoſe, obtuſe, twice as long as the calyx. Filaments connected into a tube, the length of the corolla, in the perfect flower eaſily ſeparating without tearing them: tube ſmooth below, above along the filaments and within villoſe. Anthers erect, oblong. Style length of the tube of the filaments. Stigma headed, as in the preceding [b].—Native of Arabia Felix, on mountains.

4. This is a tall, branching tree, with an unpleaſant fœtid ſmell. Leaves pinnate, ſhining, alternate, numerous; rachis round, very ſlightly winged on each ſide, five inches long: leaflets three or two on each ſide, with an odd one, obovate, attenuated at the baſe, quite entire, very blunt, ſcarcely petioled, the outer ones gradually bigger. Racemes axillary, very ſhort. Capſules globular, green. Native of the Havannah, in mountain woods [c].

5. This is a tree of about twelve or fifteen feet in height, ſmooth, and branchy: branches horizontal: leaves pinnate with an odd one: leaflets trijugous with a ſeventh terminal: they are ovate-lanceolate, veiny, nerved, and ſmooth: racemes triennial, axillary, oppoſite, erect, ſhort, and many-flowered: petals pale or whitiſh: germ roundiſh, villoſe: capſule roundiſh, bilocular: ſeeds roundiſh, with a viſcid ſcarlet aril. Native of the Weſt Indies, flowering in february and march.

6. A tree of twenty feet high: branches ſubdivided, with a ſmooth ſtriated bark: leaves alternately pinnate, entire, ſmooth, gloſſy, with parallel nerves: racemes axillary, ſolitary, upright, many-flowered, ſtriated: flowers numerous, ſmall, of a pale colour, with a ſhort tube, and ovate, ſharp, ſpreading diviſions: nectary tubular, ſhorter than the corolla: filaments none: anthers ſubſeſſile: germ ovate: ſtyle ſhort, cylindric: ſtigma obtuſe, cornered: capſule ovate, three-valved, ſingle-ſeeded. Native of Jamaica, where it is called by the title of Muſk-wood, on account of the ſmell of every part of the plant when rubbed. Flowers in may [d].

7. Native of New Zealand.

8. Native of the iſland of Namoka [e].

9. Doubtful whether a ſhrub or a tree: boughs alternate; bark gray, variegated by fiſſures: leaves alternate, ternate, or pinnate-bijugous with an odd one; leaflets ovate, ſmooth, terminated by a ſharp point: flowers cluſtered, racemes axillary and terminal: flowers yellowiſh. Native of Madagaſcar [f].

10. This is a tree fifteen feet in height, upright, having an unpleaſant ſmell in all its parts. Wood whitiſh. Bark grayiſh brown. Branches numerous, round, irregular, ſpreading, often from the very ground. Leaves alternate, numerous, on a petiole ſcarce an inch long: leaflets wedgeform at the baſe, quite entire, very blunt, ſeſſile, the middle one much longer than the two at the ſides. Racemes axillary, very ſhort, ſix-flowered or thereabouts. Flowers ſmall: calyx bell-ſhaped, erect: petals whitiſh, erect, three times as long as the calyx. Capſules green with browniſh gray dots, at firſt perfectly globular, but afterwards three-grooved. Seeds ſolitary, convex on one ſide, angular on the other, with a ſcarlet pellicle. The negreſſes uſe a decoction of the roots to procure abortion. In Curaçao it is called *Kerſe-boom* or Cherry-tree, though it has nothing in common with that tree. The Spaniards alſo call it *Ceraſo macho* or male Cherry. It bears a great affinity to T. glabra.

Native of Curaçao, in dry paſtures, and on the neighbouring continent; flowering in april and may [g].

11. Branches villoſe-tomentoſe at the end. Leaves on a petiole the length of the leaflets, villoſe-tomentoſe, channelled above. Leaflets on ſhort pedicels, quite entire, acute, villoſe along the nerves underneath, above ſmooth and veinleſs; two inches long. Peduncles axillary, erect, longer than the petiole. Flowers in ſhort panicles, cluſtered; with a lanceolate leaflet at the baſe of each. Calyx villoſe, with the teeth rounded. Corolla villoſe, twice as long as the calyx. Native of Java [h].

12. The fruit of this plant is a three-celled berry, with one ſeed in each cell: it holds a middle rank therefore between this genus and Limonia. The branches are thorny. Native of the Eaſt Indies [i].]

PROPAGATION AND CULTURE.

Theſe trees and ſhrubs being natives of hot countries, cannot be preſerved in England but in a ſtove. They may be propagated by ſeeds ſown in pots, and plunged into a hot-bed: when the plants are fit to remove, plant each in a ſeparate ſmall pot, plunged again into the hot-bed, and ſhade them until they have taken new root. They may alſo be increaſed by cuttings during any of the ſummer months. [In their native countries they thrive beſt in a dry gravelly ſoil.

TRICHILIA GAURA. See *Guarea*.

TRICHLIS. See *Pharnaceum* and *Polycarpon*.

TRICHOCARPUS. (From θριξ, τριχος, *a hair, and* καρπος, *a fruit. Hairy-fruited.*)

Lin. gen. Schreb. n. 923. Ablania. *Aubl.* t. 234. *Juſſ. gen.* 440.

Claſs. 13. 2. Polyandria Digynia.

GENERIC CHARACTER.

CAL. *Perianth* one-leafed, four or five-parted: *ſegments* ovate, acute, ſpreading, permanent.

COR. none.

STAM. *Filaments* very many (ſixty to ſeventy), capillary, longer than the calyx, inſerted into the receptacle. *Anthers* ſmall, roundiſh.

PIST. *Germ* ovate, villoſe. *Styles* two, long, biſid at the top. *Stigmas* obtuſe.

[a] Jacquin, amer. [b] Idem. [c] Vahl. [d] Jacquin. [e] Swartz. [f] Forſter. [g] Cavanilles. [h] Jacquin. [i] Vahl. [k] Willdenow.

PER.

PER. *Capſicle* ovate-four-cornered, briſtly: briſtles long, rigid, deciduous; one-celled, four-valved.
SEEDS numerous, ſmall, faſtened to a free, ovate-oblong *receptacle*, involved in a viſcid membrane.

ESSENTIAL CHARACTER.

Cal. four or five-parted. *Cor.* none. *Styles* two, bifid. *Capſ.* briſtly, four-valved, many-ſeeded.

SPECIES.

1. Trichocarpus laurifolia.
Lin. ſpec. ed. Willd. 2. 1224.
Ablania gujanenſis. *Aubl. guian.* 1. 585. *t.* 234.

DESCRIPTION, *&c.*

This is a tree growing to the height of fifty feet. Leaves ſcattered, coriaceous, oblong, acute, quite entire, veined, ſmooth, petioled. Corymbs few-flowered, ſubdichotomous, lateral. Native of the woods of Guiana *.

TRICHOMANES. (Τριχομανης *of Dioſcorides. From* θριξ, τριχος *hair, and* μαινω, *madneſs. From the hairineſs of the Fern, and its ſuppoſed efficacy in mania.*)
Lin. gen. n. 1181. *Reich. n.* 1298. *Schreb. n.* 1635. *Juſſ.* 16.
Claſſ. 24. 2. Cryptogamia Filices.
Nat. order of *Filices* or *Ferns.*

GENERIC CHARACTER.

Fructifications inſerted into the margin of the frond, ſeparate.
Involucres urn-ſhaped, undivided, opening outwards.
Columns extending beyond the involucres, like ſtyles.
Obs. *Habit membranaceous, ſemitranſparent* *.

SPECIES.

* *With a ſimple frond.*

1. Trichomanes membranaceum.
Lin. ſpec. 1560. *Reich.* 4. 434.
Darea americana lichenoides. *Pet. muſ.* 763.
Phyllitis ſcandens minima, muſci facie, foliis membranaceis ſubrotundis. *Sloan. jam.* 1. 74. *t.* 27. *f.* 1. *Mor. hiſt.* 3. 558. *Raii ſuppl.* 53.
Adiantum membranaceum lichenoides. *Pet. hiſ.* 101. *t.* 13. *f.* 5.
A. muſcoſum lichenis petræi facie. *Plum. amer.* 34. *t.* 50. *fil.* 83. *t.* 101. A.
Fronds ſimple oblong lacerated.
2. Trichomanes puſillum.
Swartz prodr. 136.
Fronds ſimple linear goſhed, ſhoot creeping.
3. Trichomanes criſpum.
Lin. ſpec. 1560. *Reich.* 4. 435. *hort. cliff.* 476.
Polypodium criſpum calyciferum. *Plum. fil.* 67. *t.* 86.
Darea filicis maris facie. *Pet. fil.* 103. *t.* 11. *f.* 8.
Fronds pinnatifid lanceolate: pinnas parallel ſubſerrate.
4. Trichomanes reptans.
Swartz prodr. 136.
Fronds cuneate-ovate, goſh-pinnatifid, ſhoot creeping.
5. Trichomanes aſplenioides.
Swartz prodr. 136.
Hymenophyllum. *Smith dorſif.* 256.
Fronds pendulous lanceolate pinnatifid very ſmooth, ſegments two-lobed, lobes obtuſe, fructifications two-valved.
6. Trichomanes polypodioides.
Lin. ſpec. 1561. *Reich.* 4. 435.
Fronds lanceolate pinnatifid repand, flowers ſolitary terminating.

** *With a compound frond.*

7. Trichomanes crinitum.
Swartz prodr. 136.
Fronds ſubpinnate hairy, pinnas ovate pinnatifid, ſegments bifid, ſubdiviſions blunt, fructifications briſtle-bearing on an upright rough-haired ſtipe.
8. Trichomanes lucens.
Swartz prodr. 136.
Fronds bipinnatifid pendulous lanceolate hirſute ſhining, pinnas parallel, ſegments roundiſh ſubſerrulate, ſtipe extremely hirſute.
9. Trichomanes hirſutum.
Lin. ſpec. 1561. *Reich.* 4. 435. *Thunb. jap.* 339. *Lour. cochinch.* 681. *ed. Willd.* 837.

Filicula digitata. *Plum. ſpec.* 13. *fil. t.* 50. B.
Darea americana major pubeſcens. *Pet. muſ.* 762.
Dareæ affinis digitata. *Pet. fil.* 105. *t.* 15. *f.* 5.
Fronds pinnate, pinnas alternate pinnatifid hairy.
10. Trichomanes ſericeum.
Swartz prodr. 136.
T. pendulum ſericii inſtar molle. *Plum. fil. t.* 73.
Fronds bipinnatifid pendulous lanceolate tomentoſe, pinnas alternate, ſegments linear obtuſe entire, the lower ones bifid, fructifications terminating hirſute.
11. Trichomanes pyxidiferum.
Linn. ſpec. 1561. *Reich.* 4. 435.
Filix pyxidifera. *Plum. fil.* 74. *t.* 50. E.
Fronds ſubbipinnate, pinnas alternate cluſtered lobed linear.
12. Trichomanes tunbrigenſe.
Lin. ſpec. 1561. *Reich.* 4. 435. *Huds. angl.* 461. *Wither. arr. ed.* 3. 781. *Bolton* 2. 7. *Fl. dan. t.* 954. *Light. ſcot.* 681.
Hymenophyllum tunbridgenſe. *Engl. bot. t.* 162.
Adiantum petræum perpuſillum anglicum foliis bifidis vel trifidis. *Raii ſyn.* 123. *Pluk. phyt. t.* 3. *f.* 5, 6.
Darea tunbrigenſis minor. *Pet. muſ.* 761.
Muſcus montanus italicus, adianthi foliis. *Bocc. muſ.* 2. 24. *t.* 2. *f.* 1.
Fronds pinnate, pinnas oblong dichotomous decurrent toothed.
13. Trichomanes adiantoides.
Lin. ſpec. 1561. *Reich.* 4. 436. *fl. zeyl. n.* 385. *Pluk. phyt. t.* 123. *f.* 6. (Adiantum.)
Filix non ramoſa zeylanica, foliis adianthi in modum ſerratis. *Burm. zeyl.* 97. *t.* 43.
Fronds pinnate, pinnas enſiform acuminate goſh-ſerrate, ſerratures bifid.
14. Trichomanes fucoides.
Swartz prodr. 136.
Hymenophyllum. *Smith dorſif.* 257.
Fronds bipinnatifid ovate ſmooth, pinnas ovate, ſegments two-parted, ſubdiviſions ſerrate obtuſe, fructifications two-valved, inſerted above the baſe of the pinnas.
15. Trichomanes ciliatum.
Swartz prodr. 136.
Hymenophyllum. *Smith dorſif.* 257.
Fronds erect bipinnatifid deltoid, pinnas ovate, ſegments linear obtuſe ciliate, fructifications terminating bi-valved rough-haired, ſtipe margined.
16. Trichomanes lineare.
Swartz prodr. 137.
Hymenophyllum. *Smith dorſif.* 257.
Fronds ſubbipinnate, pendulous lanceolate ſmooth, leaflets remote, pinnules linear two-parted, fructifications terminating two-valved, ſtipe capillary.
17. Trichomanes ſtriguſum.
Lin. ſyſt. 941. *Thunb. jap.* 339.
Fronds bipinnate, pinnules rhombed hairy ſerrate, fructifications ſolitary below the ſerratures.

*** *With a ſuperdecompound frond.*

18. Trichomanes undulatum.
Swartz prodr. 137.
Hymenophyllum. *Smith dorſif.* 257.
Fronds tripinnatifid or bipinnatifid pendulous lanceolate, leaflets and pinnas alternate decurrent, ſegments linear retuſe crenulate-waved, fructifications terminating two-valved.
19. Trichomanes ſcandens.
Lin. ſpec. 1562. *Reich.* 4. 436. *Brown. jam.* 86. 3.
Adiantum ramoſum ſcandens, &c. *Sloan. jam.* 1. 96. *t.* 58.
A. ſcandens ramoſiſſimum, laciniis retuſis diſſectum. *Plum. fil.* 76. *t.* 93.
Darea ramoſiſſima ſcandens. *Pet. fil.* 102. *t.* 12. *f.* 5.
Fronds ſuperdecompound, leaflets alternate, pinnas alternate oblong ſerrate.
20. Trichomanes chineſe.
Lin. ſpec. 1562. *Reich.* 4. 436. *Oſb. it.* 222. *t.* 6. *Retz. obſ.* 6. 40. *n.* 91.
Davallia chinenſis. *Smith dorſif.* 247.
Adianthum nigrum chinenſe tenuiter diviſum pinnis minimis obtuſis plerumque bifidis. *Pluk. phyt. t.* 4. *f.* 1.

* Willdenow. * Smith, dorſif.

Frond ſuperdecompound, leaves and pinnas alternate lanceolate, ſegments of the pinnas wedge-ſhaped.

21. Trichomanes rigidum.
Swartz prodr. 137.
Fronds four times pinnatifid erect deltoid, leaflets ſpreading, pinnas lanceolate, ſegments linear gaſhed at the end, fruit-bearing cups pedicelled axillary.

22. Trichomanes polyanthos.
Swartz prodr. 137.
Hymenophyllum. *Smith dorſif.* 257.
Fronds four times pinnatifid deltoid erect, pinnas and pinnules decurrent, ſegments linear obtuſe, fructifications two-valved numerous, ſtipe margined.

23. Trichomanes clavatum.
Swartz prodr. 137.
Hymenophyllum. *Smith dorſif.* 257.
Fronds four times pinnatifid oblong-lanceolate looſe, pinnas and pinnules decurrent, ſegments linear emarginate, fructifications terminating two-valved roundiſh, ſtipe roundiſh.

24. Trichomanes canarienſe.
Lin. ſpec. 1562. *ſyſt.* 941. *Reich.* 4. 437. *Jacqu. collect.* 1. 121.
Davallia canarienſis. *Smith dorſif.* 246.
Filix ramoſa canar, &c. *Pluk. phyt. t.* 2. *f.* 2.
β. Polypodium luſitanicum. *Lin. ſpec.* 1556.
Filix luſit. polypodii radice. *Magnol hort.* 79. *ic.*
Fronds ſuperdecompound three-parted, leaflets alternate, pinnas alternate pinnatifid.

25. Trichomanes japonicum.
Lin. ſyſt. 941. *Thunb. jap* 340.
Fronds ſuperdecompound, pinnules gaſh-trifid acute.

26. Trichomanes capillaceum.
Lin. ſpec. 1562. *Reich.* 4. 437.
Adiantum capillaceum. *Plum. fil.* 83. *t.* 99. *Pet. fil.* 96. *t.* 10. *f.* 7.
Frouds ſuperdecompound, pinnas filiform linear one-flowered.

27. Trichomanes aculeatum.
Swartz prodr. 137.
Acroſtichum aculeatum. *Lin. Diſt. noſtr. n.* 31.
Frond ſuperdecompound ſcandent very much branched, leaflets palmate, ſegments linear obtuſe, ſtipe prickly.

DESCRIPTIONS, &c.

1. Stalk flat, black, covered with hair, applying itſelf to rocks, ſtones or trees, and riſing ſeven or eight feet high, putting out at more or leſs diſtance, ſmall roundiſh membranaceous yellowiſh-green leaves. They grow ſometimes longer, having inciſures on their edges. The plant looks ſomewhat like a Moſs [b]. —Native of South America and Jamaica.

2. Native of Jamaica.

3. Native of Martinico.

4. Native of Jamaica.

5. Native of Jamaica [c].

6. Frond the length and breadth of a finger, pinnatifid almoſt to the midrib, with the lobes lanceolate, bluntly ſerrate, ſharp at the end, having a ſingle flower at the end of each lobe. The frond moreover is pellucid, with alternate veins.—Native of the Eaſt Indies [d].

7. 8. Natives of Jamaica [e].

9. The frond with the whole ſtipe hirſute with denſe very ſhort hairs, a ſpan high. Pinnas alternate, lanceolate, bluntiſh, gradually ſhorter, pinnatifid: pinnules lanceolate, crenate. Fructifications ſolitary in the notches of the pinnules [f].

According to Loureiro, it is ten inches high: pinnas oblong, obtuſe, with the upper margin obtuſely many-cleft and fruiting: fructifications marginal, ſolitary, lenticular, briſtle-ſhaped at the tip.—Native of America, Japan and Cochinchina.

10. Native of Jamaica.

11. Native of America. Mr. Hudſon has ſet this down as indigenous of England; and Linneus himſelf has referred to Ray's Filix humilis, &c. as a ſynonym to this ſpecies. That plant however is a variety of the next ſpecies, which ſee.

[b] Sloane. [c] Swartz. [d] Linn. ſpec. [e] Swartz. [f] Thunberg.

12. Roots ſlender, wiry, ſpreading very far, throwing out fibres here and there, and producing numerous upright fronds, which, when dried up in ſummer, curl backwards: their ſubſtance is extremely membranous and pellucid, appearing finely reticulated under a microſcope; their ſegments linear, obtuſe, ſharply ſerrate, and having a ſtrong ſimple central rib. The fructifications, when they occur, take place of the firſt ſegment of each pinna or general diviſion of the frond, each terminating its appropriate nerve, and pointing upwards. The involucre is of two ſlightly concave valves, ariſing from the ſubſtance of the leaf, irregularly notched and ſerrate on the margin. Between theſe is a ſhort column, beſet with ſmall round bivalve capſules, each embraced with an elaſtic ring as in the more common ferns [g].

Mr. Bolton remarks, that the pinnules are not always ſerrate or ſcolloped.—Mr. Griffith obſerves, that all the leaves produce fructifications in an open expoſure, but that in chinks of ſhady rocks they become luxuriant, aſſuming the appearance of *T. pyxidiferum*, and never bearing fructifications [h].

The bivalve involucre and ſhort column, ſo diſtinct from the urn-ſhaped undivided involucre, and long column or ſtyle of the true Trichomanes, induced Dr. Smith to eſtabliſh a new genus under the name of Hymenophyllum or Filmy-leaf, in his Diſſertation on Ferns, printed by the Academy of Turin [i]. Several other ſpecies here recited belong properly to that genus.

It was firſt diſcovered by Mr. Dare near Tunbridge, in moiſt clefts of rocks and ſtony places. It was firſt ſhewn to Mr. Ray by Mr. Newton, who in company with Mr. Lawſon, found it on Buzzard rough Cragg near Wrenoſe, Weſtmoreland, among the Moſs. Dr. Richardſon found it near Settle in Yorkſhire, and upon moiſt rocks in Wales. Found plentifully by Mr. Rand in company with Mr. Sherard, among the pebbles at Cockbuſh, on the coaſt of Suſſex [k]. On Dartmore, Devonſhire. On high mountains at the head of Winandermere, Weſtmoreland, by Dr. Smith. On rocks in a ſhady dell, very near Llanberris, by Mr. Aikin [l]. Mr. Lightfoot mentions it as common in Scotland.

There are two varieties of this: one mentioned by Mr. Bolton, with the fructifications on naked fruit-ſtalks. Its habit, as repreſented by Mr. Bolton is conſiderably different from that in Engliſh Botany; and though the latter has indeed fruitſtalks ſpringing from the midrib, they are not naked, but paſs within the ſubſtance to the edge of the leaf. Mr. Bolton found it under Dolbadon-caſtle near the lake of Llanberris, and on the rock called Foal-foot on Ingleborough, Yorkſhire.

The other variety found by Dr. Richardſon at Belbank, ſcarce half a mile from Bingley, at the head of a remarkable ſpring, and figured in Ray's ſynopſis, *t.* 3. *f.* 3, 4: is deſcribed there by Dillenius as having the root woolly and hairy; the ſtems winged, browniſh black below, but green above; the leaves thin, pellucid, ſhining, deep green; no fructifications were obſervable. Figure 4. is a young plant.

Mr. Griffith remarks, that the leaves are indiſtinctly waved or ſcolloped on their edges; that it is probably only a luxuriant variety of *T. tunbrigense*, their figure, texture, and whole habit, being the ſame, and differing only in ſize; that in cavities excluded from the ſun he has found ſpecimens partaking equally of *T. pyxidatum* and *tunbrigenſe*, which are figured by Bolton *t.* 2. *f.* 7.; and that he has ſeen ſpecimens according exactly with Mr. Bolton's figure, from a root which produced other ſmaller leaves, bearing fructifications.—Dr. Withering adds, that in the foreign ſpecimens which he has ſeen of the true *pyxidiferum*, the ſubſtance of the leaf is ſtrong and opaque, not at all like the ſilky tranſparency of our plant; and the fructifications are large, urn-ſhaped, ſeſſile, and brown-orange. —Our plant is the *pyxidiferum* of Hudſon and Bolton, but not of Linneus. Mr. Bolton found it in a little

[g] Engl. bot. [h] Withering. [i] Engl. bot. [k] Ray ſyn. [l] Withering.

dark

dark cavern under a dripping rock; a little below the ſpring of Elm Cragg Well[m].

13. This high and upright ſpecies of Fern riſes with a ſingle, firm, ſmooth, purpliſh ſtem. Pinnas of the leaves very ſmooth, gradually attenuated, very long, laciniate towards the baſe, each jag ſerrate-toothed, and each tooth bifid or ſometimes trifid: the top of the pinnas, which is very ſharp and ſlender, entire for the ſpace of an inch. The pinnas, the nearer they are to the root, the cloſer they are to each other, and on the lower part of the plant they are almoſt oppoſite, whereas the reſt are alternate, on the middle of the ſtem they are moſt remote, and cloſer again towards the top[n].—Native of the Eaſt Indies and of Africa.

14. 15. 16. Theſe are natives of Jamaica, and belong to Dr. Smith's genus of Hymenophyllum.

17. Stipe tomentoſe-ſtrigoſe. Frond wholly covered with thin hairs: pinnas enſiform: pinnules rhombed, ſerrate. It is very nearly allied to the Polypodiums; and differs from *Adiantum villoſum* in its ſolitary fructifications below the ſerratures.—Native of Japan[o].

18. Native of Jamaica.

19. This is a large Fern, and its numerous foliage often ſhoots above a foot from the climbing root or trunk of the plant[p].

The ſtalk is not ſo big as a gooſe-quill, roundiſh, black, covered towards the top with a ferruginous moſs, and having very many filaments or clavicles, by which it takes firm hold of the bark of trees, and riſes to fifteen or twenty feet high, turning itſelf round. It puts forth leaves at the diſtance of an inch from each other, about a foot long, and having about two inches of the foot-ſtalk naked Pinnas ſometimes oppoſite, but moſtly alternate. Pinnules long, deeply cut in on the edges, very thin, pellucid, of a yellowiſh green colour, having ſome dark opaque ribs running through them, and a woolly hairy on them. Fructification at the end of the ſegments in a little cup[q].

Native of America; common in the woods of Jamaica.

20. Root ſcarcely villoſe. Stipe ſmooth, ſomewhat channelled in front, but with a blunt edge, not margined as in T. canarienſe. Frond lanceolate, a foot long, compoſed of alternate lanceolate leaves. Pinnas alternately pinnatifid, with wedge-ſhaped alternate ſegments, moſtly two-flowered[r].

Dr. Smith has inſerted this and the *canarienſe*, together with ſome Adiantums of Linneus, and ſeveral new ſpecies of Ferns, in a genus which he has named *Davallia*, from Edmund Davall a Swiſs botaniſt, no leſs indefatigable than acute. The fructifications are in roundiſh ſeparate ſpots, near the margin of the frond, and are with reſpect to the veins always terminating, by no means lateral. The involucres are like ſcales, from the ſurface, diſtinct, ſeparating outwards. The habit is firm, poliſhed and compact, far unlike the tender, membranous, expanſive appearance of Trichomanes and Adiantum[s].—Native of China, where it was found by Oſbeck.

21. 22. 23. Natives of Jamaica. The two laſt belong to Dr. Smith's genus of *Hymenophyllum*.

24. Frond in three diviſions, alternately thrice compounded; its ultimate diviſions lanceolate and ſingle-flowered. It is a ſpecies of Davallia; native of the Canary iſlands, and alſo of the ſides of mountains in Portugal[t]. Cultivated in 1741 by Archibald, Duke of Argyle[u].

25. Fronds ſmooth, with a twiſted grooved ſtipe. Fructifications ſolitary on the laſt ſegments, within the margins; the covered membrane very thin, white.—Native of Japan, on the mountains, flowering from ſeptember to march[x].

26. Native of South America.

27. Native of Jamaica.

Forſter (in prodr.) has fifteen new ſpecies of Trichomanes, natives of the South Sea iſlands.

[m] Withering. [n] Burman. [o] Thunberg. [p] Browne. [q] Sloane. [r] Linn. ſpec. [s] Smith dorſif. 245. [t] Idem. [u] Hort. kew. [x] Thunberg.

The only ſpecies mentioned by Mr. Miller is the officinal Trichomanes, which does not belong to this genus, but to that of Aſplenium.

PROPAGATION AND CULTURE.

See Acroſtichum and Adiantum. Moſt of the ſpecies are ſtove plants.

TRICHOMANES. See *Adiantum*, *Aſplenium*, *Polypodium*, *Pteris*.]

TRICHOSANTHES. (*From θριξ hair, and ανθος a flower.*

Lin. gen. n. 1089. *Reich. n.* 1190. *Schreb. n.* 1476. *Juſſ.* 396. Anguina. *Mich.*

Claſs. 21. 9. Monoecia Syngeneſia.

Nat. order of *Cucurbitaceæ*.

GENERIC CHARACTER.

* *Male flowers.*

CAL. *Perianth* one-leafed, club-ſhaped, very long, ſmooth: *mouth* five-toothed, reflexed, ſmall.

COR. five-parted, growing to the calyx, flat, ſpreading: *ſegments* ovate-lanceolate, ciliate; with very long branching hairs.

STAM. *Filaments* three, very ſhort, at the top of the calyx. *Anther* a cylindrical erect body, covered on all ſides with a fariniferous line creeping up and down.

PIST. *Styles* three, very ſmall, growing to the tube of the calyx.

* *Females* on the ſame plant with the males.

CAL. *Perianth* as in the male, ſuperior, deciduous.

COR. as in the male.

PIST. *Germ* oblong, ſlender, inferior. *Style* filiform; length of the calyx. *Stigmas* three, oblong, awl-ſhaped, gaping.

PER. *Pome* oblong, three-celled; *cells* remote.

SEEDS many, compreſſed, obtuſe, coated.

ESSENTIAL CHARACTER.

Cal. five-toothed. *Cor.* five-parted, ciliate.

MALE. *Filaments* three.

FEM. *Style* trifid. *Pome* oblong.

SPECIES.

1. Trichoſanthes Anguina. *Snake Gourd.*
Lin. ſpec. 1432. *ſyſt.* 867. *Reich.* 4. 199. *mant.* 497. *hort. cliff.* 450. *Lour. cochinch.* 588. *ed. Willd.* 722.
Anguina. *Mill. fig.* 21. *t.* 32.—ſinenſis, flore albo elegantiſſimo, fructu oblongo intorto. *Mich. gen.* 12. *t.* 9.
Cucurbita ſinenſis fructu longo anguino vario, flore candido capillamentis tenuiſſimis ornato. *Tilii piſan.* 49. *t.* 22. *Sabb. hort. rom.* 1. *t.* 71.
Pomes round oblong curved in.

[2. Trichoſanthes nervifolia.
Lin. ſpec. 1432. *Reich.* 4. 199.
Tota-pira. *Rheed. mal.* 8. *t.* 17. *Rali ſuppl.* 337.
Pomes ovate acute, leaves cordate-oblong three-nerved toothed.

3. Trichoſanthes cucumerina.
Lin. ſpec. 1432. *Reich.* 4. 199. *Thunb. jap.* 322. *Lour. cochinch.* 588. *ed. Willd.* 722. *Burm. ind.* 208.
Pada-valam. *Rheed. mal.* 8. *t.* 15.
Pomes ovate acute, leaves cordate angular.

4. Trichoſanthes amara.
Lin. ſpec. 1432. *Reich.* 4. 200.
Colocynthis flore albo fimbriato, fructu oblongo. *Plum. amer.* 86. *t.* 101. *Raii ſuppl.* 332.
Pomes turbinate-ovate.

5. Trichoſanthes piloſa.
Lour. cochinch. 588. *ed. Willd.* 723.
Stem and leaves hairy, ſpikes axillary, bractles lanceolate ſerrate, pomes ovate acute.

6. Trichoſanthes tricuſpidata.
Lour. cochinch. 589. *ed. Willd.* 723.
Pomes ovate acute, leaves three-cuſped ſmooth many-nerved, ſtipules roundiſh thick crenate, ſpikes axillary.

7. Trichoſanthes ſcabra.
Lour. cochinch. 589. *ed. Willd.* 723.
Pomes roundiſh, leaves roundiſh rugged very much wrinkled, peduncles one-flowered.

DESCRIPTIONS, *&c.*

1. Stem obtuſely five-cornered, rough-haired, climbing by tendrils. Petioles thicker than the ſtem, rough-haired, ſubhiſpid. Leaves cordate, ſublobed, repand, tooth-

toothletted, pubeſcent, with pedate nerves underneath. Peduncles axillary, in pairs, beſides the trifid tendril. Female peduncle ſhorter, one-flowered: male peduncle longer, ſubpanicled. Corolla white with white ciliæ, ſimple at the baſe, the reſt alternately branched, longer than the corolla. Seeds like thoſe of Momordica [y]. Pome long, ſlender, acuminate at both ends, ſmooth, twiſted and convoluted, with alternate longitudinal green and white ſtripes [z].]

It is an annual; the ſtalks run to a great length, and if they are not ſupported, trail upon the ground, as Cucumbers and Melons. The leaves are angular and rough. The flowers come out from the ſide of the ſtalk, are white, and cut into many ſmall threads. The fruit is taper and near a foot long.

Native of China [and Cochinchina.—Cultivated in 1755, by Mr. Miller. It flowers in may and june [a].

2. Stems ſlender, twiſted and a little angular. Leaves on twiſted petioles with tendrils, ending in a point, ciliate at the edge, brown above, pale beneath. Flowers on oblong greeniſh peduncles, white within, with long white threads twiſted together at the edges, on the outſide pale green with browniſh veins.—Native of the Eaſt Indies [b].

3. Stem very long, climbing, herbaceous, branched. Leaves wide-cordate, crenate, the lower ones three-lobed, the upper palmate. Flowers white, ciliate, axillary. Pomes ſmooth, red or orange-coloured, five-celled, two inches long [c], the ſize of a pear. Seeds ſubtriangular, gibbous, with a tumid margin. The ſeeds are ſometimes uſed in diſorders of the ſtomach and bowels [d]: and the plant is celebrated for its virtues in Hortus malabaricus.

Native of the Eaſt Indies, Japan and Cochinchina.

4. Stems very ſlender, ſmooth, green, angular, flexile: joints about two inches diſtant, with very ſlender long tendrils, a leaf, and often a flower at each. Leaves not more than an inch in length, cut, roughiſh, with ſmall aſh-coloured ſpots and numerous dots ſcarcely viſible on the upper ſurface, on petioles an inch in length. Flowers white, fringed. Fruit in form of a pear, four or five inches long, about an inch and half thick, ſmooth, greeniſh with longitudinal ſtripes of ſomewhat a brighter colour: pulp very white and bitter. Seeds abundant, longiſh, narrow, of a duſky ſooty aſh-colour.

Native of the iſland of Dominica; annual, flowering there in december [e].

5. Stem ſuffruticoſe, very long, grooved, hairy, climbing with bifid tendrils. Leaves cordate, toothletted, veined; the lower ones palmate, the upper three-lobed. Flowers white, in long lateral ſpikes. Corolla ciliate with long curling threads. Pomes red, one-celled; with rhomboid, compreſſed, lobed, duſky ſeeds.

6. Stem ſhrubby, climbing with trifid tendrils. Leaves cordate, toothletted, ſmooth, ending in three points. Flowers white, in axillary ſpikes: with large, toothed bractes. Corolla fringed. Pomes ſmall, yellow, two-celled, two-ſeeded.

7. Stem ſhrubby, many-grooved, climbing with bifid tendrils. Leaves cordate, very much wrinkled, petioled, alternate. Flowers white, with ſhort threads. Pomes ſmall, red, twelve-lobed, five-celled; with many flat, oblong ſeeds.

The three laſt ſpecies are natives of Cochinchina [f].]

PROPAGATION AND CULTURE.

Sow the ſeeds on a hot-bed early in the ſpring; and treat the plants in the ſame way as Cucumbers and Melons.

[TRICHOSANTHES PUNCTATA. See *Feuillea*.]

TRICOSTEMA. (*From* θριξ, τριχος *hair, and* στημων, *ſtamen. Hairy-ſtamened.*)

Lin. gen. n. 733. *Reich. n.* 791. *Schreb. n.* 988. *Gronov. Juſſ.* 116.

Claſſ. 14. 1. Didynamia Gymnoſpermia.

Nat. order of *Verticillatæ* or *Labiatæ*.

[y] Linn. mant. [z] Hort. malab. [a] Loureiro. [b] Ray from Plumier. [c] Loureiro. [d] Thunberg. [e] Hort. kew. [f] Loureiro.

GENERIC CHARACTER.

CAL. *Perianth* one-leaſed, two-lipped: *upper lip* twice as large, trifid, equal, acute; *lower* two-parted acute.

COR. one-petalled, ringent: *tube* very ſhort: *upper lip* compreſſed, ſickle-ſhaped; *lower* three-parted, the middle ſegment very ſmall oblong.

STAM. *Filaments* four, capillary, very long, curved in: two of them a little ſhorter. *Anthers* ſimple.

PIST. *Germ* four-cleft. *Style* capillary, length and figure of the filaments. *Stigma* bifid.

PER. none. *Calyx* larger, reflexed ſo that the upper lip becomes the lower, ventricoſe, converging.

SEEDS four, roundiſh.

ESSENTIAL CHARACTER.

Cor. upper lip ſickle-ſhaped. *Stam.* very long.

SPECIES.

1. Trichoſtema dichotoma.
Lin. ſpec. 834. *Reich.* 3. 96. *Willd.* 3. 170. *hort. cliff.* 493. *Gron. virg.* 90.
Scutellaria cærulea, majoranæ folio, americana. *Raii ſuppl.* 311.
Caſſida mariana, majoranæ folio. *Petiv. ſice.* 243. *Stamens very long, ſtanding out.*

2. Trichoſtema brachiata.
Lin. ſpec. 834. *Reich.* 3. 96. *Willd.* 3. 170.
Teucrium virginicum, origani folio. *Dill. elth.* 380. *t.* 285. *f.* 369.
Scutellaria cærulea majoranæ folio americana Baniſteri. *Pluk. alm.* 358. *amalth.* 191. *t.* 441. *f.* 8. *Stamens ſhort, included.*

[3. Trichoſtema ſpiralis.
Lour. cochinch. 371. *ed. Willd.* 451.
Stamens very long, ſpiral.]

DESCRIPTIONS, &c.

1. This is an annual plant, which riſes about ſix or eight inches high, dividing into ſmall branches. Leaves ſmall, roundiſh, not unlike thoſe of Sweet Marjoram, and covered with ſmall, fine, downy hairs. Flowers axillary, ſmall, purple; appearing late in auguſt; ſo that unleſs the ſeaſon proves warm, the ſeeds will not ripen in England.

[Native of Virginia and Pennſylvania. Cultivated in 1759, by Mr. Miller [g].]

2. This has an herbaceous branching ſtalk, which riſes from nine inches to a foot high. The leaves are ſhaped like thoſe of the Wild Marjoram, are a little hairy, and ſeſſile. The flowers are produced at the top of the branches, are ſmall, and of a purple colour. The flowers not appearing till the end of ſummer, the ſeeds ſeldom ripen here.—Native of Virginia.

[Cultivated in Sherard's garden at Eltham before 1732, from ſeeds communicated by Charles Dubois, Eſq. Treaſurer of the Eaſt India Company [h].

3. Stem herbaceous, four feet high, erect. Leaves ovate, acute, quite entire, tomentoſe. Flowers white-violet, in long terminating ſpikes. Stamens very long, but being twiſted in a ſpiral, they are retained within the corolla. It approaches to the next preceding ſpecies, but the ſtamens cannot be called ſhort, or even of a middling length.—Native of Cochinchina [i].]

PROPAGATION AND CULTURE.

1. 2. Sow the ſeeds in autumn, in pots filled with light earth: in winter place the pots under a frame, to ſhelter them from ſevere froſt, but expoſe them to the open air at all times when the weather is mild. In the ſpring tranſplant them on to a bed of light earth; ſhading them from the ſun till they have taken new root, and keep them clean from weeds.

TRICHOSTOMUM. (*Hairy-mouthed.*) One of Hedwig's genera of Moſſes, including ſome of Linneus's Bryums. One of them, namely T. capillaceum, is figured in *t.* 1152 of Engliſh Botany.

TRICOLOR. See *Amaranthus*.]

TRIDAX. (Θριδαξ *is the name of ſome pot-herb in Dioſcorides, Athenæus and Pliny.*

Lin. gen. n. 972. *Reich. n.* 1054. *Schreb. n.* 1314. *Juſſ.* 190.

[g] Hort. kew. [h] Dill. elth. [i] Loureiro.

Claſſ.

Class. 19. 2. Syngenesia Polygamia Superflua.
Nat. order of *Compositæ Oppositifoliæ. Corymbiferæ* Juss.

GENERIC CHARACTER.

CAL. *Common* cylindrical, imbricate: *scales* ovate-oblong, obscurely acute, erect.
COR. *Compound* radiate: *Corollets* hermaphrodite, tubular in the disk: *female* in the ray.
Proper in the Hermaphrodites funnel-form, five-toothed, erect:—in the Females ligulate, three-parted; segments equal, the middle one narrower.
STAM. in the Hermaphrodites, *Filaments* five, capillary, very short. *Anthers* cylindrical, tubular.
PIST. in the Hermaphrodites: *Germ* oblong. *Style* briſtle-ſhaped, length of the ſtamens. *Stigma* obtuſe:—in the Females, *Germ* oblong. *Style* filiform, length of the corollet. *Stigma* obtuſe.
PER. none. *Calyx* unchanged.
SEEDS in the Hermaphrodites ſolitary, oblong: *down* many-rayed, ſimple, a little longer than the calyx:—in the Females, very like the others.
REC. chaffy, flat: *chaffs* lanceolate, ſhorter than the ſeed.

ESSENTIAL CHARACTER.

Cal. imbricate, cylindrical. *Corollets* of the ray three-parted. *Down* many-rayed, ſimple. *Recept.* chaffy.

SPECIES.

1. Tridax procumbens.
Lin. ſpec. 1268. *Reich.* 3. 872. *hort. cliff.* 418.
After americanus procumbens, foliis laciniatis & hirſutis. *Houſt. mſs.*

DESCRIPTION, *&c.*

Stalks trailing and emitting roots at the joints, herbaceous and hairy. Leaves placed by pairs, rough, hairy, about an inch and half long, and three quarters of an inch broad, ending in acute points, and acutely jagged on the edges. The flowers are produced upon long naked peduncles which terminate the branches. The florets are of a pale copper colour, inclining to white.

This plant was diſcovered by Dr. Houſtoun, growing naturally by the road-ſide leading to old La Vera Cruz, in America.

PROPAGATION AND CULTURE.

Sow the ſeeds in pots plunged into a hot-bed. When the plants are fit to remove put each into a ſmall pot, filled with light earth: plunge the pots into the tan-pit; ſhading them from the ſun till they have taken new root, and then treating them as other tender plants from the Weſt Indies, placing them in autumn in the bark-ſtove, where they ſhould conſtantly remain.

As it rarely perfects ſeeds here, this plant may be increaſed, by planting pieces of the ſtalks, which put forth roots at the joints.

[TRIENTALIS. (*So named from its ſmall ſize.*)
Lin. gen. n. 461. *Reich. n.* 496. *Schreb. n.* 626. *Gærtn. t.* 50. *Juſſ.* 96.
Class. 7. 1. Heptandria Monogynia.
Nat. order of *Rotaceæ. Lyſimachiæ* Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* ſeven-leaved: *leaflets* lanceolate, acuminate, ſpreading, permanent.
COR. ſtellate, flat, one-petalled, equal, ſeven-parted, very ſlightly cohering at the baſe: *ſegments* ovate-lanceolate.
STAM. *Filaments* ſeven, capillary, inſerted into the claws of the corolla, patulous, length of the calyx. *Anthers* ſimple.
PIST. *Germ* globular. *Style* filiform, length of the ſtamens. *Stigma* headed.
PER. *Berry* capſular, juiceleſs, globular, one-celled, covered with a very thin cruſt, opening by various ſutures.
SEEDS ſome, angular. *Receptacle* very large, hollowed out for the ſeeds.
OBS. *Seven is the moſt common number in this plant, though it ſometimes varies.*
The fruit is a dry Berry, not opening by valves, as the capſule does.

ESSENTIAL CHARACTER.

Cal. ſeven-leaved. *Cor.* ſeven-parted, equal, flat. *Berry* juiceleſs.

SPECIES.

1. Trientalis europæa. *Chickweed Winter-green.*
Lin. ſpec. 488. *ſuſ.* 352. *Reich.* 2. 136. *Willd.* 2. 282. *fl. lapp. n.* 139. *ſuec. n.* 326. *Gærtn. fruct.* 1. 227. *Hudſ. angl.* 160. *Wither. arr. ed.* 3. 363. *Smith brit.* 406. *engl. bot. t.* 15. *Lightf. ſcot.* 194. *Fl. dan. t.* 86. *Gunn. norv.* 80. *n.* 230. *Retz. germ.* 1. 164. 2. 431. *Roemer fl. europ.* 1. 11. *ic. Krock. ſileſ. n.* 580. *t.* 53. *Villars dauph.* 3. 365. *Kalm. canad.* 2. 263. *Gmel. ſib.* 4. 116. *Pallas it.* 2. 192. *Knipb. cent.* 4. *n.* 94.
Alſine alpina *Swenkf. ſileſ.* 117.
Alſinanthemos. *Thal. ſylv.* 15. *Amm. in comm. petrop.* 9. 310. *t.* 13. *Raii ſyn.* 286. *Petiv. brit. t.* 62. *f.* 13.
Herba Trientalis. *Bauh. biſt.* 3. 536.
Pyrola alſines flore major. *Bauh. prodr.* 100.
P. alſines flore europæa. *Raii biſt.* 1101. *Mor. biſt. ſ.* 12. *t.* 10. *f.* 6.
P. braſiliana alſines flore major & minor. *Park. theat.* 509. *f.* 5.

DESCRIPTION, *&c.*

Root perennial, ſomewhat tuberous, creeping. Stem ſimple, erect, a ſpan high, almoſt naked at bottom, leafy at top. Leaves cluſtered, ſpreading, lanceolate, quite entire, ſmooth, veined. Peduncles terminating, aggregate, one-flowered, ſpreading. Flowers ſnow-white, very elegant. Leaflets of the calyx awl-ſhaped. Corolla divided almoſt to the baſe, permanent. Stamens varying in number (from five to ſeven, moſt frequently ſix, with the ſame number of ſegments to the calyx, *Pallas*), filiform. Anthers purple. Germ ſuperior. Stigma emarginate. Berry membranaceous. Seeds numerous (about eight *G.*) gibbous, dotted, faſtened to a globular, central receptacle[k]; which is very large, honey-combed and fungous. The ſeeds are ſubovate, flatted a little, very ſlightly convex on one ſide, and angular on the other, hollow-dotted, and of a dark colour; they have a very ſmall white navel in the middle of the belly[l].

Native of the northern parts of Europe, Canada and Siberia, in woods on the ſides of mountains, and on turfy heaths. Thomas Williſell firſt ſhowed it to Mr. Ray, in Yorkſhire and Northumberland. It is more plentiful in Scotland.

Linneus, in his Flora Lapponica, appears to have been quite enchanted with this plant, poſſibly from its being the only Lapland genus of his ſeventh claſs. It muſt be confeſſed however that the number of its ſtamina is very inconſtant[m].

It is found alſo in Norway, ſome parts of Germany, Sileſia, &c. Villars ſets it down as having been diſcovered in Dauphiné; but he had not ſeen it himſelf. It flowers here from may to july.

TRIENTALIS CAPENSIS. See *Septas.*
TRIFOLIASTRUM. See *Trifolium.*
TRIFOLIO AFFINIS. See *Uvaria.*]
TRIFOLIUM. (Τριφυλλον *of Hippocrates and Dioſcorides. From* τρεις *three, and* φυλλον *a leaf.*)
Lin. gen. n. 896. *Reich. n.* 968. *Schreb. n.* 1211. *Tournef. t.* 228. *Juſſ.* 355. *Gærtn. t.* 153.
Trifoliaſtrum. *Mich.* 25. Melilotus. *Tournef. t.* 229. Lupinaſter. *Buxb.*
Class. 17. 4. Diadelphia Decandria.
Nat. order of *Papilionaceæ* or *Leguminoſæ.*

GENERIC CHARACTER.

CAL. *Umbellet* or *Head* with the common receptacle.
Perianth one-leafed, tubular, five-toothed, permanent.
COR. papilionaceous, commonly permanent, ſhriveling. *Banner* reflected. *Wings* ſhorter than the banner. *Keel* ſhorter than the wings.
STAM. *Filaments* diadelphous (ſimple and nine-cleft.) *Anthers* ſimple.

[k] Smith brit. [l] Gærtner. [m] Engl. bot.

PIST. *Germ* subovate. *Style* awl-ſhaped, aſcending. *Stigma* ſimple.

PER. *Legume* ſcarcely longer than the calyx, one-valved, not opening, deciduous.

SEEDS very few, roundiſh.

OBS. *It is very difficult to give a complete character of this genus, with its true and eſſential mark.*

The appearance and various attributes of the ſpecies prove this genus to be natural: nor have they diſcovered the limits who have attempted to divide it.

Triphylloides *of Pontedera, has the corolla monopetalous, the banner wings and keel being united into one.*

Trifoliaſtrum *of Micheli, has the Legume longer than the calyx, and the Florets collected in a head.*

Lupulinum *of Rivinus, has the corolla permanent, with a flat inflected banner.*

Lagopus *of Rivinus, has the calyx the length of the corolla and villoſe.*

Melilotus *of Tournefort has the Legume longer than the calyx.*

Lupinaſter *of Buxbaum has the Legumes many-ſeeded, and the Leaves quinate.*

ESSENTIAL CHARACTER.

Flowers in a head. *Legume* ſcarcely longer than the calyx, not opening, deciduous.

SPECIES.

1. *Melilots. Legumes naked, many-ſeeded.*

1. Trifolium cæruleum. *Blue Melilot Trefoil.*
Lin. ſpec. 1077. *Reich.* 3. 546. *hort. cliff.* 375. *Gærtn. fruct.* 2. 335. *Blackw. t.* 284. *Kniph. cent.* 5. *n.* 92. *Regnault bot. Kruck. ſileſ. n.* 1199.
Melilotus cærulea. *Rivin. tetr. t.* 9.
Lotus hortenſis odorata. *Bauh. pin.* 331.
L. ſylveſtris. *Camer. epit.* 724.
Racemes ovate, legumes half naked mucronate, ſtem erect, ſpikes oblong.

[2. Trifolium indicum. *Indian Melilot Trefoil.*
Lin. ſpec. 1077. *Reich.* 3. 546. *hort. upſ.* 223. *fl. zeyl. n.* 552. *Gærtn. fruct.* 2. 335. *Laur. cochinch.* 444. *ed. Willd.* 541. *Kniph. cent.* 10. *n.* 90. *Pluk. phyt. t.* 45. *f.* 4.
Melilotus indica. *Allion. pedem. n.* 1121. *Raii hiſt.* 953.
Melilotus minima. *Rivin. tetr. t.* 8.
β. *Pluk. phyt. t.* 45. *f.* 5.—γ. *Bauh. hiſt.* 2. 371. *pin.* 331. *prodr.* 144.—δ. *Mor. hiſt.* 2. 161. *Raii hiſt.* 951. M. parviflora. *Deſfont.* 192.
Legumes racemed naked one-ſeeded, ſtem erect.

3. Trifolium maſſanenſe. *Sicilian Melilot Trefoil.*
Linn. Syſt. 687. *Reich.* 3. 563. *ſuppl.* 339. *mant.* 275.
Melilotus meſſanenſis. *Allion. pedem. n.* 1124. *Deſfont. atlant.* 2. 192. *Raii hiſt.* 952. *Tournef. inſt.* 407.
M. minima recta lutea, ſiliquis craſſis curtis in capitulum congeſtis radiatis, ſemine Fœnugræci. *Mor. hiſt.* 2. 162. *ſ.* 2. *t.* 16. *f.* 9. *et t.* 15. *f.* 9.
Trifolium fructu racemoſo. *Bocc. muſ. t.* 124.
Legumes racemed naked one-ſeeded bow-ſtriated ſemiovate acute, ſtem erect.

4. Trifolium polonicum. *Polonian Melilot Trefoil.*
Lin. ſpec. 1078. *Reich.* 3. 546. *Gærtn. fruct.* 2. 335. *Reyg. ged.* 2. 119. *Gmel. it.* 1. 139.
Legumes racemed naked two-ſeeded lanceolate, ſtem erect.]

5. Trifolium officinale. *Common Melilot Trefoil.*
Lin. ſpec. 1078. *Reich.* 3. 547. *hort. cliff.* 376. *upſ.* 223. *fl. ſuec. n.* 663. *mat. med.* 175. *Huds. angl.* 323. *Wither. arr. ed.* 3. 645. *Smith brit.* 781. *Hull.* 162. *Lightf. ſcot.* 402. *Relh. cant. ed.* 2. *n.* 602. *Sibth. oxon. n.* 635. *Abbot hebſ. n.* 528. *Fl. dan. t.* 934. *Pollich pal. n.* 697. *Neck. gallob.* 315. *Crantz auſtr.* 404. *Scop. carn. n.* 935. *Krock. ſileſ. n.* 1198. *Villars dauph.* 3. 476. *Aſſo arag. n.* 718. *Gmel. ſib.* 4. 23. *t.* 7. *Kniph. cent.* 7. *n.* 95. *Blackw. t.* 80. *Rivin. tetr. t.* 6. *Regnault bot. Fl. ruſſ. t.* 72. *Bulliard herb. t.* 255.

T. odoratum ſ. Melilotus. *Dod. pempt.* 567.—vulgaris flore luteo. *Bauh. hiſt.* 2. 370.
Melilotus officinalis. *Deſfont. atlant.* 2. 191. *Hall. helv. n.* 362. *Dodart. ic. Allion. pedem. n.* 1122.
M. officinarum Germaniæ. *Bauh. pin.* 331. *Tournef. inſt.* 407.
M. germanica. *Lob. ic.* 2. 43. 2. *obſ.* 501. 1. *Ger.* 1034. 4. *emac.* 1205. 4.
M. vulgaris. *Trag.* 591. *Park. theat.* 719. *Raii hiſt.* 951. *ſyn.* 331.
M. ſiliculis pendentibus curtis lutea vulgaris officinarum. *Mor. hiſt. ſ.* 2. *t.* 16. *f.* 2.
Lotus ſylveſtris. *Tabern. ic.* 508.
L. urbana. *Matth.* 1162.
Saxifraga lutea. *Fuchſ. hiſt.* 749.
β. Melilotus officinarum Germaniæ flore albo. *Tournef. inſt.* 407.
γ. M. vulgaris altiſſima fruteſcens, flore albo, ſ. luteo. *Raii ſuppl.* 461.
Legumes racemed naked two-ſeeded wrinkled acute, ſtem erect.

[6. Trifolium italicum. *Italian Melilot Trefoil.*
Lin. ſpec. 1078. *Reich.* 3. 547. *Gærtn. fruct.* 2. 336.
Melilotus italica. *Rivin. tetr. t.* 7. *Camer. hort.* 29. *Park. theat.* 719. 3. *Allion. pedem. n.* 1123. *Deſfont. atlant.* 2. 192.
M. ital. folliculis rotundis. *Bauh. pin.* 331. *Tournef. inſt.* 407.
M. magno ſemine rotundo rugoſo. *Bauh. hiſt.* 2. 371. *Raii hiſt.* 951.
Legumes racemed naked two-ſeeded wrinkled obtuſe, ſtem erect, leaflets entire.

7. Trifolium creticum. *Cretan Melilot Trefoil.*
Lin. ſpec. 1078. *Reich.* 3. 548. *Gærtn. fruct.* 2. 336.
T. peltatum creticum. *Bauh. pin.* 339. *prodr.* 142. *Bauh. hiſt.* 2. 381. *Mor. hiſt. ſ.* 2. *t.* 14. *f.* 3.
Melilotus cretica. *Deſfont. atlant.* 2. 193.—fructu maximo. *Tournef. inſt.* 407.
Legumes racemed naked two-ſeeded membranaceous, ſtem nearly upright.

8. Trifolium ornithopodioides. *Bird's-foot Melilot Trefoil.*
Lin. ſpec. 1078. *Syſt.* 687. *Reich.* 3. 548. *Huds. angl.* 324. *Wither. arr. ed.* 3. 645. *Smith brit.* 782. *engl. bot. t.* 1047. *Hull* 162. *Lightf. ſcot.* 403. *Curt. lond.* 2. *t.* 53. *Fl. dan. t.* 368. *Pluk. phyt. t.* 68. *f.* 1.
Fœnugræcum humile repens, Ornithopodii ſiliquis brevibus erectis. *Raii ſyn.* 331. *t.* 14. *f.* 1.
Legumes naked eight-ſeeded about three together twice as long as the calyx, ſtems declined.

2. *Lotoid. Legumes covered, many-ſeeded.*

9. Trifolium Lupinaſter. *Baſtard Lupine* or *Trefoil.*
Lin. ſpec. 1079. *Syſt.* 687. *Reich.* 3. 548. *hort. upſ.* 223. *Thunb. jap.* 290. *Gmel. ſib.* 4. 19. *t.* 6. *f.* 1. *Fl. ruſſ. t.* 16.
Lupinaſter. *Buxb. act. petrop.* 2. 345. *t.* 20. *Amm. ruth.* 144. 144.
Heads halved, leaves quinate ſeſſile, legumes many-ſeeded.

10. Trifolium reflexum. *Reflex-headed Trefoil.*
Lin. ſpec. 1079. *Syſt.* 687. *Reich.* 3. 548. *Gron. virg.* 1. 84. 2. 110. *Pluk. mant.* 285.
Fruiting heads bent back, legumes three-ſeeded.

11. Trifolium ſtrictum. *Upright Trefoil.*
Lin. ſpec. 1079. *Reich.* 3. 549. *Mich. gen.* 29. *t.* 25. *f.* 7. *Allion. pedem. n.* 1092.
Heads globular, legumes two-ſeeded, calyxes length of the corolla, leaflets ſerrulate, ſtipules rhombed.

12. Trifolium hybridum. *Mule Trefoil.*
Lin. ſpec. 1079. *Syſt.* 687. *Reich.* 3. 549. *fl. ſuec. n.* 664. *Retz. obſ.* 6. 33. *Hall. helv. n.* 368. *Pollich pal. n.* 698. *Deſfont. atlant.* 2. 195 *Krock. ſileſ. n.* 1200.
Trifoliaſtrum. *Mich. gen.* 27. *t.* 25. *f.* 2, 6.
β. T. orientale altiſſimum, caule ſiſtuloſo, flore albo. *Vaill. par. t.* 22. *f.* 5.
T. flore albo. *Rivin. tetr. t.* 127. *t.* 2.
Heads umbelled, legumes four-ſeeded, ſtem aſcending.]

13. Tri-

13. Trifolium repens. *Creeping White Trefoil. Dutch Clover.*
Lin. ſpec. 1080. *Reich.* 3. 549. *fl. lapp. n.* 274 *ſuec. n.* 665. *mat. med.* 175. *hort. cliff.* 375. *Afzel. in Lin. tranſ.* 1. 227. *Hudſ. angl.* 324. *Wither. arr. ed.* 3. 646. *Smith brit.* 783. *Hull.* 163. *Lightf. ſcot.* 404. *Curt. lond.* 3. *t.* 46. *Relh. cant. n.* 603. *Sibth. oxon. n.* 636. *Abbot bedf. n.* 529. *Fl. dan. t.* 990. *Hall. helv. n.* 367. *Pollich pal. n.* 699. *Neck. gallob.* 315. *Crantz auſtr.* 405. *Scop. carn. n.* 934. *Krock. ſileſ. n.* 1201. *Villars dauph.* 3. 477. *Allion. pedem. n.* 1093. *Gron. virg.* 85. *Rivin. tetr. t.* 14. *f.* 2. *Knoph. cent.* 7. *n.* 96. *Fl. ruſt. t.* 34.
T. pratenſe. *Lob. ic.* 2. 29. *Dod. pempt.* 565. *Ger. emac.* 1185. *ic. non deſcr.*—vulgare purpureum. *Park. theat.* 1110. 1.
T. prat. album. *Bauh. pin.* 327. *Raii hiſt.* 942. *ſyn.* 327. *Mor. hiſt. ſ.* 2. *t.* 12. *f.* 2.
T. prat. flore albo minus & fœmina glabrum. *Bauh. hiſt.* 2. 380. 3.
Trifoliaſtrum. *Mich. gen. t.* 25. *f.* 3. 4.
Melilotus pariſienſis humifuſus, foliis ſerratis glabris. *Vaill. par. t.* 22. *f.* 1.
Heads umbelled, legumes four-ſeeded, ſtem creeping.
[14. Trifolium comoſum.
Lin. ſpec. 1080. *Reich.* 3. 550.
Lagopus americanus, floribus majoribus comoſis. *Petiv. muſ.* 214.
Heads globular umbelled imbricate, banners bent down permanent, legumes four-ſeeded.
15. Trifolium alpinum. *Alpine Trefoil.*
Lin. ſpec. 1080. *Reich.* 3. 550. *hort. cliff.* 499. *Pallas it.* 2. 123. *Hall. helv. n.* 369. *Sauv. monſp.* 185. *Villars dauph.* 3. 478. *Allion. pedem. n.* 1094.
T. alpinum, flore magno, radice dulci. *Bauh. pin.* 328. *prodr.* 143.
T. anguſtifolium alpinum. *Pon. bald.* 340. *ic. Park. theat.* 1104. *f.* 4. *Ger. emac.* 1207. *f.* 2.
T. alpinum rhæticum aſtragaloides. *Bauh. hiſt.* 2. 376. *Raii hiſt.* 956.
Heads umbelled, ſcape naked, legumes two-ſeeded pendulous, leaflets linear-lanceolate.
3. *Lagopuſes: with villoſe calyxes.*
16. Trifolium ſubterraneum. *Subterraneous Trefoil.*
Lin. ſpec. 1080. *ſyſt.* 688. *Reich.* 3. 550. *hort. cliff.* 374. *upſ.* 222. *Hudſ. angl.* 328. *Withet. arr. ed.* 3. 647. *Smith brit.* 783. *engl. bot. t.* 1048. *Hull.* 163. *Curt. lond.* 2. *t.* 54. *Relh. cant. ed.* 2. *n.* 604. *Sibth. oxon. n.* 637. *Abbot bedf. n.* 530. *Dalib. par.* 224. *Ger. prov.* 510. *n.* 15. *Allion. pedem. n.* 1095. *Rivin. tetr. t.* 14. *f.* 1. *Aſſo arag. n.* 721.
T. pumilum ſupinum, floſculis longis albis. *Raii hiſt.* 942. *ſyn.* 327. *t.* 13. *f.* 2.
T. bleſenſe. *Dodart mem.* 4. 313.
T. ſubterraneum tricoccum Gaſtonium. *Mor. hiſt. ſ.* 2. *t.* 14. *f.* 5.
T. pratenſe ſupinum &c. *Barr. ic. t.* 881.
Heads villoſe four-flowered or thereabouts, with a central reflexed rigid ſtellate involucre wrapping up the fruit.
17. Trifolium globoſum. *Globular Trefoil.*
Lin. ſpec. 1081. *Reich.* 3. 551. *hort. cliff.* 374. *Lour. cochinch.* 444. *ed. Willd.* 542.
T. orientale, capitulo lanuginoſo. *Tournef. cor.* 27.
Heads villoſe globular, upper calyxes deſtitute of a floret.
18. Trifolium Cherleri. *Hairy Trefoil.*
Lin. ſpec. 1081. *ſyſt.* 683. *Reich.* 3. 551. *mant.* 451. *amoen.* 4. 286. *Ger. prov.* 509. 13. *Sauv. monſp.* 184. *Deſfont. atlant.* 197. *Allion. pedem. n.* 1096. *Mill. fig. t.* 267. *f.* 1?
T. globoſum repens. *Bauh. pin.* 329. *prodr.* 143. *Tournef. inſt.* 405.
T. glomeruliſ perſonatæ Cherleri. *Bauh. hiſt.* 2. 377. *Mor. hiſt. ſ.* 2. *t.* 13. *f.* 11. *Raii hiſt.* 945.
Lagopus minor ſupinus, molli & compreſſo capite, flore albo. *Barr. ic. t.* 859.
Heads villoſe globular terminating ſolitary, all the calyxes fertile, ſtems procumbent, leaves obcordate.

19. Trifolium lappaceum. *Burr Trefoil.*
Lin. ſpec. 1082. *ſyſt.* 688. *Reich.* 3. 552. *Ger. prov.* 508. *n.* 12. *Allion. pedem. n.* 1102. *Aſſo arag. n.* 724.
T. globoſum ſ. capitulo lagopi rotundiore. *Bauh. pin.* 329. *prodr.* 143.
T. capitulo glomerato rigido. *Bauh. hiſt.* 2. 377. *Raii hiſt.* 948.
T. globoſo capite. *Park. theat.* 1108.
Spikes ſubovate, calycine teeth ſetaceous hiſpid, ſtem patulous, leaves ovate.]
20. Trifolium rubens. *Long-ſpiked Trefoil.*
Lin. ſpec. 1081. *ſyſt.* 688. *Reich.* 3. 552. *mant.* 451. *hort. cliff.* 375. *Hall. helv. n.* 375. *Pollich pal. n.* 700. *Krock. ſileſ. n.* 1202. *Sauv. monſp.* 184. *Villars dauph.* 3. 479. *Crantz auſtr.* 406. *Jacqu. auſtr.* 4. 44. *t.* 385. *Scop. carn. n.* 925. *Allion. pedem. n.* 1097. *Aſſo arag. n.* 722. *Deſfont. atlant.* 196. *Knoph. cent.* 5. *n.* 93. *Afzel. in Lin. tranſ.* 1. 211. *Fl. ruſt. t.* 9.
T. montanum ſpica longiſſima rubente. *Bauh. pin.* 328. *Tournef. inſt.* 405.
T. purpureum majus, folio & ſpica longiore. *Bauh. hiſt.* 2. 375. *Raii hiſt.* 944.
Trifolii majoris 3 altera ſpecies. *Cluſ. hiſt.* 2. 246
Lagopus major alter. *Dod. pempt.* 578.
L. altera folio pinnato. *Lob. ic.* 2. 40.
L. major ſpica longiore. *Ger. emac.* 1192. *f.* 2.
L. major folio pinnato. *Park. theat.* 1106.
β. Trifolium ſpica oblonga rubra. *Bauh. pin.* 328.
T. majus flore purpureo. *Ger. emac.* 1186. *f.* 4.
T. montanum majus purpureum. *Park. theat.* 1103. 1.—item, 1104. 1, 2. *ic.*
T. purp. mont. majus ſpica oblonga. *Mor. hiſt.* 2. 139. *n.* 1.—item.
T. lagopoides montanum, 3. *Cluſ. hiſt. Mor. ſ.* 2. *t.* 12. *f.* 1.
Spikes villoſe long, corollas one-petalled, ſtem erect, leaves ſerrulate.
21. Trifolium pratenſe. *Common Purple Trefoil,* or *Honey-ſuckle Trefoil.*
Lin. ſpec. 1082. *Reich.* 3. 552. *fl. lapp. n.* 273. *ſuec. n.* 666. *hort. cliff.* 375. *Afzel. in Lin. tranſ.* 1. 240. *Hudſ. angl.* 325. *Withet. arr. ed.* 3. 651. *Smith brit.* 785. *Hull.* 163. *Lightf. ſcot.* 404. *Relh. cant. ed.* 2. *n.* 606. *Sibth. oxon. n.* 638. *Abbot bedf. n.* 531. *Pollich. pal. n.* 701. *Lers herborn. n.* 574. *Krock. ſileſ. n.* 1203. *Neck. gallob.* 315. *Hall. helv. n.* 377. *Crantz auſtr.* 407. *Scop. carn. n.* 923. *Villars dauph.* 3. 483. *Allion. pedem. n.* 1100. *Knoph. cent.* 1. *n.* 91. *Deſfont. atlant.* 2. 194. *Aſſo arag. n.* 723. *Regnault. bot.—Lonic.* 1. 104. 4. *Trag. hiſt.* 586. *Matth.* 335. 609. *Camer. epit.* 582. *Tabern. ic.* 523. *Dalech. hiſt.* 1354. *Ger.* 1017. 1.
T. pratenſe purpureum. *Bauh. pin.* 327. *Fuchſ. hiſt.* 817. *Raii hiſt.* 943. *ſyn.* 328.
T. purpureum vulgare. *Bauh. hiſt.* 2. 374.
T. vulgare. *Blackw. t.* 20.
Trifolium. *Rivin. tetr. t.* 11. *f.* 1.
T. medium. *Fl. ruſt. t.* 2.
β. ſativa. *Cultivated, Common* or *Broad Clover.*
Trifolium pratenſe. *Fl. dan. t.* 989. *Fl. ruſt. t.* 3. and 36.
T. pratenſe γ. *Hudſ. angl.* 325. *Wilb.* 632. *var.* 3. *Hall. n.* 377. β.
T. purpureum majus ſativum pratenſi ſimile. *Raii ſyn.* 328.
γ. alba. *White-flowered Clover.*
T. flore albo. *Afzel. in Lin. tranſ.* 1. 243. *Withet. arr.* 652. *var.* 4. *Hall. n.* 377. γ.
δ. T. prat. purp. minus, foliis cordatis. *Raii ſyn.* 328. *t.* 13. *f.* 1.
Spikes denſe, ſtems aſcending, corollas unequal, calycine teeth four equal, ſtipules awned.
[22. Trifolium medium. *Zigzag Trefoil.*
Lin. ſaun. ſuec. ed. 2. 558. *Hudſ. angl. ed.* 1. 284. *Afzel. in Linn. tranſ.* 1. 237. *Withet. arr. ed.* 3. 650. *Smith brit.* 786. *engl. bot. t.* 190.

Hull. 163. *Relh. cant. ed.* 2. *n.* 607. *Sibth. oxon. n.* 639. *Dickſ. hort. ſicc.* 4. 10.

T. flexuoſum. *Jacqu. auſtr.* 4. 45. *t.* 386. *Retz. prodr.* 174. *Allion. pedem. n.* 1105. *Fl. ruſt. t.* 13.

T. alpeſtre. *Crantz auſtr.* 407. *Scop. carn. n.* 924. *Laers herborn. n.* 575. *Pollich pal. n.* 702. *Fl. dan. t.* 662. *Retz. prodr.* 141. *n.* 819. *Huds. angl. ed.* 2. 326. *Lightf. ſcot.* 406. *Relh. cant. ed.* 1. *n.* 539.

T. *n.* 376. *Hall. helv.*

T. pratenſe purpureum majus. *Raii hiſt.* 944.

T. purp. majus, foliis longioribus & anguſtioribus, floribus ſaturatioribus. *Raii ſyn.* 328.

Spikes looſe, ſtems flexuoſe branched, corollas nearly equal, ſtipules ſubulate-linear.

23. Trifolium alpeſtre. *Alpine Trefoil.*
Lin. ſpec. 1082. *ſyſt.* 688. *Reich.* 3. 553. *mant.* 451. *Afzel. in Linn. tranſ.* 1. 234. *Jacqu. obſ.* 3. 14. *t.* 64. *fl. auſtr.* 5. 15. *t.* 433. *Allion. pedem. n.* 1101. *Fl. ruſt. t.* 1.

T. majus purpureo flore 2. *Cluſ. pann.* 760.

T. majus 2. *Cluſ. hiſt.* 2. 245.

T. majus Cluſii fecundum, non album, ſed rubrum. *Baub. hiſt.* 2. 375.

T. montanum purpureum majus. *Baub. pin.* 328? *Raii hiſt.* 944. 6. *Tournef. inſt.* 404. *Boerh. lugdb.* 2. 30. *n.* 1.

T. fol. long. fl. purp. *Rivin. tetr. t.* 12. *fig. ſin.*

Spikes denſe, corollas nearly equal, ſtipules ſetaceous diverging, leaflets lanceolate, ſtem ſtiff and quite ſimple.

24. Trifolium pannonicum. *Hungarian Trefoil.*
Lin. ſyſt. 688. *Reich.* 3. 553. *mant.* 276. *Jacqu. obſ.* 21. *t.* 42. *Afzel. in Linn. tranſ.* 1. 213.

T. alpeſtre. *Gouan illuſtr.* 52?

Spikes villoſe long, corollas one-petalled, leaves quite entire, ſtem erect, both extremely villoſe.]

25. Trifolium ſquarroſum. *Round-leaved Trefoil.*
Lin. ſpec. 1082. *ſyſt.* 689. *Reich.* 3. 554.

T. purpureum lagopoides hirſutum annuum rotundifolium, ſpica dilute rubente. *Mor. hiſt.* 2. 140. *ſ.* 2. *t.* 13. *f.* 1.

T. hiſpanicum anguſtifolium, ſpica dilute rubente. *Baub. pin.* 328.

Spikes oblong ſomewhat hairy, the loweſt teeth of the calyxes reflexed, ſtem herbaceous erect.

26. Trifolium incarnatum. *Crimſon Trefoil.*
Lin. ſpec. 1083. *ſyſt.* 689. *Reich.* 3. 554. *hort. upſ.* 222. *Gouan illuſtr.* 51. *Gærtn. fruct.* 2. 334. *Hall. helv. n.* 374. *Dalib. par.* 225. *Allion. pedem. n.* 1103. *Desfont. atlant.* 2. 196. *Mill. fig. t.* 267. *f.* 2. *Curt. magaz. t.* 328. *Retz. obſ.* 3. 41. *n.* 88.

T. latifolium. *Rivin. tetr. t.* 77. *ſec. Reich.*

T. ſpica ſubrotunda rubra. *Baub. pin.* 328. *Tournef. inſt.* 405.

T. albo-incarnatum ſpicatum, ſ. Lagopus maximus. *Baub. hiſt.* 2. 376. *Raii hiſt.* 948.

T. alopecurum latifolium, ſpica rotunda rubra. *Barr. ic.* 697.

Lagopum maximum folio & facie Trifolii pratenſis. *Lob. ic.* 2. 39.

Lagopus maximus Lobelii. *Cluſ. hiſt.* 2. 246. *Ger. emac.* 1192.—flore rubro. *Park. theat.* 1106. *f.* 1.

L. major folio Trifolii. *Dod. pempt.* 577.

L. maxima. *Dalech hiſt.* 442.

Spikes villoſe oblong obtuſe leafleſs, leaflets roundiſh crenate.

27. Trifolium ochroleucum. *Pallid* or *Sulphur-coloured Trefoil.*
Lin. ſyſt. 689. *Reich.* 3. 554. *Gouan illuſtr.* 51. *Afzel. in Linn. tranſ.* 1. 229. *Huds. angl.* 325. *Wither. arr. ed.* 3. 653. *Smith brit.* 784. *engl. bot. t.* 1224. *Hull.* 164. *Relh. cant. ed.* 2. *n.* 605. *Abbot bedf. n.* 533. *Curt. lond.* 6. *t.* 49. *Jacqu. auſtr. t.* 40. *Hall. helv. n.* 378. *Krock. ſilef. n.* 1208. *Villars dauph.* 3. 485. *Allion. pedem. n.* 1098. *Fl. ruſt. t.* 35. *Dickſ. hort. ſicc.* 3. 9.

T. pratenſe hirſutum majus, flore albo-ſulphureo. *Raii hiſt.* 943. 8. *ſyn.* 328. 3.

T. montanum majus flore albo-ſulphureo. *Metr. pin.* 121.

T. pratenſe album. *Fuchſ. hiſt.* 818.

T. lagopoides annuum hirſutum pallide luteum. *Mor. hiſt.* 2. 141. *n.* 12. *ſ.* 2. *t.* 12. *f.* 12.

Head villoſe, ſtem erect pubeſcent, loweſt leaflets obcordate, loweſt calycine tooth very long.

28. Trifolium anguſtifolium. *Narrow-leaved Trefoil.*
Lin. ſpec. 1083. *ſyſt.* 689. *Reich.* 3. 555. *hort. cliff.* 375. *upſ.* 222. *Laers herborn. n.* 576. *Scop. carn. n.* 929. *Villars dauph.* 3. 485. *Allion. pedem. n.* 1104. *Aſſo arag. n.* 725. *Desfont. atlant.* 2. 198.

T. montanum anguſtiſſimum ſpicatum. *Baub. pin.* 328. *Tournef. inſt.* 403.

T. anguſtifolium ſpicatum. *Baub. hiſt.* 2. 376. *Raii hiſt.* 949.

T. alopecurum anguſtifolium elatius. *Barr. ic.* 698.

T. lagopoides anguſtif. *Mor. hiſt. ſ.* 2. *t.* 13. 6. *ord.* 1.

Lagopus hiſpanicus. *Rivin. tetr. t.* 16.

L. altera anguſtifolia. *Ger. emac.* 1193.

L. major anguſtifolius. *Park. theat.* 1106. *n.* 3.

Spikes villoſe conic-oblong, calycine teeth ſetaceous almoſt equal, leaflets linear.

29. Trifolium arvenſe. *Hare's-foot Trefoil.*
Lin. ſpec. 1083. *ſyſt.* 689. *Reich.* 3. 555. *hort. cliff.* 375. *fl. ſuec. n.* 668. *Gærtn. fruct.* 2. 335. *Huds. angl.* 326. *Wither. arr. ed.* 3. 649. *Smith brit.* 787. *engl. bot. t.* 944. *Hull.* 163. *Lightf. ſcot.* 406. *Curt. lond.* 6. *t.* 50. *Relh. cant. ed.* 2. *n.* 608. *Sibth. oxon. n.* 640. *Abbot bedf. n.* 534. *Fl. dan. t.* 724. *Hall. helv. n.* 373. *Pollich pal. n.* 703. *Crantz auſtr.* 405. *Scop. carn. n.* 930. *Krock. ſilef. n.* 1207. *Villars dauph.* 3. 486. *Allion. pedem. n.* 1106. *Desfont. atlant.* 2. 198. *Dickſ. hort. ſicc.* 3. 8.

T. Lagopus. *Neck. gallob.* 315.

T. arvenſe humile ſpicatum, ſ. Lagopus. *Baub. pin.* 328. *Tournef. inſt.* 405. *Raii ſyn.* 330.

T. lagopoides arvenſe humile. *Mor. hiſt. ſ.* 2. *t.* 13. *f.* 8.

Lagopus. *Fuchſ. hiſt.* 494. *Matth.* 983. *Camer. epit.* 724. *Dod. pempt.* 577. 1. *Rivin. tetr. t.* 16. *Blackw. t.* 450.

L. pes leporis. *Lob. ic.* 2. 39. 1. *obſ.* 498. 4.

L. vulgaris. *Dalech. hiſt.* 441. *Park. theat.* 1107. 6. *Raii hiſt.* 948.

L. trifolius quorundam. *Baub. hiſt.* 2. 377.

L. anguſtifolia minor erectior. *Barr. ic.* 901.

Lagopodium Lagopus. *Tabern. ic.* 524.

L. pes leporis. *Ger.* 1023. 2. *emac.* 1193. 3.

Lotus campeſtris. *Trag.* 595.

β. Lagopus perpuſillus ſupinus perelegans maritimus. *Dill. in Raii ſyn.* 330. *t.* 15. *f.* 2.

Spikes extremely villoſe ſubcylindrical, calycine teeth ſetaceous longer than the corolla, leaflets obovate-linear.

[30. Trifolium maritimum. *Teaſel-headed Trefoil.*
Huds. angl. ed. 1. 284. *Wither. arr. ed.* 3. 633. *Smith brit.* 786. *engl. bot. t.* 220. *Hull.* 164. *Dickſ. hort. ſicc.* 7. 8.

T. ſtellatum. *Huds. angl. ed.* 2. 326. *Wither. ed.* 2. 799.

T. ſtell. glabrum. *Ger. emac.* 1208. *Raii hiſt.* 945. *ſyn.* 329. *Pluk. phyt. t.* 113. *f.* 4.

T. ſpicatum minus, flore minore dilute purpureo. *Mor. hiſt. ſ.* 2. *t.* 14. *f.* 1. *ord.* 1.

Spikes hairy globular, calycine teeth leafy finally ſpreading, ſtipules lanceolate, leaflets obovate.

31. Trifolium ſtellatum. *Star-headed Trefoil.*
Lin. ſpec. 1083. *ſyſt.* 689. *Reich.* 3. 556. *hort. cliff.* 375. *Gærtn. fruct.* 2. 333. *Murr. prodr.* 174. *Scop. carn. n.* 926. *Sauv. monſp.* 184. *Villars dauph.* 3. 486. *Allion. pedem. n.* 1107. *Desfont. atlant.* 2. 199.—*Baub. pin.* 329. *prodr.* 143. *Raii hiſt.* 945. *Tournef. inſt.* 405. *Fl. ruſt. t.* 94.

T. ſtellatum monſpelienſium. *Park. theat.* 1108. 1.

T. ſtell. purpureum monſp. *Baub. hiſt.* 2. 376. *Mor. hiſt. ſ.* 2. *t.* 13. *f.* 9.

Lagopus latifolius. *Rivin. tetr. t.* 17.

L. minor

L. minor erectus, capite globoſo ſtellato, flore purpureo. *Barr. ic.* 860.

Spikes hairy, calyxes ſpreading, ſtem diffuſed, leaflets obcordate.

32. Trifolium clypeatum. *Oriental Trefoil.*
Lin. ſpec. 1084. *Reich.* 3. 556. *hort. cliff.* 373. *Gærtn. fruct.* 2. 333. *Allion. pedem. n.* 1109.

T. clypeatum argenteum. *Alp. exot.* 307. *t.* 306. *v. Raii hiſt.* 945. 12.

Spikes ovate, calyxes patulous, loweſt ſegment largeſt lanceolate, leaflets ovate.

33. Trifolium ſcabrum. *Rough Trefoil.*
Lin. ſpec. 1084. *Reich.* 3. 556. *hort. cliff.* 373. *Huds. angl.* 327. *Wither. arr. ed.* 3. 648. *Smith brit.* 788. *engl. bot. t.* 903. *Hull.* 163. *Lightf. ſcot.* 407. *Curt. lond. 6. t.* 48. *Relh. cant. ed.* 2. *n.* 609. *Sibth. oxon. n.* 641. *Abbot bedf. n.* 535. *Hall. helv. n.* 371. *Pollich pal. n.* 704. *Scop. carn. n.* 927. *Sauv. monſp.* 183. *Villars dauph.* 3. 488. *Allion. pedem. n.* 1110. *Deſfont. atlant.* 2. 199.

T. capitulo oblongo aſpero. *Baub. pin.* 329. *prodr.* 140. *Park. theat.* 1109. *n.* 11. *Raii hiſt.* 946. *Tournef. inſt.* 406.

T. floſculis albis, in glomerulis oblongis aſperis cauliculis proxime adnatis. *Baub. hiſt.* 2. 378. 4. *Raii hiſt.* 946. *ſyn.* 329. *Vaill. par. t.* 33. *f.* 1. *Mor. hiſt. ſ.* 2. *t.* 13. *f.* 10.

T. minus capite ſubrotundo parvo albo et echinato. *Barrel. ic. t.* 870.

Heads ſeſſile lateral ovate, calycine teeth unequal permanent rigid recurved.

34. Trifolium glomeratum. *Round-headed Trefoil.*
Lin. ſpec. 1084. *ſyſt.* 689. *Reich.* 3. 557. *hort. cliff.* 363. *Murr. prodr.* 174. *Gærtn. fruct.* 2. 334. *Huds. angl.* 327. *Wither. arr. ed.* 3. 648. *Smith brit.* 789. *engl. bot. t.* 1063. *Hull.* 163. *Curt. lond.* 4. *t.* 51. *Sauv. meth.* 183. *Allion. pedem. n.* 1111. *Deſfont. atlant.* 2. 200.

T. cum glomerulis ad caulium nodos rotundis. *Raii ſyn. ed.* 2. 194. 9. *ed.* 3. 329. 10. *hiſt.* 948. 24. *Pluk. phyt. t.* 113. *f.* 5. *Tournef. inſt.* 406.

T. arvenſe ſupinum verticillatum. *Barrel. ic. t.* 882.

Heads hemiſpherical ſeſſile lateral ſmooth, calycine teeth cordate reflexed veined.

35. Trifolium ſtriatum. *Soft Knotted Trefoil.*
Lin. ſpec. 1085. *ſyſt.* 689. *Reich.* 3. 557. *fl. ſuec. n.* 669. *Gouan illuſtr.* 51. *Huds. angl.* 327. *Wither. arr. ed.* 3. 649. *Smith brit.* 790. *Hull.* 163. *Lightf. ſcot.* 408. *Relh. cant. ed.* 2. *n.* 610. *Sibth. oxon. n.* 642. *Abbot bedf. n.* 536. *Laers herborn. n.* 578. *Krock. ſilef. n.* 1209. *Allion. pedem. n.* 1112.

T. parvum hirſutum, floribus parvis dilute purpureis, in glomerulis mollioribus et oblongis, ſemine magno. *Raii ſyn.* 329. *t.* 13. *f.* 3. *Vaill. par. t.* 33. *f.* 2.

Heads ſeſſile lateral and terminating ovate, calyxes elliptic hirſute grooved, teeth ſetaceous.

36. Trifolium ſuffocatum. *Suffocated Trefoil.*
Lin. ſyſt. 690. *Reich.* 3. 563. *mant.* 276. *Wither. arr. ed.* 3. 656. *Smith brit.* 790. *engl. bot. t.* 1049. *Hull* 164. *Jacq. hort. vind. t.* 60.

T. minimum ſupinum, floſculorum & ſeminum globulis plurimis confertim ad radicem naſcentibus. *Raii hiſt.* 942.

T. epithymi capitulis, inter geniculi, annuum. *Cupan. catbol.*

T. vernum repens. *Buxb. cent.* 3. 18? *t.* 31. *f.* 2?

Heads ſeſſile lateral roundiſh ſmoothiſh, calycine teeth lanceolate acute recurved longer than the corolla.

37. Trifolium alexandrinum. *Egyptian Trefoil.*
Lin. ſpec. 1085. *ſyſt.* 689. *Reich.* 3. 558. *amoen.* 4. 286.

Heads oblong peduncled, ſtem erect, leaves oppoſite.

38. Trifolium uniflorum. *One-flowered Trefoil.*
Lin. ſpec. 1085. *ſyſt.* 689. *Reich.* 3. 558. *amoen.* 4. 285.

T. vernum repens purpureum. *Buxb. cent.* 3. 17. *t.* 31. *f.* 1.—item, flore albo exiguo. *f.* 2.

Melilotus cretica humillima humifuſa, flore albo magno. *Tournef. cor.* 28?

Spica trifolia. *Alp. exot.* 169. *t.* 168.

Stemleſs, peduncles trifid and ſubtriflorous ſhorter than the ſtipule.

4. *Bladdery, with inflated ventricoſe calyxes.*

39. Trifolium ſpumoſum. *Bladdered Trefoil.*
Lin. ſpec. 1085. *ſyſt.* 689. *Reich.* 3. 558. *hort. cliff.* 373. *Gærtn. fruct.* 2. 334.

T. capitulo ſpumoſo lævi. *Baub. pin.* 329. *prodr.* 140. *Raii hiſt.* 947. 21.

T. caule nudo, glomerulis glabris. *Baub. hiſt.* 2. 379. *Raii hiſt.* 947. 20.

T. veſicarium læve. *Park. theat.* 1109. *n.* 9.

Spikes ovate, calyxes inflated ſmooth five-toothed, general involucres five-leaved.

40. Trifolium reſupinatum.
Lin. ſpec. 1086. *Reich.* 3. 558. *hort. cliff.* 373. *Gærtn. fruct.* 2. 334. *Gort. geir.* 429. *Neck. gallob.* 314. *Krock. ſilef. n.* 1210. *Villars dauph.* 3. 489. *Allion. pedem. n.* 1113?

T. pratenſe folliculatum. *Baub. pin.* 329. *Raii hiſt.* 947. 19.—flore inverſo. *Barrel. ic. t.* 872.

T. follic. ſ. veſicarium minus purpureum. *Baub. hiſt.* 2. 379.

T. pratenſe Salmanticum Cluſii. *Park. theat.* 1111. *f.* 3. *Mor. hiſt. ſ.* 2. *t.* 13. *f.* 12.

T. ſalmanticum. *Ger.* 1021. *f.* 3. *emac.* 1189. *f.* 3.

Spikes ſubovate, corollas turned upſide down, calyxes inflated gibbous at the back, ſtems proſtrate.

41. Trifolium tomentoſum. *Woolly Trefoil.*
Lin. ſpec. 1086. *ſyſt.* 690. *Reich.* 3. 559. *Sauv. monſp.* 175. *Ger. prov.* 510. *Allion. pedem. n.* 1114. *Gron. orient.* 96. *Deſfont. atlant.* 2. 200.

T. fragiferum tomentoſum. *Magn. monſp.* 265. *t.* 264.

T. glomerulis tomentoſis per caulium longitudinem. *Baub. hiſt.* 2. 379. *Raii hiſt.* 947. *n.* 23.

Spikes ſeſſile globular tomentoſe, calyxes inflated obtuſe.

42. Trifolium hiſpidum. *Shaggy Trefoil.*
Deſfont. atlant. 2. 200. *t.* 209. *f.* 1.

Heads involucred terminating, calycine teeth ſetaceous villoſe, ſhorter than the corolla; leaflets obovate.

43. Trifolium ſphærocephalon. *Globular Trefoil.*
Deſfont. atlant. 201. *t.* 209. *f.* 2.

Villoſe, heads round involucred, ſegments of the calyx ſetaceous longer than the corolla; leaflets obcordate.

44. Trifolium fragiferum. *Strawberry Trefoil.*
Lin. ſpec. 1086. *Reich.* 3. 559. *hort. cliff.* 373. *fl. ſuec. n.* 670. *Huds. angl.* 328. *Wither. arr. ed.* 3. 654. *Smith brit.* 791. *Hull.* 164. *Relh. cant. ed.* 2. *n.* 611. *Sibth. oxon. n.* 643. *Abbot bedf. n.* 537. *Curt. lond.* 2. 55. *Dickſ. hort. ſicc.* 4. 11. *Fl. dan. t.* 1042. *Hall. helv. n.* 370. *Pollich pal. n.* 705. *Neck. gallob.* 314. *Crantz auſtr.* 412. *Scop. carn. n.* 933. *Krock. ſilef. n.* 1211. *Villars dauph.* 3. 489. *Allion. pedem. n.* 1115. *Aſſo arag. n.* 728.—*Ger. emac.* 1208. *Raii hiſt.* 946. *ſyn.* 329. *Mor. hiſt. ſ.* 2. *t.* 13. *f.* 14.

T. fragiferum ſriſicum. *Baub. pin.* 329. *Cluſ.* cur. app. 38. n. 39. *Park. theat.* 1109. 5.

T. fragif. folio oblongo. *Vaill. par. t.* 22. *f.* 2.

Heads roundiſh, calyxes inflated two-toothed reflexed, ſtems creeping.

5. *Hop Trefoils, with the banner of the corolla bent in.*

[45. Trifolium montanum. *Mountain Trefoil.*
Lin. ſpec. 1087. *ſyſt.* 690. *Reich.* 3. 560. *fl. ſuec. n.* 667. *Gouan illuſtr.* 52. *Hall. helv. n.* 372. *Scop. carn. n.* 932. *Pollich. pal. n.* 706. *Crantz auſtr.* 408. *Villars dauph.* 3. 490. *Krock. ſilef. n.* 1212. *Allion. pedem. n.* 1116. *Aſſo arag. n.* 729. *Afzel. in Lin. tranſ.* 1. 231.

T. album. *Crantz auſtr.* 408.

T. montanum album. *Baub. pin.* 328.

T. pratenſe album. *Fuchſ. hiſt.* 818. *Baub. hiſt. Raii hiſt.* 943. 7.

T. folio longiore, flore albo. *Rivin. tetr. t.* 12.

T. pratenſe 2. *Durante herb.* 1014.

Spikes ſubimbricate about three, banners awl-ſhaped ſhrivelling, calyxes naked, ſtem erect.

46. Trifolium agrarium. *Upright Hop Trefoil.*
Lin. ſpec. 1087. *ſyſt.* 690. *Reich.* 3. 560. *fl. ſuec. n.* 671. *hort. cliff.* 374. *Fl. dan. t.* 558. *Hall. helv. n.* 363. *Pollich. pal. n.* 707. *Neck. gallob.* 313. *Scop. carn. n.* 931. *Villars dauph.* 3. 492. *Allion. pedem. n.* 1117. *Krock. ſileſ. n.* 1213.
T. ſtrepens. *Crantz auſtr.* 411. *n.* 8.
Spikes oval imbricate, banners bent down permanent, calyxes naked, ſtem erect.
47. Trifolium ſpadiceum. *Bay-flowered Trefoil.*
Lin. ſpec. 1087. *Reich.* 3. 561. *fl. ſuec. n.* 672. *Hall. helv. n.* 365. *Neck. gallob.* 313. *Villars dauph.* 3. 491. *Allion. pedem. n.* 1118. *Krock. ſileſ. n.* 1214. *Pallas it.* 1. 72. *Knipb. cent.* 9. *n.* 92. *Curt. magaz. t.* 557.
T. montanum lupulinum. *Baub. pin.* 328. *prodr.* 140. *Park. theat.* 1105. *f.* 6. *Raii hiſt.* 950. 3.
T. mont. ſpadiceum ex monte Pilati. *Tournef. herb. fice.*
T. pratenſe flore rufeſcente. *Vaill. par.* 196.
Lupulinum montanum, capitulis ſpadiceis. *Rupp. jen.* 207.
Lotus montanus aureus, amplo lupuli capitulo, annuus. *Barr. ic.* 1024.
Spikes oval imbricate, banners bent down permanent, calyxes hairy, ſtem erect.]
48. Trifolium procumbens. *Procumbent Hop Trefoil.*
Lin. ſpec. 1088. *ſyſt.* 690. *Reich.* 3. 561. *fl. ſuec. n.* 673. *Schreb. ſpicil.* 25. *Wither. arr. ed.* 3. 654. *Smith brit.* 792. *engl. bot. t.* 945. *Hull.* 164. *Relh. cant. ed.* 2. *n.* 612. *Sibth. oxon. n.* 644. *Abbot bedf. n.* 538. *Pollich pal. n.* 709. *Leers herborn. n.* 582. *Hall. helv. n.* 364. *Neck. gallob.* 313. *Villars dauph.* 3. 493. *Allion. pedem. n.* 1119. *Krock. ſileſ. n.* 1215. *Fl. dan. t.* 796.
T. agrarium. *Hudſ. angl.* 328. *Curt. lond.* 3. *t.* 45. *Fl. ruſt. t.* 121. *Lightf. ſcot.* 409. *Mill. dict. n.* 3.
T. pratenſe luteum, capitulo Lupuli, vel agrarium. *Raii ſyn.* 330.
T. agr. lut. cap. Lupuli majus. *Mor. hiſt.* 2. 142. *ſ.* 2. *t.* 13. *f.* 1. *ord.* 2.
T. lupulinum. *Rivin. tetr. t.* 10. *f.* 1.
Melilotus agraria. *Deſont. atlant.* 2. 193.
M. qui Trifolium pratenſe luteum, capitulo Lupuli vel agrarium. *Vaill. par. t.* 22. *f.* 3.
Spikes oval many-flowered, banners grooved, ſtems procumbent, common petiole elongated at the baſe.
49. Trifolium filiforme. *Leaſt Trefoil.*
Lin. ſpec. 1088. *Reich.* 3. 562. *fl. ſuec. n.* 764. *Hudſ. angl.* 329. *Wither. arr. ed.* 3. 655. *Smith brit.* 793. *Hull.* 164. *Lightf. ſcot.* 410. *Relh. cant. n.* 614. *Sibth. oxon. n.* 646. *Abbot bedf. n.* 540. *Leers herborn. n.* 593. *Neck. gallob.* 314. *Krock. ſileſ. n.* 1216. *Allion. pedem. n.* 1120.
T. lupulinum minimum. *Mor. hiſt.* 2. 142. 2. *Tournef. inſt.* 404. *Dill. in Raii ſyn.* 331. *t.* 14. *f.* 4.
Spikes few-flowered looſe, peduncles flexuoſe, banners ſmooth, ſtems proſtrate, all the leaflets ſubſeſſile.
50. Trifolium minus. *Small Yellow Trefoil.*
Relh. cant. n. 613.
T. procumbens. *Hudſ. angl.* 328. *Curt. lond.* 5. *t.* 53. 307.
T. dubium. *Sibth. oxon. n.* 645. *Abbot bedf. n.* 539.
T. lupulinum alterum minus. *Raii hiſt.* 949. 2. *ſyn.* 330. *t.* 14. *f.* 3.
T. luteum minimum. *Ger. emac.* 1186.
Spikes in hemiſpherical heads, peduncles ſtiff, banners ſmoothiſh, ſtems proſtrate, common petiole very ſhort at the baſe.
[51. Trifolium biflorum. *Two-flowered Trefoil.*
Lin. ſpec. 1088. *Reich.* 3. 562. *Gron. virg.* 1. 84. 2. 109.
Anonis mariana lutea, foliis anguſtioribus. *Petiv. fic.* 84.
Spikes two-flowered ſeſſile, involucres bifpid funnel-form, leaves lanceolate.]

DESCRIPTIONS, *&c.*

1. This is an annual plant, with large hollow, channelled ſtalks, that riſe about a foot high, and ſend out many branches. Leaves ternate, with ovate leaflets, ſlightly ſerrate, ſtanding upon pretty long foot-ſtalks. The flowers are collected in oblong ſpikes, which ſtand upon very long foot-ſtalks, ſpringing from the axils at every joint of the ſtalk the whole length of it: they are of a pale blue colour, and ſhaped like thoſe of the common Melilot. [The legume is not much longer than the awl-ſhaped teeth of the calyx, obovate, terminated by the awl-ſhaped ſtyle, membranaceous, looſely netted with longitudinal nerves running into one another, one-celled, valveleſs. Seeds two or four, (Miller ſays two or three,) of a rounded kidney ſhape, ſmooth, yellow [a].

Native of Germany. Cultivated in England before 1562, by William Turner, M. D. It flowers in auguſt and ſeptember [b].] Mr. Miller ſays, that the flowers appear in june and july, and that the ſeeds ripen the beginning of ſeptember; that the whole plant has a very ſtrong ſcent like that of Fenugreek, and periſhes ſoon after the ſeeds are ripe.

[2. This has the appearance of common Melilot, (n. 5.) but is very tender, only two feet high, and upright. Branches from the axils ſhorter. Stipules entire, acuminate. Leaves obverſely ſubcordate oblong, toothletted, ternate. Flowers white or yellow, but ſo ſmall that their parts can ſcarcely be diſtinguiſhed by the naked eye. Fruiting ſpike long. Legumes roundiſh, wrinkled, ſurrounded by the calyx at the baſe only, nodding [c].

Loureiro deſcribes the ſtem as annual, a foot and half high, round, with diffuſed branches: the leaves ternate, ovate, quite entire: the flowers purple, terminating, in ſhort racemes: the legumes lanceolate-ovate, compreſſed, one-ſeeded, naked. According to Gærtner, they are membranaceous, very thin, cloſely netted, obtuſe, with a very ſhort calyx at the baſe: ſeeds one or two, ovate or angular kidney-ſhaped, ferruginous.

Native of the Eaſt Indies, China, Africa and Italy, if the plant be the ſame in all theſe countries.

There are ſeveral varieties, which according to Linneus ſcarcely poſſeſs ſufficient marks to diſtinguiſh them. The laſt is ſeparated by Deſfontaines, who found it among corn in Algiers, under the name of Melilotus parviflora. It differs, ſays he, from M. officinalis, in having a ſhorter ſtem, and flowers three or four times ſmaller.

Moriſon deſcribes the ſtems as ſtraight, from a foot to eighteen inches high; leaves ſmaller and more rounded at the ends; flowers yellow, very ſmall, in very cloſe ſpikes; legumes very ſmall, brown.

Ray compares it with M. italica, than which, ſays he, it is ſmaller in all its parts; ſtems eighteen inches and more in height, erect, round, green, never red: leaves much ſmaller, leſs glaucous; lower ones broad and almoſt cordate, entire, upper ones long, narrow, crenate, obtuſe and as it were cut off at the end: flowers honey-coloured but ſmaller, in ſpikes from the axils of the upper leaves, more frequent than in the italica: legumes round, wrinkled. Native of Dauphiné; whence ſeeds were ſent by Berhard to Moriſon, who cultivated it at Oxford before 1672.

It was cultivated by Mr. Miller in 1739 [d]: but is omitted in the later editions of his Dictionary.

3. This alſo is an annual plant as well as the two former, and has the appearance of the common ſort. Leaves ternate, ſtiffiſh, ſubſerrate. Flowers yellow, ſmall. Legumes rather oblong, whitiſh, wrinkled with ſemicircular ſtreaks. Seeds bigger than in M. officinalis [e].

Stem erect, round. Leaves obovate, ſerrulate. Racemes axillary, ſhort, erect. Legumes ſemiovate, gibbous, with bowed parallel ſtreaks [f].

Peduncles axillary, ſhorter than the leaf. Flowers ſmall, yellow, raceme-headed. Legumes one or two-ſeeded, ſubcompreſſed, pendulous, oblong, attenuated

[a] Gærtner. [b] Hort. kew. [c] Linn. ſyſt. [d] Hort. kew. [e] Linn. mant. [f] Linn. ſuppl.

tenuated to both ends, acute, ſlightly curved in on one ſide [g].

Native of Sicily, Italy and Barbary. Ray gathered it on the point of land lying between the Sicilian ſtraits and the port of Meſſina [h]. Moriſon had the ſeeds of this alſo from Berhard the Apothecary, whom he calls, rei herbariæ callentiſſimus. It flowered in the Oxford garden in 1672 [i].

4. This differs from the next ſpecies, in having the ſtem altogether round; the leaves ſmaller, acuminate, acutely ſerrate at top; the flowers in the raceme remote and on longer pedicels; the peduncles round, not grooved; the banners of the flowers folded back, and with the wings not outwardly and longitudinally converging at their edges, but obliquely divaricating; the legumes two-ſeeded, little wrinkled, lanceolate-acuminate, longer. The ſtature and odour are the ſame. The flowers are of a very pale yellow colour [k].

Gærtner deſcribes the legume as coriaceous, of a lanceolate-ſickle ſhape, turgid, beautifully netted with bowed anaſtomoſing ſtreaks, one-celled, two-valved, but ſcarcely opening ſpontaneouſly. Seeds two, inſerted into the concave ſuture, three-cornered-globular, ſmooth, ruſeſcent.

Native of Poland. Introduced in 1778, by Mr. Thouin. It flowers here from june to auguſt [l].

5. Root annual, ſtrong, woody. Stem upright, grooved, yelloviſh-green, two feet high or more, with ſpreading alternate branches. Leaves ternate, petioled, alternate: leaflets ſmooth, lanceolate-obovate, or according to Mr. Woodward, the lower ones oblong wedge-ſhaped, the upper elliptical; they vary indeed much in form, and are commonly ſerrate, but ſometimes nearly entire. Flowers ſmall, drooping, varying in colour, but with us almoſt always of a golden yellow colour: they grow in long, pedunculed, axillary ſpikes, very cloſe together, on ſhort capillary pedicels, each having a ſmall awl-ſhaped bracte. Calyx bell-ſhaped, hairy, one-third of the length of the corolla, divided half way down, into five nearly equal acute teeth. Legume pendulous, elliptic, very ſhort, turgid, ſharp at both ends, wrinkled tranſverſely, hairy; containing one or two, yelloviſh, roundiſh, ſmooth ſeeds [m].

Common Melilot grows wild in moſt parts of Europe, in corn-fields, paſtures, and by way ſides. Mr. Miller marks Cambridgeſhire, and Gerarde Eſſex, for abundance of it. There cannot be a worſe weed among bread-corn, for a few of the ſeeds ground with it ſpoil the flour, by communicating their peculiarly ſtrong taſte. It flowers in june and july, and the ſeeds ripen with the corn.

The whole plant has a peculiar ſcent, which becomes more fragrant in a dry ſtate, then having ſome reſemblance to that of Anthoxanthum. The flowers are ſweet; a water diſtilled from them poſſeſſes little odour in itſelf, but improves the flavour of other ſubſtances. In medicine it was eſteemed emollient and digeſtive, and was uſed in fomentations and cataplaſms, particularly in bliſter-plaſters; but it is now laid aſide, as being rather acrid and irritating than emollient.

Notwithſtanding its ſtrong ſmell and bitter acrid taſte, it does not appear to be diſagreeable to any cattle; and horſes are ſaid to be extremely fond of it. Hence it is called by ſome Italian writers Trifolium caballinum.

Mr. Ray affirms that it is ſometimes ſown in England for the food of kine and horſes. We do not know that it is now ever cultivated among us. Bees are very fond of the flowers [n].

The firſt variety differs only in having white flowers; but the laſt has a biennial root, a higher ſuffrutecent ſtem, and ſmaller flowers, with the banner bent down at the ſides [o].

6. Leaflets obovate, ſmooth, rounded at the end, toothletted. Peduncles ſtriated. Flowers ſmall, yellow, in racemes. Legumes nodding, round, thickiſh, ſcored with little pits [p]: according to Gærtner, coriaceous, ſubglobular, very ſhortly mucronate, tortuouſly wrinkled on the ſides, but having a ſmooth prominent ſuture at the edges, not opening. Seed one or two, kidney-ſhaped, ruſeſcent.

Native of Italy. Cultivated in 1596, by Gerarde. It flowers from june to auguſt [q].

Desfontaines has another ſpecies, which he names Melilotus ſulcata, and ſays it is allied to this and the third; but differs in having a procumbent ſtem, and legumes ſtriated in a bow not porous as in M. italica, nor acute as in M. meſſanenſis. It is a native of Algiers, in corn-fields.

7. This has the habit of Melilotus italica, with thick leaves, ſcarcely ſerrate, fleſhy, inodorous, obtuſe [r]. Flowers in racemes, nodding. Legumes membranaceous, flat, ovate-orbicular, pendulous, containing one or two ſeeds [s]: netted with tranſverſe parallel capillary veſſels, pale ſtraw-coloured, ſubmarginate, not opening. Seed kidney-ſhaped, covered with very minute raiſed dots, flatted a little, ferruginous. When there are two ſeeds, they are placed tranſverſely [t].

Native of Candia and Algiers.—Cultivated here in 1713, and flowering from june to auguſt [u].

8. The fibrous root is furniſhed with ſmall fleſhy knobs, as in Vicia lathyroides and ſome others of this claſs, apparently to reſiſt accidental drought during ſummer. Stems from two to five inches long, forming a circle round the root, and lying cloſe to the ground, ſmooth and moſtly unbranched. Leaves on long ſlender foot-ſtalks, with each a pair of lanceolate, pointed, united ſtipules, large in proportion to the plant. Leaflets ſeſſile, moſtly obcordate, ſmooth, ribbed, more or leſs acutely and diſtantly ſerrate. Peduncles axillary, much ſhorter than the leaf-ſtalks, bearing uſually two, but ſometimes one, three or even four ſlender pale-red flowers, growing parallel to each other. Calyx more than half as long as the corolla, pale veined with deeper green, divided half way down into five nearly equal ſetaceous ſegments. Petals with long claws. Pods oblong, tranſverſely rugged, almoſt twice as long as the calyx, thick, blunt but terminating in a ſhort point turned downwards, which gives them ſomething the appearance of a bird's claw, whence the trivial name. They contain about eight ſeeds [x].

Linnæus remarks that this plant is an intermediate ſpecies between the Trifoliums and the Trigonellas.

Native of Denmark, France and Britain, on dry gravelly heaths and paſtures, among ſhort graſs, flowering in june and july. Thomas Williſel found it among corn, half a mile from Tadcaſter toward Sherborn; alſo near Oxford in the like grounds. Mr. Newton in company with Mr. Ray found it on the ſandy banks by the ſea-ſide at Toleſbury in Eſſex [illegible] Mr. Doody in Tuthill-fields, Weſtminſter [y]. Mr. Curtis found it there, and on Blackheath. Mr. Pitchford on Mouſhold-heath, near Norwich. Mr. Hudſon about Marazion and Penzance in Cornwall. At Maitland-bridge between Muſſelburgh and Edinburgh. But probably the ſmall ſize and proſtrate poſition of this Trefoil, may have cauſed it to be thought more rare than it really is. It is annual, as are all the preceding ſpecies.

9. Root perennial. Stems ſeveral, from a foot to eighteen inches in height, round, with ſeveral (ſeven or eight) joints, green or purpliſh; at each joint is a ſheath terminating in a digitate leaf, the number of leaflets varying from three to ſix or ſeven, but the extreme numbers are rare, and five is the moſt common: the leaves have more reſemblance to thoſe of a Lupin than of a Trefoil, and hence the names of *Lupinaſter* and Baſtard Lupin. The leaflets are lanceolate, finely ſerrate, and unequal in ſize. There are uſually ſeveral heads at the end of the ſtem, of a roundiſh form, with the flowers pretty thickly ſet: the three lower teeth of the calyx are nearly the length of the keel, the two upper ones are ſhorter: the banner of the corolla is oblong, near half an inch in length,

[g] Desfontaines. [h] Ray hiſt. [i] Mor. hiſt. [k] Linn. ſpec. [l] Hort. kew. [m] Woodw. Mſs. Fl. ruſt. Smith brit. [n] Fl. ruſt. Withering. [o] Linn. ſpec.

[p] Desfontaines. [q] Hort. kew. [r] Linn. ſpec. [s] Desfontaines. [t] Gærtner. [u] Hort. kew. [x] Woodw. Mſs. and Engl. bot. [y] Ray ſyn.

length, and purple; the wings are broadiſh, and pale purple; the keel is pale, and of the ſame length with the wings. The pod is longer than the calyx, pale brown, and contains four or five ſeeds. The circumſtance of having more than three leaflets, uſually five, is ſufficient to diſtinguiſh this ſpecies [a].

Native of Siberia. Cultivated in 1763 by Mr. James Gordon. It flowers in july and auguſt [a]. Thunberg found it in Japan, but in a ſtate of cultivation.

Desfontaines has a ſpecies, which he names *Levigatum*, and figures in *t.* 208. It is the ſame which Poiret has given, *vol.* 2. *p.* 219. This has the habit of *T. lupinaſter*, but differs in having concave ſtipules toothed at the end and ſolitary, the head of flowers peduncled, and the corollas, which are pale yellow, ſhorter than the calyx. The leaflets, which are three only, are lanceolate and ſerrate. He found it in meadows near La Calle in Barbary.

10. Leaves ſoft. Seeds two or three [b].—Native of Virginia.

11. Root annual. Stem branched at bottom, patulous, even. Leaves on long petioles; leaflets ſmooth, ſtriated, the lower obovate, the upper elliptic, finally lanceolate. Stipules very wide, rhombed with an awl-ſhaped point. Peduncles grooved, axillary, ſhorter than the petiole. Spikes with an oblong or ſubglobular rachis. Calyx naked, with awl-ſhaped teeth; the two upper ones longer than the corolla, after flowering bent back with the teeth ſpreading. Corolla very ſmall. Between the flowers linear acuminate bractes, ſcarcely the length of the corolla [c].—Native of Italy and Spain, in paſtures.

12. Root perennial. Stem branched, grooved, a foot high, aſcending, not creeping. Stipules lanceolate acute, ending in a hair. Leaflets ovate-acute, ſerrate-toothletted. Peduncles not very long, but yet jointed, as in the ſpecies next following. Receptacle ovate, concave. Chaffs lanceolate, linear, very acute. Corollas gaping [d].

Desfontaines deſcribes a plant under this name, but he doubts whether it be the *hybridum* of Linneus, the pod having only two ſeeds or thereabouts. The corolla is of a pale roſe-colour; whereas in the true *hybridum* it is white turning brown, as in repens. Retzius however ſays it is always tinged with red. This author ſuſpects that Vaillant's plant is a different ſpecies; that being annual, and much taller, with white flowers.

Native of ſeveral parts of Europe. Linneus thinks it was at firſt produced, by the pollen of Tr. pratenſe impregnating the germ of Tr. repens.

The *hybridum* of Hudſon is only a more branching and upright variety of the *repens*, and quite diſtinct from the *hybridum* of Linneus [e].

13. Root perennial, fibrous. Stems numerous, proſtrate, creeping, extending wide, branched at the baſe, leafy, ſmooth. Leaves on long petioles. Leaflets nearly ſeſſile, ovate or obcordate, toothletted, ſmooth, moſt commonly having a brown and white arch or creſcent in the middle. Stipules lanceolate-ovate, in pairs, lengthened out into an awn, veined with purple. Petioles and peduncles very long, aſcending or upright. Flowers many, as far as ſixty, in a cloſe head, very large in the cultivated plant, and of a round ſhape: each flower is on a ſhort pedicel, and has a ſmall awl-ſhaped bracte. Calyx ſmooth, and generally reddiſh, marked with ten ſtreaks; the teeth nearly equal, only the two upper ones rather longer than the others. Corolla white or tinged with purple, permanent. The flowers ſtand upright till they are withering, and then they hang down. Legumes oblong, round, ſmooth, covered with the corolla, containing from two to four (commonly three or four) ſeeds.

White Clover is common in paſtures through the greater part of Europe; flowering from the end of may to ſeptember. There are many varieties, depending on richneſs or poverty of ſoil. Haller has noticed no leſs than eleven. Mr. Curtis has obſerved two more remarkable: one with leaves of a deep purple colour, cultivated in gardens as an ornamental plant; the other proliferous, or having ſmall heads of leaves growing out of the flowers. In a fertile moiſt ſoil, as Dr. Smith remarks, it has a more upright branching ſtem, but it is ſtill ſufficiently diſtinct from T. hybridum.

On all our good lands it ſeems to come ſpontaneouſly; but however this may be, the growth of it is much encouraged by ſpreading of aſhes or other manure. It does not come early, neither is it of a tall growth; but it forms an excellent bottom in paſtures, and produces great abundance of ſucculent ſtalks and leaves, affording late feed in dry ſummers, when graſſes are moſtly burnt up. Mr. Curtis affirms that a ſingle ſeedling, in his garden, covered more than a yard ſquare of ground, in one ſummer.

It does not ſeem to be aſcertained when this White Trefoil came firſt into cultivation here, but it ſeems to be of late date: for it is not mentioned by Gerarde, Parkinſon, or Ray, as an agricultural plant in this country, nor by any of the writers on huſbandry of the 17th century, as far as we have been able to diſcover.

Gerarde however ſays, that there is a Trefoil of this kind, which is ſown in fields of the Low Countries in Italy, &c. that cometh up ranker and higher than that which groweth in meadows, and is an excellent food for cattle, both to fatten them, and cauſe them to give great ſtore of milk. *Herball, p.* 1018. *edit.* 1597 [f].

14. Native of America.

15. Root very large. Leaflets hard, bright green, entire, ſmooth. Flowers on a ſcape or naked ſtem two or three inches in length, purple or bright red. Segments of the calyx very long, the upper ones wider, the loweſt capillary. Banner very long, ſtriated, fleſh-coloured with purple lines, keel very ſhort, wings longer. Legume ſhort, turgid, containing two ſeeds. Native of the Alps, Pyrenees, Monte Baldo, &c. [g] Introduced in 1775, by Drs. Pitcairn and Fothergill. It flowers from june to auguſt [h].

It is called *Reglisſe des Alpes*, from the taſte of the root, and becauſe it is uſed inſtead of Liquorice in the Alps [i].

16. Root annual, fibrous, furniſhed with knobs. Stems proſtrate, about three inches in length, or longer, ſpreading cloſe to the ground, almoſt concealed by the broad ſheathing ſtipules of the numerous leaves. Leaflets obcordate, hairy on both ſides, entire. Peduncles bearing three or four flowers, at firſt erect, but before the fruit ripens they are bent to the ground, producing from their extremities, little white thick fibres, ſtar-like at their tips, which become recurved and rigid, enveloping the fruit: theſe look ſo like roots, that till Mr. Curtis explained their economy, they were miſtaken for ſuch, and Dillenius, aware that the plant being an annual, did not propagate itſelf by theſe ſuppoſed roots, conjectured they might draw moiſture to nouriſh the ſeed. The long ſlender milk-white petals render this ſpecies conſpicuous, though when firſt ſeen, they are ſeldom taken for the flowers of a Trefoil. The calyx-teeth are long and hairy. Pod thin, covered by its calyx, containing one dark-brown ſeed [k].

Native of France, Italy, Spain, and England, in expoſed gravelly ſituations, and particularly in heaths, as Blackheath, Hyde Park, Greenwich Park, &c. where its flowers are viſible among the ſhort graſs in may, and through the ſummer to auguſt. Gamlingay by the windmills, and near White-wood, Cambridgeſhire. Between Eltham and Deptford, Kent. Bath-hills, near Bungay, Suffolk. Mangotsfield-common near Bath. Salt-marſh at Lymington. Shotover-hill, by the road to Cuddeſdon, Oxfordſhire. Ampthill and Clophill, Bedfordſhire.

17. Root annual. Stems filiform, a foot long, decumbent. Heads lateral, globular, villoſe, peduncled.

[a] Fl. ruſſ. [b] Hort. kew. [c] Linn. ſyſt. [d] Linn. ſpec. [e] Linn. ſuec. [f] Smith brit.

[g] Fl. ruſſ. Smith brit. Curt. lond. [h] Hort kew. [i] Villars. [k] Haller and Villars. [l] Engl. bot.

The lower florets only corolled and fertile; the reſt mutilated and drying away into a woolly ſubſtance, fill the head, bend back to the ſides and conceal the fertile calyxes [1].

Loureiro deſcribes the ſtem as annual, a foot and half long, nearly upright, branched; the leaflets oblong; the flowers pale, axillary and terminating, in a globular head, ſurrounded with many white villoſe hairs, the upper ones without petals and barren. Legumes ovate, one-ſeeded.

Native of Arabia, Syria and China.

Loureiro has another ſpecies, which he names Trifolium cuſpidatum. It has a perennial, ſuffruticoſe ſtem, four feet high, hirſute, erect, with aſcending branches: leaflets linear, quite entire, with a ſharp cuſp having a rounded tip growing to them; flowers lateral on ſubcapitate peduncles, few together; calyxes hairy; banner of the corolla ovate, white with a purple ſpot: legume naked, one-ſeeded.

Native of Cochinchina.

He has alſo a third ſpecies, which he names Tr. volubile, which has an herbaceous, ſlender, round, long, procumbent ſtem, frequently becoming twining: the leaflets roundiſh, quite entire, tomentoſe: flowers yellow, in axillary many-flowered heads: legumes oblong, acute, naked, ſmooth, two-ſeeded. Native of the eaſtern coaſt of Africa.

18. This is allied to the next, but the whole calyxes are hairy. Stemlets tomentoſe. Bractes three, very large, cordate, coloured at the edges. Stipules the ſize of the leaves [m]. Annual.

Stems many, villoſe, procumbent. Leaves the ſize of T. agrarium, villoſe, obcordate. Stipules membranaceous, ovate, acuminate, ſheathing. Flowers in terminating, ſeſſile, ſolitary heads. Involucres three to five-leaved, large, concave, orbicular, coloured at the edge, embracing the hemiſpherical head, one three-leaved. Flowers denſe, heaped. Calyx-teeth ſetaceous, equal, very villoſe. Corolla ſmall, ſhorter than the calyx [n].

Native of France, Italy, and the hills about Algiers. —Introduced in 1768, by Monſ. Richard. It flowers in may and june [o].

19. Plant annual. Stems diffuſed. Lower leaves petioled, upper ſubſeſſile: leaflets obtuſe, indiſtinctly ſerrulate. Stipules linear-ſubulate. Heads terminating, ovate-rounded. Calyxes after flowering elongated. The calyx-teeth have a few ſtiff hairs at the end, which render the head hiſpid [p].

Leaves cordate, nerved, ciliate at the edge. Spikes terminating, ovate, hiſpid [q].

Native of France, Spain and Italy.

20. This is a large elegant Trefoil. Stalks one or more, ſimple, upright, ſtrong, round except that they are a little flatted towards the top, coloured, from a foot to near two feet in length. Leaves oblong, elliptic, or lanceolate, three or four inches in length, not unlike thoſe of Trifolium alpeſtre, naked or void of hairs on both ſides, finely ſerrate round the edge by means of the veins running out into ſmall curved points directed towards the top, ſhorter and longer alternately. The ſtipules with their ſheaths are very large, in a manner covering the ſtalk, and are not hairy: *the former are ſometimes obſcurely ſerrulate*; and the latter, eſpecially the upper ones, are much inflated. There is uſually only one ſpike of flowers to a ſtalk, but in gardens there are ſometimes two. The ſpike is at firſt ſeſſile, and concealed within the floral ſheaths, with a leaf on each ſide of it; but as it advances becomes peduncled: it is of an oblong oval or cylindric form, blunt at the top, two or three inches in length, upright, and the flowers are very cloſe ſet; with leaflets or bractes between them. Calyx in reality ſmooth, but the teeth having long white hairs on them, which ſpread very much, *the whole has the appearance of being hairy: the four upper* teeth are very ſhort, but the fifth tooth is as long as the whole corolla, and at leaſt three times as long as the other teeth. Corolla one-petalled, of a dark red purple: tube long; banner ovate and ſharp; wings blunt iſh, ſpreading or rolled back, of the ſame length with the banner, but of a paler colour; keel ſhorter, and of a darker purple [r]. Legume roundiſh, flat, one-ſeeded [s].

Native of the South of Europe, and about Algiers in Africa. As far as we know, it has not been cultivated for cattle: it ſeems to be of a good quality, and to be ſufficiently productive. Linneus marks this Trefoil as annual, but there is no doubt of its being perennial.

Jacquin's figure is drawn from a tall plant, and thus bears ſome reſemblance to *Tr. alpeſtre*. The ſpike varies much in length, from one inch to four inches: hence Caſpar Bauhin's two ſpecies—*ſpica oblonga rubra* and *longiſſima rubente* [t].

This is a larger plant than the *alpeſtre*, the leaves are free from hairs on both ſides, and the edges are finely ſerrated, as in *Tr. montanum*; both ſheaths and ſtipules are much larger, and not hairy, the former ſwelling, the latter ſerrulate; ſpikes at firſt ſeſſile, but afterwards peduncled; calyx ſmooth, the teeth only hairy or ciliate, and the loweſt tooth as long as the whole flower [u].

I have ſeen this, ſays Johnſon, (1633) in the gardens of ſome of our florifts. It flowers in may and june [x].

21. Root perennial, ſtriking almoſt right down, and ſcarcely creeping, branching, granulated, aſh-coloured. Stems aſcending, a foot high and more, below flatted a little on one ſide (when dried three-cornered) otherwiſe round, above ſtriated and ſomewhat villoſe, uſually ſomewhat branched, branches ſpreading, without any axillary tumour; green or tinged with browniſh red. Stipules wide-ovate, connate, pale, ending in a ſhort capillary awn hairy eſpecially towards the tip, having purple nerves branching towards the edge and anaſtomoſing, ſheaths very wide, embracing, bowed on each ſide at the edge, ſmooth or ſometimes a little hairy. Petioles unequal, moſtly very long, many times longer than the ſtipules, ſpreading. Leaflets unequal, ovate or oval, obtuſe, thoſe of the lower leaves much ſmaller, almoſt orbicular, retuſe, all with depreſſed veins on the upper ſurface, and with raiſed ones on the lower, for the moſt part marked on the upper ſurface with a central pale ſubſagittate ſpot; they are ſubciliate, and moſtly quite entire, but ſometimes ſlightly and acutely crenulate. Spikes of flowers terminating, ovate, obtuſe, ſolitary, (very ſeldom two,) ſometimes peduncled, but commonly ſeſſile between two oppoſite erect floral leaves. Flowers many in a ſpike, cloſely imbricate, erect, having a peculiar ſmell. Calyx ſilky, hairy, pale, ſometimes tinged with purple, with ten ſtreaks dark green or red, ſeldom brown: teeth awl-ſhaped, green, often more or leſs tinged with red; *the four* upper ones equal, the length of the tube of the calyx, the loweſt a little longer, (twice as long *Sm.*) yet ſhorter than the tube of the corolla, erect when the ſeed is ripe, whereas the others ſpread very much. Corolla purple, one-petalled: banner longer than the wings, truncate and often emarginate, with ſtreaks of deeper purple; wings paler, longer than the keel. Legume one-ſeeded [y].

On comparing carefully the purple Clover as cultivated, with our perennial Trefoil as it grows in our dry paſtures, I found that the ſtalks were much ſmaller, ſtiffer, and more pubeſcent in the latter, and that they were not grooved; the leaf-ſtalks were very long and pubeſcent; the leaflets ſmaller and much more pubeſcent, even the upper ſurface as much ſo as the lower ſurface of the other, with white hairs cloſely preſſed to the ſurface; the ſheaths narrower, not pubeſcent, but ending in much longer points, which are ſet with long white hairs ſtanding out; ſpikes or heads of flowers more lengthened out than in the cultivated plant, having fewer flowers, and varying in colour from the paleſt to full purple; on each ſide of the ſpike was a leaf as in the other, but ſmaller, extremely pubeſcent, and not always ſeſſile,

[1] Linn. ſpec. [m] Gouan. Linn. mant. [n] Deſfontaines. [o] Hort. kew. [p] Ger. prov. [q] Aſſo. [r] Fl. ruſt. [s] Aſſo. [t] Fl. ruſt. [u] Afzelius. [x] Ger. emac. [y] Afzelius and Smith brit.

the

the involucral ſheath from which theſe floral leaves riſe was very hairy about the edge; the ſpike was more villoſe, and when young extremely ſo; tube of the calyx greeniſh white with purple lines, ending in five long purpliſh ſegments, having many white hairs ſtanding out, and diſpoſed as in the cultivated Clover, but the firſt and ſecond pair more different in their lengths; tube of the corolla white or pale purple; wings much longer than the keel, but much ſhorter than the banner, which is marked with lines of a deeper purple; the keel purple, but the wings uſually white, at leaſt in the middle within[a].

This was erroneouſly ſet down in Flora ruſtica, for the Trifolium medium of Hudſon's firſt edition, and alpeſtre of the ſecond edition, of the Flora anglica; but I can vouch for the accuracy both of the deſcription and figure given in Flora ruſtica. Moſt of the differences between this wild and the cultivated Clover, may be accounted for from ſoil and culture; and the varieties even of the wild Trifolium pratenſe are numerous. It is common in paſtures all over Europe, and is found in Siberia, Barbary and North America; ſo that it is indigenous of the four continents. It flouriſhes moſt in fertile moiſtiſh ſoils, and open ſituations, but does not reject drier, and even barren ſoil, and ſhady places: flowering from may to ſeptember.

Trifolium pratenſe is very diſtinct from the next ſpecies, with which it has been confounded. The root is much ſmaller; the ſtems are not flexuoſe, in the wild plant they are lower, more procumbent, often ſolitary, leſs branched, and not unfrequently quite ſimple; the ſtipules are ſmall and differently ſhaped; the ſheaths much larger, not ciliate, and commonly veined with red or brown; there are always two floral leaves; the leaflets are ſhorter, for the moſt part ovate, blunter, commonly ſpotted with white, and more indiſtinctly veined, the veins on the upper ſurface in the living plant depreſſed, but in the dried one raiſed; the ſpike is ſmaller, much leſs frequently peduncled or double, and not flatted at the top; the calyx never quite ſmooth; the corolla ſmaller, much more unequal, for the moſt part of a paler purple, or at leaſt with the wings not deeper coloured at the end, as in Trifolium medium; the banner alſo is narrower, and it flowers earlier.

β The cultivated purple Trefoil, commonly known by the name of Broad Clover, is much larger and ſmoother than the wild plant, and has more ſtems, the leaflets are ſharper, the ſpike is moſtly peduncled, and not ſo unfrequently double, the calyx is for the moſt part more villoſe, with the lower tooth longer in proportion, the banner and wings of the corolla are more diverging, the ſtyle is frequently ſhorter, and the legume two-ſeeded. In this ſtate, the ſtems being diffuſed and having a tendency to bend, it looks ſo like *Trifolium medium* at a diſtance, that it might eaſily be taken for it, but on a nearer inſpection it may be eaſily diſtinguiſhed by the ſtipules, and particularly by the calyx-teeth, which are very different[b].

Mr. Woodward and Dr. Stokes are of opinion that this differs from the wild plant in nothing but ſize. Mr. Swayne on the contrary thinks it ſpecifically different, the heads of that being globular, of this oval. It ſeldom remains in the ground more than two years[c].]

Mr. Miller alſo aſſerts, that he has often ſown the ſeeds of the cultivated red Clover, and the wild red meadow Trefoil in the ſame bed, and that they conſtantly produced the two ſpecies without varying. He obſerves, that the ſtalks of the Meadow Trefoil are weak and hairy, the ſtipules, which embrace the foot-ſtalks of the leaves are narrow and very hairy; the heads of flowers are rounder and not ſo hairy as thoſe of the red Clover, the ſtalks of which are ſtrong, almoſt ſmooth, furrowed, and riſe twice the height of the other; the heads of flowers are large, oval and hairy, the corolla opens much wider, and the tube is ſhorter than that of the wild ſort. Clover has been ſo much cultivated in England for near a hundred years paſt[d], that the ſeeds have been ſcattered over moſt of our paſtures, and this has deceived the botaniſts into an opinion that the Meadow Trefoil is improved into Red Clover by culture.

[In a cultivated plant, raiſed from Dutch ſeed, I found the ſtalk browniſh red in places, grooved, white near the head of flowers with hairs preſſed cloſe to it: leaflets ovate, blotched with white on the upper ſurface, covered with hairs preſſed cloſe to it on the under ſurface, the edge not ſerrate, but ſet with hairs: the ſheaths very broad, membranaceous with ſtrong ribs: the heads of flowers globular, with a ſeſſile leaf on each ſide, riſing from a very broad ſheath, forming involucres to the head, which, when young, appears villoſe: the calyx whitiſh, ending in five long green ſegments, having a few long white hairs on them ſtanding out, the ſecond pair is very little longer than the upper pair, but the loweſt ſingle one is much longer: the tube of the corolla is white; the wings are very little longer than the keel; and the banner is longer than the wings.

Red or Broad Clover has been long under culture in Flanders and other countries on the continent of Europe, and it has at length nearly ſurmounted inveterate prejudice in Britain. Though it was ſtrongly recommended and ſhewn experimentally to be excellent in the ſixteenth century, yet at the cloſe of the ſeventeenth it was aſked, what could be the reaſon why the great advantage got in Staffordſhire and Worceſterſhire by ſowing of Clover, can ſcarce prevail with any in Cheſhire and Lancaſhire to ſow an handful upon the ſame ſort of land[e].

Sir Richard Weſton in 1645 gives an account of its culture in Flanders, and ſays that he ſaw it cutting near Antwerp on the firſt of june 1644, being then two feet long and very thick; that he ſaw it cut again on the 29th of the ſame month, being twenty inches long; and a third time in auguſt, being eighteen inches long; and all this upon heath ground. At the end of the pamphlet, which was publiſhed by Hartlib, is an advertiſement, that if any deſire to have the great Clover of Flanders, they may enquire at Mr. James Long's ſhop at the Barge on Billingſgate. Whence we may conclude, that it was then cultivated in England, at leaſt by ſome curious perſons.

Walter Blith, in 1653, is very copious in his directions for planting Treſoyle or great Claver Graſs, as he calls it; we may preſume therefore that the culture of it had made ſome progreſs at that time.

Theſe are the firſt notices that I find of the culture of Red Clover in this country.

Gerarde, in 1597, ſays there is a Trefoil, which is ſown in fields of the Low Countries, in Italy, and divers other places beyond the ſeas, that cometh up ranker and higher than that which groweth in meadows, and is an excellent food for cattle, both to fatten them, and cauſe them to give great ſtore of milk. But he gives no hint of its being then introduced into England. Nor does his editor, Johnſon in 1633, or Parkinſon in 1640. Worlidge, in 1681, has very little but what he copies from Sir Richard Weſton, Hartlib and Blith. Ray, in 1686, diſtinguiſhes accurately the greater purple Meadow Trefoil from the common; and ſays that it is ſown in fields, "pro boum & jumentorum pabulo," under the name of Common Clover-graſs. Laſtly, at the beginning of the eighteenth century, Mr. Liſle ſpeaks of it as then commonly cultivated in Hampſhire, Wiltſhire, Glouceſterſhire, Leiceſterſhire, &c.

Beſides the principal uſe to which Clover is applied, for feeding cattle, it may be mentioned that the heads are uſed in Sweden to dye woollen green. With alum they give a light, and with copperas a dark green[f]. The ſeeds alſo yield a dye.

γ. Common Purple Trefoil varies ſometimes with a white flower. And Mr. Swayne found a ſingle plant with yellowiſh-white or cream-coloured flowers,

[a] Fl. ruſt. 2.
[b] Afzelius in Linn. tranſ. 1. 245. Withering.
[c] This was ſaid in 1759.
[d] Houghton's Collections, vol. 4. p. 53. Fl. ruſt. 3.
[e] Linn. ſuec. and Withering.
[f] Fl. ruſt. 3.

like

like that of the *ochroleucum*, but reſembling the *pratenſe* in every thing elſe [f].

β. This is commonly ſuppoſed, by Engliſh botaniſts, to be a variety of the *pratenſe*, on account of its having a ſimilar, though ſtarved appearance; the ſtipules being in like manner awned, and the teeth of the calyx nearly equal. But it differs in other reſpects very materially; having the leaves oppoſite, the leaflets ſmall, ſhort and obcordate, the peduncle very long, and deſtitute of floral leaves. Haller places it as a variety of his n. 378, which is the *ochroleucum* [g]. It was obſerved by Mr. Rand between Peckham and Camberwell.

Other varieties have been frequently obtruded upon the public, under the names of Cow-graſs and Marl-graſs.

Mr. Liſle, in his Obſervations on Huſbandry (p. 250.) ſays: "the broad-clover graſs, which of late "years (1707) had obtained ſome credit as a longer-"living graſs than the common broad-clover, and is "ſown under the name of Cow-graſs, I find to be "the common purple Trefoil, or honeyſuckle Tre-"foil, as deſcribed by Mr. Ray (hiſt. 944.) diſtin-"guiſhed from the great purple meadow Trefoil, "which has always hitherto been ſowed by the far-"mers, and I doubt not but always will; for by ex-"perience I find the other not to yield half the bur-"den, nor indeed in poor ground to be a longer liver "than the common ſort."

The Cow-graſs however has again been much ſpoken of. The late Mr. Curtis had ſome plants ſent him out of Hampſhire, Mr. Liſle's country, and from one of theſe it was exactly figured in the Flora Ruſtica, *t.* 36. They appeared to be large, ſucculent, coarſe and very hairy; on comparing them with ſpecimens of the wild broad Clover, which Mr. Curtis had collected from different parts of Batterſea-field, the chief diſtinctions ſeemed to be, that in the latter the heads of flowers were ſmaller, the ſtalks green and without hairs till they approached the heads, and that the flowers opened earlier. Thoſe who cultivate the Cow-graſs will judge from the figure given in Flora Ruſtica, whether theirs be the ſame plant, or whether different varieties may not be cultivated under the ſame name [h].

Marle-graſs has by ſome been ſuppoſed to be a variety of *Tr. medium*, but Mr. Swayne aſſures us that it is the native *Tr. pratenſe* [i]. It has the name from being the production of marl land, which would induce one to think that it is rather a variety of the next ſpecies than of this. It was firſt noticed and collected fifty or ſixty years ago by Mr. James, who lived on a farm belonging to the Marquis of Bath, in the pariſh of Chilcompton. By his aſſiduity in preſerving and propagating the ſeed, in the courſe of a few years it became common, and has been conſidered as a valuable ſubſtitute for red or broad Clover, to which it bears rather a ſtriking analogy, with this difference, that it will continue much longer in the land [k]. Dr. Stokes relates, on the information of a farmer, that cattle are not fond of it, till it is touched by the froſt: but that is on ſuppoſition that the Marle-graſs is *Tr. medium* [l].

22. Root perennial, deſcending, creeping, browniſh aſh-coloured. Stems ſomewhat inclining to be ſhrubby, at bottom oblique and ſubtrigonal (exactly three-cornered when dry), above nearly upright, round, flexuoſe from joint to joint, branched, branches ſpringing from a calloſe axillary tumour, deep green tinged here and there with red. Stipules long awl-ſhaped, from three to five-nerved, ſmooth, ciliate, diverging from the ſtem but converging one to another, ſheathing; ſheaths narrowed, ſomewhat embracing, ſtraight at the edge on each ſide, at firſt villoſe, but afterwards ſmooth and ciliate. Petioles unequal, the lower much longer than the ſtipules, the upper commonly ſhorter, all ſomewhat diverging. Leaflets unequal, at the beginning and below ovate, next and in the middle oblong, finally and above almoſt lanceolate and often ſomewhat attenuated, in the lower leaves much ſmaller very obtuſe and ſometimes retuſe, in the reſt larger and more acute, all more obſcurely veined on the upper ſurface, more evidently on the lower, frequently marked above with two pale longitudinal creſcents contiguous at the tips, towards the edges ſomewhat ſtriated with concurrent veins, furniſhed at the edge with many longiſh oppreſſed villoſe hairs; they are ſcarcely rugged to the touch, to the naked eye they appear quite entire, but are very finely toothletted when examined by a magnifier, eſpecially the upper leaves. The ſpike at firſt is ſpheroidal, but afterwards globular or oval; ſometimes there are two ſpikes, and then one flowers later than the other: one or both are ſeſſile or peduncled; in the latter caſe the peduncles are unequal, and there are either one or two floral leaves, which for the moſt part hang down. The flowers are diverging and looſely imbricate. Calyx compreſſed a little, ſmooth or very ſeldom hairy, pale and often here and there tinged with purple, eſpecially at the top of the ſpike; with dark green and ſometimes purple ſtreaks; teeth green and moſtly red in ſome parts, the two upper ones equal and ſhorter than the tube of the calyx, the two lower ones alſo equal but longer than the upper ones, and equal to or a little longer than the tube of the calyx, the loweſt as long as the tube of the corolla, and much longer than the next teeth, but not twice as long. Corolla odorous: banner ſcarcely longer than the wings, with a ſhort point, and ſtreaks of a deeper purple, wings paler a little longer than the keel.

This differs from *Tr. alpeſtre* in being larger in moſt of its parts, and of a darker colour, the root more woody, and more firmly fixed in the ground, the ſtems diffuſed and ſcarcely ever ſolitary, the ſtipules wider, as are alſo the ſheaths, which have more frequent veins and more commonly purple, the petioles ſomewhat hairy and not villoſe, commonly one floral leaf only, the leaflets much wider and moſt of them oblong, glaucous underneath and furniſhed with a ſmaller nerve, more indiſtinctly ſtriated towards the edges, the ſpike till it wholly flowered flatted at top, and ſmaller than that of the cultivated plant, the ſtreaks of the calyx more raiſed and remote, the teeth leſs hairy and the loweſt tooth ſhorter in proportion, the corolla of a paler purple, eſpecially in the wings, in ſize and ſhape very like thoſe in Tr. rubens [m].

It differs from *T. pratenſe* or common Clover in its lax heads of flowers, longer and narrower ſtipules, and more unequal calyx: from both by its remarkably flexuoſe or zigzag ſtem [n].

The figure in Flora Ruſtica, though it differs from that in Engliſh Botany, is a repreſentation no leſs exact than elegant of a ſpecimen gathered in a dry elevated paſture in a clayey ſoil among buſhes; it is found alſo in chalk and in gravel with a clay bottom; in many parts of Europe, in Great Britain, Sweden, Denmark, Auſtria, Carniolia, Piedmont, Holland, Switzerland, and many parts of Germany. It flowers here in july, later than the common Clover.

In a good looſe ſoil it is ſaid to grow more ſlender, and the ſpikes to become ſmaller: but it might perhaps be worth cultivating on ſtubborn hungry clay, like its natural ſoil.

23. Root perennial deſcending obliquely, creeping, brown. Stems ſtiff and ſtraight, quite ſimple, round, pale green. Stipules long, briſtle-ſhaped, one-nerved, villoſe, approaching to the ſtem but diverging one from the other, ſheathing; ſheaths narrowed, half embracing, ſtraight at the edge on both ſides, at firſt villoſe and ciliate, afterwards ſmooth and ſcarcely ciliate except in the ſinuſes between the ſtipules and the petiole. Petioles almoſt equal, very ſhort, the length of the ſtipules, erect. Leaflets almoſt equal, and of the ſame form, which is linear-lanceolate, ſharpiſh and terminated by a little bundle of hairs, more apparently veined on the upper, more obſcurely on the

[f] Withering. [g] Afzelius. [h] Flora Ruſtica. [i] Withering.
[k] Billingſley's View of the Agriculture of Somerſetſhire, p. 136. [l] Withering. [m] Afzelius. [n] Engl. bot.

lower ſurface, ſtriated as it were towards the edges with more frequent and larger concurrent veins, rugged to the touch at the margin, where they are ſo finely toothed that the teeth are hardly viſible without a glaſs, a few ſhort hairs are ſcattered round. Spike oval, either ſolitary and ſeſſile hanging down within the floral leaf, or elſe, as more frequently happens, two together, and then the ſecond on a ſhort peduncle iſſues from its own leaf, flowers later, and depreſſes the firſt. Flowers erect, cloſely imbricate. Calyx very villoſe, pale yellow with ſtreaks a little darker: teeth pale green, the two upper equal and ſhorter than the tube of the calyx, the two lower alſo equal but a little longer than the two upper ones, and for the moſt part equalling the tube of the calyx, the loweſt as long as the tube of the corolla, twice as long as the next teeth and ſometimes longer. Corolla inodorous, the whole dark purple: wings ſcarcely ſhorter than the banner, but a little longer than the keel.

It agrees in ſtature and habit moſt with the *rubens*, *montanum* and *pannonicum*. But the firſt has the ſheaths inflated and the ſtipules ſubſerrate and much bigger; the leaflets ſpinuloſe, the veins running out into little hooks, turned towards the tip of the leaflet, alternately ſmaller; ſpikes long and peduncled; calyx ſmooth, with the four upper teeth dilated at the baſe and very ſhort, the lower pair a very little longer than the upper, the loweſt filiform, the length of the whole corolla, and at leaſt three times as long as the next.

Tr. montanum has the ſtems angular-ſtreaked and many-flowered; leaflets the ſame as in the *rubens*; ſpikes peduncled; calyx ſmoothiſh, with the four upper teeth equal, and the loweſt a little longer; corollas four-petalled and white, with an awl-ſhaped banner.

Tr. pannonicum has the ſtems ſomewhat angular, and often branched; ſtipules awl-ſhaped and ciliate; leaflets villoſe on both ſides, obſcurely veined; ſpikes larger, peduncled; the four upper teeth of the calyx almoſt equal, or the two lower a little longer; corollas whitiſh.—*Tr. ochroleucum*, which reſembles *pannonicum* very much, differs, among others, in the ſame circumſtances [a].

Cluſius is the firſt who mentions the *Trifolium alpeſtre*, in his hiſtory of Hungarian and Auſtrian plants. But we are indebted to profeſſor Jacquin for a juſt idea of it from his figures and deſcriptions. Mr. Afzelius has extricated the confuſion of ſynonyms, in his elaborate treatiſe on this ſpecies, *Tr. medium* and *pratenſe* [b].

Tr. alpeſtre is not a native of Britain, but is found in dry mountainous woody places, in Hungary, Auſtria, Bohemia, Moravia, Styria and Piedmont [c].

It is not cultivated, nor can it be recommended for that purpoſe, ſince it affords few leaves, and does not branch.

24. Root perennial, woody, brown. Leaflets oval-oblong, narrow, quite entire, pointed or blunt emarginate, on a petiole ſpringing from a ventricoſe, ſtriated, embracing ſtipule. Spike elegant, terminating, cloſe, ovate-oblong, compoſed of numerous flowers: tube of the calyx ten-ſtreaked, yelloviſh except the teeth which are green, theſe are awl-ſhaped, and the loweſt is much longer than the reſt: corolla whitiſh, monopetalous; banner oblong, flat, upright, much longer than the wings, which are ſpreading, and the keel. Spike peduncled. Stem, calyx and leaves covered with a white cloſe ſoft ſhining down of villoſe hairs. In habit it agrees with the *rubens*, from which it differs in being ſo extremely villoſe, in having no leaves ſeſſile in the ſtipule, and in the leaflets being quite entire. It is eaſily diſtinguiſhed from the *montanum* by the form of the flowers and ſpike [d]. For the difference between this and the *alpeſtre* ſee that ſpecies.

Native of Lower Hungary, in the neighbourhood of Schemnitz, in moiſt meadows; flowering in july and auguſt.—Introduced in 1775, by Joſeph Nicholas de Jacquin, M. D.[e]

25. Root annual. Habit of *Tr. pratenſe*. Uppermoſt leaves oppoſite, ſomewhat hairy, lanceolate or oval, emarginate. Spikes terminating, ovate. Calyxes not very villoſe, five-toothed; teeth naked, briſtle-ſhaped, four erect, the fifth three times as long as the reſt and bent back, whence the ſpike becomes ſquarroſe and hooked. It varies with oval and lanceolate leaves [f].

Native of Spain. Introduced in 1778, by Monſ. Thouin. It flowers here in july [g].

26. Stem from a foot to eighteen inches in height, erect, villoſe. Stipules membranaceous, ſtriated. Leaflets roundiſh, villoſe, frequently emarginate or retuſe, from the baſe to the middle entire, and thence to the end finely notched. Spike ovate-oblong, ſoft and ſilky: when the ſeeds are ripe bent in on one ſide. Calyx villoſe, ſhorter than the corolla; teeth awl-ſhaped, nearly equal, feathered. Corolla a little longer than the calyx, red, with a long, narrow, obtuſe banner. Ray ſays that he obſerved it about Naples with beautiful red flowers almoſt ſcarlet, but that about Geneva they were of a pale fleſh-colour. According to Desfontaines they are roſe-coloured, varying to a pale red. Mr. Curtis deſcribes them of a bright crimſon; but obſerves that they are doubtleſs found with different ſhades of colour, and ſometimes wholly white [h]. Legume in the belly of the calyx, ovate, membranaceous, very thin, compreſſed at the top. Seed one, elliptic-kidney-form, yelloviſh [i].

This is an annual Treſoil, and one of the largeſt and moſt ſhowy. It flowers with us in july. Ray ſays that the ſeed is ripe and falls in july and auguſt, in Italy, where it grows naturally. It is alſo a native of the South of France, and of Barbary about Algiers. Haller reports that it has been looked for in vain near Geneva [k].

The *rubens* of Miller cannot be the *rubens* of Linneus. Retzius ſuppoſes it to be a variety of the *incarnatum*; and deſcribes it as having the leaves by no means crenulate, but entire and rather wedge-ſhaped than obcordate (as in Curtis's figure), the corolla monopetalous, of the ſame colour as in *Amaryllis formoſiſſima*; the calyx hiſpid all over, the filaments thickened at top, eſpecially the loweſt, which is alſo longer.

It appears from Parkinſon that Tr. incarnatum was cultivated here in 1640 [l].]

Mr. Miller ſays it will make good food for cattle, but being an annual, will not ſuit with the common practice of farmers.

27. [Root perennial, branching at top ſo as to bear ſeveral ſtems, each of which is upright, ſtiff, from a foot to eighteen inches in height, round, hairy, branched but not much, often tinged with purple. Leaves remote, the uppermoſt or floral ones only oppoſite, with the leaflets linear-oblong, thoſe on the ſtem large, ovate-oblong, on long petioles, the lower ones ſhort and obcordate; all the leaflets ſeſſile, quite entire, hairy on both ſides, ſoft, often purple at the edges. Stipules large, combined, embracing, ſharp-pointed, downy, ribbed with ſimple nerves. Heads of flowers terminating, ſolitary, peduncled, erect, roundiſh or ovate. Calyx ſlender, furrowed, hairy, permanent, whitiſh; teeth briſtle-ſhaped, the loweſt thrice as long as the four others, which are equal, tipped with purple, and ſometimes wholly of that colour. Petals narrow, joined at the baſe: banner very long, lanceolate, ſtraight; wings and keel much ſhorter, equal, of a pale buff or faint ſulphur-colour, by which this ſpecies is known at once from all others of Britiſh growth. Legume membranaceous, thin, tender, one-ſeeded, covered with the calyx.

Native of France, Switzerland, Auſtria, Sileſia, Italy and England, in dry paſtures, thickets and buſhy places in a gravelly or calcareous ſoil. It is common near Cambridge, and in ſome parts of Eſſex, as about Dunmow, and Caſtle Hedingham, in Hert-

[a] Afzelius. in Linn. tranſ. 1. 235.
[b] Idem, ibid. 205.
[c] Idem, p. 235.
[d] Jacquin obſ.
[e] Hort. kew.
[f] Linn. ſpec.
[g] Hort. kew.
[h] Fl. ruſ. Desfont. Linn. ſpec.
[i] Gartner.
[k] Fl. ruſ.
[l] Hort. kew.

fordſhire, Bedfordſhire, about Clapham, near Stamford, about Bungay in Suffolk, Dupper's-hill near Croydon, about Barnet, &c. flowering in june and july.

This Trefoil is harſh, ſtiff and hairy; and not abounding either in ſtalks or leaves, can hardly be ſought for cultivation, when there are ſo many ſpecies ſuperior to it. Mr. Curtis recommends it to the notice of the experimental agriculturiſt, and thinks it may be a good ſubſtitute for the *repens* or *pratenſe*, in certain ſoils and ſituations. I rather agree with the author of Engliſh Botany, that it is in no reſpect worthy of attention as an object of culture. It appears how much this ſpecies is attached to a dry ſoil, from Mr. Curtis's information, that he never could keep it in his garden at Lambeth marſh [k].

Mr. Miller has unaccountably confounded this, with what is commonly ſown under the name of Trefoil or Nonefuch, *Medicago lupulina*.

28. Root annual, woody, hard. Stems numerous, erect, ſtiff, villoſe and ſilky, a foot high, branched or ſometimes ſimple. Leaflets linear or linear-lanceolate, an inch long or three times as long as the peduncle, white and ſilky, acute, ſpringing from a widened membranous petiole, which ends in two long briſtle-ſhaped ſtipules. Spike terminating, oblong, ſhorter than the leaves, denſe with ſmall pale purple flowers, almoſt concealed by the diviſions of the calyx, except the banner which is erect. Calyx villoſe and ſilvery with the loweſt diviſion longer than the reſt [c].

Leers compares it with the *arvenſe*; from which he ſays it differs in having a higher and more upright ſtem, ſomewhat four-cornered, ſmooth not pubeſcent; branches much ſhorter than the ſtem; ſtipules nerved and more acuminate; leaflets narrower, ſmooth on both ſides, ſtriated beneath; heads ſubcylindrical, narrower, longer; calyxes ſtriated, with the teeth purple and naked not feathered, the three lower a little longer than the two upper; corollas ſhorter than the calyx, pale or whitiſh, without the blood-red ſpot in the wings. Receptacle naked not villoſe.

According to Linneus it varies in Paleſtine with corollas double the common ſize, and more deeply coloured; the lower tooth of the calyx longer, and all of them ſtraight, not bent in.

Native of Germany, the South of France, Italy, Spain, Carniolia, Barbary, and the iſland of Madeira. —Cultivated in 1739 by Mr. Miller. It flowers from june to auguſt [d].

29. Root ſmall and annual. The whole plant villoſe. Stem moſtly erect, much branched, round, firm, changing its direction from joint to joint. Leaves on ſhort petioles: leaflets nearly ſeſſile, linear-obovate, the lower ones elliptical, the upper nearly linear, ſomewhat emarginate, and the midrib lengthened into a ſhort point. Stipules lanceolate, often ſtriated with red veins, and tapering into a briſtle-like point. Heads or rather ſpikes cylindrical, blunt, various in length, denſe, conſiſting of numerous pale-reddiſh flowers, the long tapering equal prominent ſtriated very hairy calyx-teeth of which give the whole ſpike a downy appearance. Corolla much ſhorter than theſe teeth, and almoſt concealed by them. Pod very ſmall [e]; membranaceous, ovate, equal to the belly of the calyx. Seed one, elliptic-globular, of a yellowiſh green colour [f].

Native of Europe and Barbary, in barren ſandy paſtures and fields; flowering in july and auguſt.

Far from being worthy of cultivation for fodder, like moſt of the genus, this appears to be altogether a weed, nor are we acquainted with any animals that prefer it as food.

β. In maritime ſituations the herbage ſometimes becomes quite ſilky [g]. Dillenius, who figured it in his edition of Ray's ſynopſis, ſays that the root runs deep, that the ſtems are procumbent, from one to three inches long, that the heads are numerous roundiſh ſoft and ſhining, on very ſhort peduncles, and that the flowers are white or pale fleſh-coloured.

Mr. Woodward remarks, that the leaflets are rather elliptical and blunter than in the common ſort, the ſtipules more villoſe, the flowering heads nearly ſpherical and containing fewer flowers, and the briſtles of the calyx green. Dillenius's figure has the flowering heads too numerous, and too large for the proportion of the figure, the leaves are alſo too pointed.

Lobel firſt found it near South-Sea Caſtle, Dillenius near Brackelſham in Suſſex, Mr. Woodward on Yarmouth Danes, at Loweſtoft, &c.

30. Root annual. Stems many, ſpreading, often decumbent, or erect only when they grow in a tuft, varying in height, but commonly near a foot high, round, ſtriated, a little hairy, branched. The uppermoſt or floral leaves only oppoſite; all on footſtalks: leaflets obovate, almoſt quite entire, being minutely notched at the tip only, of a darkiſh green, hairy. Stipules linear, very narrow, the point awl-ſhaped, elongated and hairy. Flowering ſpike terminating, ſolitary, commonly peduncled, ſmall, cloſe, ſhort, blunt, oval or almoſt globular. Calyx tubular, hairy eſpecially at the top of the tube; divided almoſt to the baſe into five ſegments, which are ſlightly unequal in the flower, but more ſo in the fruit, and then become broad and ſpreading. Corolla nearly equal, pale purple. Legume turbinate, one-ſeeded [h].

Mr. Woodward remarks, that the ſtipules are lanceolate, lengthened into a very long point, ſtriated, and fringed with long hairs; the lower leaflets oblong wedge-ſhaped, the upper between that form and lanceolate; the fruitſtalks longer than the leafſtalks; the ſegments of the calyx between lanceolate and ſubulate, as long as the corolla, fringed with long hairs; banner lanceolate, keeled, longer than the wings, which are hooked very near the baſe, and equal to the keel.

It grows in ſalt-marſhes and meadows near the ſea in various parts of England, from Norfolk all along the ſouth and weſt coaſt to Wales. Mr. Wigg ſent it from Yarmouth, and Sir Thomas Gery Cullum from Weymouth [i]. Dartford Saltmarſh. Leigh and Little Holland, Eſſex. Tilbury Fort. Sheerneſs. Between Greenhithe and Northfleet. Between Briſtol and the Hot-wells, obſerved by Mr. Swayne [k], near Weymouth, Poole, &c. in Dorſetſhire by the late Dr. Pulteney. Dr. Johnſon, the editor of Gerarde's herball, firſt found it on Dartford Saltmarſh in Kent, the tenth of june, 1633.

Mr. Hudſon rightly publiſhed it as new in the firſt edition of his Flora Anglica, and ſent it to Linneus, in whoſe herbarium it now is marked Hudſon's *T. maritimum*, without referring it to any of his own plants, and yet he neglected to inſert it in any of his ſubſequent works. It is difficult to gueſs why Mr. Hudſon afterwards took this plant for *T. ſtellatum*, a very different ſpecies [l], as will evidently appear from comparing the figure of the *maritimum* in Engliſh Botany, *t.* 220, with that of the *ſtellatum* in Flora Ruſtica, *t.* 94.

Ray ſays that he obſerved this Trefoil about Meſſina in Sicily; and that Balam ſent it from Tangiers in Africa.

31. Root annual. The whole plant villoſe. Stem erect, branching. Leaves on long petioles: leaflets obcordate, toothletted, nerved. Stipules large, netted-veined, ovate, toothed. Heads or rather ſpikes of flowers ovate, peduncled. Calyxes villoſe, ſoft; teeth very long, awl-ſhaped, nearly equal, ſilky, when the ſeeds are ripe ſpreading. Corolla pale roſe-colour, ſhorter than the calyx [m]. Legume within the belly of the calyx, ovate, membranaceous, very thin. Seed one, elliptic-kidney-ſhaped, rufeſcent [n].

Native of the South of France, Carniolia, Italy, Sicily, Barbary. Ray obſerved it growing abundantly

[a] Smith brit. and Engl. bot. Curt. lond. Fl. ruſt.
[b] Villars, Scopoli, Desfontaines.
[c] Hort. kew.
[d] Engl. bot. and Woodw. Mſs.
[e] Gærtner.
[f] Engl. bot.
[g] Smith brit. and Engl. bot. Woodw. Mſs.
[h] Withering.
[i] Engl. bot.
[k] Engl. bot.
[l] Desfontaines.
[m] Gærtner.

at the foot of Mount Veſuvius, in Sicily about Meſſina, and near Montpellier in France.

32. Root annual. Colour of the plant white or ſilvery. Named *clypeatum* by Alpinus from the form of the fruiting calyx ſpread out like a ſhield.

The Legume lies hid in the furrowed belly of the five-rayed-peltate cloſed calyx; it is ovate, compreſſed, truncate at the top, and there headed with a whitiſh ſpongy callus, membranaceous, very thin, one-celled, not opening. Seed one, ovate, compreſſed, ſomewhat gibboſe, ſmooth, ferruginous *.

Native of Italy and the Levant. Cultivated here in 1711. It flowers in july and auguſt.

33. Root annual, ſmall. Stems ſeveral, proſtrate, rigid, often a little flexuoſe, round, rugged, leaflets obovate or obcordate, toothed, veiny, hairy. Stipules ſcarioſe, lanceolate, connate, hairy. Heads axillary and terminating, ſolitary, ſeſſile, ovate, hairy, compoſed of many thick-ſet, white or pale bluſh-coloured flowers. Calyx hairy, with a pale furrowed baſe, and green ſharp lanceolate teeth, erect at firſt, but ſoon ſpreading, and at length recurved, hard, and rigid. Corolla longer than the calyx. Pod membranous, whitiſh, incloſed in the calyx. Seed one, elliptic, ſhining, yellowiſh †.

Native of ſeveral parts of Europe, as Germany, Switzerland, Carniolia, South of France, Italy, Britain; alſo of the hills about Algiers in Barbary. With us it is found occaſionally on chalky ground, or in dry ſandy fields that lie over a calcareous ſoil, where it flowers in may and june, and then ſoon dries up and is blown about, ſcattering its ſeeds againſt the autumnal rains, when they produce young plants which flower the following ſpring. It occurs between Northfleet and Graveſend, near Chatham and in the iſle of Shepey; about Croydon in Surry; on Newmarket-heath, about Chippenham and Gamlingay in Cambridgeſhire, and near Cambridge on the Hill of Health, and Trinity Conduit-head. Near Oxford, by Jericho, on the road ſide going to Port Meadow. Potton, Sandy and Ampthill, Bedfordſhire, by Dr. Abbot. Near Bungay, by Mr. Woodward. On Caiſter common near Norwich, on Cromer cliffs, on Snettiſham beach and near Wells, by Mr. Crowe. On Wick cliffs, by Mr. Swayne. Near Edinburgh, by Dr. Parſons.

34. Root annual, ſmall, fibrous with oval fleſhy knobs. Whole plant quite ſmooth. Stems proſtrate, ſtriated, of various lengths, not much branched. Leaves remote, alternate, on petioles which are grooved above: leaflets obovate or oblong-wedge-ſhaped, often marked with a tranſverſe white or yelloviſh ſpot, ſtrongly nerved, the branches from the midrib terminating in neat acute ſerratures, ſcarcely diſtinguiſhable by the naked eye, and in the younger leaves the midrib only is lengthened into a projecting point. Stipules membranous, broad-ovate, pointed, divaricated, united at the baſe. Heads axillary, ſolitary, ſeſſile, hemiſpherical, many-flowered. Calyx ſwelling, pale with ten red ribs, ſhorter than the corolla; teeth heart-ſhaped, pointed, ſmooth, veiny, which become at length reflexed and enlarged, ſufficiently diſcriminating the ſpecies. Corolla pale red or roſe-coloured: banner lanceolate, ſomewhat keeled, longer than the wings; they and the keel are equal. Pod round, ſmall, holding a ſingle ſeed ‡. According to Gærtner it contains two ſeeds, of an ovate-globular form, and of a pale ſulphur-colour: the pod is oblong, compreſſed a little, membranaceous and diaphanous, involved in the corolla.

Mr. Curtis remarks, that it may be diſtinguiſhed from the *ſtriatum*, to which it bears ſome affinity, by being in every part ſmooth, in having its heads much rounder, and the teeth of the calyx ſpreading backward; its flowers alſo are of a brighter red colour.

Native of England, Spain, Italy, and Barbary about Algiers. With us it does not appear to be very common. Ray found it about Saxmundham in Suffolk, and Thomas Willifel brought it him from the neighbourhood of London. Mr. Doody gathered it about Blackheath and near Greenhithe, Mr. Hudſon, in the Iſle of Shepey. Mr. Roſe and Dr. Smith, near Norwich. Mr. Woodward, on the Bath hills near Bungay in Suffolk. Mr. Turner, at Yarmouth. Dr. Goodenough, on Kew-green and Hanwell-heath. Mr. Curtis obſerved it on Blackheath for ſeveral years, and ſays it is fond of a gravelly ſoil, with ſome degree of moiſture. It flowers about midſummer.

35. Root annual. Stems procumbent, branched, round, villoſe: according to Mr. Woodward, from ſix to eighteen inches high, moſtly erect, but if reclining not proſtrate, as in the two foregoing ſpecies. Leaflets obovate or obcordate, hairy. Stipules broad-ovate, acuminate, nerved, membranous. Heads moſtly terminating, ovate. Calyx elliptic, ſomewhat ſwelling, ten-grooved, villoſe; teeth awl-ſhaped, green, finally elongated, ſpreading, ciliate. Corolla ſcarcely the length of the calyx, pale purple. Pod membranaceous. Seed elliptic, compreſſed, three times as large as in the foregoing †.

Mr. Woodward deſcribes the leaves as diſtant, the upper on ſhort, the lower on long footſtalks, thoſe beneath the heads ſeſſile or nearly ſo: leaflets ſeſſile, lower ones oblong-wedge-ſhaped, upper lanceolate, downy on both ſurfaces; the nerves not ſtrongly marked, and the ſerratures ſcarcely diſtinguiſhable even with a glaſs. Stipules ovate, but terminated with a point, ſtriated and very downy. Flowering-heads ſeſſile or on ſhort peduncles, axillary or terminating, the latter moſtly in pairs. Calyx little ſhorter than the corolla, marked with ten ſtreaks, almoſt hid with numerous long ſoft hairs; teeth nearly equal, ſtraight, awl-ſhaped, not rigid. Corollas pale red: banner lanceolate, longer than the wings; they and the keel equal. The flowering heads appear quite woolly from the numerous long hairs of the calyx.

Native of Britain, Germany, France, Spain and Italy, in dry barren paſtures. In ſeveral places near Cambridge, and about Gamlingay. Biddenham and Aſpley in Bedfordſhire, Dr. Abbot. Jericho, Bullington-green, and Whichwood-foreſt in Oxfordſhire, Dr. Sibthorp. Bath-hills, Bungay, Suffolk, Mr. Woodward. Wick Cliffs, Mr. Swayne. In Edinburgh-park, abundantly, Mr. Lightfoot. It flowers in june.

36. Root annual, tapering, without any tuberous ſwellings. Stems horizontal, ſhort and twiſted, moſtly under ground. Leaves on very long footſtalks; leaflets obovate or wedge-ſhaped, ſmooth and finely toothed. Stipules membranous, broad, with remarkably ſpreading points. Flowers in ſeſſile axillary round heads. Body of the calyx a little hairy: teeth bent back, broad, acute, ſcarcely enlarged after flowering. Corolla much ſhorter than the calyx-teeth, cloſed ſo as to protect the organs of fructification, which therefore perform their functions though buried in ſand. The excluſion of light often renders the petals whitiſh, otherwiſe they are roſe-coloured. Pod oblong, containing two yelloviſh ſeeds, which are lens-ſhaped, and rugged at the edge.

This, more truly a ſubterraneous plant than the ſpecies ſo named by Linneus, grows in the looſe blowing ſand of the ſea-ſhore, beneath which its ſtems and flowers are often entirely buried, the leaves only peeping above the ſurface. Hence the trivial name, and hence perhaps it has been overlooked, as ſome common ſpecies not yet in flower.

It has been long known as a native of Sicily, where Ray obſerved it about Meſſina. Mr. Wigg firſt detected it on the beach at Yarmouth: and ſince that Miſs Temple has found it at Loweſtoft, and the late Mr. W. R. Notcutt, and Sir Thomas Gery Cullum at Landguard-fort. It flowers in june and july.

Linneus placed this ſpecies in the laſt ſection of the genus, among his *lupulina*; but I have followed Dr. Smith in putting it in the third ſection, with the *glomeratum*, *ſtriatum*, &c. to which it is evidently allied †.

37. Heads ovate. Loweſt ſegment of the calyx a little longer than the others †. Native of Egypt.

* Gærtner. † Engl. bot. and Smith brit.
‡ Smith brit. and Engl. bot. Woodw. Mſs.

† Smith brit. † Smith brit. and Engl. bot.
† Linn. ſyſt.

38. Leaves toothletted. Pedicels long, with the flowers remote. Calyxes with long tubes, ten-ſtreaked, equal[u]. Native of Syria, Judea, Arabia, abundant about Conſtantinople, Candia[x].

39. Calyxes terminated with five briſtles. Corollas red. Legumes longer than the calyx, awl-ſhaped at the end, filling the calyx, four-ſeeded[y].

Fruiting-calyx ovate-oblong, ſwelling, membranaceous, netted, terminated with five briſtle-ſhaped teeth, recurved and ſpreading. Corolla ſhrivelling, lacerate, permanent, involving the legume; which is oblong, membranaceous, very thin, and ends in the briſtle-ſhaped ſtyle. Seeds four (or two larger), ſub-globular, covered with very minute raiſed dots, ſulphur-coloured, or deep yellow, or ferruginous[z].

Native of France and Italy. Introduced in 1771 by Monſ. Richard. It flowers in june and july[a].

40. The corolla is turned upſide-down, ſo that the banner reſpects the periphery, and the keel the centre. Calyx inflated, ovate-oblong, terminated with two briſtles, having a very ſhort one between them, and gaping longitudinally on the lower ſide. Legumes two-ſeeded, roundiſh, very ſmall, in the bottom of the calyx[b].

Fruiting-calyx ovate-beaked, inflated, gibbous, membranaceous, netted, terminated with two briſtle-ſhaped hooked teeth, quite entire at the back, but having a longitudinal cleft in the belly. Legume very ſmall, obovate, membranaceous, very thin. Seeds two (ſometimes, but ſeldom, one), ovate, ſmooth, of a yellow bay colour[c].

Native of Belgium, Sileſia, the South of France and Italy. Dr. Smith obſerved it the ſecond of april on the ſteps of Trinita de' Monti, at Rome; and ſays he knows not on what authority Linnæus has made it a native of England[d].

41. Root perennial. Stems decumbent all round, not creeping. Leaves obovate, toothletted, obtuſe, ſmooth, with acuminate ſtipules. Peduncles axillary, very ſhort. Heads ſmall. The three upper teeth of the calyx elongated, the two lower ſmall. Calyx involved in ſo thick a nap as not to be viſible. General involucre twelve-leaved. Corollas almoſt reſupinate[e].

Native of the South of Europe, and of Barbary. Cultivated in 1640, by Mr. John Parkinſon. It flowers in june and july[f].

42. The whole plant is hirſute. Stems erect. Stipules ovate, ending in an awl-ſhaped point. Leaflets toothletted, nerved. Head of flowers roundiſh. Involucres three or four, rounded, involving the baſe of the head, one of them three-leaved. Calyx-teeth long, equal. Corolla roſe-coloured: banner awl-ſhaped. Native of Barbary near Maſcar.

43. Plant villoſe. Stipules ovate. Leaflets obcordate or obovate, nerved. Involucre four-leaved, preſſed cloſe; leaflets rounded, ſtriated; one of them three-leaved. Segments of the calyx long, villoſe. Corolla very ſmall, white. Native of Barbary near Maſcar[g].

44. Root perennial, fibrous with little tubers. Stems proſtrate, rooting, extending to a conſiderable length, often tinged with purple, branched, round, and ſmooth. Leaves on long petioles: leaflets obovate, toothletted, ſmooth; the younger ones ſometimes hairy. Stipules ovate-lanceolate, drawn out into a long point, ſmooth. Peduncles ſolitary, axillary, naked, round, ſmooth, aſcending, longer than the petioles. Heads globular, many-flowered. Involucre conſiſting of many briſtle-ſhaped leaflets. Calyx tubular, villoſe, gibbous above; the three lower teeth equal, with long green points, the two upper a little longer, with tapering rigid reddiſh points; the gibbous part at length increaſes, ſwells, becomes reticulated, and covers the pericarp, ſtill retaining its teeth. Corolla purple: banner longer than the wings, flat and ſtreaked with roſe-coloured lines; wings ſhort and ſmall; keel ſtill ſhorter: each floret is attended by a ſmall, awl-ſhaped, concave chaff. Legume ovate, flattened, containing two ſeeds, of an ovate kidney ſhape and ſhining, covered by the calyx[h].

The ſingular Strawberry-like appearance of the heads, ariſing from the inflation of the calyx after flowering, ſtrikingly diſtinguiſhes this ſpecies from the *repens*, to which in its general habit it is nearly allied: the whole plant alſo of the *fragiferum* is ſmaller, the corolla is purple, and it uſually occurs in moiſt ſituations[i].

Native of all parts of Europe, flowering in july and auguſt.

45. Root perennial, running down deep. Stem upright, eight inches or a foot and more in height, hardiſh, round, whitiſh-green, pubeſcent, ſomewhat rugged, ſimple except that at the end it breaks into two or three branches, ſuſtaining flowers. Lower leaves on longer, upper on ſhorter petioles and almoſt ſeſſile: leaflets lanceolate, acuminate, nerved, hard, very finely ſerrulate, tranſverſely ſtriated, bright green, villoſe beneath, ſomewhat rugged. Stipules lanceolate, ſtriated, awl-ſhaped, pubeſcent. Peduncles axillary, thick, grooved, pubeſcent. Flowering heads large, ovate, obtuſe, the ſame ſize as in the *alpeſtre* but white, and compoſed of an hundred or more ſeſſile florets. In *ſyſtema vegetabilium* the head is called a raceme, which is ſqueezed cloſe, and has very ſmall awl-ſhaped bractes between the florets. Calyx ſmooth or ſubpubeſcent; teeth almoſt equal. Corolla white, of four diſtinct petals: banner lanceolate, obtuſe, ſlightly emarginate, twice as long as the wings and keel; wings obtuſe, ſpreading, a little longer than the keel, which is ſtraight and obtuſe. Legume from orbicular inclining to ovate, flattiſh, ſmooth, ſharp at the edge, involved in both calyx and corolla. Seed one, ſmall, roundiſh-ovate, blunt at both ends, yellowiſh-brown, ſmooth[k].

Native of many parts of Europe, on very dry hills, from Sweden to Spain; but not of England, which Linnæus remarks as a ſingularity, it being ſo common in Sweden.—It was introduced here in 1786, by William Pitcairn, M. D. and flowers in july[l].

Scopoli relates, that he has gathered a variety, which was more villoſe, with the teeth at the edges of the leaves ending in a kind of ſpinule, and the flowers of a whitiſh yellow colour.

46. Root annual. Stems nearly upright, ſolitary. Calyx before flowering ſcarce apparently hairy, having only a hair or two at the tips. Corollas yellow not bay-coloured[m]: the flowers are permanent, and when dry make a ruſtling noiſe, whence Crantz's name of *ſtrepens*.

Native of many parts of Europe, in paſtures. Dr. Smith obſerved it on the top of Mount Cenis. It is not a native of England. What has been taken for it is the *procumbens*, n. 48.

47. This has the appearance of the ſpecies immediately preceding, but the ſtem is more erect and ſolitary: the banner of the florets becomes ferruginous after flowering; the two upper teeth of the calyx are indiſtinct in this, whereas in the preceding they are of the ſame length with the others[n].

Native of ſeveral parts of Europe, in dry paſtures, but not of England.—Introduced in 1778, by Mr. Thouin. It flowers from june to auguſt[o]. In the Kew Catalogue it is marked as perennial; and Monſ. Villars ſays, it has always appeared to him to be ſo. This author has adopted Pollich's *Tr. aureum, n.* 708. which is nearly allied to the *ſpadiceum*, but the ſtem is more ſlender, higher, and more branched.

48. Root annual, ſmall but ſtrong. Stems ſpreading widely and naturally procumbent, though ſometimes ſupported by other plants, and indeed generally aſcending at their extremities; they are a little branched, leafy and hairy, often purpliſh. Leaflets obovate, emarginate, toothed, ſmooth. Stipules half-ovate, acute, entire, ſtrongly ribbed, often ciliate.

[u] Lin. ſyſt. [v] Hort. kew. [w] Tour. 2, 294. [x] Linn. ſpec. [y] Idem. [z] Gærtner. [a] Hort. kew. [b] Linn. ſpec. [c] Gærtner. [d] Linn. ſpec. [e] Deſfontaines. [f] Hort. kew. [g] Curt. lond. and Smith brit. [h] Pollich, Scopoli, Villars. [i] Curtis. [k] Hort. kew. [l] Linn. ſuec. and ſpec. [m] Idem. [n] Hort. kew.

Flowering-heads peduncled, a little ſpicate, frequently reaching beyond the leaves, elliptical, obtuſe, denſe, many-flowered. Peduncles moſt hairy upwards. Calyx-teeth unequal, taper, hairy. Corolla lemon-coloured, permanent, at length brown and membranous: banner broad, furrowed, plaited. Pod ſmall, elliptic, pointed[p]. Seed ſingle, ſhining, of a brown or orange colour.

The name of Hop Trefoil is, with much propriety, beſtowed on this plant, the heads being larger and more reſembling the hop than any of our Engliſh ſpecies. It is by no means uncommon in dry paſtures, on the borders of fields, and in gravelly ſoils. In ſome meadows it forms a conſiderable part of the crop, and makes excellent fodder. It flowers in june and july, and perhaps merits the attention of the huſbandman[q]: where its laſting only one year is no objection.

According to Linneus, the *procumbens* differs from the *agrarium* and *ſpadiceum* in having ſmaller flowers, but eſpecially becauſe its long ſtalks are altogether decumbent. It reſembles the *filiforme*, but is larger, and has often ten or twelve flowers. The leaves are not ſtriated. On being ſown it was alſo different from that[r]. Leers ſays, there are often two ſeeds in a pod.

The ſynonyms given by Linneus to the *agrarium* belong to this ſpecies, except that of Dodonæus, which is *Medicago lupulina*. The *procumbens* of Engliſh authors is conſidered by Linneus only as a variety of the *filiforme*[s]. Dr. Smith however ſays, he is now convinced that the *procumbens* of Hudſon is improperly confounded with *filiforme* in Flora Britannica.

49. Root annual, ſmall, fibrous. Stems proſtrate, filiform, ſomewhat hairy. Leaflets obcordate, toothed, ſtriated. Stipules ſubovate, nerved, ciliate. Peduncles axillary, capillary, hairy, (in α ſcarcely four-flowered, in β many-flowered), flowers erect, in a ſort of head, pedicelled, yellow, finally bent back. Calyx ſmooth, with unequal teeth. Corolla permanent, ſcarioſe, browniſh, with the banner keeled, narrower than in the preceding, neither bent in nor grooved. Legume elliptic, pedicelled, one-feeded[t].

50. When this grows luxuriantly it bears a near reſemblance to the *agrarium*, but in that the ſpikes are not only much larger, but alſo much more cloſely imbricated; the *procumbens* is found only in certain ſpots, whereas there is ſcarcely a dry hilly paſture or graſs plat on which this may not be found[u].

This, ſays Dr. Withering, is the moſt common ſort of Hop Trefoil, and may be found in almoſt every dry ſandy or gravelly paſture, eſpecially where the turf is fine, but varying greatly in ſize, according to the richneſs or poverty of the ſoil, and flowering from may to auguſt.

51. Stem nearly upright. Leaflets lanceolate, on ſhort petioles. Stipules ſheathing, with two acuminate teeth, the length of the ſheath. Heads axillary, funnel-form, ſeſſile, wrapped up in ſeveral leaves which are ſlightly trifid, the middle ſegment longer than the others. Flowers two, coming out alternately. Native of Virginia, and Canada[v].

In this extenſive genus the following diſtinctions may be of uſe in diſtinguiſhing the ſpecies.

Reſpecting the inflorescence, the following ſpecies are

Racemed: 1 to 8 and 45 to 49.
Umbelled: 9, 10. 12 to 15.
Faſcicled: 16, 17. 50.
Headed: 18, 19. 32 to 44.
Spiked: 11. 20 to 31.

All the ſpecies, as the name implies, have ternate leaves, except the ninth, in which they are uſually quinate or five together.

More ſpecies are annual than perennial:

Annuals are from 1 to 8. 11. 16 to 19. 25, 26. 28 to 36. 46 to 50.

Perennials: 9. 12 to 15. 20 to 24. 27, 41, 44, 45.

The predominant colours of the flowers are yellow and purple.

Yellow. 3, 4, 5, which varies to white; 6, 7, 18? 41, 46 to 50.
Yellow or White. 2.
Pale Brimſtone. 27.
White. 11, 12? 13. 16. 43. 45.
Whitiſh. 24. 33.
Purple. 9, 10, 15, 19? 20 to 23, 25, 28, 40.
Red. moſtly pale. 8, 26, 29, 30, 31, 34, 35, 36, 42.
Blue. 1.

Moſt of the flowers have one ſeed only in each legume or pod.

Seed one: 16, 17, 20 to 33, 35, 45 to 50.
Seeds one or two: 2, 5, 6, 7, 34.
Seeds two: 4, 11, 36, 40, 44.
Seeds two or three: 10.
Seeds two to four: 1, 13.
Seeds four, 12, 14, 39.
Seeps four or five: 9.
Seeds eight: 8.

Some of the legumes which have naturally one ſeed only, have occaſionally two ſeeds.

Several of the ſpecies have the banner, wings and keel connected at the baſe, and are therefore called monopetalous by Linneus.

This is the proper place to acknowledge the aſſiſtance of Mr. Afzelius in clearing up the confuſion of ſynonyms in ſome of the ſpecies: as alſo to confeſs and correct the errors committed in the Flora Ruſtica. —What was ſuppoſed in that work to be *Trifolium medium*, is *Trif. pratenſe* in its wild ſtate. What is there named *Tr. flexuoſum* is the *Tr. medium*. *Tr. alpeſtre* is not a native of Scotland. The figure of *Tr. ſtellatum* is a very good one, but the deſcription does not belong to it.]

PROPAGATION AND CULTURE.

1 to 8. If the ſeeds of the Melilots, which are annual plants, be permitted to ſcatter, the plants will riſe without care, and require no other culture but to be kept clean from weeds, and to be thinned where they grow too cloſe.

There are few worſe weeds among corn than common Melilot, for the ſeeds being ripe about the ſame time with the corn, they are threſhed out with it, and being heavy are difficult to ſeparate from it. A few of the ſeeds, as is well known, give the flour a ſtrong nauſeous taſte.

[But as a food for cattle Melilot may have its value. It has been recommended by ſome French writers, as ſucceeding well in a ſandy ſoil for this purpoſe. Particularly the White Siberian Melilot, which is conſidered by Linneus as a variety of the common ſort. It grows in Siberia, in deep light dry land, and riſes from three to nine feet in height. It dies to the ground in winter, but ſhoots again early in ſpring, and laſts from two or three to ſix years. It begins to flower about the middle of june, and is in full bloom the middle of july.

Although the ſtems and leaves of Siberian Melilot are twice as large as thoſe of the common ſort, the flowers are but half the ſize, and are conſtantly white. It has been ſown twenty years by the ſide of common Melilot, in the Paris garden, without varying. Sown in the field, on a light ſoil, but wet, it grew above eight feet high, and produced a great quantity of ſeed; it was given to cattle both green and dry, and they preferred it to every other food, eſpecially when freſh cut. In a looſe dry ſoil it will riſe to ſix feet high. In ſuch land it may be ſown in autumn, upon one earth; but in wet land it is ſafer to ſow it in ſpring, at which time the land muſt have two earths and be well broken with the harrow. The ſeed being ſmaller than that of Clover, and the plant ſpreading more, half the quantity of ſeed uſually ſown of Clover will be ſufficient.

Siberian Melilot ſown in autumn, may ſometimes be mowed in november, then in may, again in july, and laſtly in november: the firſt cuttings may be made into hay, but the laſt muſt be given to the cattle green. By means of regular cuttings, this plant may be preſerved ſeveral years; but if it be left to ripen its

[p] Engl. bot.
[q] Fl. ſuec. and ſpec. plant.
[r] Smith brit.
[s] Curt. lond.
[t] Curtis lond.
[u] Afzelius in Withering.
[v] Linn. ſpec.

its ſeed, it ſoon becomes weak, and may be conſidered as a biennial.

This Melilot, cultivated by itſelf, ſeems to be more productive than Clover; but the produce becomes much more conſiderable, when cultivated with the Siberian Vetch: for theſe plants poſſeſs all the qualities which can make their union deſirable: they laſt the ſame time—they ſhoot at the ſame period—they flower and ſeed together—they extend their roots to different depths—one produces a thin and tender food, the other more ſolid and ſubſtantial—laſtly, the warm quality of the one is tempered by the watery quality of the other.

Mr. Young, having been favoured with ſome of the ſeed of Siberian Melilot, by Monſ. Thouin, on the 11th of april 1791, ſowed a piece partly in drills at two feet ſix inches, and one ſquare perch broad-caſt; the latter with an ounce and half of ſeed, or fifteen pounds an acre. The ſoil a moiſt loam, on a cold marley bottom. On the 22d of ſeptember it was mowed, being a full and beautiful crop. One ſquare perch drilled weighed one hundred and five pound. The perch broad-caſt, eighty-four pound. The drilled received a ſmall manuring, at the time of ſowing, of aſhes, to the amount perhaps of about ten buſhels to the acre. But the rows were too far aſunder; and the crop in each row would probably have been as great, if the diſtance had been only eighteen inches.—A hundred and ſixty-five pound to the perch is ſeven tons and a half on an acre; and eighty-four pounds is ſix tons to the acre.

Either of theſe crops is enough to pay the loſs by not ſowing barley or oats, and to prove that the plant will pay amply for culture; the one is equal probably to above two tons of hay to the acre, and the other more than one and a half.

The ſeaſon was a ſevere drought. It was given to cows, working oxen, calves and horſes, and they all eat it very readily, ſome even greedily.

In ſtrong lands, which will bear Clover, this plant may not be found an object of culture; but in poor ſands and all ſoils not adapted to Clover, it may be ſown to advantage, as hardly any other plant ſeems to flouriſh ſo well there, and ſheep are very fond of it [r].]

13. White or Dutch Clover grows naturally in moſt of the paſtures in England, and is generally known among the country people by the title of white Honeyſuckle.

This is an abiding plant, whoſe branches trail upon the ground, and ſend out roots from every joint, ſo that it thickens and makes the cloſeſt ſward of any of the ſown Graſſes; and it is the ſweeteſt feed for all ſorts of cattle yet known; therefore when land is deſigned to be laid down for paſture, with intent to continue ſo, there ſhould always be a quantity of the ſeeds of this plant ſown with the Graſs ſeeds. The uſual allowance of this ſeed is eight pounds to one acre of land, but this ſhould never be ſown with Corn; for if there is a crop of Corn, the Graſs will be ſo weak under it, as to be ſcarce worth ſtanding: but ſuch is the covetouſneſs of moſt farmers, that they will not be prevailed on to alter their old cuſtom of laying down their grounds with a crop of Corn, though they loſe twice the value of their Corn by the poorneſs of the Graſs, which never will come to a good ſward, and one whole ſeaſon is alſo loſt; for if this ſeed is ſown in the ſpring without Corn, there will be a crop of hay to mow by the middle or latter end of july, and a much better after-feed for cattle the following autumn or winter, than the Graſs which is ſown with Corn will produce the ſecond year. The ſeed of this ſort may alſo be ſown with Graſs ſeeds in autumn, in the manner hereafter directed for the common red Clover; and this autumnal ſowing, if the ſeeds grow kindly, will afford a good early crop of hay the following ſpring; and if, after the hay is taken off the land, the ground is well rolled, it will cauſe the Clover to mat cloſe upon the ground, and become a thick ſward.

The ſeed of this white Dutch Clover is annually imported from Flanders, by the way of Holland, from whence it received the name of Dutch Clover; not that it is more a native of that country than of this, for it is very common in moiſt paſtures in every county in England, but the ſeeds were never collected for ſowing here till of late years: nor are there many perſons at preſent here who ſave this ſeed, although it may be done, if the ſame care as is practiſed for the red Clover, is taken with this ſort; therefore it ſhould be recommended to every farmer, who is deſirous to improve his land, carefully to ſow an acre or two of this white Clover by itſelf for ſeeds, which will ſave him the expence of buying the ſeeds, which are often ſold at a great price, and there will be no want of ſale for any quantity he may have to ſpare.

The farther account of this Graſs, may be ſeen under the article PASTURE.

[Mr. Majendie of Hedingham Caſtle, in Eſſex, has cultivated White Clover for ſeed with ſingular ſucceſs. He had ten acres that yielded him fifteen guineas an acre, clear of expenſes, the ſample of the ſeed being remarkably fine, and exceeding any foreign in the market. He ſows it with ſpring corn, from twelve pounds to fourteen pounds on an acre; and has found wheat to be as good after this as after red Clover [s].

Mr. Pitt of Pendeford in Staffordſhire, informs us that the beſt graſs ſeed that can be ſown for upland paſturage is the white Dutch Clover; that it has a great advantage over all others, from its extreme minuteneſs, on which account any given weight fills the ground proportionably fuller of plants; that theſe plants, on ſound land, will abide for ever, make excellent ſweet paſture, and may be invigorated at pleaſure by dung.

He weighed, and numbered a ſmall weight of the following ſeeds, by which he found, ſuppoſing them all good, that one pound of white Clover ſeed, gives as many plants as two pounds and a half of red Clover, ten pounds and a half of burnet, and thirty-eight pounds of ſaintfoin. Whence, ſuppoſing ſix pounds of white Clover ſeed ſufficient for an acre; to give as many plants, an acre will require fifteen pounds of red Clover, ſixty-three pounds of burnet, and two hundred and twenty-eight pounds of ſaintfoin [t].

Dr. Anderſon remarks, that the common white or Dutch Clover delights in a firm ſoil, although it does not require ſuch a degree of compactneſs as red Clover, and therefore proſpers in many fields without any artificial preſſure; but on very ſpungy ſoils, art muſt ſupply the deficiency of nature, or it will not thrive. Hence it happens, that on ſoils of this ſort, white Clover is frequently ſeen to flouriſh exceedingly on ſuch foot-paths as are moderately trod upon, while it only languiſhes, or hardly appears in other parts of the field [u].

Mr. Wright of Stanhow in Norfolk thinks that white Clover is a bitter food, and that ſheep do not eat it kindly, ſo that while much food ſeems to be on the ground, ſtock does badly. Mr. Bakewell, it ſeems, adopted this ſingular opinion [x].]

21. Since the red Clover has been cultivated in England, there has been great improvement made of the clay lands, which before produced little but Ryegraſs, and other coarſe bents; which, by being ſown with red Clover, have produced more than ſix times the quantity of fodder they had formerly on the ſame land, whereby the farmers have been enabled to feed a much greater ſtock of cattle than they could before, which has enriched the ground, and prepared it for Corn; and where the land is kept in tillage, it is the uſual method now among the farmers, to lay down their ground with Clover, after having had two crops of Corn, whereby there is a conſtant rotation of Wheat, Barley, Clover, or Turneps on the ſame land.

The Clover-ſeed is always ſown with Barley in the ſpring, and when the Barley is taken off, the Clover ſpreads and covers the ground, and this remains two years, after which the land is ploughed again for Corn.

[r] Young's Annals, 14. 217. 15. 447. and 16. 420.

[s] Young's Annals, 18. 434. [t] Idem. 2. 538.
[u] Eſſays, 2. 295. [x] Young's Annals, 12. 32.

The

The Clover is a biennial plant, whoſe roots decay after they have produced ſeeds; but by eating it down, or mowing it when it begins to flower, it cauſes the roots to ſend out new ſhoots, whereby ſome of the plants are continued longer than they would naturally remain. The common allowance of ſeed for an acre of ground is ten pounds. In the choice of the ſeeds, that which is of a bright yellow colour, inclining to brown, ſhould be preferred, and the pale-coloured thin ſeed ſhould be rejected. The Clover-ſeed ſhould be ſown after the Barley is harrowed in, otherwiſe it will be buried too deep; and after the ſeeds are ſown, the ground ſhould be rolled, which will preſs the ſeeds into the ground; but this ſhould be done in dry weather, for moiſture will often cauſe the ſeeds to burſt, and when the ground is wet, the ſeeds will ſtick to the roll. This is the method which is generally practiſed by moſt people in the ſowing of this ſeed with Corn, but it will be much better if ſown alone; for the Corn prevents the growth of the plants until it is cut and taken off the ground, ſo that one whole ſeaſon is loſt; and many times, if there be a great crop of Corn upon the ground, it ſpoils the Clover, ſo that it is hardly worth ſtanding; whereas, when it is ſown without any other ſeed, the plants will come up more equal, and come on much faſter than that which was ſown the ſpring before under Corn.

Therefore from many years trial I would adviſe the ſeeds to be ſown in auguſt, when there is a proſpect of rain ſoon after; for as the ground is at that ſeaſon warm, ſo the firſt ſhower of rain will bring up the plants, and theſe will have time enough to get ſtrength before the winter: and if, ſome time in october, when the ground is dry, the Clover is well rolled, it will preſs the ground cloſe to the roots, and cauſe the plants to ſend out more ſhoots; the ſame ſhould be repeated in march, which will be found very ſerviceable to the Clover. The reaſon of my preferring this ſeaſon for the ſowing of the ſeeds rather than the ſpring is, becauſe the ground is cold and wet in ſpring, and if much rain fall after the ſeeds are ſown, they will rot in the ground; and many times when the ſeed is ſown late in the ſpring, if the ſeaſon ſhould prove dry, the ſeeds will not grow, ſo that I have always found the other ſeaſon has been the beſt.

About the latter end of may this Graſs will be fit to cut, when there ſhould be great care taken in making it; for it will require a great deal more labour and time to dry than common Graſs, and will ſhrink into leſs compaſs; but if it be not too rank, it will make extraordinary rich food for cattle. The time for cutting it is, when it begins to flower; for if it ſtands much longer, the lower part of the ſtems and the under leaves will begin to dry, whereby it will make a leſs quantity of hay, and that not ſo well flavoured.

Some people cut three crops in one year of this Graſs, but the beſt way is to cut but one in the ſpring, and feed it the remaining part of the year, whereby the land will be enriched, and the plants will grow much ſtronger.

One acre of this plant will feed as many cattle as four or five acres of common Graſs; but great care ſhould be taken of the cattle when they are firſt put into it, leſt it burſt them: to prevent which, ſome turn them in for a few hours only at firſt, and ſo ſtint them as to quantity; and this by degrees, letting them at firſt be only one hour in the middle of the day, when there is no moiſture upon the Graſs, and ſo every day ſuffer them to remain a longer time, until they are fully ſeaſoned to it; but great care ſhould be had never to turn them into this food in wet weather; or if they have been for ſome time accuſtomed to this food, it will be proper to turn them out at night in wet weather, and let them have hay, which will prevent the ill conſequences of this food; but there are ſome who give ſtraw to their cattle while they are feeding upon this Graſs, to prevent the ill effects of it; which muſt not be given them in the field, becauſe they will not eat it where there is plenty of better food. There are others who ſow Rye-graſs amongſt their Clover, which they let grow together, in order to prevent the ill conſequences of the cattle feeding wholly on Clover; but this is not a commendable way, becauſe the Rye-graſs will greatly injure the Clover in its growth, and the ſeeds will ſcatter and fill the ground with bents.

Where the ſeeds are deſigned to be ſaved, the firſt crop in the ſpring ſhould be permitted to ſtand until the ſeeds are ripe, which may be known by the ſtalks and heads changing to a brown colour; then it ſhould be cut in a dry time, and when it is well dried, houſed until winter, when the ſeeds ſhould be threſhed out: if they are wanted for immediate ſowing, they muſt be well dried, otherwiſe they will not quit their huſks.

It is a common complaint that Clover ſeed requires great labour to threſh it; which is chiefly owing to the ſecond crop being left for ſeed, which ripens ſo late, that there is not heat enough to dry the huſks ſufficiently. This may be remedied by leaving the firſt crop for ſeed; and then the ground will be ready to plough and prepare for wheat.

When cattle are fed with Clover hay, it ſhould be put into racks, otherwiſe they tread a great quantity of it down with their feet. This feed is much better for any other cattle than milch cows; though when it is dry it is not near ſo injurious to them as when green.

[The moſt approved method of ſowing red or broad Clover is on clean land, with a full crop of barley after turneps, at the rate of twelve pounds to an acre. The duration of it is very ſhort, except on freſh land; which points out the propriety of intermixing with it as great a variety of other crops as may be ſuitable. On land where it has been often repeated, it ſeldom will continue above two years, and very often not above one; and though manure will increaſe the crop, it will not prolong its ſtay. Clover evidently grows moſt kindly after turneps, and any ſoil that will bear them, is ſuitable for it. There is however a great quantity of Clover now grown on ſtrong clays, with good ſucceſs. A common way is, to mow it in june, and make it into hay. Two tons upon an acre may be reckoned a medium crop. It is particularly good for draft horſes and oxen. Sometimes it is mowed a ſecond time, late in auguſt; but the hay of this ſecond crop is leſs in quantity, and of an inferior quality to the former; unleſs dry fodder therefore be greatly wanted, it is better to feed it, inſtead of mowing a ſecond time.

When Clover is to be ſaved for ſeed, a common cuſtom is, to feed it down cloſe until the end of may; which early feed is a vaſt advantage for ewes, lambs, &c. as it comes in before the natural graſſes.

Theſe are the common advantages derived from Clover; but a greater benefit may be obtained by cutting it green, as often as it attains a ſufficient growth, and ſoiling horſes and cattle with it, in racks and cribs. In this manner it will ſupport more than twice the ſtock it would do if fed off the ground; beſides the additional quantity of manure, that will be made in the ſtables and yards, if they are kept littered with ſtraw, fern, &c. which increaſe of manure will fully compenſate the farmer for his expenſe in cutting and bringing the Clover into the yards. The quick growth of Clover after mowing ſhades the ground, and prevents the ſun from exhaling the moiſture of the land, ſo much as it would if fed bare; conſequently it continues to ſpring with more vigour; and the moment one crop is off, another begins to ſhoot up. Whereas when cattle feed it, they frequently deſtroy as much as they eat; and beſides, break the necks of the roots with their feet, which prevents the Clover from ſpringing ſo freely as it does after a clean cut by the ſcythe. In hot weather, which is the common ſeaſon for feeding Clover, the flies are generally ſo troubleſome to the cattle, that they are continually running from hedge to hedge, to bruſh them off, by which it is inconceivable what injury they do to the crop. But when they are fed in ſtables and yards, they are more in the ſhade, they thrive better, and conſume the whole of what is given them without waſte.

In the ſixth volume of the Tranſactions of the Linnean Society of London there is a full account by Mr. Markwick, Mr. Marſham, and M. C. G. Lehmann of Gottingen, three celebrated entomologiſts, of an Inſect, which is very deſtructive occaſionally to the ſeed of the common purple or honey-ſuckle Clover. It appears to be the *Curculio Trifolii* of Linneus; and is deſcribed by Mr. Marſham as having a black body, with an extended beak a little longer than the thorax, which has ſmall dots on it; the elytra or wing-covers are ſtriated; the antennæ pitchy; the legs ruſt-coloured, but the feet always black: the thighs are alſo ſometimes black. The abdomen is white. The length of the body is a line and half. It is figured in *t.* 5. at *p.* 94. at the bottom of the plate.

The damage done by this ſmall inſect, which we may call the *Clover Weevil*, is ſometimes conſiderable. Mr. Markwick informs us, that in 1798, four acres and a half produced him ſixteen buſhels three quarters of Clover ſeed, which ſold for 41*l.* 17*s.* 6*d.*: and in the year 1800, the ſame quantity of ground produced only ſeven buſhels and a half, worth at the ſame price 18*l.* 15*s.*—This deficiency was probably occaſioned by the depredations of this inſect, and the ſeed was alſo of an inferior quality.

Theſe Weevils come out early in ſpring in warm paſtures, and fly about till the heads of Clover break out, when the females depoſit their eggs on them. Hatched, between the calyxes, the maggot penetrates with its head into the rudiments of the firſt ſeed, as yet in a liquid ſtate, and then proceeds to another more advanced and ſuitable to its increaſed ſtrength. Having conſumed three or four of them, it remains in the place of the laſt, where it is ſufficiently ſheltered, and changes into its pupa or chryſalis ſtate; and after a few days comes forth in its perfect ſtate. Having taken a ſhort meal, it then ſlowly conceals itſelf in the ſmall holes of fences, or in the bark of trees, where it repoſes during the winter. Happily the wren, red-breaſt, and other ſmall birds deſtroy great numbers; but the fecundity of the remainder is prodigious.

There is a variety of Clover called *Cow-graſs*, which has been cultivated in ſome parts of Hampſhire with great ſucceſs. The ground reliſhes it extremely well, and it is by many preferred to common Clover. It grows more floridly, and thrives better upon poor land. At firſt they are not eaſily diſtinguiſhed; but on a cloſe inſpection, the *cow-graſs* will be found of a darker green, and more pointed at the ends of the leaves; the ſtalk is of a cloſer texture, and not ſo porous as the common Clover [e].

This ſeems to be that variety of Trifolium pratenſe, which is figured in the Flora Ruſtica, under the name of Cow-graſs.

Mr. Arthur Young ſays, that it is raiſed for ſeed in the weald of Suſſex; that there is a market for it at Heſtel; and that it is ſent to London: he wiſhes the cultivators of it, would take care that they have Cow-graſs, which is the Tr. alpeſtre, (our Tr. medium,) a plant quite different from the Cow-graſs of the ſhops: its roots run laterally under ground, like thoſe of couch or quich [f].

He alſo informs us that Mr. Roper, the Duke of Graſton's ſteward, in the ſpring of 1789 ſowed part of a field with red Clover, and the reſt of it with Cow-graſs, brought from Ayleſbury in Buckinghamſhire, with barley after turneps. Both were mown for hay in 1790, the common Clover giving the greateſt produce, and rather the moſt after-graſs. The following year both were fed, and the cow-graſs yielded waſtly more than the Clover, and of a better quality. They are apparently of a decidedly different habit and quality: the cow-graſs ſpreads more on the ground; thicker; the ſtalk is ſolid, not pipy, and it does not run equally to bloſſom. Mr. Young remarks however, that to all common appearance they are the ſame, for he does not put much faith in a doubtful appearance of ſolidity in the ſtalk [f].

[e] Kent's hints, 42. [f] Young's annals, 11. 246. Idem, 16. 490.

The former of theſe may be our Tr. medium, which was taken by Huxiſon for the alpeſtre. But the alpeſtre is quite different, and not a native of England. The latter cannot be the medium, if it is at all like the pratenſe, but is probably a wild variety of the latter.

A farmer at Burcleer, near Newberry, ſays, that Cow-graſs is found to ſucceed on land where Clover has been too often repeated, and that it grows very plentifully on any wet ſpewy ground, even in moiſt ſeaſons, generally producing three tons of hay on an acre at one cutting, but not any ſecond crop in the ſame year; it lodges very much, and is troubleſome to mow: the hay is ſaid to be preferred by horſes to clover hay [g]. We do not know what ſpecies or variety this may be. It ſeems as if Cow-graſs was not the ſame thing in different counties. The Hampſhire ſort is figured in Flora Ruſtica; in the ſame work may be found the meadow Clover in its wild ſtate, under the falſe name of *Tr. medium*, and the true *Tr. medium* under the name of *flexuoſum*. The *medium* is alſo figured in Engliſh Botany. With the aſſiſtance of theſe figures, and the ample deſcriptions given in this work, the *pratenſe*, *medium* and *alpeſtre* cannot well be confounded.]

27. Mr. Miller ſays that in ſome counties this is ſown after the ſame manner as the common red Clover, eſpecially on chalky ground, where it will thrive, and produce a better crop than Clover.

[But Mr. Miller ſeems to have miſtaken this ſpecies, for he ſays that the flowers are of a pale copper colour; and that it is known by the name of Trefoil.

A new ſort of Clover has been found and cultivated near Bawtry in Yorkſhire, which is ſuppoſed to be the *ochroleucum*; but if the deſcription be exact it cannot be that ſpecies, for it is ſaid that the nob (flowering head) has white cups tipped with pink [h]: now that is ſometimes the caſe with the *repens* or white Dutch Clover; but the *ochroleucum* has the florets of a pale brimſtone colour. Nor does the latter, ſo far as we can judge from it in its wild ſtate, promiſe to rival broad Clover in any degree except in its permanency.]

49, 50. Theſe grow naturally among graſs in moſt of the upland paſtures in this country; and the ſeeds of the former are frequently ſold in the ſhops by the name of Hop-Clover, and are by many mixed with other ſorts of clover and graſs-ſeeds, for laying down ground to paſture. The latter is a much ſmaller plant, and has trailing ſtalks. The heads of flowers are ſmaller, and of a deeper yellow colour. Theſe not being abiding plants, are by no means proper to be ſown where the ground is deſigned to continue in paſture; but where one or two crops only are taken, and the land is ploughed again for corn, it may do well enough when it is mixed with other ſeeds, though the cattle are not very fond of it green, unleſs when it is very young. The large ſort is the moſt profitable, but this is rarely to be had without a mixture of the ſmall kind, and alſo of the ſmaller Melilot, which is commonly called Nonefuch, or ſometimes Black Seeds, for thoſe who ſave the ſeeds for ſale, are ſeldom curious enough to diſtinguiſh the ſorts; but in lawns, where the beauty of the verdure is conſidered, there muſt not be any of theſe ſeeds ſown, becauſe their yellow heads of flowers are very unſightly among the graſs; and if it is in gardens where the graſs is conſtantly mowed, the flowers of theſe plants will come out near the root in ſuch cluſters, as to occaſion large, unſightly, yellow patches; and as the heads decay they turn brown, and have a very diſagreeable appearance. [See *Medicago lupulina*.

Hartlib, in his Compleat Huſbandman, 1659, mentions a place in Kent, which is a white chalky down, ſometimes ſown with corn a year or two, and then reſting as long or longer; when it is laid down, maintaining many great ſheep and very luſty, ſo that they are even fit for the butcher; and yet there doth not ſcarce appear any thing that they can eat, which hath

[g] Young's annals, 17. 413. [h] Idem, 24. 529 to 535.

caused divers to wonder, as if they had lived on chalk-stones: but I, says Hartlib, thoroughly viewing the ground, perceived that it naturally produceth a small Trefoil, which it seemeth is very sweet and pleasant; it is commonly called *Trifolium luteum* or *lupulinum*, that is *yellow* or *Hop-Trefoil:* and I am persuaded, if that the seed of this Trefoil were preserved, and sown with oats, when they intend to lay it down, it would very much advance the pasture of that place. Therefore I desire all ingenious men, seriously to consider the nature of the Trefoils, which are the sweetest of grasses, and to observe on what grounds they naturally grow, and also the nature of other grasses naturally growing in this isle, some on watry places, some on dry, some on clay, others on sand, chalk, &c. some on fruitful places, others in barren; by the which means I suppose a solid foundation might be laid for advancing the pasture lands of all sorts, through this island[1].]

As to the other species, which are mostly preserved in botanic gardens, they are easily propagated by seeds, sown in an open bed of ground, either in autumn or spring. The plants which come up in autumn will grow much larger, and flower earlier in the summer; from these therefore good seeds may be generally obtained, whereas the others sometimes miscarry. When the plants come up, they require no other care than to keep them clean from weeds, and to thin them where they are too close.

[TRIFOLIUM. See *Anthyllis, Cytisus, Ebenus, Hedysarum, Indigofera, Lotus, Medicago, Menyanthes, Potentilla, Psoralea.*

TRIFOLIUM acetosum. See *Oxalis.*

——— bituminosum. See *Psoralea.*

——— cochleatum. See *Medicago.*

——— corniculatum. See *Lotus* and *Trigonella.*

——— fruticans. See *Jasminum* and *Psoralea.*

——— hepaticum. See *Anemone Hepatica.*

——— palustre. See *Menyanthes.*

——— siliquosum. See *Cleome.*

——— spinosum. See *Fagonia.*

TRIGLOCHIN. (*From τρεις, three; and ογκος, a point: the capsule opening in three points, like the barbs of an arrow.*)

Lin. gen. 453. *Reich. n.* 488. *Schreb. n.* 616. *Gærtn. t.* 84. *Juss.* 47. Juncago. *Tournef. t.* 142. *Mich.* 31.

Class. 6. 3. Hexandria Trigynia.

Nat. order of *Tripetaloideæ. Juncі* Juss.

GENERIC CHARACTER.

CAL. *Perianth* three-leaved: *leaflets* roundish, obtuse, concave, deciduous.

COR. *Petals* three, ovate, concave, obtuse, like the calyx.

STAM. *Filaments* six, very short. *Anthers* as many, shorter than the corolla.

PIST. *Germ* large. *Styles* none. *Stigmas* three or twice as many, reflexed, feathered.

PER. *Capsule* ovate-oblong, obtuse; *cells* as many as there are stigmas, opening at the base by acute valves.

SEEDS solitary, oblong.

ESSENTIAL CHARACTER.

Cal. three-leaved. *Pet.* three, calyx-form. *Style* none. *Capf.* opening at the base.

SPECIES.

1. Triglochin palustre. *Marsh Arrow-grass.*

Lin. spec. 482. *fist.* 453. *Reich.* 2. 125. *Willd.* 2. 264. *fl. lapp. n.* 134. *suec. n.* 321. *Act. stockh.* 1742. *p.* 147. *t.* 6. *f.* 1, 2, 3. *Gærtn. fruct.* 2. 26. *Hudf. angl.* 152. *Wither. arr. ed.* 3. 359. *Smith brit.* 398. *engl. bot. t.* 366. *Relh. cant. ed.* 2. *n.* 327. *Sibth. oxon. n.* 358. *Abbot bedf. n.* 282. *Dickf. hort. ficc.* 15. 10. *Fl. dan. t.* 490. *Hall. helv. n.* 1308. *Hoffm. germ.* 130. *Roth. germ.* 1. 158. 2. 417. *Pollich pal. n.* 364. *Leers herborn. n.* 272. *t.* 12. *f.* 5. *Kruck. filef. n.* 575. *Scop. carn. n.* 446. *Villars dauph.* 2. 228. *Allion. pedem. n.* 864. *Gmel. fib.* 1. 72. *Desfont. atlant.* 1. 322.

[1] Hartlib, p. 39.

Juncago palustris et vulgaris. *Tournef. inst.* 266. *Raii syn.* 435.

Gramen Triglochin. *Bauh. hist.* 2. 508.

Gr. junceum spicatum f. Triglochin. *Bauh. pin.* 6. *theat.* 81. *Tabern. ic.* 224. *Raii hist.* 1308.

Gr. aquaticum spicatum. *Ger. emac.* 13.

Gr. enode spicatum, f. triglochin. *Mor. hist. f.* 8. *t.* 2. *f.* 18.

Calamagrostis 4. *Dalech. hist.* 1006. *Trag.* 679.

β. Juncago maritima perennis, bulbosa radice. *Mich. gen.* 44.

J. maritima. *Barr. rar.* 55. *t.* 271.

Hyacinthi parvi facie Gramen Triglochin. *Bauh. hist.* 2. 508.

Capsules three-celled even linear attenuated at the base.

2. Triglochin bulbosum. *Bulbous Arrow-grass.*

Lin. syst. 348. *Reich.* 2. 126. *Willd.* 2. 264. *mant.* 226. *Jacqu. collect. suppl.* 102. *ic. rar.* 2. 454.

Gramen triglochin bulbosum monomotapense. *Brey. fasc.* 4.

Capsules three-celled even linear attenuated at the top.

3. Triglochin maritimum. *Sea Arrow-grass.*

Lin. spec. 483. *fist.* 348. *Reich.* 2. 126. *Willd.* 2. 265. *fl. lapp. n.* 135. *suec. n.* 322. *Act. stockh.* 1742. *p.* 147. *t.* 6. *f.* 4, 5. *Gærtn. fruct.* 2. 26. *Hudf. angl.* 152. *Wither. arr. ed.* 3. 359. *Smith brit.* 399. *engl. bot. t.* 255. *Relh. cant. ed.* 2. *n.* 328. *Fl. dan. t.* 306. *Hoffm. germ.* 130. *Roth. germ.* 1. 159. 2. 418. *Pollich pal. n.* 365. *Kruck. filef. n.* 576. *Scop. carn. n.* 447. *Allion. pedem. n.* 865. *Gmel. fib.* 1. 72.

Juncago palustris et maritima perennis, fructu breviore quinquecapsulari. *Mich. gen.* 44.

Gramen spicatum alterum. *Bauh. pin. 6. theat.* 82. *Ger. emac.* 20.

Gr. enode spicatum, pericarpiis parvis rotundis. *Mor. hist. f.* 8. *t.* 2. *f.* 19.

Capsules six-celled grooved ovate.

DESCRIPTIONS, &c.

1. Root fibrous, tufted, perennial. Leaves radical, sheathing, bifarious, linear, channelled, somewhat more slender and less fleshy than in the *maritimum*, but like them semicylindrical, with a membranous, sheathing, intrafoliaceous stipule. Scape solitary, erect, simple, a foot high, longer than the leaves, bearing a long, thick-set, but slender spike of numerous flowers, smaller than in the *maritimum*. The most certain and striking distinction between them is, that the fruit of this is much more long and slender, having only three cells and three valves instead of six. These valves separating from the base, look like a three-barbed arrow-head; whence the name. Seeds linear[k].

Gærtner describes the fruit as narrow, elliptic, tripartile and tricapsular. Capsules acuminate downwards, three-sided, valveless. Common receptacle three-sided, but augmented moreover by three wings, as it were so many intercalary partitions, which perhaps may be abortive capsules stifled by the neighbouring ones.

Native of Europe, Siberia and Barbary, in wet boggy meadows, flowering in july. All cattle will eat it, and Dr. Withering says cows are extremely fond of it[l].

2. Root bulbous, covered with bristles heaped into a tufted bundle. Scape scarcely half a foot high, channelled a little on one side. Leaves radical, filiform, and slightly channelled on one side like the scape.

The flowers and whole plant very much resemble the preceding species, but the flowers and fruit are smaller. Styles three, protracted and spreading; whereas in T. palustre they are erect and obsolete.—Native of the Cape of Good Hope[m].

3. Scape scarcely longer than the leaves, inclining at the base, terminating in a dense spike of greenish-purple flowers, on short flower-stalks. Leaves wider

[k] Smith brit. and engl. bot. [l] Engl. bot.
[m] Linn. mant.

and

and more fleſhy than in the paluſtre, with which it agrees in habit. The ſix anthers are almoſt ſeſſile, and very large before they burſt. Germ with ſix furrows, changing to an ovate capſule, which is ſhorter than that of the firſt, and has ſix cells; whereas T. paluſtre has but three*.

Gærtner deſcribes the fruit as compoſed of ſix ſuperior capſules, united into one ovate-globular, ſtriated fruit, three-ſided, gibbous on one ſide and ſcored with a furrow; acute-angled on the other and ſtraight, coriaceous, one-celled and valveleſs. Common receptacle filiform, three-ſided, in the axis of the fruit: proper, a very ſhort umbilical chord leading from the top of the cell to the upper part of the ſeed. In each capſule one ſeed, which is long, drawn to a point at each end, three-ſided, of a pale greeniſh colour.

Native of moſt parts of Europe, and of Siberia, in ſalt marſhes, and in the ouze of large rivers, where the tide flows; flowering throughout the ſummer. All domeſtic cattle being very fond of this plant, it may deſerve the notice of ſuch as poſſeſs ſalt-marſhes*.]

TRIGONELLA. (*Dimin. from* trigona (corolla); *ſo named from its three-cornered corolla.*)

Lin. gen. n. 898. *Reich. n.* 970. *Schreb. n.* 1213. *Gærtn. t.* 152. *Juſſ.* 356. Fœnum-græcum. *Tournef. t.* 270.

Claſſ. 17. 4. Diadelphia Decandria.

Nat. order of *Papilionaceæ* or *Leguminoſæ*.

GENERIC CHARACTER.

CAL. *Perianth* one-leafed, bell-ſhaped, half-five-cleft: *teethlets* awl-ſhaped, nearly equal.

COR. papilionaceous, as it were three-petalled?

Banner ſubovate, obtuſe, reflex-ſpreading.

Wings two, ovate-oblong, outwardly reflex-ſpreading, ſo that the banner with the wings conſtitutes as it were a regular three-petalled corolla.

Keel very ſhort, obtuſe occupying the navel of the flower.

STAM. *Filaments* diadelphous (ſimple and nine-cleft) ſhort, riſing. *Anthers* ſimple.

PIST. *Germ* ovate-oblong. *Style* ſimple, riſing. *Stigma* ſimple.

PER. *Legume* ovate-oblong, compreſſed, covered.

SEEDS many, roundiſh.

OBS. *From the form of the corolla only this becomes a diſtinct genus.*

ESSENTIAL CHARACTER.

Banner and *wings* nearly equal, ſpreading, in form of a three-petalled corolla.

SPECIES.

1. Trigonella ruthenica. *Small Fenugreek.*
   Lin. ſpec. 1093. *Reich.* 3. 570. *vir. cliff.* 76. *hort. cliff.* 378. *Gmel. ſib.* 4. 24. *n.* 33. *t.* 8.
   Melilotus ſupina anguſtifolia, medicæ facie, ſiliqua compreſſa. *Amm. ruth.* 159. & *n.* 156.
   Lotus montana humilior trifolia, ad caulem alata lutea, ſiliqua modo recta, modo medicaginis inſtar falcata nigra. *Amm. ruth.* 119.
   Legumes peduncled heaped pendulous linear ſtraight, leaflets ſublanceolate.
2. Trigonella platycarpos. *Round-leaved Fenugreek.*
   Lin. ſpec. 1093. *ſyſt.* 692. *Reich.* 3. 570. *hort. upſ.* 229. *Gmel. ſib.* 4. 25. *t.* 9. *Kniph. cent.* 9. *n.* 93.
   Melilotus ſupina latifolia, ſiliqua lata membranacea compreſſa. *Amm. ruth.* 158. *act. goett.* 1. 213. *t.* 13.
   M. ſiliqua membranacea compreſſa. *Act. petrop.* 8. 209. *t.* 12.
   Legumes peduncled heaped pendulous oval compreſſed, ſtem diffuſed, leaflets roundiſh.
[3. Trigonella ſtriata.
   Lin. ſyſt. 692. *ſuppl.* 340.
   Legumes peduncled nearly upright diſtant, peduncles longer than the leaf.]
4. Trigonella polycerata. *Bread-leaved* or *Spaniſh Fenugreek.*
   Lin. ſpec. 1093. *Reich.* 3. 570. *hort. cliff.* 376. (Medicago.)
   Buceras polyceration. *Allion. pedem. n.* 1142.
   Fœnum græcum ſylveſtre alterum polyceration. *Bauh. pin.* 348. *Raii hiſt.* 954. 3.
   F. ſylveſtre alterum. *Dod. pempt.* 547.
   Legumes ſubſeſſile heaped erect nearly ſtraight long linear, peduncles awnleſs.
[5. Trigonella hamoſa. *Egyptian Fenugreek.*
   Lin. ſpec. 1094. *Reich.* 3. 571.
   Fœnum græcum, corniculis reflexis, minor ſ. repens. *Boerh. lugdb.* 2. 33.
   Melilotos ægyptius Achimelech vocatus. *Alp. ægypt.* 41. *t.* 124. *Bauh. hiſt.* 2. 357. *Raii hiſt.* 953. *n.* 13.
   M. Indiæ orientalis. *Park. theat.* 720. *n.* 7. *Raii hiſt.* 953. *n.* 14.
   M. corniculis reflexis, minor ſ. repens. *Bauh. pin.* 331.
   Legumes peduncled racemed declined hooked round, peduncles ſpiny longer than the leaf.]
6. Trigonella ſpinoſa. *Thorny Fenugreek.*
   Lin. ſpec. 1094. *Reich.* 3. 571. *Gærtn. fruct.* 2. 332. *Lin. hort. cliff.* 377. (Medicago.)
   Fœnum græcum ſylveſtre polyceration creticum majus. *Breyn. cent.* 79. *t.* 33. *f.* 1. *Raii hiſt.* 955. 5.
   Legumes ſubpeduncled heaped declined ſickle-ſhaped compreſſed, peduncles thorny very ſhort.
[7. Trigonella corniculata. *Horſe-ſhoe Fenugreek.*
   Lin. ſpec. 1094. *ſyſt.* 692. *Reich.* 3. 571. *hort. cliff.* 376. *Gort. geſr.* 435. *Gron. orient.* 96. (Trifolium.)
   Buceras corniculatum. *Allion. pedem. n.* 1143.
   Melilotus corniculis reflexis, major. *Bauh. pin.* 331. *Raii hiſt.* 952.
   M. ſyriaca. *Park. theat.* 719. *n.* 4.—odora 720. *f.* 4. *Ger.* 1033. *f.* 1. *emac.* 1204. *f.* 1.
   M. lutea major, cornic. reflexis ex eodem centro ortis. *Mor. hiſt.* 2. 162. *ſ.* 2. *t.* 16. *f.* 11.
   Trifolium corniculatum 2. *Dod. pempt.* 573.
   Legumes peduncled heaped declined ſomewhat ſickle-ſhaped, peduncle long ſomewhat ſpiny, ſtem erect.
8. Trigonella monſpeliaca. *Trailing Fenugreek.*
   Lin. ſpec. 1095. *Reich.* 3. 572. *Deſfont. atlant.* 2. 208. *Vahl ſymb.* 2. 85.
   Medicago. *Lin. hort. cliff.* 377. *Dalib. par.* 231. *Sauv. monſp.* 187.
   Buceras monſpeliacum. *Allion. pedem. n.* 1144.
   Fœnum græcum polyceraton. *Rivin. tetr. t.* 82.
   F. ſylveſtre polyceratium monſpeliacum. *Breyn. cent.* 80. *t.* 33. *f.* 2.
   F. ſylv. minimum polyceration. *Mor. hiſt. ſ.* 2. *t.* 17. *f.* 4.
   Hedyſarum minimum. *Dalech. hiſt.* 446.
   Legumes heaped ſeſſile bowed divaricated inclined ſhort, peduncle mucronate unarmed.
9. Trigonella laciniata. *Jagged Fenugreek.*
   Lin. ſpec. 1095. *ſyſt.* 692. *Reich.* 3. 572.
   Legumes peduncled ſubumbelled elliptic, leaflets wedge-form toothed, ſtipules laciniated.]
10. Trigonella Fœnum-græcum. *Common Fenugreek.*
    Lin. ſpec. 1095. *Reich.* 3. 572. *hort. upſ.* 229. *mat. med.* 175. *Woodv. med. bot.* 437. *t.* 158. *vir. cliff.* 76. *Dalib. par.* 228. *Sauv. monſp.* 187. *Kroch. ſilef. n.* 1220. *Aſſo arag. n.* 735. *Deſfont. atlant.* 2. 208. *Gærtn. fruct.* 2. 332. *Ludw. elt. t.* 160.
    Buceras. *Hall. helv. n.* 379.—fœnum græcum. *Allion. pedem. n.* 1145.
    Medicago. *Lin. hort. cliff.* 376.
    Fœnum græcum. *Fuchſ. hiſt.* 798. *Camer. epit.* 199. *Trag.* 597. *Matth.* 413. *Bauh. hiſt.* 2. 365. *Ger.* 1026. *emac.* 1196. 1. *Raii hiſt.* 954. *Mor. hiſt. ſ.* 2. *t.* 17. *f.* 1. *Rivin. tetr. t.* 81. *Blackw. t.* 384. *Regnault bot.*
    F. ſativum. *Bauh. pin.* 348. *Park. theat.* 1096. *f.* 1. *Tournef. inſt.* 409.
    β. Fœnum græcum ſylveſtre. *Bauh. pin.* 348. *Park. theat.* 1096. *f.* 2. *Ger. emac.* 1196. *f.* 2. *Raii hiſt.* 954. 2.
    Legumes ſeſſile ſtrict nearly erect ſomewhat ſickle-ſhaped acuminate, ſtem erect.
[11. Trigonella indica. *Indian Fenugreek.*
    Lin. ſpec. 1095. *Reich.* 3. 573. *fl. zeyl. n.* 285. *Pluk. phyt. t.* 200. *f.* 7.
    Legumes ſeſſile ſubſolitary ſubfalcate, leaflets quite entire, ſtem diffuſed.

* Engl. bot. ° Idem.

12. **Trigonella pinnatifida.**
Cavan. ic. hisp. 1. 26. n. 40. t. 38.
Stem proſtrate four-cornered, legumes linear compreſſed erect ſeſſile.

DESCRIPTIONS, &c.

1. This is a biennial plant; the roots decaying ſoon after the ſeeds are ripe. Stalks very ſlender, trailing, extending a foot and half in length, and dividing into ſeveral branches. Leaflets wedge-ſhaped, indented at the point and ſerrate, narrower than in the ſecond and fourth: [according to Linneus, they are lanceolate, very blunt, acutely ſerrate above, and toothed; and the ſtipules are quite entire.] The flowers are produced in cluſters upon ſlender axillary peduncles; they are ſmall, and of a bright yellow colour. The pods are narrow (linear) and erect. Linneus ſays pendulous. They contain three or four ſeeds.—Native of Siberia.

[It was cultivated in 1759, by Mr. Miller, who received the ſeeds from Dr. Amman, profeſſor of Botany at Peterſburgh. It flowers in june and july [a].]

2. Root biennial, like the preceding. Stalks trailing, extending a foot in length, and ſending out many ſide branches. Leaflets roundiſh, ſerrate: [according to Linneus, ſubovate and acutely ſerrate longitudinally. Stipules commonly toothed.] Flowers in cluſters, peduncled, axillary; they are ſmall, and of a yelloviſh white colour. Pods oval, compreſſed, containing two ſeeds. It flowers in june, and the ſeeds ripen in ſeptember. Native of Siberia, whence the ſeeds were ſent with the other by Amman, [to Mr. Miller, who cultivated this ſpecies in 1759 [b].

3. Annual. Leaflets, eſpecially the younger ones having lateral, ſnow-white ſtreaks. Common peduncle longer than the leaves, erect, awnleſs at the top, with five or ſix terminating flowers, not in a raceme, ſeſſile, yellow. Legumes umbelled, almoſt erect, like the fingers of the hand ſtretched out, linear, ſeſſile, five or ſix, a little bowing inwards. Native of Abyſſinia [c].]

4. This is an annual plant, the roots decaying ſoon after the ſeeds are ripe. Stalks trailing, extending a foot and half in length, and ſending out ſeveral ſide branches. Leaves ſmall; the leaflets wedge-ſhaped and ſerrate at their points. Flowers in axillary cluſters; ſmall, of a pale yellow colour, and ſitting very cloſe to the ſtalks. Pods ſhort and hooked, ſeſſile and ſpreading out every way. It flowers in july, and the ſeeds ripen in autumn. [Cultivated in 1759, by Mr. Miller [d].

5. Annual. Stems decumbent, aſcending. Leaflets obovate, wedge-ſhaped, toothed, veined, pubeſcent. Peduncle longer than the leaf, terminated by a ſpine. Flowers in racemes, having the banner ſhorter by half than the wings or keel. Legumes as far as ten, filiform, hooked, hanging down, aſcending at the tip towards the calyx. Native of Egypt, where it was found by Haſſelquiſt [e].

Cultivated here in 1640, as appears from Parkinſon [f], in whoſe time it was ſuppoſed to be a native of the Eaſt Indies.]

6. The ſtalks of this are ſlender, and riſe a foot high, ſending out ſeveral ſlender branches. Leaflets wedge-ſhaped, ſerrate at the ends, where they are indented, ſtanding upon ſlender foot-ſtalks. Flowers in cluſters from the ſides of the branches upon ſhort peduncles, which ſtand erect, and are armed with ſhort ſpines: they are ſmall, and of a pale colour. Pods narrow, parallel, and erect. This is an annual plant, which flowers in july; the ſeeds ripen at the end of auguſt, and the plant decays ſoon after.

[Stipules toothed. The peduncle becomes a rigid ſpine, at the baſe of which are often five veined ſmooth legumes [g].—Theſe are linear-oblong, ſickle-ſhaped, roundiſh or very ſlightly compreſſed, with tranſverſe raiſed nerves. Seeds eight to twelve, ovate-oblong with a beak, yellow [h].

Native of the iſland of Candia. Cultivated in 1739 by Mr. Miller [i].

[a] Hort. kew. [b] Hort. kew. [c] Linn. ſpec.
[d] Linn. ſpec. [e] Forſkahl. [f] Parkinſon.
[g] Linn. ſpec. [h] Gærtner. [i] Hort. kew.

7. Annual. Stem upright. Stipules ſimple, ſomewhat toothed. Peduncle four-cornered, longer than the leaf, ſoftly-ſpiny at the end, under which are from ten to twelve ſickle-ſhaped legumes, ſhorter than the peduncle. Calyxes before they unfold very obſcure. Flowers extremely ſweet-ſcented. Native of the South of Europe [a]. Cultivated in 1597 by Gerarde. It flowers in june and july [b].

8. Annual. Stems proſtrate, growing cloſe to the ground. Peduncle very ſhort, ſoftly mucronate, not longer than the leaf. Legumes ten to twelve, declining [c].

Stems many in the ſame tuft, pubeſcent. Leaves fan-ſhaped, pubeſcent with a very ſhort down, toothletted, nerved beneath, with the middle leaflet petioled. Stipules narrow, acute. Flowers very ſmall, yellow, glomerate, ſeſſile along the ſtem. Legumes compreſſed, ſickle-ſhaped, acute, ſtriated tranſverſely [d].

Tr. ſtellata of Forſkahl is a mere variety, and differs from Linneus's *monſpeliaca* only in having the leaves not rounded at the end but retuſe [e].

Native of France, Italy and Algiers.—Introduced in 1771, by Monſ. Richard. It flowers in june and july [f].

9. This reſembles Medicago polymorpha laciniata. Stems filiform, even. Leaflets even, retuſe, finely toothed. Stipules jagged-toothed. Peduncles axillary, ſcarcely the length of the leaves, terminated by a ſoft ſpinule, bearing a few yellow flowers in a ſort of umbel. Legumes almoſt like thoſe of Melilot, oval, ſharp at both ends, twice as long as the calyx. Native of Egypt [g].]

10. Common Fenugreek is an annual plant, which riſes with a hollow, branching, herbaceous ſtalk. Leaflets oblong, oval, indented on their edges, on broad furrowed foot-ſtalks. The flowers come out ſingly at each joint from the axils; they are white, and ſit very cloſe to the ſtalk. Pods long, compreſſed, ſhaped ſomewhat like a broad-ſword, ending in long points, and having a broad membrane on one edge: they are filled with ſquare yellow ſeeds, indented on one ſide like a kidney. The whole plant has a very ſtrong odour.

[It is ſmooth. The ſtem is ſimple or ſparingly branched and ſtriated. Leaves petioled: leaflets obovate or elliptic, toothletted above, the middle one of the three petioled. Legumes ſeſſile, axillary, compreſſed, bowed, the upper margin thinner, having a long awl-ſhaped point [h]:—they are very long, filiform-acuminate, narrow, ſomewhat compreſſed and ſickle-ſhaped, opening by the convex margin. Seeds ſometimes as many as eighteen, rhomboid, gibbous, beaked with a depreſſed line, yellow or ſaffron-coloured [i].

Native of *France*, the county of Nice, Spain, Germany and Barbary.—Cultivated in 1597, according to Gerarde [k], who ſays, we ſow a ſmall quantity in our gardens.

The ſeeds are brought to us from the South of France and Germany, where they are annually ſown for exportation.

They have a ſtrong diſagreeable ſmell, and an unctuous farinaceous taſte, accompanied with a ſlight bitteriſhneſs. An ounce renders a pint of water thick and ſlimy. To rectified ſpirit they give out the whole of their diſtinguiſhing ſmell and taſte, and afterwards to water a ſtrong flavouriſs mucilage.

Theſe ſeeds are never given internally, their principal uſe being in cataplaſms and fomentations, for ſoftening, maturating, and diſcuſſing tumours; and in emollient glyſters. They were alſo an ingredient in the *oleum e mucilaginibus*; but this has no longer a place in the pharmacopœia [l]. They are uſed by grooms and farriers for horſes.

β. The wild plant differs, in having long runners next the root, all preſſed cloſe to the ground, the ſtem only being upright; leaflets obovate, not ob-

[a] Linn. ſpec. [b] Hort. kew. [c] Linn. ſpec.
[d] Deſfon. aines. [e] Vahl. [f] Hort. kew.
[g] Linn. ſpec. [h] Deſfontaines. [i] Gærtner.
[k] Hort. kew. [l] Woodville and Lewis.

tufely lanceolate; with the joints of the leaves purple. Legumes more hairy [a].

11. Procumbent, not much branched. Leaves petioled: leaflets almoft equal, fomewhat oblong, fmooth. Stipules ovate-lanceolate. Legumes one or two on the fame peduncle, fubfeffile in the axils, recurved, compreffed [b].—Native of the Eaft Indies.

12. Root annual, long, fibrous. Stems numerous, branched, red. Leaves diftant, fhorter than the common petiole, which is channelled: the lower feffile with the third petioled, pinnatifid-ferrate, retufe. Stipules jagged at the bafe, acute at the tip. Flowers axillary, feffile, from three to five. Corolla pale yellow. Legumes an inch long, erect and bowed a little; containing many feeds. Native of Spain, in the neighbourhood of Madrid.

It refembles Medicago polymorpha laciniata, of Linneus, and therefore Trigonella laciniata, but it differs from them entirely in the legumes [c].

The leaves in all the fpecies are ternate.]

PROPAGATION AND CULTURE.

1 to 9. Thefe are hardy annuals. Sow the feeds where the plants are deſigned to ſtand, for they will not bear tranſplanting. If they are ſown in autumn, in the way directed for the common ſort, the plants will come earlier to flower, and good ſeeds may be obtained with more certainty than from ſpring plants. All the culture they require, is to thin them where they ſtand too cloſe, and to keep them clean from weeds.

10. The ground in which this plant thrives beſt, is a light hazel loam, not enriched with dung; this ſhould be made clean from the roots of weeds, and well ploughed twice, and harrowed fine before the ſeeds are ſown. The beſt time to ſow the ſeeds is the latter end of auguſt or beginning of ſeptember; theſe ſhould be ſown in ſhallow drills like Peas. The rows ſhould be two feet aſunder, and the ſeeds muſt be ſcattered one inch diſtant from each other in the drills; for if the plants are too cloſe together in the ſpring, they may be eaſily thinned with the hoe when the ground is cleaned. If the ſeeds are ſown at the before-mentioned time, the plants will appear in three weeks or a month after; and if the weeds appear at the ſame time, the ground ſhould be hoed over as ſoon as poſſible in dry weather, to deſtroy the weeds; and when the plants are grown an inch high, the earth ſhould be drawn up to their ſtems in the ſame manner as is practiſed for Peas. This will ſecure their ſtems from being injured by ſharp cutting winds; and if a ridge of earth is drawn up on the north or eaſt ſide of each row, it will protect the plants from the pinching winds which blow from both thoſe quarters; for although this plant will not be in any danger from the froſt in the ordinary winters, yet in very ſevere froſts it is ſometimes killed; but as this plant will live in any ſituation, where Peas ſtand through the winter, there will be no greater hazard of the one crop than the other.

In the ſpring of the year the ground muſt be hoed again in dry weather to kill the weeds, and the plants ſhould be *again* earthed up in the like manner as Peas, with whoſe culture this plant will thrive; but there muſt be great care taken to keep the ground as clean from weeds as poſſible, for if they are permitted to grow, they will ſoon advance above the plants, and greatly weaken them; and when their pods begin to form, they cannot be too much expoſed to the ſun and air, whereby they will be leſs liable to ſuffer from moiſture.

When the ſeeds are ſown in autumn, the plants will grow much ſtronger, and have many more ſide branches than thoſe which come up in the ſpring, ſo will produce a much greater crop of ſeeds, and theſe will produce their flowers five or ſix weeks earlier, and have a better ſeaſon to ripen; but in order to have them better ripened, the top of the plants ſhould be cut off with garden ſhears about the middle of june, by which time the pods will be formed on the lower part of the ſtalks, which will be greatly forwarded by topping the ſtalks in the ſame way as is commonly practiſed for garden Beans; for where the plants are ſuffered to extend in length, the lower pods often miſcarry, or are leſs nouriſhed, and thoſe on the top of the ſtalks are late before they ripen; ſo where the topping of the plants is omitted, the pods at bottom will open and caſt out their ſeeds, before thoſe above will be ripe; therefore to preſerve the firſt and cut off the other, will be found the beſt method; for by ſo doing, the pods will ripen equally, and much earlier in the ſeaſon.

If the ſummer proves warm, the ſeeds will ripen in auguſt, and the plants ſhould then be cut off, and laid to dry for five or ſix days, in which time they ſhould be turned two or three times, that the pods may dry equally; then the ſeeds may be either threſhed out in the field, or the haulm may be houſed in a barn, to be threſhed at a more convenient time.

Fenugreek has not been cultivated in any quantity for uſe in England, becauſe it is an uncertain crop, occaſioned by the inconſtancy of our weather; the plants, in cold ſeaſons being frequently killed, before the ſeeds ripen; or if they live long enough to have the ſeeds perfected, the pods change of a dirty colour, and the ſeeds turn black and unſightly, when much rain falls in the autumn.

[Dr. Woodville however affirms, that in dry ſeaſons it ripens the ſeeds here very well, and judging by his own experience, he thinks it might be cultivated to great advantage in this country.

TRIGONIA. (*So named from the form of the fruit.*)

Lin. gen. Scherb. n. 1178. *Aubl. t.* 149. 150. *Juſſ.* 253.

Claſs 17. 4. Diadelphia Decandria.

Nat. order of *Malpighiæ* Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* one-leafed, turbinate: *border* five-cleft, the two upper ſegments more deeply ſeparated, erect, diverging.

COR. papilionaceous; five-petalled.

Banner erect, flat, clawed.

Wings reflexed, longer, narrower.

Keel two-petalled, converging.

STAM. *Filaments* ten, connected into a ſheath, diſtinct at top, ſome (3, 5, 7.) often barren. *Anthers* oblong.

PIST. *Germ* ovate, ſmall. *Style* ſhort, aſcending. *Stigma* headed, flat, girt with a membranaceous margin.

PER. *Capſule* oblong, three-cornered, three-grooved, acute, one-celled, three-valved: *valves* boat-ſhaped, doubled; outer coriaceous, inner membranaceous woolly within.

SEEDS very many, roundiſh, involved in long wool, faſtened to three threads uniting the valves.

OBS. *Are the ſeeds faſtened rather to one future only? It may be doubted whether this genus be rightly referred to this place?* S.

ESSENTIAL CHARACTER.

Cal. five-parted. *Pet.* five, unequal, uppermoſt foveolate at the baſe within. *Nect.* two ſcales at the baſe of the germ. *Filam.* ſome barren. *Capſ.* leguminoſe, three-cornered, three-celled, three-valved.

SPECIES.

1. Trigonia villoſa.

Aubl. guian. 188. *t.* 149. *Vahl ecl.* 2. 53.

Leaves obovate beneath tomentoſe hoary.

2. Trigonia lævis.

Aubl. guian. 190. *t.* 150.

Leaves oblong on both ſides ſmooth ſhining.

DESCRIPTIONS, *&c.*

1. Branches round, ſmooth below, villoſe above: branchlets hoary-tomentoſe. Leaves on the younger branchlets petioled, oppoſite, two or three inches long, ovate, attenuated towards the baſe, mucronate from the rib running out a little beyond the leaf, reflexed a little at the edge, ſmooth above, villoſe on the rib only which is yellowiſh, marked with lines along the nerves; beneath tomentoſe, hoary, netted-veined, both nerves and veins raiſed and villoſe with yellowiſh hairs. Racemes from the laſt axils quite ſimple, terminating, compound: branches oppoſite, ſpreading very much, decreaſing upwards. Pedicels

[a] Linn. ſpec. [b] Linn. zeyl. [c] Cavanilles.

oppoſite or alternate, ſpreading very much, with a yelloviſh down on them like the peduncles. At the baſe of each pedicel are two briſtle-ſhaped bractes. Calyx five-parted: ſegments ovate, acute, without tomentoſe and hoary, within ſmooth, one of them more interior and a little wider than the reſt, on the outſide ſnow-white with a raiſed green line on the back. Upper petal wider than the reſt, outwardly gibbous at the baſe, inwardly oppoſite to the bump an excavation with villoſe margins: the two lateral ones a little longer, linear-wedge-ſhaped, ſomewhat ſickle-ſhaped, the two lower oblong, gibbous in the middle of the inner ſide towards the edge. Nectary compoſed of two ſcales, which are ſtiffiſh, ſmall, ruſeſcent, ſmooth, a little connected at the baſe by one edge. Filaments ſtraight by the two lower petals, on one ſide of the germ, at firſt united, but afterwards dividing into two bodies, having five filaments in each, three of which are equal and have anthers, the other two are ſmaller and barren. Anthers ſmall, roundiſh. Germ villoſe, hoary. As the filaments do not ſeparate but as the germ increaſes, it might perhaps be more proper to inſert this genus in the claſs Monadelphia. Native of Cayenne.

2. Branches below ſmooth, round, having very numerous raiſed dots ſcattered over them; above flatted and ſomewhat four-cornered, alſo inclined to be villoſe. Leaves petioled, oppoſite, two or three inches long, oblong, ſharpiſh, quite entire, ſmooth on both ſides except the rib, veined, ſhining, paler beneath. Petioles a quarter of an inch in length, ſomewhat villoſe. Stipules none. Racemes from the upper axils and ends of the branches, erect, ſtiff; the terminating ones three inches long, with a few oppoſite branches at the baſe; the axillary ones quite ſimple, an inch or a little more in length. Flowers ſmaller by half than in the preceding, for the moſt part ſolitary, but ſometimes two together, on ſhort pedicels, hoary on the outſide. At the baſe of the pedicels there is a minute bracte. Leaflets of the calyx lanceolate, ſubcinereous. Nectary as in the preceding. Native of Guiana[r].

TRIGONIS. See *Cupania*.

TRIGOSANTHES. See *Feuillea*.

TRIGUERA. (*So named by Cavanilles, from a Spaniſh botaniſt.*)

Lin. gen. Schreb. n. 282. *Cavan. diſſ.* 2. *t.* A. *Juſſ.* 125.

Claſſ. 5. 1. Pentandria Monogynia.

Nat. order of *Luridæ*. *Solanæ* Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* one-leafed, half-five-cleft, permanent: *ſegments* unequal, acute.

COR. one-petalled, bell-ſhaped. *Tube* very ſhort. *Border* ventricoſe, plaited, five-cleft, longer than the calyx; the two upper ſegments reflexed.

Nectary membranaceous, ſhort, five-toothed, ſurrounding the germ.

STAM. *Filaments* five, very ſhort, inſerted outwardly into the teeth of the nectary. *Anthers* ſagittate, converging.

PIST. *Germ* roundiſh, two-grooved. *Style* filiform, ſtraight, a little longer than the ſtamens. *Stigma* obtuſe.

PER. a dry *Berry*, ſubglobular, grooved, four-celled.

SEEDS two in each cell, roundiſh, compreſſed, rugged: one above the other.

OBS. *The fruit is ſometimes two-celled, according to Cavanilles.*

ESSENTIAL CHARACTER.

Cor. bell-ſhaped, with an unequal border. *Nect.* ſhort, five-toothed, ſurrounding the germ. *Filam.* inſerted into the nectary. *Berry* four-celled, with two ſeeds in each cell.

SPECIES.

1. Triguera ambroſiaca.

Lin. ſpec. ed. Willd. 1. 839. *Cavan. diſſ.* 2. *app.* 2. *t.* A.

Stem grooved and winged, upper leaves obovate toothed pubeſcent.

[r] Vahl.

2. Triguera inodora.

Lin. ſpec. ed. Willd. 1. 839. *Cavan. diſſ.* 2. *app.* 3. *Leaves ovate-lanceolate quite entire ſmooth.*

DESCRIPTIONS, *&c.*

1. Stem angular, ſomewhat winged. Radical leaves obovate, quite entire; ſtem-leaves toothed, hairy. Peduncles axillary, in pairs. Corolla reſembling that of Hyoſcyamus or Henbane, of a violet colour.

2. This is ſcarcely winged, the leaves little or not at all running down the ſtalk; they are alſo ſmooth and not toothed. Both are annual plants, natives of Andaluſia in Spain[s].

TRIGUERA. See *Hibiſcus* and *Lagunæa*.

TRILIX. (*A tiſſue of three threads of different colours.*)

Lin. gen. Reich. n. 697. *Schreb. n.* 873. *Juſſ.* 435. Jacquinia *Mutis*.

Claſſ. 13. 1. Polyandria Monogynia.

GENERIC CHARACTER.

CAL. *Perianth* three-leaved: *leaflets* ovate, acute, ſpreading, flat, permanent.

COR. *Petals* three, lanceolate, acute, leſs than the calyx.

STAM. *Filaments* numerous, capillary, length of the corolla. *Anthers* roundiſh, twin, minute.

PIST. *Germ* five-cornered. *Style* cylindrical. *Stigma* ſimple.

PER. *Berry* ſubpentagonal, five-celled, covered with the calyx.

SEEDS numerous, roundiſh, minute.

ESSENTIAL CHARACTER.

Cal. three-leaved. *Cor.* three-petalled. *Berry* five-celled, many-ſeeded.

SPECIES.

1. Trilix lutea.

Lin. ſyſt. 487. *Reich.* 2. 562. *Willd.* 2. 1129. *mant.* 247.

Jacquinia. *Mutis mſs.*

DESCRIPTION, *&c.*

This is a ſhrub, two fathoms in height, and very much branched. Branches round and ſomewhat rugged. Leaves alternate, petioled, ſubpeltate, cordate-ovate, ſerrate, acuminate, veined, pubeſcent. Petioles round, ſmooth. Flowers yellow (not from the corolla but the anthers). Peduncles moſtly terminating. Pedicels alternate, one-flowered, round, pubeſcent. Native of Carthagena in America; where it was diſcovered by Mutis[t].]

TRILLIUM.

Lin. gen. n. 456. *Reich. n.* 491. *Schreb. n.* 620. *Juſſ.* 42.

Claſſ. 6. 3. Hexandria Trigynia.

Nat. order of *Sarmentaceæ*. *Aſparagi* Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* three-leaved, ſpreading: *leaflets* ovate, permanent.

COR. *Petals* three, ſubovate, a little bigger than the calyx.

STAM. *Filaments* ſix, awl-ſhaped, ſhorter than the calyx, erect. *Anthers* terminating, oblong, length of the filaments.

PIST. *Germ* roundiſh. *Styles* filiform, recurved. *Stigmas* ſimple.

PER. *Berry* roundiſh, three-celled.

SEEDS many, roundiſh.

ESSENTIAL CHARACTER.

Cal. three-leaved. *Cor.* three-petalled. *Berry* three-celled.

SPECIES.

1. Trillium cernuum. *Drooping Trillium.*

Lin. ſpec. 484. *Reich.* 2. 128. *Willd.* 2. 271. *Smith ſpicil. t.* 4.

Paris foliis ternis, flore pedunculato nutante. *Gold. noveb.* 81.

Solanum triphyllum, flore hexapetalo carneo. *Cateſb. car.* 1. 45.

Flowers peduncled drooping.

2. Trillium erectum. *Upright Trillium.*

Lin. ſpec. 484. *Reich.* 2. 128. *Willd.* 2. 271. *Curt. magaz. t.* 470.

[s] Willdenow and Cavanilles. [t] Linn. mant.

Paris foliis ternis, flore pedunculato erecto. *Amoen. acad.* 1. 154.

Solanum triphyllum brafilianum. *Bauh. pin.* 167. *prodr.* 91. *Rati hift.* 670.

S. triphyllum canadenfe. *Corn. canad.* 166. *t.* 167.

Solano congener triphyllum canadenfe. *Mor. hift.* 3. 532. *f.* 13. *t.* 3. *f.* 7.

Herba Paris triphyllos brafiliana. *Park. theat.* 390. *n.* 2.

Flower peduncled erect.

3. Trillium feffile. *Seffile-flowered Trillium.*

Lin. fpec. 484. *Reich.* 2. 129. *Willd.* 2. 272. *Curt. magaz. t.* 40.

Paris foliis ternatis, flore feffili erecto. *Gron. virg.* 44.

Solanum virginianum triphyllum, flore tripetalo atropurpureo, &c. *Pluk. phyt. t.* 111. *f.* 6.

S. triph. flore hexapetalo, &c. *Cateſb. car.* 1. *t.* 50.

Flower ſeſſile erect.

DESCRIPTIONS, *&c.*

1. [Root perennial, tuberous. Stem erect, a foot high, ſimple, round, ſlightly ſtriated, ſmooth. Leaves three together, terminating, on ſhort foot-ſtalks, ſpreading, rhomboidal, pointed, entire, veiny, ſmooth, paler beneath. Flower ſolitary, among the leaves, without bractes. Flower-ſtalk round, a little waved, ſmooth. Calyx-leaves ovate-oblong, acute, nerved, ſmooth, reflexed. Petals the length and figure of the calyx, whitiſh marked with blueiſh lines, reflexed. Stamens half as long as the petals: filaments very ſhort, equal, quadrangular, ſtraight: anthers vertical, two-celled, purple. Germ ovate, pale yellowiſh white, with ſix membranous prominent angles: ſtigmas three, ſeſſile, recurved, pale purple [a].]

According to Mr. Miller, the ſtalk riſes only five or ſix inches high; the leaves are two inches long, and an inch and half broad, and of a deep green colour; the calyx is green, and the petals whitiſh green on the outſide, but purple within. The flowers appear in april, and the berries ripen in june.

It grows naturally in the woods in many parts of North America; Mr. Miller had it from Philadelphia, by Dr. Benſel: [and cultivated it in 1759[b].

Kalm found it in Canada, and Mr. Archibald Menzies, in Nova Scotia[c]; Colden in New York, and Cateſby in Carolina.

Cateſby's figure is ſo ſhapeleſs, and ſo erroneouſly coloured, that I could never have believed it, ſays Dr. Smith, to have been intended for this plant, had I not examined his original ſpecimen in the Britiſh Muſeum.—Dr. Smith's elegant figure was taken from a plant cultivated in the garden of Robert Barclay, Eſq. at Clapham.

Of the qualities of this genus we know little. They probably agree with thoſe of Paris quadrifolia [d].]

2. This has a taller ſtalk. The three leaves are placed at a diſtance from the flower, which ſtands upon a long foot-ſtalk, and is erect: the petals are purple, larger, and end with ſharper points.

[Native of Virginia, Canada, and other parts of North America. Said to be found in the woods of Braſil, by a French apothecary, who ſent it to Burſer[e].

Cultivated in 1699 by Bobart, who had it from Virginia by Baniſter[f]. It is the moſt rare with us of the three ſpecies; and is in the collection at Kew, though not inſerted in the catalogue.

Cornutus's figure is good, and is copied in th Oxford hiſtory. Its height is about nine inches, and it flowers in may[g].]

3. Stalk purple. The three leaves grow at the top like the firſt; but they are much longer, and end in acute points. The petals are long, narrow, and ſtand erect: [they are of a dark browniſh red, nearly the ſame colour as the Carolina All-ſpice. The calyx-leaves are ſtreaked with red. The leaves are mottled.

It grows in ſhady thickets in Carolina and Virginia. Mr. Curtis had the plant from which his beautiful figure was taken, from Mr. Robert Squibb, gardener, of Charleſtown in South Carolina.]

PROPAGATION AND CULTURE.

Theſe plants are propagated by ſeeds, which ſhould be ſown upon a ſhady border ſoon after they are ripe, and then the young plants will come up the next ſpring; but if the ſeeds are ſown in the ſpring, they will remain in the ground a year. When the plants come up, keep them clean, and in autumn, after their leaves decay, tranſplant the roots to a moiſt ſhady place, where they are to remain.

[The three ſpecies grow in ſhady ſituations and a light ſoil, and require the ſame treatment as Dodecatheon, and round-leaved Cyclamen. They continue to be rare plants in this country, becauſe they require much attention in their culture, admit of little increaſe from their roots, and the proceſs of raiſing them from ſeeds is tedious. The *ſeſſile* is the moſt common, and the *erectum* is the moſt rare. They are all hardy perennial plants, and flower in ſpring[h].

TRILOPUS. See *Hamamelis.*

TRINITATIS HERBA. See *Viola tricolor.*

TRIONUM. See *Hibiſcus.*

TRIOPTERIS. (*From τρεις and πτερον, triples ala, three-winged. The fruit having three membranes.*)

Lin. gen. n. 574. *Reich. n.* 624. *Schreb. n.* 782. *Gærtn. t.* 116.

Claſſ. 10. 3. Decandria Trigynia.

Nat. order of *Tribilatæ. Malpighiæ* Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* five-parted, very ſmall, permanent.

COR. *Petals* (wings of the ſeeds) ſix, ovate, from erect ſpreading, equal, permanent.

Three others ſmaller, but equal among themſelves, ſtand round the former.

STAM. *Filaments* ten, capillary (united at the baſe?) placed on the outſide of the petals (ſo called): the outer ones ſhorter. *Anthers* ſimple.

PIST. *Germ* triſid. *Styles* three, erect. *Stigmas* obtuſe.

PER. *Capſules* erect, keeled at the back, each having a ſingle wing at the baſe, and a double expanded one at the top, not opening.

SEEDS ſolitary, roundiſh.

ESSENTIAL CHARACTER.

Cal. five-parted, with two honey pores at the baſe on the outſide. *Pet.* roundiſh, clawed. *Filam.* cohering at the baſe. *Capſules* three, one-ſeeded, three or four-winged.

SPECIES.

1. Triopteris jamaicenſis.

Lin. ſpec. 612. *Juſſ.* 427. *Reich.* 2. 374. *Willd.* 2. 743. *mant.* 387 *bert. cliff.* 169. *Gærtn. fruct.* 2. 168. *Swartz obſ.* 183.

Baniſteria. *Brown. jam.* 231. *n.* 3.

Leaves oblong acuminate veined ſhining, racemes compound terminating looſe, fruits three-winged.

2. Triopteris indica.

Lin. ſpec. ed. Willd. 2. 744. *Roxb. corom.* 2. 32. *t.* 160.

Leaves roundiſh-ovate ſubcordate acuminate ſhining ſmooth, racemes compound terminating, fruits three-winged.

3. Triopteris ovata.

Lin. ſpec. ed. Willd. 2. 744. *Cavan. diſſ.* 9. 431. *t.* 259.

Leaves ovate bluntiſh ſubcordate ſmooth, petioles higlandular, racemes compound terminating, fruits three-winged.

4. Triopteris rigida.

Lin. ſpec. ed. Willd. 2. 744. *Swartz prodr.* 75. *deſcr.* 2. 859.

Leaves roundiſh acute margined marked with lines coriaceous, racemes compound axillary, fruits three-winged.

5. Triopteris acutifolia.

Lin. ſpec. ed. Willd. 2. 744. *Cavan. diſſ.* 9. 432. *t.* 261.

Leaves ovate-lanceolate acute ſmooth, panicle terminating, fruits four-winged, wings equal.

6. Triopteris acuminata.

Lin. ſpec. ed. Willd. 2. 745.

[a] Smith. [b] Hort. kew. [c] Smith. [d] Idem. [e] Bauh. prodr. [f] Hiſt. oxon. [g] Curtis. [h] Curtis.

Tetrapteris mucronata. *Cavan. diff.* 9. 434. *t.* 262. *f.* 2.
Leaves oblong acuminate ſmooth, umbels panicled terminating, fruits four-winged, wings in pairs the lower ones ſhorter.

7. Triopteris buxifolia.
Lin. ſpec. ed. Willd. 2. 745.
Tetrapteris buxifolia. *Cavan. diff.* 9. 434. *t.* 262. *f.* 1.
Leaves oblong bluntiſh ſmooth, umbel terminating, fruits four-winged, wings almoſt equal.

8. Triopteris citrifolia.
Lin. ſpec. ed. Willd. 2. 745. *Swartz prodr.* 75. *deſcr.* 2. 857.
Tetrapteris inæqualis. *Cavan. diff.* 9. 433. *t.* 260.
Acer ſcandens tricoccos folio citri, flore luteo majore. *Plum. ic.* 9. *t.* 16.
Leaves ovate-oblong acute ſmooth, umbels axillary pedunculed, fruits four-winged, wings in pairs, the lower ones ſhorter.

DESCRIPTIONS, *&c.*

1. This is a climbing ſhrub, with a twining ſtem, and ſpreading, diverging, looſe, round ſmooth branches. Leaves oppoſite, lanceolate-ovate or ovate with a long point, quite entire, beautifully veined, dark green; on ſhortiſh petioles. Racemes terminating, ſeldom axillary, ſpreading like panicles; branches oppoſite, ſubdivided, looſe; flowers on ſhort peduncles, ſcattered, pale blue, ſmall [a].

Linnæus ſays it has the fruit of Baniſteria, conſiſting of three diſtinct capſules, with three wings, containing each one ſeed. Gærtner calls them *Samaræ*, ſubglobular, coriaceous, three-winged at the back: the middle wing narrow, linear-oblong, three times ſhorter than the ſide ones, which are membranaceous, confluent below into a ſimple oblong ligule or ſtrap, but divaricating above and ovate-oblong. Seeds ſubglobular, browniſh red.

Native of Jamaica and Hiſpaniola.

2. This is a large twining ſhrub. Leaves oppoſite, ovate, acute, waved and ſometimes a little ſcolloped, entire, from three to four inches long, and two broad. Petiole channelled, downy, three-fourths of an inch long. Panicles terminating and axillary, croſs-armed, ſmall, delicate; or the whole extremity of the branchlets may be called one beautiful large leafy panicle. Bractes ſmall, ruſt-coloured. Flowers very numerous, white: petals oblong, concave, without claws. Stigmas headed, entire: ſometimes the three ſtyles adhere as if one. Seeds three, linear-oblong, united at the ſeeds themſelves, each ſurrounded by a very large membranous wing [b].

Native of the Eaſt Indies, in mountain foreſts.

3. Stem ſhrubby, branched: branches oppoſite, jointed, ſmooth, as is the whole plant. Leaves quite entire, hardiſh, on petioles four times ſhorter than the leaf, and having two glands near it. Stipules on each ſide two, like little teeth. Calyx very ſmall, with ovate ſegments, all except one having two glands. Corolla yellow. Native of the iſland of Dominique [c].

4. Stem ſhrubby, twining. Branches oppoſite, horizontal, diverging, ſtrict, long, round, ſmooth, ſomewhat compreſſed at the top. Leaves petioled, oppoſite, ſmooth on both ſides and ſhining, rigid, bright green. Branches of the raceme oppoſite, ſpreading, ſimple, many-flowered. Pedicels longiſh, filiform, one-flowered. Flowers ſmall, blue. At the exterior baſe of the calyx are ſmall green ovate ſeſſile glands. Petals five, clawed, roundiſh, broadiſh, waved and crenulate. Capſules three, diviſible, each three-winged: the hinder wing a little bigger than the others, oblong, tranſverſe, except the middle one, which is minute.

Native of Hiſpaniola: flowering in may. It is nearly allied to T. jamaicenſis, but the leaves are very different, being rounder, very rigid, and marked with fine lines [d].

5. Branches round, woody, ſmooth, as is the whole plant. Leaves on ſhort petioles. Peduncles jointed, two-ſtipuled. Calyx hemiſpherical: ſegments ovate, one naked, the four others biglandular. Petals equal, yellow, very ſmall. Filaments ſhort, awl-ſhaped, widening at the baſe, and united into a concave body, ſupporting the germ. Germs three, united, ſomewhat roughened with rudiments of wings. Capſules three, globular, girt on the outſide with a longitudinal membrane, at the ſides of which are here and there ſhort membranaceous fringes: wings ſubovate, equal. Seed ſomewhat three-ſided. Native of Cayenne.

6. Branches round, ſmooth, oppoſite. Leaves quite entire, coriaceous, on ſhort erect petioles. Rays of the umbel five or more, half an inch long, jointed, having two ſtipules at the joints. There did not appear any glands on the calyx in the dry ſpecimen. Germs three, tomentoſe, united. Wings of the capſules four, ovate, the upper ones a little longer than the lower: the capſules keeled, and augmented by three acute corpuſcles, two of which are lateral, and the third hangs down between the lower wings. Seed ovate. Native of Cayenne.

7. Stem round, with a brown bark, and roughened with ſmall tubercles. Leaves ſubſeſſile, reſembling thoſe of Box. Rays of the umbel four or more, an inch long, jointed, two-ſtipuled, one-flowered. Glands of the calyx eight, pedicelled. The reſt as in the preceding; but the capſules ſmaller. Native of the Antilles [e]. Cavanilles's Baniſteria microphylla, *p.* 429. *n.* 588. is the ſame with this.

8. Stem ſhrubby, climbing very high. Branches very long, flexile, round, ſmooth. Leaves oppoſite, entire, nerved, veined, membranaceous, large, on ſhort petioles. Branches of the umbels or panicles trichotomous, ſpreading, peticels one-flowered. Leaflets ovate acute alternate ſeſſile, ſcattered over the branches of the panicle. Flowers ſmall, yellow. At the baſe of the ſegments of the calyx on the outſide are two brown gibbous nectareous glands. Petals five, roundiſh, waved, veined, with linear claws. Filaments awl-ſhaped, contiguous at the baſe. Germs three, united: ſtyles three, thickened at the top: ſtigmas acute. Capſules three, ovate, ſeparable; each four-winged: two oppoſite wings larger, veined, two ſmaller; and a fifth intermediate like a creſt. Seed large, ſhining, red [f].

Native of South America, Jamaica and Dominique.

TRIOPTERIS. See *Dodonæa*.

TRIORCHIS. See *Ophrys* and *Orchis*.

TRIOSTEOSPERMUM. See *Trioſteum*.

TRIOSTEUM. (*So named from the fruit containing three ſeeds of a bony ſubſtance.*)
Lin. gen. n. 234. *Reich. n.* 251. *Schreb. n.* 320. *Gærtn. t.* 26. *Juſſ.* 211.
Claſſ. 5. 1. Pentandria Monogynia.
Nat. order of *Aggregatæ*. *Caprifolia* Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* five-parted, ſuperior, ſpreading, length of the corolla: *leaflets* lanceolate, permanent.
COR. one-petalled, tubular: *border* ſhorter than the tube, five-parted, erect; *lobes* rounded, the lower ones ſmaller.
STAM. *Filaments* five, filiform, length of the corolla. *Anthers* oblong.
PIST. *Germ* roundiſh, inferior. *Style* cylindrical, length of the ſtamens. *Stigma* thickiſh.
PER. *Berry* obovate, ſubtrigonal, three-celled.
SEEDS ſolitary, bony, obtuſely three-cornered, obtuſe, grooved.

ESSENTIAL CHARACTER.

Cal. length of the corolla. *Cor.* one-petalled, almoſt equal. *Berry* three-celled, inferior. *Seeds* ſolitary.

SPECIES.

1. Trioſteum perfoliatum.
Lin. ſpec. 250. *Juſſ.* 217. *Reich.* 1. 485. *Vahl ſymb.* 3. 37. *Gærtn. fruct.* 1. 130.
Trioſteoſpermum latiore folio, flore rutilo. *Dill. elth.* 394. *t.* 293. *f.* 378.

[a] Swartz. [b] Roxburgh. [c] Cavanilles.
[d] Swartz. [e] Cavanilles. [f] Swartz.

Solanum verticillatum latifolium molle, &c. *Banister in Mor. hist.* 3. 535.

Leaves connate, flowers sessile in whorls.

2. Trioſteum anguſtifolium.
Lin. ſpec. 250. *Reich.* 1. 485. *Willd.* 1. 991. *Vahl ſymb.* 3. 37. *Gron. virg.* 143. (Lonicera) *Pluk. phyt. t.* 104. *f.* 2. (Periclymenum).

Periclymeno affinis planta virginiana, flor. ochroleucis, &c. *Mor. hiſt.* 3. 535. *ſ.* 3. *t.* 1. *f.* 8.

Leaves connate, peduncles oppoſite one flowered.

[3. Trioſteum triflorum.
Lin. ſpec ed. Willd. 1. 991. *Vahl ſymb.* 3. 37.

Peduncles oppoſite three-flowered, leaves petioled.]

DESCRIPTIONS, *&c.*

1. This has a perennial root compoſed of thick fleſhy fibres, which are contorted and rough. Stems ſeveral, ſtrong, herbaceous, riſing a foot and half high; having at each joint two oblong broad leaves embracing the ſtem. From the boſoms of theſe come out the flowers in whorls, ſitting very cloſe to the ſtem; they are ſmall, of a dark red colour, inclining to purple, and appear the beginning of June.

[Berry ovate-globular, crowned with a long calyx, pulpy, yellow, one-celled; pulp before it is fully ripe ſpongy and growing cloſe about the ſeeds; which are three, biggiſh, bony, elliptic, on one ſide convex with three thick ridges, on the other obſcurely angular or flattiſh with a ſingle ridge along the middle[1].

Linneus and Miller deſcribe the fruit as three-celled. Gærtner as one-celled. The latter ſuſpects that the ſeeds were not ripe in his ſpecimens.

Native of North America. Cultivated in 1732, by James Sherard, M. D.[2]—Bobart ſays, that he had the ſeeds of this and the next ſpecies from Baniſter.]

2. This differs from the firſt in having longer and narrower leaves. The flowers ſtand ſingle upon ſhort peduncles, and there are but two at each joint, whereas the other has many growing in ſeſſile whorls round the ſtalks.

The roots of both theſe plants are uſed indiſcriminately in North America, as an emetic, for Ipecacuanha. One of the firſt perſons who brought their roots into uſe was Dr. Tinkar, whence many call them Dr. Tinkar's weed; and Bobart received this ſpecies from Baniſter by that name. The leaves of the firſt ſort greatly reſemble thoſe of the true Ipecacuanha, but the roots are of a different form. Mr. Miller conjectures that the true one is a ſpecies of this genus, [but it is now ſuppoſed to belong to the *Pſychotria*, which ſee.

3. Stem erect, a foot and half high, ſimple, very finely pubeſcent. Leaves oppoſite, ſpreading very much, two or three inches long, lanceolate, as narrow again as in T. perfoliatum, attenuated at the top, quite entire, above ſimply veined and ſmooth, beneath ſoftly villoſe, hoary, with branching veins; when tender tomentoſe-hoary beneath. Petioles pubeſcent, ſhorter than the ſtipules; which are wide at the baſe, awl-ſhaped, preſſed cloſe, ſcarcely half an inch long. Peduncles axiliary, ſolitary, erect, pubeſcent, three-flowered: with two awl-ſhaped bractes at the tip, a little ſhorter than the calyx. Flowers ſeſſile. Segments of the calyx awl-ſhaped. Fruit oblong, ſmooth, a little longer than the ſegments of the calyx, and crowned with the permanent calyx. Suppoſed to be a native of Madagaſcar. Sent to Vahl by Monſ. Thouin[3].]

PROPAGATION AND CULTURE.

The two firſt ſorts are hardy enough to thrive in the open air, but ſhould be planted on a moiſt light ſoil: on dry ground they muſt be watered conſtantly in dry weather.

Sow the ſeeds on a border of light earth, where the morning ſun only comes: if they be ſown in the ſpring, they will remain in the ground a whole year, during which time the border muſt be conſtantly kept clean; the following ſpring, when the plants appear, water them duly in dry weather: but if they be ſown in autumn they will come up the following ſpring. Keep them conſtantly clean, for if weeds be permitted to grow among them, they will ſoon overbear the plants while they are young, or ſo much weaken them that they will not ſoon recover.

The plants may remain in this ſeed-border until the michaelmas following, when they ſhould be carefully taken up, and tranſplanted where they are deſigned to remain. Some ſhould be planted in pots, that they may be ſheltered in winter while young, leſt thoſe which are in the full ground ſhould be deſtroyed by ſevere froſt.

They may alſo be increaſed by parting the roots in the ſpring, juſt before the plants begin to ſhoot, which is commonly about the middle or end of march: but in doing this, the roots muſt not be parted too ſmall, for that will prevent their flowering ſtrong.

Theſe plants perfect their ſeeds in this country every year. The ſeedling plants will not flower until the third year.

[TRIPHASIA. See *Limonia*.

TRIPLARIS. (*From* Triplex, *threefold.*)
Lin. gen. n. 103. *Reich. n.* 109. *Schreb. n.* 135. *Juſſ.* 83. *Loefling.*

Claſs. 3. 3. Triandria Trigynia:—rectius, *Dioecia Dodecandria.* Aubl.

Nat. order of *Polygoneæ* Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* one-leafed, ovate, trifid: *ſegments* lanceolate, membranaceous, ſpreading, very long, permanent:—ſix-cleft. *Aubl. guian.* 910.

COR. *Petals* three, length of the tube of the calyx:—none. *Syſt.*

STAM. *Filaments* three, awl-ſhaped, length of the tube of the calyx. *Anthers* linear, membranous, ovate.

PIST. *Germ* ovate, triangular: angles compreſſed. *Styles* three, awl-ſhaped, length of the ſtamens. *Stigmas* three-fided, villoſe.

PER. none.

SEED. *Nut* three-ſided within the ovate baſe of the calyx.

ESSENTIAL CHARACTER.

Cal. very large, three-parted-or, ſix-parted. *Cor.* three-petalled-or, none. *Nut* three-ſided, within the ovate baſe of the calyx.

SPECIES.

1. Triplaris americana.
Lin. ſpec. 130. *Juſſ.* 128. *Reich.* 1. 245. *Loeſl. it.* 256.

T. pyramidalis. *Jacqu. amer.* 13. *t.* 173. *f.* 5. *pict.* 12. *t.* 259. *f.* 3.

Spikes erect terminating.

2. Triplaris ramiflora.
Lin. ſyſt. 128. *Jacqu. amer. pict.* 13. *t.* 259. *f.* 3.

Racemes lateral aggregate.

DESCRIPTIONS, *&c.*

1. This is an upright elegant tree, with a trunk the height of a man, and a thin head made up of horizontal branches forming a long pyramid. Leaves oblong-ovate, acuminate, very large (a ſpan long), entire, petioled. Spikes long, ſlender, erect, terminating, (hairy; with ſmall ovate acuminate hairy bractes. *Linn.*) Nut ovate-acuminate, of a very ſmooth and ſhining black, ſharp at the angles, one-celled; containing a kernel of the ſame form. By the ſide of this nut ſtand three leaflets, preſſed cloſe to it, which are flat, wedge-oblong, obtuſe, nearly the length of the nut, rufous; which Jacquin would have taken for permanent petals, if Loefling had not ſaid that there is no corolla: perhaps, he ſays, they are filaments. According to Aublet, they belong to the calyx.

Native of South America.

2. This is a branching diffuſed tree. Leaves ovate or roundiſh ovate. Racemes on the branches, cloſe, from half an inch to an inch and half in length, many-flowered, villoſe. Pedicels hirſute, ſhort, ſcatteringly aggregate on the common peduncle, from two to five together, from a little bracted knob. Fruit a little ſmaller than the preceding. Tube of the calyx villoſe, but not hairy; alſo more round. Nut brown, not ſhining; ovate, ſix-grooved not three-ſided. The three leaflets, which Jacquin ſuppoſes may be filaments, permanent, and ſomewhat linear. The

[1] Gærtner. [2] Hort. kew. [3] Vahl.

kernels in both ſpecies have an aſtringent ſubacrid taſte.

Native of the woods about Carthagena, but more rare than the preceding; by the river Cinu it is more common[n].]

TRIPOLIUM. See *Aſter*.

[TRIPSACUM. (Τριψας, *tritus, from* τριβω, *tero.*)

Lin. gen. n. 1044. *Reich. n.* 1134. *Schreb. n.* 1404. *Juſſ.* 30. *Gærtn. t.* 1.

Claſſ. 21. 3. Monoecia Triandria.

Nat. order of *Gramina, Gramineæ* or *Graſſes*.

GENERIC CHARACTER.

* *Male* flowers double on one ſide alternate, in the upper part of the ſpike.

CAL. *Glume* two-flowered: outer floret male, inner neuter; each two-valved: outer valve lanceolate, flattiſh, obtuſe, awnleſs, cartilaginous, with the margins thinner (the interior one ſtraighteſh) embracing the interior oblong, triangular-boat-ſhaped, acute, almoſt the length of the exterior.

COR. in each two-valved, membranaceous, very thin, awnleſs, leſs than the calyx: *valves* nearly equal: exterior ovate, boat-ſhaped, bluntiſh; interior anceolate, bifid at the top.

Nectary two-leaved, very ſmall: *leaflets* triangular, fleſhy, convex, truncate, mucronate at both ends, the upper margin thinner, the middle emarginate.

STAM. of the outer Floret; *Filaments* three, capillary, longer than the calyx. *Anthers* parallelopiped:—of the inner Floret: *Filaments* three, very ſlender, ſubconnate. *Anthers* none.

* *Female* flowers on the ſame ſpike below the males, immerſed alternately on each ſide into the rachis.

CAL. *Involucre* ovate, cartilaginous, very thick, ventricoſe below, ſhining, obſcurely margined on both ſides at the back, ſubemarginate with a blunt top, embracing the glume with a thinner margin.

Glume two-valved: *outer valve* oblong, ventricoſe, attenuated at the top, acuminate, thickiſh, doubled; *inner* ſimilar, bluntiſh.

COR. two-valved, ſmaller than the calyx and more tender: *outer valve* larger, ventricoſe, bluntly three-toothed; *inner* ſcarcely ſmaller, flat at the back, emarginate. *Glume* barren, one-valved, oblong, folded together at each margin, two-toothed, by the anterior ſide of the corollet, and much ſmaller than it.

Nectary two-leaved, very ſmall: *leaflets* linear, membranaceous, very thin, acutely emarginate at the top.

STAM. *Filaments* three, at the baſe of the germ, very ſmall, broad at the baſe, capillary. *Anthers* linear, very ſmall, barren.

PIST. *Germ* oblong. *Style* longer than the calyx, compreſſed. *Stigmas* two, very long, twiſted, villoſe.

PER. none.

SEED one, ovate, compreſſed a little, acuminate with the permanent ſtyle.

OBS. *At the baſe of the involucre on each ſide is a ſinus, gaping externally with an aperture, blocked up by villoſe hairs.*

ESSENTIAL CHARACTER.

MALE. *Cal.* Glume four-flowered. *Cor.* Glume membranaceous.

FEM. *Cal.* Glume with perforated ſinuſes. *Cor.* Glume two-valved. *Styles* two. *Seed* one.

SPECIES.

1. Tripſacum dactyloides.

Lin. ſpec. 1378. *Juſſ.* 842. *Reich.* 4. 96. *Mill. illuſtr.*

Coix ſeminibus angulatis. *Lin. hort. cliff.* 438. *Gron. virg.* 144.

Gramen dactylon maximum americanum. *Pluk. phyt. t.* 190. *f.* 2.

G. dact. indicum eſculentum, ſpica articulata. *Ambr. phyt.* 1. 545. *t.* 546. 547. *Mor. hiſt.* 3. 185. *ſ.* 8. *t.* 3. *f.* 11. *Scheuch. gram.* 108.

Gr. ſpica articulata virginiana. *Park. theat.* 1163. *n.* 9.

Seſamum perenne indicum, ſpica frumentacea. *Zan. hiſt.* 181. *t.* 68.

Spikes androgynous.

2. Tripſacum hermaphroditum.

Lin. ſpec. 1379. *Reich.* 4. 97. *Lin. dec.* 17. *t.* 9. *Gærtn. fruct.* 1. 3. *Brown. jam.* 367. (Centchrus II. 2.)

Spike hermaphrodite.

DESCRIPTIONS, *&c.*

1. Leaves an ell or more in length. Culms the thickneſs of a gooſe-quill or of the little finger, with few joints and long internodes, angular, tinged with purple, as high as a man, dividing at top into three, four or five ſpikes, a long ſpan or a foot in length, and ſtraight[a]. Native of Virginia.—Parkinſon ſays, Maſter John Tradeſcant the younger brought it from Virginia, with a number of other ſeeds and rare plants. —It muſt therefore have been introduced before 1640. It flowers in auguſt[a].

2. Root annual, fibrous. Culm erect, two feet high, roundiſh, very ſmooth, jointed, branched. Branches of the ſame ſtructure and height with the culm, alternate, erect, quite ſimple, few. Leaves alternate, flaccid, very ſmooth, only rugged at the edge, a ſpan long or more: ſheaths compreſſed, ſtriated, very ſmooth. A ſingle ſpike at the end of the ſtem and branches, ſolitary, cylindrical, curved. Peduncle long, round, ſtriated, ſmooth. Receptacle compreſſed, flexuoſe. Flowers alternate, remote, ſolitary, ſeſſile on the teeth of the receptacle, ovate, preſſed cloſe. The outer calyx has two, three or four flowers: glume four or five-parted, compreſſed, ovate, gibbous at the baſe, contracted at the top; the valves incumbent, very ſtiff, lanceolate, acuminate, very ſmooth, ſlightly ſtreaked. There is a ſingle floret between each calycine glume, leſs by half than the calyx. Calyx two-valved: one valve ſmaller, very long and acuminate; the other of the ſame ſize with the corolla, which is alſo two-valved, ſmooth and acuminate. Filaments ſmooth: anthers ovate. Germ ovate: ſtyles two, pubeſcent. Seed one, very ſmall, ovate, ſmooth, yellow, ſubdiaphanous. Native of Jamaica[b]; where Browne ſays this graſs is fed upon by all ſorts of cattle.

Introduced in 1776, by Monſ. Thouin. It flowers in auguſt and ſeptember[c].

The firſt is a perennial graſs, and tolerably hardy. The ſecond is annual, and requires the protection of a ſtove.

TRITICO-SPELTUM. See *Hordeum.*]

TRITICUM (*Latin, q.* tritum, *vel quod ex ſpicis triturando facile excutiatur. In Greek,* τριτος *q.* επιτριτος, *from* επιτριτος, *ſeed. Or, according to ſome, from the conical form of the ſpike, like a flame.*)

Lin. gen. n. 99. *Reich. n.* 105. *Schreb. n.* 130. *Tournef. t.* 292. 293. *Juſſ.* 32. *Gærtn. t.* 81.

Claſſ. 3. 2. Triandria Digynia.

Nat. order of *Gramina, Gramineæ* or *Graſſes*.

GENERIC CHARACTER.

CAL. a common *Receptacle* elongated into a ſpike.

Glume two-valved, ſubtriflorous: *valves* ovate, bluntiſh, concave.

COR. two-valved, nearly equal, ſize of the calyx; *exterior valve* ventricoſe, blunt with a point; *interior valve* flat.

Nectary two-leaved: *leaflets* acute, gibbous at the baſe.

STAM. *Filaments* three, capillary. *Anthers* oblong, forked.

PIST. *Germ* turbinate. *Styles* two, capillary, reflexed. *Stigmas* feathered.

PER. none. Corolla ſofters the ſeed, opens and drops it.

SEED one, ovate-oblong, blunt at both ends, convex on one ſide, grooved on the other.

OBS. *The exterior valve of the corolla in ſome is awned, in others awnleſs. The middle floret is often male.*

[n] Jacquin.

[a] Moriſon. [b] Hort. kew. [c] Hort. kew. [d] Linn. ſil. dec.

ESSENTIAL CHARACTER.

Cal. two-valved, ſolitary, ſubtriflorous (or many-flowered, on a flexuoſe toothed rachis.) *Cor.* blunt with a point.

SPECIES.

* *Annual. Corn or Grain.*

1. Triticum æſtivum. *Summer* or *Spring Wheat.*
Lin. ſpec. 126. *Reich.* 1. 238. *Willd.* 1. 476. *hort. upſ.* 21. *cliff.* 24. *Hall. helv. n.* 1422. β. and *in comm. nov. goett.* 5. *p.* 5. *t.* 1. *f.* 1. *Baub. pin.* 21. *theat.* 358. *Raii ſyn.* 387.
T. trimeſtre. *Park. theat.* 1121. *f.* 7.
T. ariſtatum. *Blackw. t.* 40. *f.* 4. 5.
Calyxes four-flowered ventricoſe ſmooth imbricate awned.

2. Triticum hybernum. *Winter* or *Lammas Wheat.*
Lin. ſpec. 126. *Reich.* 1. 238. *Willd.* 1. 477. *hort. upſ.* 21. *cliff.* 24. *mat. med.* 47. *Gærtn. fruct.* 2. 8. *Hall. helv. n.* 1422. *in nov. comm. goett.* 5. *p.* 7. *t.* 1. *f.* 2. *Blackw. t.* 40. *f.* 1. 2. 3.

α. T. hybernum ariſtis carens. *Baub. pin.* 21. *Mor. hiſt.* 3. 175. *ſ.* 8. *t.* 11. *f.* 1. *Tournef. inſt. t.* 292. *f.* M. M. M.
T. ſpica mutica. *Ger.* 58. *f.* 1. *emac.* 65. *f.* 1. *Park. theat.* 1120. *f.* 1.
White or red Lammas Wheat without awns.

β. T. ſpica & granis rubentibus. *Raii hiſt.* 1237. *ſyn.* 386.
Tritici hyberni ariſtis carentis genus primum; προς veteribus, Robus Columellæ. *Baub. pin.* 21. *theat.* 354.
Red Wheat or *Kentiſh Wheat.*

γ. T. ſpica & granis albis. *Raii hiſt.* 1237. *ſyn.* 386. *Villars dauph.* 2. 154. 2.
T. ſiligineum. *Baub. pin.* 21. *theat.* 355.—Græcorum & Galeni Σιλιγνις. Hippocrati Τριγιξ, *ginſſ.*
White Wheat.

δ. T. ariſtis munitum. *Park. theat.* 1120. *f.* 2. *Mor. hiſt. ſ.* 8. *t.* 1. *inter* 1 and 2.
T. ariſtis circumvallatum, granis & ſpica rubentibus, glumis lævibus & ſplendentibus. *Raii hiſt.* 1238. *ſyn.* 387.
Red eared Bearded Wheat.

ε. T. album. *Gærtn. fruct.* 2. 8.
T. ariſtis longioribus ſpica alba. *Baub. pin.* 21. *Tournef. inſt. t.* 293. *f.* F.
T. chalepenſe, ſpica breviore nitidiſſima alba. *Mor. hiſt.* 3. 175.
White-eared Bearded Wheat.
Calyxes four-flowered ventricoſe even imbricate, with little or no awns.

[3. Triticum compoſitum. *Many ſpiked Wheat.*
Lin. ſyſt. ed. 13. 115. *ed.* 14. 126. *Reich.* 1. 239. *Willd.* 1. 477. *ſuppl.* 115. *Hall. helv. n.* 1422. *p.* 208. *Villars dauph.* 2. 157.
T. ſpica multiplici. *Baub. pin.* 21. *Ger.* 59. *f.* 3. *emac.* 66. *f.* 4. *Park. theat.* 1120. *f.* 4. *Raii hiſt.* 1238. *Mor. hiſt.* 3. 175. *ſ.* 8. *t.* 1. *f.* 7.
Spike compound, ſpikelets cluſtered awned.]

4. Triticum turgidum. *Gray Pollard* or *Duck-bill Wheat.*
Lin. ſpec. 126. *Reich.* 1. 239. *Willd.* 1. 478. *hort. upſ.* 21. *hort. cliff.* 24. *Villars dauph.* 2. 155. *Hall. in nov. comm. goett.* 5. *p.* 12. *t.* 1.
T. ariſtatum ſpica maxima cineritia, glumis hirſutis. *Raii hiſt.* 1238.
T. ſpica villoſa quadrata breviore & turgidiore. *Mor. hiſt.* 3. 176. *ſ.* 8. *t.* 1. *f.* 14.

β. T. quadratum. *Mill. dict. n.* 4. *Cone Wheat.*
T. maximum. *Villars dauph.* 2. 156.
T. ſpica villoſa quadrata longiore, ariſtis munitum. *Mor. f.* 13. *Raii ſyn.* 387.
T. conica figura hirſutum, cum & ſine ariſtis. *Merr. pin.*
T. cinereum maximis ariſtis donatum, triturando glumas deponens. *Baub. hiſt.* 2. 408. *Raii hiſt.* 123. *n.* 7.

γ. T. durum. *Deſfont. atlant.* 1. 114. *Barbary Wheat.*
Glumes pubeſcent awned, ſpikelets four-flowered.
Calyxes four-flowered ventricoſe villoſe imbricate obtuſe.

5. Triticum polonicum. *Poliſh* or *Poland Wheat.*
Lin. ſpec. 127. *Reich.* 1. 239. *Willd.* 1. 478. *Hall. in nov. comm. goett.* 5. 17. *t.* 1. *f.* 16. *Pluk. phyt. t.* 231. *f.* 6. *Mor. hiſt.* 3. 175. *ſ.* 8. *t.* 1. *f.* 8.
T. majus longiore grano glumis foliaceis incluſo, Poloniæ dictum. *Mor. hiſt.* 3. 175. *ſ.* 8. *t.* 1. *f.* 8. *Raii ſyn.* 387.
Calyxes two-flowered naked, florets with very long awns, teeth of the rachis bearded.

[6. Triticum Spelta. *Spelt Wheat.*
Lin. ſpec. 127. *Reich.* 1. 240. *Willd.* 1. 478. *hort. upſ.* 21. *Villars dauph.* 2. 158. *Hall. helv. n.* 1424. *in nov. comm. goett.* 5. 17. *Kniph. orig. cent.* 2. *n.* 97.
Zea dicoccos vel Spelta major. *Baub. pin.* 22. *theat.* 412. *t.* 414. *Mor. hiſt.* 3. *ſ.* 8. *t.* 6. *f.* 1.
Z. amylacea. *Mor. hiſt.* 3. *ſ.* 8. *t.* 6. *f.* 3.
Z. ſ. Spelta. *Ger.* 62. *emac.* 69. *f.* 1. *Raii hiſt.* 1242.
Z. dicoccos ſ. Spelta vulgo. *Park. theat.* 1124. 2.
Calyxes four-flowered truncate, florets awned hermaphrodite, the middle one neuter.

7. Triticum monococcum. *One-grained Wheat.*
Lin. ſpec. 127. *Reich.* 1. 240. *Willd.* 1. 479. *Hoffm. germ.* 43. *Roth. germ.* 1. 50. 2. 147. *Hall. helv. n.* 1425. *in nov. comm. goett.* 5. *p.* 18. *t.* 1. *f.* 17. *Sawv. monſp.* 39. *Villars dauph.* 2. 159. *Gærtn. fruct.* 2. 9.
Hordeum diſtichum ſpica nitida ſ. Briza nuncupatum. *Tournef. inſt.* 513.
Zea Briza dicta vel monococcos germanica. *Baub. pin.* 21. *theat.* 415. *Mor. hiſt. ſ.* 8. *t.* 6. *f.* 2.
Z. monococcos, Briza quibuſdam. *Baub. hiſt. Raii hiſt.* 1242.
Z. monoc. ſ. ſimplex, ſ. Bryza. *Park. theat.* 1124. 3.
B. monococcos. *Lob. ic.* 31. *Ger.* 67. 1. *emac.* 73. 1.
Monococcon. *Dod. pempt.* 493.
Calyxes ſubtriflorous, the firſt awned, the middle one ſterile.

** *Annual Graſſes.*

8. Triticum hiſpanicum. *Spaniſh Wheat-graſs.*
Lin. ſpec. ed. Reich. 1. 240. *Willd.* 1. 479.
T. maritimum. *Lin. mant.* 325.
Feſtuca maritima. *Lin. ſpec.* 110.
Calyxes ſix-flowered, florets all directed the ſame way awned at the tip.

9. Triticum proſtratum. *Trailing Wheat-graſs.*
Lin. ſyſt. 126. *Willd.* 1. 480. *ſuppl.* 114. *Ait. kew.* 1. 121.
Secale proſtratum. *Pallas it.* 1. 485. *Jacqu. hort.* 3. 25. *t.* 44.
Agropyron triticeum. *Gærtn. nov. comm. petrop.* 14. 1. *p.* 540. *t.* 19. *f.* 4.
Spike ovate compreſſed bifarious, glumes both of calyx and corolla ſmooth, awns ſhorter than the floret.

10. Triticum pumilum. *Dwarf Wheat-graſs.*
Lin. ſyſt. 127. *Willd.* 1. 480. *ſuppl.* 115.
Spike ovate, glumes ſomewhat awned, thoſe of the calyx two-grooved.

*** *Perennial Graſſes: except* 16, 17, 18.

11. Triticum junceum. *Ruſhy Sea Wheat-graſs.*
Lin. ſpec. 128. *ſyſt.* 127. *Reich.* 1. 241. *Willd.* 1. 480. *mant.* 327. *amoen.* 4. 266. *Huſt. angl.* 58. *Wither. arr. ed.* 3. 173. *Smith brit.* 157. *engl. bot. t.* 814. *Hull.* 28. *Lightf. ſcot.* 109. *Dickſ. hort. ſicc.* 6. 9. *Fl. dan. t.* 916. *Hoffm. germ.* 43. *Hall. helv. n.* 1428. *Gmel. ſib.* 1. 118. *n.* 54. *Deſfont. atlant.* 1. 114. *Villars dauph.* 2. 163. *Krock. ſilef. n.* 195. *Allion. pedem. n.* 2267.
Gramen anguſtifolium ſpica tritici muticæ ſimili. *Baub. pin.* 9. *prodr.* 18. *t.* 17. *theat.* 132. *Schwench. gram.* 7. *Vaill. par.* 81. *Mor. hiſt. ſ.* 8. *t.* 1. *f.* 5.
Gr. maritimum ſpica foliacea, foliis pungentibus. *Pluk. phyt. t.* 33. *f.* 4. *Dill. in Raii ſyn.* 391. 4.

β. Gr. foliaceum maritimum ſupinum ſpica craſſiore. *Tournef. inſt.* 516. *Dill. in Raii ſyn.* 391. 5.

γ. Gr.

7 Gr. caninum maritimum ſpica foliacea. *Bauh. pin.* 2. *theat.* 15. *Raii ſyn.* 391. 6.
Calyxes five-flowered truncate, leaves rolled in mucronate-pungent.
12. Triticum diſtichum.
Lin. ſpec. ed. Willd. 1. 481. *Thunb. prodr.* 23.
Calyxes four-flowered ſmooth awnleſs, flowers diſtich, leaves ſiliform.]
13. Triticum repens. *Creeping Wheat-graſs, Quick, Quich, Couch* or *Dog's-graſs.*
Lin. ſpec. 128. *fiſt.* 127. *Reich.* 1. 241. *Willd.* 1. 481. *fl. lapp. n.* 33. *ſuec. n.* 114. *hort. cliff.* 24. *mat. med.* 48. *Huds. angl.* 57. *Wither. arr. ed.* 3. 173. *Smith brit.* 158. *engl. bot. n.* 909. *Lightf. ſcot.* 109. *Relh. cant. ed.* 2. *n.* 115. *Sibth. oxon. n.* 165. *Hoffm. germ.* 43. *Reth. germ.* 1. 50. 2. 148. *Pollich pal. n.* 133. *Leers herborn. n.* 95. *t.* 12. *f.* 3. *Neck. gallob.* 77. *Krock. ſilef. n.* 194. *Villars dauph.* 2. 160. *Allion. pedem. n.* 2268. *Hall. helv. n.* 1426. *Gmel. ſib.* 1. 118. *n.* 53. *Schreb. gram. t.* 26.
Gramen ſpica triticea repens vulgare, caninum dictum. *Raii ſyn. ed.* 2. 247. 1. *ed.* 3. 390. 1. *Mill. dict. n.* 1.
Gr. repens, officinarum ſorte, ſpicæ triticeæ aliquatenus ſimile. *Bauh. hiſt.* 2. 457. *Raii hiſt.* 1255.
Gr. caninum. *Ger.* 22. *f.* 1.
G. caninum vulgatius. *Park. theat.* 1173. *Mor. hiſt. ſ.* 8. *t.* 1. *f.* 8.
G. caninum arvenſe ſ. Gramen Dioſcoridis. *Bauh. pin.* 1. *theat.* 7.
β. T. repens. *Fl. dan. t.* 748. *With.* 173. *var.* 4. *Fl. ruſt. t.* 124. *Schreb.* 26. 5 & 7. *Scheuch.* 1. 1. C. 2.
Gramen loliaceum radice repente, ſ. Gr. offic. ariſtis donatum. *Vaill. par.* 81. *t.* 17. *f.* 2.
γ. Gr. caninum maritimum ſpica triticea. *Raii ſyn. ed.* 2. 247. 3. *ed.* 3. 390. 3.—*var.* 5. *Wither.*
Calyxes five-flowered awl-ſhaped many-nerved, florets acuminate, leaves flat, root creeping.
[14. Triticum caninum. *Fibrous* or *Bearded Wheat-graſs.*
Huds. angl. 58. *Wither. arr. ed.* 3. 173. *Relh. cant. ed.* 2. *n.* 116. *Sibth. oxon. n.* 166. *Smith brit.* 159. *Hall. helv. n.* 1429. *Villars dauph.* 2. 163. *Gmel. ſib.* 1. 122. *t.* 27.
Elymus caninus. *Lin. ſpec.* 124. *Dict. noſtr. n.* 5.
Gramen caninum ariſtatum, radice non repente. *Mor. ſ.* 8. *t.* 1. *f.* 2.—ſylvaticum. *Raii ſyn. ed.* 2. 247. 2. *ed.* 3. 390. 2.
Calyxes four-flowered acuminate three or five-nerved, florets awned, leaves flat, root fibrous.
15. Triticum maritimum. *Sea Wheat-graſs.*
Lin. ſpec. 128. *fiſt.* 127. *Reich.* 1. 242. *Willd.* 1. 481. *Vahl ſymb.* 2. 26. *Villars dauph.* 2. 166.
Feſtuca lanceolata. *Forſk. deſcr.* 22.—item,
F. dichotoma *ejuſd. ibid.*
F. *Ger. prov.* 94. *n.* 4.
Calyxes many-flowered, florets mucronate, ſpike branched.
16. Triticum tenellum. *Delicate Wheat-graſs.*
Lin. ſpec. 127. *fiſt.* 127. *Reich.* 1. 242. *Willd.* 1. 482. *Hall. helv. n.* 1430. *Villars dauph.* 2. 164. *Allion. pedem. n.* 2269.
Feſtuca. *Ger. prov.* 96. *n.* 9.
Gramen loliaceum minus ſpica ſimplici. *Bauh. pin.* 8. *prodr.* 11. *theat.* 129.
Gr. lol. foliis & ſpicis tenuiſſimis. *Mor. hiſt.* 3. 182. *ſ.* 8. *t.* 2. *f.* 3.
Calyxes four-flowered or more, florets awnleſs acute, leaves briſtle-ſhaped.
17. Triticum unioloides. *Linear-ſpiked Wheat-graſs.*
Ait. kew. 1. 122. *Vahl ſymb.* 2. 26. *Willd. ſpec.* 1. 483.
Poa ſicula. *Jacqu. ic. rar.* 2. *t.* 303. *Deſcript. atlant.* 1. 76.
Cynoſurus ſiculus. *Jacqu. obſ.* 2. 22. *t.* 43.
Briza cynoſuroides. *Scop. inſubr.* 2. 21. *t.* 11.
Gramen paniculis elegantiſſimis denſis, ſiculum. *Tournef. inſt.* 522.
Gr. ſilíceum paniculis integris. *Boec. ſic.* 62. *t.* 33. *Mor. hiſt.* 3. 204. *ſ.* 8. *t.* 6. *f.* 53.
Spikelets linear-lanceolate keeled diſtich.
18. Triticum loliaceum. *Dwarf Sea Wheat-graſs. Smith brit.* 159. *engl. bot. t.* 221. *Wither. arr. ed.* 3. 174. *Relh. cant. ed.* 2. *n.* 117. *Willd. ſpec.* 1. 483.
T. unilaterale. *Ait. kew.* 1. 122.
T. biunciale. *Villars dauph.* 2. 167.
Poa loliacea. *Huds. angl.* 43. *Relh. cant. ed.* 1. 37.
Gramen pumilum loliacco ſimile. *Raii ſyn. ed.* 2. 250. 4. *ed.* 3. 395. 4. *Scheuch. gram.* 272. *t.* 6. *f.* 3.
Gr. loliaceum exile durius. *Reliqu. Rudb.* 13.
Gr. exile duriuſculum maritimum, &c. *Pluk. phyt. t.* 32. *f.* 7.
Gr. parvum marinum, ſpica loliacea. *Mor. hiſt. ſ.* 8. *t.* 2. *f.* 6.
Calyxes obtuſe many-flowered, ſpike ſimple directed one way, florets awnleſs, culm branched.
19. Triticum unilaterale. *One-ſided Wheat graſs.*
Lin. ſyſt. 127. *Reich.* 1. 243. *Willd.* 1. 483. *mant.* 35. *Villars dauph.* 2. 165. *Allion. pedem. n.* 2270.
Gramen minimum. *Bauh. hiſt.* 2. 469.
Gr. puſillum unciale, panicula foliacea. *Boec. muſ.* 2. *t.* 57.
Gr. exile duriuſculum maritimum. *Raii hiſt.* 1287. *Scheuch. gram.* 272. *t.* 6. *f.* 4. *ſec. Villars.*
Calyxes one-ſided alternate awnleſs.

DESCRIPTIONS, *&c.*

1. Haller deſcribes the Spring Wheat, as having the firſt or lower flowers imperfect; the ſpikelets wide; the glumes of the calyx hard, glaucous, ſomewhat hairy, very ſhortly awned; flowers three to five, with an awn from the exterior glume three inches long; the interior glume convex towards the ſeed, concave towards the next flower, ovate-lanceolate; the third flower, in the middle has a very ſhort awn; the fourth is ſterile and ſhrivelling; the fifth is ſtill ſmaller and more imperfect. He ſays, it is ſown about Aigle.

He does not allow that it is ſpecifically different from Winter or Lammas Wheat, or that the having awns or no awns makes any diſtinction. Soil and climate, he ſays, will do much in that reſpect; winter Wheat will grow from the ſeed of ſpring Wheat; and if the former be more fruitful, that is probably owing to its having been a longer time in coming to perfection.—There is no doubt however but that Spring Wheat is a diſtinct ſpecies.

Summer Wheat, ſays Parkinſon, has narrower ears, longer beards, and ſmaller grains, and will not endure the coldneſs of our winters.[

This will ripen, ſays Miller, much earlier, and therefore has been often ſown in the ſpring, at the ſame time with oats; but if the ſeaſon ſhould prove wet, it is very ſubject to grow tall, and to have very thin grains; ſo that unleſs from the ſeverity of the winter, or ſome other accident, the winter corn has been injured, the practice of ſowing Spring Wheat is rarely uſed.

[The experienced reporters of the county of Northumberland, for the Board of Agriculture, inform us that Siberian or Spring Wheat was introduced and ſtrongly recommended about twenty years ſince; but that wherever they have ſeen it tried, the crops have been uncertain, and the produce ſmall; and that though this flinty kind will ripen, if ſown even as late as april, or beginning of may, yet it has not been able to maintain a ſtruggle with ſome of the varieties of Lammas Wheat, and has been totally given up'.

In the report for Mid-Lothian', it is ſaid, that a very particular kind of Spring Wheat was ſown eight or ten years in the vicinity of Edinburgh. It admitted of being ſown as late in the ſeaſon as the end of april or beginning of may, and was ripe in auguſt or ſeptember, producing very weighty grain, and as high as eight bolls an acre. It did tolerably well

' P. 69. ' P. 91. note. ed. 1795.

for a year or two, but one inclement ſummer, in 1792, completely finiſhed it, the crop, all blacked or blighted, being good for nothing; and it has not been heard of ſince.

In the year 1788, Mr. Young informs us, that Mr. Ducket of Eſher in Surry cultivated Spring Wheat on a large ſcale; drilling two buſhels of it on an acre, about the middle of march[1].

Mr. Marſhall, in his rural œconomy of the Midland Countries, ſays that Spring Wheat is there cultivated, and with ſingular ſucceſs; owing principally to the time of ſowing, in the wane of april. By ſowing early, as at the beginning of march, the grain is liable to be ſhrivelled, and the ſtraw to be blighted; whilſt that ſown at the middle or end of april, or even the beginning of may, produced clean, plump corn.

Mr. Tooſey mentions a Spring Wheat which he ſowed in Canada on the third of may, and reaped the 26th of auguſt. He ſowed a pint, and reaped a buſhel[2].

In the Aſiatic Reſearches, a ſpecies of Wheat is mentioned as cultivated in the Eaſt Indies, which has the calyx four-flowered, ventricoſe, ſmooth, and imbricate: the two outer florets have long beards, the third has hardly any, the fourth and innermoſt is neuter. The deſcription ſeems to agree with the Spring Wheat; but according to the author it is doubtful whether it ſhould be referred to that or to Spelt; or whether it may not be a new ſpecies, rather variety. It was in ear at Oujein on the 30th of january, and ripe on the 19th of march.—The Barley crop is ripe in that country the beginning of march.]

2. Common or Winter Wheat has long ears or ſpikes, with the grains ranged in four rows, and imbricate; the chaff ſmooth, ventricoſe or bellied, and not terminated by awns or beards. [The laſt character however is not conſtant, for Winter or Lammas Wheat, has frequently ſhort awns, but they never grow to the length of thoſe in Spring Wheat.

Wheat may more properly be conſidered as an annual than a biennial plant, as it not only ripens within a year from the time of ſowing, although it commonly takes a part of two years to accompliſh this; but it will run its courſe in ſix months, or leſs time in countries to the north of Great Britain.

Dr. Hunter (Eſſay 5.) has very well remarked that Wheat has two ſets of roots; the firſt coming immediately from the grain, the other ſhooting from the crown ſome time after: the firſt he calls the *ſeminal*, and the ſecond the *coronal* roots.

Plants obſerve a regular uniformity in the manner of ſpreading their roots; for which reaſon the ſame grain cannot in general be continued long on the ſame ſoil.

Wheat being ſubject to the ſeverity of winter, its roots are wonderfully diſpoſed to withſtand the inclemency of the ſeaſon. The firſt, or ſeminal root is puſhed out at the ſame time with the germ; and that, together with the meal, nouriſhes the plant, until it has formed the crown. When this has become ſufficiently large, it detaches a number of ſtrong fibres, which puſh themſelves obliquely downwards. Theſe are the coronal roots. A ſmall pipe preſerves the communication between them and the ſeminal roots. It makes an eſſential part of the plant, and is obſerved to be longer or ſhorter, according to the depth at which the ſeed has been buried. The crown however is always formed juſt within the ſurface; and its place is the ſame, whether the grain has been ſown deep or ſuperficially.

As the increaſe and fructification of the plant depends upon the vigorous abſorption of the coronal roots, it is no wonder that they ſhould fix themſelves ſo near the ſurface, where the ſoil is always the richeſt.

The ſtalk, ſtraw, or culm as Linnæus calls it, is three feet high at a medium, jointed, ceſpitoſe or in tufts; ſeventy-two have been known to iſſue from one root. Leaves ſmooth, three lines wide; much more, and of a very dark green in good ground. Spike cloſe, weighty, ſome inches in length. The lower flowers imperfect, as is commonly the caſe in this order of plants. The glumes or chaffs of the calyx are ovate-lanceolate, and end in a point like a ſhort awn; they contain for the moſt part each four flowers, but there are ſometimes only three, and ſometimes five or ſix, but then one or more of theſe fall off without producing any grain. The two glumes or chaffs of the corolla are equal, but the outer one puts forth an awn a little below the tip, an inch or two inches in length; ſometimes however there is none; the inner one is hollow, awnleſs and two-toothed: between theſe lies the ſeed or grain, which is villoſe, and the largeſt of its congeners. The nectaries are ſmall, fringed and ſilky.

Gærtner deſcribes the ſeed as ovate, acuminate at each end, pubeſcent at the top, convex-three-ſided on one ſide, ſcored with a deep groove on the other, the colour of honey or ſubruteſcent. The embryo has three radicles.]

Where Wheat grows naturally, ſays Mr. Miller, is very hard to determine at preſent; but it is generally ſuppoſed that Africa is the country, becauſe in the earlieſt accounts we have of it, there is mention of its being tranſported from thence to other countries, and Sicily was the firſt country in Europe where this grain was cultivated: but although the place of its natural growth be probably in a warm climate, it is found to bear the inclemency of our rough climate very well; and even in more northern countries, where the ſummers are long enough to ripen the grain, it is found to ſucceed.

[Even Wheat, ſays Bruce, the early produce of Egypt, is not a native of it. It grows under the line, within the Tropics, and as far north and ſouth as we know. It vegetates vigorouſly under ſnow. But whence it came, and in what ſhape, is left to conjecture.

It is aſſerted that Spring Wheat, and Sprat Barley (Hordeum diſtichon) grow wild in Tartary: and Diodorus Siculus affirms that Wheat is wild in Sicily; that it may have come up ſpontaneouſly in that iſland is very probable, but that it is originally indigenous there is not at all likely.

Varieties.

The principal varieties of Winter Wheat are, the White and Red without awns (*α*, *β*, *γ*.) and the Red and white Bearded Wheat (*δ*, *ε*). Of theſe there are innumerable ſubordinate varieties.]

Some of theſe, ſays Mr. Miller, differ in the colour of their chaff, and others in the form of their ſpikes, but they are ſubject to vary. He enumerates only, the Red Wheat without awns, the red-eared Bearded Wheat, many-eared Wheat, (probably *n.* 3.) and naked Barley. Theſe five ſorts, he ſays, I have ſown ſeveral years, and have always found them conſtant without variation.

[Mr. Houghton, in his Collections, publiſhed at the end of the ſeventeenth century, has ſeven varieties, from Mr. Dale, the friend of Mr. Ray, but three of theſe do not belong to this ſpecies, namely the double-eared (to *n.* 3.) Poland Wheat (to *n.* 5.) and the Gray Pollard (to *n.* 4.)

The other four are: 1. Triticum ſpica et granis albis. *Raii hiſt.* 1237. 2. our 7. White Wheat, called Egg-ſhell Wheat in Eſſex, by ſome. Proſpers beſt in heavy clay and loam; ſometimes found with awns, but rarely.

2. Tr. grano albo, glumis hirſutis; called Mouſe-dun, or by ſome Egg-ſhell Wheat in Eſſex, from the colour of the hairy chaff when ripe, and in which it chiefly differs from the former, being frequently ſown together in our rich and light lands.

3. Tr. ſpica & granis rubentibus. *Raii hiſt.* 1237. 1. Red or Kentiſh Wheat. Much ſown in Hertfordſhire, and ſometimes found with awns:—perhaps tritici varietas culmo rubro, *Raii ſyn. app.* which Mr. Bobart ſays is ſo much deſired in Oxfordſhire, may be only a variety of this.

[1] Annals 12. 189. [2] Young's Annals, 17. 289. [3] Haller.

4. Tr. ſpica multiplici. See our Tr. compoſitum n. 3.

5. Poland Wheat, n. 5.

6. Tr. ariſtis circumvallatum, granis & ſpica rubentibus, glumis lævibus & ſplendentibus. *Raii ſyn.* 387. Red-bearded Wheat—our *d*.

7. Tr. ariſtatum ſpica maxima cinericea, glumis hirſutis. *Raii hiſt.* 1238. Gray Pollard—our n. 4.'

It would be almoſt endleſs, and of little uſe, to enumerate all the varieties of Wheat, which are continually introducing, and giving way to new ones. It will however be expected that the more remarkable ones at leaſt ſhould be ſet down in ſuch a work as this. An alphabetical catalogue of them therefore is here given.

1. Aleppo. Spikes ſhort and awned. Chaffs whitiſh and ſmooth. Grains ſhort and turgid or big. From the neatneſs and beauty of the ſpike the orientals call it *Joſeph*; which name they uſe for any thing more than ordinarily handſome, in honour of the Patriarch, who was ſo eminent a patriot in Egypt.

   There are other varieties from Aleppo—as *tripolitanum granis nigricantibus* of Parkinſon, with ſpikes a hand in length, and very long awns; the grains long, very dark-coloured, reſembling Rie. This is much taller than the preceding—and another that is lower, with reddiſh grains, and long blackiſh awns[a]. Smyrna Wheat belongs to this variety.
2. Bearded. See *Tr. turgidum, n.* 4.
3. Brazil. Sown on ſtrong land in Somerſetſhire.
4. Burwell. Ears long and large; ſpiculæ very wide ſet, nine in three inches and three fourths; chaff a dark brown red, large and cloſed on the grain; ſtraw long red. Much uſed in the north, eſpecially on lands newly broken up, and has in a manner ſuperſeded the common red Wheat[b].

   Burwell ſeed Wheat grows on white lands in the pariſh of Burwell in Cambridgeſhire. It is in great requeſt in the north of England, on account of its becoming ripe much ſooner than any other that is known. It is partially threſhed (provincially, topped out), as ſoon as it is got into the barn; ſo that it is the ripeſt and beſt part of the ear that is obtained from it[c].
5. Cane. See *Tr. turgidum, n.* 4.
6. Dantzick. Lower in the ſtraw by ſix inches than common Wheat, and very regular: ear downy, white; ſtraw white: it does not lodge, and is leſs ſubject to blight and ſmut than other ſorts. Uſed for ſeed about Caverſham, &c. in Berkſhire[d].
7. Double Wheat. See *Tr. compoſitum, n.* 3.
8. Duckbill. See *Tr. turgidum, n.* 4.
9. Dunover. See *Tr. turgidum, n.* 4.
10. Egg-ſhell or White. Straw white; chaff ſmooth and white; grain white, with the bran ſomewhat thick, but the flour remarkably white. It is very early ripe, and ſo free in the ear as to blow out in windy weather; it works mellow in grinding. From rich ſandy loams it is often a beautiful ſample; and when ſo, brings the higheſt price of any ſort[e].
11. Eſſex Dun. Similar to the Kentiſh White-chaffed (which ſee:) and the Hertfordſhire Brown of Yorkſhire. It has been making its way into the Midland counties. Thoſe who have given it a fair trial, like it on account of its giving a great produce; four or even five quarters on an acre[f]. See var. 2. from Houghton, above.
12. Eſſex White. Only a good ſample, as I believe, of the White Lammas.
13. Fulham. Straw white, ſhort and coarſe. Very productive, eſpecially on poor land; but the grain very coarſe and the bran thick: from which circumſtances it is not ſo valuable to the millers[g].
14. Golden-ear. Ear ſhort; ſpiculæ very cloſe ſet, nine in two inches and three quarters; chaff a yellowiſh light brown, ſhort; grain white, and eaſily ſhaken out by the wind.

   For ſpring ſowing, this and the Burwell red are preferred in the northern counties, except where the land is in ſuch high condition as to endanger the crop lodging; then the Velvet-ear is uſed, as not being apt to lodge, from the ſhortneſs of the ſtraw[h].
15. Gray Pollard, Pole or Poll-revet or rivet. See *Triticumm turgidum, n.* 4.
16. Harriſon's Kentiſh Red. See Kentiſh Red.
17. Hedge. White. This variety was diſcovered by accident in a hedge, by Mr. Wood of Suſſex, who carefully cultivated it from the ſingle grain, and the produce in four years, by his attention, was wonderful. It is now (1795) generally known in Surrey as well as Suſſex; and has ſince been extended to ſome of the midland counties. The produce is very great: thirty-ſeven truſſes of ſtraw having yielded, in a bad year, twenty buſhels and one peck of capital Wheat, ten ſheaves yielding one buſhel throughout. The ſame year, four buſhels ſowed on very middling wheat land produced twelve ſacks and one buſhel, of a remarkably fine ſample[i].
18. Hertfordſhire brown. Chaff white; grain red; ſtraw of a middle growth: reſembling the Kentiſh white-coſh of Norfolk[k]. See Eſſex Dun, n. 11.
19. Hertfordſhire White; the ſame with Eſſex White (n. 12.) and an improvement of White Lammas.
20. Hoary Brown. A new ſort introduced into Kent, within the laſt twenty or thirty years[l].
21. Hoary White, or White Hoar. Straw, ear, and grain white. Mr. Young ſays it is diſtinct from Velvet ear; which ſee.
22. Holland White. See White Holland.
23. Kentiſh 1. Downy. Chaff white, downy, awnleſs; ears middle-ſized; grain white and ſmall; ſtraw ſhort. This variety is beſt adapted to good land, in which it generally yields well, notwithſtanding the ſmallneſs of the grains[m].—2. Red. Harriſon's Kentiſh Red, ſo named from a farmer who produced the firſt ſample of it, by cultivating ſome ears which he obſerved to be more cloſely ſet, and more productive than the wheat in general in the ſame field. The chaffs appear to be ſhorter than common. The produce of twelve acres, in 1785, on a clean ſummer fallow, without manure, was a hundred and forty-one coombs, three buſhels, of very fine wheat[n].—3. White or white-ſtrawed, or white-chaffed, called Kentiſh White-coſh in Norfolk. It ſends out a great number of ſtems, and therefore is often a very thick crop. The ſtraw is generally ſomewhat ſhorter than that of many other varieties, and therefore not quite ſo liable to fall in rainy ſeaſons. The ears are middle-ſized, nine ſpiculæ in three inches and a quarter; chaff white, opening and ſhewing the grain when ripe; grain plump and red, reſembling very much the Velvet Wheat of Surrey and Kent. The produce allowed to be greater than that of the old red; and the millers, according to Mr. Marſhall begin to like it nearly as well, though on its firſt introduction fifteen or twenty years ago, they were prejudiced againſt it. The Kent ſurveyor ſays, that from its dull colour, thick bran, and grinding very ſteely, it is not much approved of by the millers[o].—This variety, though the chaff be perfectly white on its introduction into Norfolk, and though it be ſtudiouſly kept ſeparate from the red; yet by being repeatedly ſown year after year, it loſes the fair-

[a] Vol. I. p. 232.
[b] Northumb. ſurvey, 66.
[c] Young's Annals, 6. 143.
[d] Mor. hiſt. 3. 175. n. 4. 5. 6.
[e] Suffolk ſurvey, p. 43.
[f] Kent ſurvey, 80.
[g] Marſh. midl. 1. 232.
[h] Kent ſurvey, 80.
[i] Young's Annals, 24. 408.
[k] Kent ſurvey, 81.
[l] Young's Annals, 7. 274.
[m] Northumb. ſurvey, 66. 69.
[n] Marſh. Yorkſh. 2. 3.
[o] Marſh. Yorkſh. 2. 3.
[p] Northumb. and Kent ſurveys, Marſh. Norfolk 1. 202.

neſs of the chaff, which firſt becomes pied, and at length changes entirely to a clear red, reſembling that of the old Norfolk ſtock[1].—4. Yellow. Chaff ſomewhat red. Grain white. Ears large. Straw ſtout[m].

24. Lammas. 1. Brown. This is the common brown-ſtrawed Wheat: it grows with a long jointed ear, the chaff of a dark brown colour; the ſtraw is long and apt to fall; the hull or bran thin, and the flour very white; and the corn mellow in grinding: for which reaſons it is eſteemed by the millers. Till within theſe twenty or thirty years paſt, this was the ſort chiefly cultivated in Kent, but it has ſince been giving way to many new varieties, as well as ſome of the other old ones. By ſome experiments made by Mr. Boys of Betſhanger it appears that this was leſs productive than ſeveral other varieties[n].—2. Mixed. With an awnleſs whitiſh ſpike, and reddiſh grains[o]. Probably the ſame with the White Kentiſh Wheat.—3. Red. This is the ordinary Red Wheat of the kingdom; with the ſpike or ear and grains red, the ſtraw red or dark yellow. It is ſuperſeded in many places by improved varieties. One which obtains much on the Suſſex downs is called Clark Wheat, from the perſon who firſt introduced it; the bloſſom, chaff, and ſtraw are red; the grain is white; the ſample is coarſe, but it yields greatly; it requires to be cut forward[p]. Another, cultivated on the hills and all expoſed ſituations in Somerſetſhire, called the red-ſtraw, differs from the red Lammas in having every bloſſom of a purple colour[q]: the ſtraw alſo is red or purple, and the grains are red[r].—4. White. This, which is the old White Lammas of the kingdom, is now ſuperſeded, like the old Red, in many places, by new varieties. The chaff and grains are both white, and the ſtraw is of a pale colour.—5. Yellow. This reſembles the Brown in every reſpect, except that the colour of the grain is yellow, and the chaff is of a ſomewhat lighter colour[s].

25. Long Cone. See *Tr. turgidum*, *n.* 4.

26. Nonpareil. Said to be brought from America. It has a bright ſtraw with a brown ear, and the grain is very white, large and plump. Very productive on all ſoils, thraſhes very free, and produces a great quantity of horſe-meat. It grinds very mellow, and is well eſteemed by the millers.

27. Pendulum. See *Tr. turgidum*, *n.* 4.

28. Pilbeam. A brown wheat, growing very ſtiff, and generally thick on the land. The grain ſmall and plump, ſomewhat of a yellow brown. It is ſaid to be very productive on rich lands, and is valuable to mix with others, but will not of itſelf make good bread, becauſe it does not ferment eaſily[t].

29. Poland. See *Tr. polonicum*, *n.* 5.

30. Pole or Poll Rivet. See *Tr. turgidum*, *n.* 4.

31. Pollard. See *Tr. turgidum*, *n.* 4.

32. Quebeck. A white wheat from America[u].

33. Red-poll-rivet. See *Tr. turgidum*, *n.* 4.

34. Red-ſtraw. See Lammas, *n.* 24. 3.—It is generally eſteemed in Staffordſhire, as being hardy upon cold wet land; carrying a length of ſtraw upon dry ſands, and thereby over-topping fern and other luxuriant natives; and the grain overweighing every other ſort.

35. Spaniſh.—Mr. Dillon has given a liſt, with remarks, of twenty-five varieties of Spaniſh Wheat, divided into four claſſes:—1. Candeal, or White Wheats. 2. Geſas. 3. Claros. 4. Rubion, or Red Wheats.

He remarks that the Spaniſh Wheats are hard and ſteely, and that the flour here is ſaid not to exceed in fineneſs that of the third ſort in England and Ireland[v].

36. Square-ear. One of the new varieties introduced into Kent. It is very productive, but being apt to drop out before it is ripe, and to blow out in gales of wind, it is not much cultivated[w].

37. Square Gray. See *Tr. turgidum*, *n.* 4.

38. Stuffed. See Velvet-ear.

39. Taunton Dean. So called from the place it was originally brought from. It is a bright and beautiful grain, and very productive; near four quarters on an acre[x].

40. Velvet-ear, or hoary White. Straw white and ſhort: ears ſmall, but the grains cloſe ſet, eight in two inches and three quarters; chaff white (or ſomewhat of a browniſh hue), covered with a thick fine down, cloſed on the grain; which is ſmall and of a dull white; the ſkin very thin, ſo that ſome grains are almoſt tranſparent when held up to the light. It grinds very mellow, and makes a beautiful fine white flour. From the quantity of down upon the chaff, and its ſmall ears binding up very cloſe in the ſheaf, in a rainy ſeaſon it is apt to grow in the field; on which account it is not ſo proper to cultivate in a moiſt climate, and in ſmall incloſures, that are not open to wind and ſun[y]. From the ſhortneſs of the ſtraw, it is beſt adapted to rich ſoils, where there is a danger of the crop lodging[z].

Of the ſeveral varieties cultivated in Suſſex this is preferred, having by much the thinner ſkin of any: they call it ſtuffed Wheat[a].

In the year 1768 Mr. Arbuthnot gathered ſix ears of Wheat, the down on them attracting his notice. He ſowed it, took off the tillers and tranſplanted them, repeating the operation, and ſetting them in the middle of a field of beans. The plants ran away for ſeed, before their own tillers came into ear; ſo that if this practice were to be followed, there would be the difference of a fortnight in the ripening of the ears of the ſame plant.

The product of the ſix ears was fourteen quarts, which were drilled on one acre in four rows, eight inches aſunder, on four feet ridges: the produce three quarters three pecks. Mr. A. continued the culture of it till he grew no other, and ſold great quantities for ſeed. In 1779 Mr. Arthur Young introduced it into Suffolk, and in the five following years, on compariſon with the common red wheat of the country, he found the ſuperiority of produce in the Velvet Wheat, to be from two to ſix buſhels on an acre. But he found the quality to be ſtill more ſuperior, for on an average he ſold it at ſixpennce a buſhel more than the Red Wheat. Velvet Wheat is lighter than Red Wheat; but the latter has a much greater quantity of bran. A crop of this ſort of Wheat is of very regular growth. The ears are very ſhort, not from the ſmall number of grains, but from being very cloſe ſet, and much enveloped in chaff. When ripe, the ſtraw is of a bright white, but the ear of a red colour. From conviction of the ſuperiority of this wheat to the common ſorts, Mr. Young had no other on his farm in 1785, and did not then intend to ſow any other[b].

Mr. Hall, of Elmſtone-Court in Kent preferred this Wheat to any other. And by the experiments of Mr. Boys of Betſhanger in the ſame county it appears, that this, which is there called Hoary White, is the beſt to cultivate on good dry loamy ſoils, and very far ſuperior to the common brown Lammas, which is commonly ſown there[c]. Mr. Dann of Gillingham alſo ſays that the Hoary White or Velvet-eared produced him much more than the Red Wheat[d].

41. White Egg-ſhell. See Egg-ſhell.

[1] Marſh. Norf. 1. 207. [m] Marſh. Yorkſh. 1. 3.
[n] Kent ſurvey 79. 80. Young's Ann. 4. 281. [o] Mor. hiſt. 3. 175.
[p] Young's Ann. 17. 143. [q] Somers. ſurvey. 108.
[r] Mor. hiſt. 3. 175. [s] Kent ſurvey, 80. [t] Idem. 81.
[u] Bath papers, 6. 336. [x] Young's Annals, 5. 470.
[y] Idem, 32. 639. [z] Kent ſurvey, 81. 82.
[a] Young's Annals, 14. 178. [b] Kent ſurvey, 81.
[c] Northumb. ſurvey, 66. [d] Young's Annal. 11. 232.
[e] Annals, 4. 132. [f] Id. ibid. 224. 281. [g] Id. 15. 273.

42. White Holland. A white foreign wheat, not very different from the Kentiſh white. Produce conſiderable. See Zealand.
43. White-ſtraw. See Kentiſh white-ſtraw, n. 23. 3.
44. White Zealand. See Zealand.
45. Whole-ſtraw.
46. Woolly-ear. Straw long; ears middle-ſized; ſpiculæ cloſe ſet, nine in three inches; chaff white, cloſed on the grain, which is white, larger, longer, but not ſo plump as the Velvet-ear: the appearance of the ear is larger in every dimenſion.

The downy-chaffed Wheats (this and n. 40.) have ſhorter ſtraw, and are leſs liable to have the grain ſhaken out by winds, than the ſmooth-chaffed ones, which is a conſiderable advantage; but then probably this downineſs makes them retain moiſture upon the ear much longer than the ſmooth-chaffed varieties, and perhaps renders them more liable to be affected by thoſe diſeaſes which give a duſky colour to the chaff, and a ruſty canker to the ſtraw. The downy-chaffed varieties therefore are moſt proper for windy open ſituations; and the ſmooth-chaffed to well-ſheltered incloſed diſtricts[s].

47. Yellow Kent. See Kentiſh yellow, n. 23. 4.
48. Yeograve. See Tr. turgidum, n. 4.
49. Zealand. Straw long and reedy. Ears long and large. Spiculæ very wide ſet, nine in three inches and three quarters. Chaff white, ſometimes with a tinge of brown, opening and ſhewing the grain; which is white and full-bodied. This ſort is well adapted to weak and middling land. In a rich ſoil, eſpecially in a moiſt ſeaſon, it runs too much to ſtraw[t].

Some of theſe varieties are probably the ſame under different names, and others are different under the ſame name, in counties remote from each other. New varieties are alſo continually ariſing, and ſuperſeding old ones, ſometimes from mere faſhion, ſometimes from real ſuperiority. Varieties that are excellent in themſelves, may gradually loſe all their merit, by being cultivated in a ſoil not adapted to them, or treated in an improper manner. See an inſtance of this under n. 23. 3.

The common mode of keeping Wheat to its ſtandard, is by tranſferring the beſt eſtabliſhed varieties from one ſoil and ſituation to another, but this is often done without much judgment; and the farmer when he has procured at ſome expenſe a wheat ſtrongly recommended, cannot be certain that it will ſuit his ſoil. A better method would be, to ſelect from his beſt crop ſuch individual plants as excel in vigour, productiveneſs, and ſuch good qualities as are beſt ſuited to his purpoſe. Such would be more likely to be adapted to his ſoil and ſituation, than ſeed procured at a venture from other places.

But this requires attention and forecaſt, and is attended with ſome expenſe and trouble. It is difficult to preſerve a ſmall patch of corn from the birds, in a garden or near the houſe. The beſt way to ſecure it is in the middle of another crop. But with other ſorts of wheat it may be liable to take a tincture from them. Mr. Marſhall treats this apprehenſion as groundleſs; but it will require repeated experiments to convince us of what is ſo contrary to all theory. See Rural Economy of Yorkſhire, vol. 2. p. 4—9.

The uſes of Wheat are ſo obvious and generally known, that it would be impertinent to ſpeak of them. The ſtraw ſerves for various purpoſes, beſides the common ones of thatch, fodder and litter; as for making boxes, baſkets and all kinds of Dunſtable work, beehives, hats, mattraſſes, horſe-collars; for the package of goods, covering bricks, fruits, &c. from froſt, mixed with loam for walls, lighting fires, drying malt, making pot-aſh, &c.

3. Linnæus's account of the many-ſpiked Wheat is, that it is allied to the ſummer or ſpring Wheat, but that the ſpike is four times as large and a hand in length, formed of ſpikelets in two rows, alternate approximating from nine to twelve, the lower ones ſhorter, but the upper one ſingle. Chaffs ſmooth, keeled. Awns a hand in length[u].

Villars remarks, that it is eaſily diſtinguiſhed by the branching of the ſpike at the baſe; and that the grains are round, and more cloſely ſet than in common wheat. Haller adds, that the calyx is hirſute and commonly three-flowered, the outer glume having an awn two inches long, the inner none: the two petals or inner chaffs lanceolate and ſomewhat hairy: the grain hairy.

It is ſaid to be a native of Egypt, at leaſt it is cultivated there, as it is alſo about Naples, in other parts of Italy, and in the South of France.

The quality of the grain is tender and delicate, it is fit therefore for paſtry, being very white, fine, and leſs ſuſceptible of fermentation. Its produce is very great; but it requires warmth, a good ſoil, and plenty of manure. It has been long cultivated in the South of Italy[x]; but it ſeems too tender for Engliſh growth. It has been cultivated in Eſſex.]

4. This is called Gray Wheat, Duckbill Wheat and Gray Pollard, in Suſſex Fuller's Wheat; [in other places Bearded Wheat, Dunover, Rivets, Pole or Poll-rivet, red Poll-rivet, Square-gray, Pendulum, Yeograve, &c.] It grows very tall, and if it is ſown too thick, is very apt to lodge with rain and wind, for the ears are large and heavy, and nod on one ſide as the grain increaſes in weight. The awns are long, and the chaff, being hairy, detains the moiſture, which helps to lodge it, for which reaſon many perſons do not chooſe to cultivate this ſort; but where the roots are at a proper diſtance, they will put out many ſtalks, which will be ſtronger, and ſupport themſelves better; the grain produces more flour in proportion than any of the other ſorts. The awns always drop off when the grain is full grown: [hence probably Haller's miſtake, in making two varieties of this Wheat, with and without awns.

This ſpecies differs eſſentially from all the preceding. The ſtraw is thicker and ſtronger, though the ſpike commonly hangs down: this is large, ſquare, villoſe, well furniſhed with grains, from two to three inches in length, often barren at the baſe, and thicker at the end. The ſpikelets have each four flowers, one of which is barren. The corolla is almoſt as long again as the calyx, villoſe as that is, often gaping at the top ſo as to ſhow the grain; the outer valve or chaff has two nerves, and is terminated by an awn, which is often three inches in length; it is not ſenſibly membranous at the edge: the inner valve is flat and lanceolate. The grain is ſhorter and more rounded than Lammas wheat, whiter, more tender, and ſcored at the baſe. It is called in French *Bled barbu, Bled d'abondance*, or *Moutin blanc*[w].

Of Bearded or Gray Wheat, or Rivets, there are two principal varieties, white and brown; they are ſown chiefly on wet cold lands. They ripen late in the ſeaſon, and are ſo very coarſe and ſtreſy, as to be unfit for making bread, unleſs mixed with a large proportion of a better ſort of flour. But they produce very abundant crops on ſtrong lands, and are ſaleable at inferior prices. They are convenient for ſowing near hedges, where birds abound. The hanging of the ear ſeems to me a proviſion for guarding it againſt the ill effects of too much wet, to which the heavineſs of the chaff would otherwiſe ſubject it.

β. Mr. Miller conſiders the Cone Wheat as ſpecifically different from the Gray Pollard.] The ears are formed like a cone, ending with a ſlender point, whence the name. The white and red Cone are mere varieties, being generally mixed in the ſame field. The awns of this are long and rough like the other, and guard

[s] Northumb. ſurvey, 66. [t] Marſh. Yorkſh. 2. 3. Northumb. ſurvey, 65.

[u] Suppl. [x] Villars. [w] Ibid.

the

the grain from birds, which recommends its being ſown in ſmall incloſures and by hedge ſides. Mr. Tull prefers this ſort for ſowing in drills; but the Gray Pollard, in Mr. Miller's opinion, anſwers much better in the horſe-hoeing huſbandry.

[Mortimer ſays that Pole-rivet or bearded Wheat is much ſown in Eſſex and Hertfordſhire upon ſtiff yellow clays: that in Oxfordſhire they reckon the long-Cone Wheat beſt for rank clays, and its ſtraw not being hollow makes it not ſubject to lodge, or to be mildewed; but that the flour is ſomewhat courſe: and that in Berkſhire they have a ſort called Pendulum Wheat, from its hanging the ear like Cone-wheat.

One hundred and thirty five buſhels of Cone Wheat were obtained from an acre and quarter of land, weighing 70 pounds to the buſhel, in the county of Lancaſter, though one fifth of the field was foul with weeds [a].

Mr. Marſhall ſays that he met with the true Cone, or Tr. quadratum of Miller in North Wiltſhire; that the baſe of the ear is large and ſquare, whence it is there called Square-eared Wheat, but that the upper part is conical, tapering to a point: that it is remarkably turgid, and the grains in the baſe of the ear, burſting open the chaff before harveſt, ſhow themſelves plainly to the eye.

The Wheat in common cultivation in the vale of Gloeceſter is called Blue Cone. The ſtraw tall and reedy; the ear long and of a duſky purple colour, not conical but remarkably cylindrical; the chaff downy, with a very long awn, which falls off when fully ripe; the grain brown, tolerably well ſkinned, and of a hard flinty contexture, affording a thirſty flour, in good eſteem with the miller and baker. Three fourths of the crop in the vale is of the blue Cone [b].

Some Cone is grown on the Cotſwold hills, but not ſo much as in the vale. A new variety has lately been raiſed from the circumſtance of finding one particular grain in a parcel of ſeed: the body is remarkably long and large; but the quality, as yet, is not good, or at leaſt not ſightly [c].

Villars has a ſpecies which he names *Triticum maximum*, Gros bled, Groſſien, or Regagnon. It ſeems to belong to the Cone wheats, though he ſuſpects it to be the ſame with Tr. polonicum of Linneus. It grows to the height of ſix feet, is ſtronger and ſtouter than any other ſort; the ſpike is from four to ſix inches long, very thick, and aſh-coloured though ſmooth. The calyx has an oblique keel, two nerves without, and a ſhort point: the glumes or chaffs of the corolla are longer; the two outer terminated by a large awn, four or five inches long; they are aſh-coloured, and a little nerved at the end; the two middle ones end in a ſhort point inſtead of an awn: the grain is long, and a little villoſe at the lower part. *It* is very productive, but the flour is leſs white and delicate: the grain is of a dark brown or livid colour, and abounds more in bran than meal.

7. Barbary Wheat is made a diſtinct ſpecies by Desfontaines, but whether it belongs to this ſpecies or the ſecond I am not certain. He deſcribes it as having the ſtraw not hollow, but full of pith, long and villoſe, 30, 40 or more from the ſame root; the awns very long; the grains longer than in ſpring or winter wheat, the ſubſtance of it horny, with ſcarce any meal.

In the ſamples that I have ſeen from Barbary, the grain was plump, bright and fair to the eye, and of a deep red colour, but when cut through, there was only a ſpeck of white in the middle, the reſt being horny.

Mons. l'Abbé Poiret ſays that the grain of Wheat along the coaſt of Barbary and part of the Levant is hard, and almoſt of the ſame ſubſtance with Rice; that the little meal there is in the middle, though very white, produces a black heavy bread, difficult of digeſtion, they only uſe therefore the hard or horny part, which they reduce almoſt to the fineneſs of meal, when they would make bread, but when the Arabs prepare it for making their common diſh called *Cauſcouſou*, they only break it groſsly between two portable ſtones. This the Moors put into an earthen pan pierced with ſmall holes, and place it as a cover to the pot in which their meat is boiling; ſo that it is dreſſed by ſteam: it is eaten with a little broth, milk, butter, or honey [d].

5. According to Linneus, the ſpike is larger, and aſh-coloured, and the glumes twice as long as in the preceding ſpecies; the calyxes have two flowers only, with a very long awn to each.—Haller ſays, that the ſpikelets are either three-flowered with one barren, or four-flowered with two barren.]

The Polonian Wheat grows tall, and the ears are long and heavy, ſo that where it is ſown too thick it is very ſubject to be lodged, on which account it is little regarded; but ſince it produces much flour it is worthy of cultivation.

Mr. Bobart ſays he received it from Worceſterſhire, where it is cultivated in the fields.

6. Spelt has a ſtout ſtraw that is almoſt ſolid. Spikes ſtrong, white. Spikelets compoſed each of four flowers, of which the two lateral ones are fertile and have a long rough awn, but the two middle ones are barren and awnleſs. The chaff adheres ſo cloſe as not to be ſeparated without great difficulty [e].

Haller adds, that not only two out of the four flowers in each ſpikelet, but the lower ſpikelets alſo are entirely barren; that the flowers are more conical than in common wheat; that the chaffs of the calyx are cartilaginous, marked with lines, equal and awnleſs; that the outer floral chaff is a little longer, acuminate, putting forth an awn below the tip, in the lower flowers ſcarcely more than a line in length, but in the upper ones an inch long, the inner chaff acuminate and awnleſs, both are folded together; grain villoſe, leſs than that of common wheat.

Spelt is much cultivated in many of the ſouthern countries of Europe. In the ſouth of France they call it Epéaute blanche, and ſow it in ſpring; it ripens in july and auguſt; it requires ſtrong land, and they eſteem it to be very uſeful in deſtroying weeds, to which the ſtoutneſs of the ſtraw is well adapted [f].

Haller informs us that Spelt is the principal wheat crop in the flatter and more northern part of Switzerland, and that it is cultivated in ſeveral parts of Germany.—It is alſo very common in Arragon and Catalonia. In Spain they ſow it in ſeptember or october, and it ripens earlier than any other corn; for which reaſon it is of great uſe to the poor, although it is a light grain, yields but little flour, and the bread made from it is indifferent. The Spaniards, when in want of barley for their horſes, give them Spelt. The Swiſs employ it much for making flummery, of which the peaſants in that country are very fond [g]. Haller ſays that the flour is much whiter than that of common wheat, and contains a larger portion of the glutinous part, in which the nutritious quality reſides; but that bread made of it is drier, and very harſh when it is ſtale: he recommends it as ſuperior to any other in paſtry and confectionary.

Spelt is ſuppoſed to be the Zea of the Greeks, and the Far of the Romans. Herodotus ſays that the Egyptians uſed only the Olyra or Zea. Far was the food of the ancient Italians, and was uſed in ſacrifices [h].

Villars ſays, that Forſkahl remarked a variety of the Spelt in Egypt, the chaff of which is villoſe, and an inch and half long.

7. The ſpike of this is ſmaller and thinner than that of common wheat, and is ſhining; it has only one row of grains; the root tillers much, for which reaſon it is ſown thin; the worſt ſoil will do for it, if it is not too wet. The leaves that it puts forth in autumn, are more like thoſe of a weak graſs than of wheat; but all this time the root is gaining ſtrength, and in the ſpring puſhes up from 25 to 30 ſtems, which are ſo ſtrong and hard that no animal will touch them [i].

[a] Young's Annals, 30. 202.
[b] Marſh. Glo. 1. 112.
[c] Id. 2. 50.
[d] Voyage, 2. 106. and 1. 36.
[e] Young's Annals, 32. 647.
[f] Villars.
[g] Idem.
[h] Virg. Georg. 1. 73. note: ed. Mart.
[i] Villars.

Spike diſtich, cloſely imbricate, compreſſed a little, ſomewhat ancipital. Spikelets of three or four flowers, one of which only is fertile and has a very long awn; the others are barren and awnleſs, or the awn is very ſhort. Grain ovate, acuminate at both ends, three-ſided-compreſſed, on one ſide grooved, of a pale reddiſh colour. When it germinates, it ſpeedily puts forth five radicles, like Spring Wheat[r].

This one-grained Wheat is ſown in autumn, before the common ſort, and yet ripens later; it is therefore longer in the ground than any other, and continues a whole year, or even more in the mountains. It is leſs ſubject to ſmut than common Wheat. The ſtraw is excellent for thatching. The flour is uſed for the ſame purpoſes as Spelt; but is of a better quality: the bread made of it is light, though brown; but its great excellence is for gruel[s]. Haller ſays, it is cultivated very commonly in the mountainous parts of Switzerland, even the moſt barren.—It was in the Oxford botanic garden in 1658.

Wheat Graſſes.

8. This is an annual graſs ſcarcely a ſpan in height. Flowers in a ſpike with capillary awns. Spikelets ſix-flowered. Leaves awl-ſhaped, with ſtriated ſheaths. Native of Spain[t].

9. This alſo is an annual graſs. When the Spike is ripe it falls entire and germinates, puſhing forth as many ſtems as there are ſpikelets. The ſpike itſelf performs the office of a root. The ſpikelets are many-flowered. Native of the Caſpian deſerts, in the drieſt ſoil. Introduced into the Kew garden in 1780, by Mons. Thouin.

10. This is a ſmall annual ſpecies, the length of a finger, with the uppermoſt ſheath ventricoſe. Spike hard, compreſſed, ſomewhat awned. Native of Siberia[u].

11. Root perennial, creeping. The whole plant very glaucous; the lower part of the ſtem however is of a more or leſs vivid violet hue and very ſmooth and ſhining. Leaves rigid and ſharply pungent, perfectly ſmooth at the back; their upper ſide marked with numerous longitudinal rough furrows. Stipula very ſhort. Spike ſolitary, erect, ſtraight and ſtiff, much broader in proportion to its length than that of any other Britiſh Triticum, and conſiſting of numerous alternate flat ſpikelets, of five or ſix florets each, perfectly ſmooth and beardleſs. The glumes are furrowed and blunt; the interior valve of the corolla flat and fringed.

Native of Europe, the Levant, Siberia and Barbary, on the looſe ſand of the ſea coaſt, which its long tough creeping roots, throwing out numerous woolly fibres, help to confine and keep ſtationary; to which purpoſe this graſs cooperates with Carex arenaria, Elymus arenarius, and Feſtuca rubra. It flowers in july.

The two varieties (n. 5. and 6. of Ray's ſynopſis) prove, by original ſpecimens, to differ very little from this. A maritime variety of *Tr. repens* γ is often taken for this; and ſome have taken this ſpecies, others that variety for *Elymus arenarius*[x].

12. Native of the Cape of Good Hope, where it was found by Thunberg.

13. Root perennial, creeping very much, jointed; coated; fibres downy. Stems ſlender, upright, two feet high, and double that height, when drawn up in hedges, round, ſmooth, ſtriated, having five or ſix joints, which are frequently tinged with red. Leaves ſpreading very much, flat, from five to nine inches long, and three or four lines broad, the lower ſurface ſmooth, the upper and the margin rugged; they are often all directed to one ſide. Sheaths tight, ribbed, ſmooth, terminated by a very ſhort ſtipule. Spike or ear nearly upright, two or three inches long (or more), flat, compoſed of numerous ſpikelets, with all the glumes ſharp-pointed, and often more or leſs bearded. The rachis or common ſpike-ſtalk is ſometimes hairy. The inner glumes are ciliate. The number of florets in a ſpikelet varies from two to four, five, ſix, and even eight. The ſpike is much more ſlender than in *Tr. junceum*, and the ſpikelets are only half the ſize of thoſe[y].

This graſs is very common in moſt parts of Europe, Siberia, &c. and is the peſt of arable land, and particularly of gardens. It flowers from june to ſeptember, and inſinuates its long creeping roots ſo deeply into the earth as to be with great difficulty extirpated; for a very ſmall piece of the root left behind ſoon ſprouts forth into a freſh crop[z]. Beſides this the ends are ſo hard and ſharp, that they will penetrate through the moſt obdurate ſoil, and in ſtiff land are locked up ſo cloſe in the clods, that in ſome ſeaſons it is very difficult to clear the land of them.

This troubleſome and pernicious weed is too well known to farmers and gardeners, under the names of Quich, Quitch, Squitch, Twitch, Couch and Scutch-graſs, all evidently corrupted from *Quick*, which ſignifies living, and is a term well appropriated to this graſs, becauſe every particle of the root will grow. In Scotland and the north of England, it has the appellation of Quickens. Gerarde calls it, Quitch graſs, and Dogs graſs. In ſome countries it is called Spear-graſs, Dog's-graſs and Knot-graſs.—It muſt be obſerved, that farmers call any perennial graſs with creeping roots, that infeſts arable land, by this name.

This peſt of the huſbandman and gardener is not however without its uſe. At Naples the roots are collected in large quantities, and ſold in the markets to feed horſes; they have a ſweet taſte, ſomething approaching to that of liquorice. When dried and ground to meal they have been made into bread in years of ſcarcity. The juice of them drank liberally is recommended by Boerhaave in obſtructions of the viſcera, particularly in caſes of ſchirrhous liver and jaundice. Cattle are frequently found to have ſchirrhous livers in winter, and to be cured ſoon when turned out to graſs in the ſpring. It is well known that dogs eat the leaves to excite vomiting. Horſes eat them when young, but leave them when fully grown. Cows, ſheep, and goats eat them[a]. Mr. Miller affirms that the blade is ſo rough, that cattle will not feed upon it.

Six pounds of the freſh roots cut and bruiſed, and maſhed with boiling water, fermented with four ounces of yeaſt, and diſtilled, produced four ounces of liquor as ſtrong as common malt ſpirit, but of a much more agreeable flavour. From three ounces of the expreſſed juice, two drams 33 grains of chryſtallized ſaccharine acid were obtained[b].

β. The variety figured in Flora danica and Flora ruſtica has awns from two to four lines in length, and the calyxes contain from four to ſix flowers[c].

γ. A glaucous variety common on the coaſt, is often miſtaken for *Tr. junceum*, and was the *Elymus arenarius* of Mr. Hudſon's firſt edition of his Flora. [d]The leaves are ſtiff and ſharp: the calyx from three to eight-flowered, and the florets pointed[e].

14. Root perennial, fibrous, tomentoſe, not creeping. Culms very many, erect, ſtrict, two feet high, leafy, round, very ſmooth, minutely ſtriated. Leaves from upright ſpreading, linear-lanceolate, acute, nerved, rough on both ſides, ſometimes hirſute. Sheaths ſtriated, ſmooth. Stipule indiſtinct. Spike three or four inches long, nearly erect, finally nodding; looſiſh. Lower ſpikelets often in pairs, but the reſt alternate. Calyx-glumes equal, lanceolate, ſhortly awned, three or five-nerved, oppoſite, not as in Elymus and Hordeum lateral. Florets lanceolate, nerved, awned; awns twice as long as the glume, ſtraight. Inner glumes ciliate *.

15. Culm a ſpan high and ſomewhat branched. Leaves the length of the culm, with purpliſh ſheaths. Spike branched, almoſt panicled; the branches angular, ſpikelets eight or ten-flowered, alternate, compreſſed, thickeſt at the baſe, ſeſſile, ſo that they are even ſolitary on the ramifications[f].

[r] Gartner. [s] Villars. [t] Linn. mant. [u] Linn. ſuppl. [x] Engl. bot. [y] Smith. brit. Engl. bot. Fl. ruſt. [z] Engl. bot. [a] Withering. [b] Annual Regiſter for 1790: princ. occur. p. 4. [c] Withering. [d] Engl. bot. [e] Withering. * Smith brit. [f] Linn. ſpec.

This

This graſs forms tufts compoſed of bundles of ſtiff hard aſh-coloured involuted leaves, whence ariſe culms often branched at bottom, and terminated by hard aſh-coloured ſpikes, branched into panicles at their lower part; ſpikelets hard, a little compreſſed, compoſed of three or four, ſeldom five florets, intermediate in ſize between *Tr. junceum* and *tenellum*.—*Feſtuca diehotoma* of Forſkahl is only a younger plant of this growing in a poorer ſoil. Vahl gathered ſimilar ſpecimens in Barbary [a]. Native of France, Spain, Barbary and Egypt, but not of England.

16. Root annual. Culm a ſpan high, tender, filiform. Leaves rolled in. The ſpikes have from four to ſeven flowers, which are alternate [b].

Height from three to ſix inches. Culms hard, ſolid, ſtraight, two or three, commonly branched at the baſe, terminating in a ſpike, which is half the length of the ſtem, and compoſed of oval, ſeſſile, diſtinct, alternate ſpikelets, leaving a ſpace between each nearly equal to their length. Calyx much pointed. Outer chaff ſmooth, cylindrical, obtuſe: inner flat, very ſlightly ciliate at the ſides, bifid at the end [c]. Native of France, Spain, Italy and Switzerland.—Introduced in 1781, by Monſ. Thouin [d].

17. Root annual, capillary, villoſe. Culms many, erect, firm, round, ſtriated, naked at top and thickened. Leaves ſmooth, ſhorter than the culm. Sheaths terminated by a white membrane (ſtipule or ligule.) Rachis ſimple, flexuoſe, ſtriated, alternately excavated. Spikelets in a double row, ſeſſile, alternate, very ſmooth, flat, ovate-lanceolate, ſharpiſh, rigid, cloſely imbricate, from twelve to twenty-flowered. Outer glume keeled, ſharpiſh, inner ſmaller [e].

Deſfontaines makes this graſs a Poa, following Jacquin, who had at firſt, in his Obſervations, conſidered it as a Cynoſurus. Scopoli deſcribes it as a Briza.

Vahl could not diſcover the white ſtreaks on the culm, mentioned by Scopoli, but remarks that it is ſometimes purple towards the top. He thinks it better to aſſociate it with the Triticums, on account of its toothed rachis, eſpecially as it ſeems to be allied to Tr. maritimum.

Native of Italy, Sicily, and Barbary.—Cultivated in 1758, by Mr. Miller. It flowers from july to ſeptember [f].

18. Root annual, conſiſting of long downy fibres, as in moſt graſſes that grow in pure ſand. Culms ſeveral, curved, branched, rigid, ſomewhat compreſſed, ſmooth, three or four inches high, clothed with ſheathing leaves, which are linear-lanceolate, ſharpiſh, ſomewhat rugged at the back, flat but involute when dry. Sheaths a little inflated, ſomewhat ſtriated, ſmooth. Stipule ſhort, obtuſe, eroſe. Spike erect, rigid, compoſed of from eight or nine to twelve or fifteen erect flowers or ſpikelets, placed alternately on each edge of the common rachis, but all directed to one of its flat ſides, which is thus completely hidden, whilſt the other is viſible behind. The ſpikelets are commonly ſolitary, but the lower ones are often in pairs, ſometimes three or even four together. Calyx-glumes lanceolate, equal, obtuſe, keeled, obſcurely nerved, reaching to the top of the loweſt florets: inner ones ciliate. Partial rachis flexuoſe, and exactly like the general one; an argument for the propriety of conſidering the latter as a part of the fructification, and conſequently making the plant a *Triticum*, not a *Poa*. The outer valves of the florets are very blunt, with a ſharp point; the inner are lanceolate and acute. Nectary a minute concave ſcale. Stamens and piſtils ſhort. In the habit and ſtructure of the flowers this graſs is nearly allied to Poa rigida, and it is perhaps of the ſame natural genus with it. It varies in expoſed ſituations, of a duſky violet colour [g].

Floral leaf ſhorter than the ſpike, which is from an inch and quarter to two inches long, and a quarter of an inch in breadth. Spikelets ten to fifteen, not crouded. Calyx fix or eight-flowered; both that and the corolla awnleſs. The ſerpentine ſpike-ſtalk has a ſtrong wood-like midrib, edged with a thinner and greener border, the ſame as in Poa rigida [h].

Native of England, in many parts on the ſandy beach, as on the north coaſt of Norfolk, at Loweſtoft in Suffolk, near South End Eſſex, near Wiſbeach in Cambridgeſhire, and in the Iſle of Wight; flowering about Midſummer.—It is alſo native of Dauphiné, according to Villars, who remarks that this ſpecies, diſcovered by the ſagacity of Ray and Scheuchzer, ſeems to have been forgotten by modern botaniſts. The ſingle culms, he ſays, are only two or three inches long, and the ſpike occupies the upper third of them; the leaves are tender, ſtriated and very narrow; the lower ſpikelets are on a filiform peduncle about a line in length, the upper ones are ſeſſile; the former are infulated, the latter are ſo cloſe that there are ten or twelve in the ſpace of an inch; they are very ſmall, having three, four or five filiform florets in a very narrow calyx; the chaffs are ſo pointed that they ſeem to have an awn, as in Scheuchzer's figure; but viewed in a magnifying glaſs, they are ſmooth, cylindrical and awnleſs.

19. Height three or four inches, of which the ſpike occupies half; it is thin and turned on one ſide, compoſed of ſeſſile ſpikelets, which are very cloſe to each other, each containing four or five flowers, the lower ones awnleſs, the upper having ſhort terminating awns, annual.

Scheuchzer and Linneus have not remarked any awns upon the chaffs of this graſs; but as they are very ſhort, and on the upper flowers only, they might not perceive them, or perhaps they are not always preſent. It is however too well characterized to be miſtaken. It differs from the *unilaterale*, not only becauſe in that the partial ſpikes are turned on one ſide, but the leaves are wider and not ſo hard, and the ſpike as ſtill again as the glumes, more diſtinct, leſs in number, terminated by a point or awn which is always viſible. Moriſon's figure referred to under *Tr. tenellum* rather belongs to this ſpecies [i]. Dr. Smith ſays, that Moriſon's is a good figure of the unilaterale. Native of the South of France and Italy, on the ſea coaſt.

PROPAGATION AND CULTURE.

1. To aſcertain that Spring Wheat is really diſtinct from Lammas Wheat, Mr. Macro ſowed them on the ſame piece of land in april. Whilſt the latter was tillering, the former ran up to ear, and produced a good crop; whereas not more than a tenth part of the other, which was red Kentiſh wheat, eared at all, and not a ſingle grain came to perfection [k].

Thomas Ruggles, Eſq. an experienced agriculturiſt, as well as elegant ſcholar, made ſome experiments in his farm at Clare in Suffolk, in 1785 and the two following years on the comparative produce of Spring Wheat, with Winter Wheat and Barley. His concluſion is, that Spring Wheat is more likely to anſwer the wiſhes of the farmer in the South than in the North of Europe; and that it makes a better figure in Columella, than in the Annals of Agriculture [l]. The detail of his experiments are well worth peruſal.

Dr. Wilkinſon has tried Spring Wheat at Enfield Chaſe for ſeveral years, and in 1799 ſowed it ſo late as the 10th of may, yet it was ripe before barley ſown at the ſame time in the ſame field. It ſhould never be ſown earlier than april, for it is too tender to ſuſtain much froſt. He has grown three quarters, but the average produce with him has been two quarters to the acre [m].

Mr. Marſhall informs us, that Spring Wheat has been ſufficiently tried in Yorkſhire to aſcertain that the proper month of ſowing is april. See more in our deſcription, &c. above.]

2. The ſeaſon for ſowing of Lammas or winter Wheat is autumn, and always when the ground is moiſt. In the downs of Hampſhire, Wiltſhire, and Dorſetſhire, the farmers begin ſowing of their Wheat

[a] Villars. [b] Vahl. ſymb. [c] Linn. ſpec. [d] Villars. [e] Hort. kew. [f] Deſfontaines. [g] Hort. kew. [h] Smith brit. and Engl. bot. [i] Withering. [k] Villars. [l] Young's Annals, 7. 187. [m] Idem, 7. 213 and 10. 199. [n] Idem, 35. 63.

in auguſt, if there happens rain; ſo that when they are in their harveſt, if the weather ſtops them, they employ their people in ſowing, for if the Corn is not forward in autumn, ſo as to cover the ground before winter, it ſeldom ſucceeds well on thoſe dry lands, eſpecially if the ſpring ſhould prove dry; but in the low ſtrong lands, if they get their Wheat into the ground by the middle of november, the farmers think they are in good ſeaſon; but ſometimes it ſo happens, from the badneſs of the ſeaſon, that in many places the Wheat is not ſown till Chriſtmas or after, but this late-ſown Wheat is ſubject to run too much to ſtraw, eſpecially if the ſpring ſhould prove moiſt.

The uſual allowance of ſeed Wheat to one acre of land is three buſhels, but from repeated experiments, it has been found, that leſs than half the quantity is more than ſufficient; therefore, if the farmers have regard to their own intereſt, they ſhould ſave this expence of ſeed, which amounts to a conſiderable article in large farms, eſpecially when it is to be purchaſed, which moſt of the ſkilful farmers do, at leaſt every other year, by way of change; for they find that the ſeeds continued long upon the ſame land will not ſucceed ſo well, as when they procure a change of ſeeds from a diſtant country. And the ſame is practiſed by the huſbandmen of the Low Countries, who commonly procure freſh ſeeds from Sicily every ſecond or third year; which they find ſucceed better with them, than the ſeeds of their own country. In the choice of the ſeeds, particular regard ſhould be had to the land upon which it grew, for if it is light land, the Wheat which grew upon ſtrong land is the beſt, and ſo vice verſa.

There have been ſome perſons in England curious enough to procure their ſeed Wheat from Sicily, which has ſucceeded very well, but the grain of this has proved too hard for our Engliſh mills to grind, which has occaſioned their neglecting to procure their ſeeds from thence; nor do I think there can be much advantage in procuring the ſeeds from abroad, ſince the lands of England are ſo various, as to afford as much change of ſeeds as will be neceſſary. And the leſs we purchaſe from abroad, the greater will be the ſaving to the public; ſo that it ſhould be the buſineſs of ſkilful farmers to want as few ſeeds as poſſible, ſince, by exchange with each other, they may ſo contrive, as not to part with ready money for any ſeeds. The land which is uſually allotted for Wheat, is laid fallow the ſummer before the Corn is ſown; during which time it is ploughed two or three times, to bring it into a mift; and the oftener and better the ground is ploughed, and the more it is laboured with harrows between each ploughing to break and divide the clods, the better will be the crop, and the fewer weeds will be produced. But in this article moſt of the farmers are deficient, for after they have given their lands one ploughing, they frequently leave it to produce weeds, which ſometimes are permitted to ſtand until they ſhed their ſeeds, whereby the ground will be plentifully ſtocked with weeds; and as an excuſe for this, they ſay that theſe weeds will ſupply their ſheep with ſome feed, and the dung of the ſheep will mend their land; but this is a very bad piece of huſbandry, for the weeds will draw from the land more than the dung of the ſheep will ſupply; ſo that it is undoubtedly the beſt method to keep the ground as clean from weeds as poſſible, and to ſtir it often to ſeparate and break the clods, and render the land fine; and where the land can enjoy a winter's fallow, it will be of much greater ſervice to it than the ſummer; and by thus labouring of the land, it will be of equal ſervice to it as a dreſſing of dung. Therefore if the farmers could be prevailed on to alter their method of huſbandry, they would find their advantage in it, for the expence of dreſſing in ſome counties is ſo great, as to take away the whole profit of the crop.

There is alſo a very abſurd method in common practice with the farmers, which is the carrying out of their dreſſing, and ſpreading it on the land in the ſummer, where it lies expoſed till the ſun has dried out all the goodneſs of it, before it is ploughed into the ground ſo that the dreſſing is of little valbe; therefore the dung ſhould never be laid on the land ſafter than it can be ploughed in, for one load of dung ſo managed, is better than three in their uſual method.

As Wheat remains a longer time upon the ground than moſt other ſorts of Corn, it requires a greater ſtock of nouriſhment to lengthen and fill the ears: therefore, if the dreſſing is exhauſted in winter, the Corn will have but ſhort ears, and thoſe but lean, nor will the grain afford much flour; ſo that it frequently happens, that a light dreſſing of ſoot in the ſpring, at the time the Wheat is beginning to ſtalk, proves of greater ſervice to the crop, than a dreſſing of dung laid on the land before it is ploughed, eſpecially if the dung is not very good. Deep ploughing (where the ſtaple of the ground is deep enough to admit of it) will alſo be of great ſervice to the Corn, for the ſmall fibres of the roots, which are the mouths that ſupply the nouriſhment, extend themſelves very deep into the ground. I have traced many of them upward of three feet, and believe they ſpread much farther where the ground is light; therefore it is of great advantage to the crop to have the ground ſtirred and looſened to a proper depth, for by ſo doing the roots will find a ſupply of paſture for the nouriſhment and augmentation of the ears, at the time they are forming, when it is moſt required; for if the ground is ploughed ſhallow, the roots will have extended themſelves to that depth by the ſpring, ſo that when the nouriſhment is wanted to ſupply the ſtalks, the roots are ſtinted by the hardneſs of the ſoil, which they cannot penetrate; when this is the caſe, the colour of the blade is frequently ſeen to change in april, and ſeldom recovers its verdure again; and when this happens, the ſtalks are always weakened in proportion to the decay of the blade; for it is well known from long experience, that the leaves or blade of Corn, are neceſſary to draw in nouriſhment from the air and dews, for the increaſe of the ſtalk and ear; but in order to aſcertain this, I have made trial of it, by cutting off the leaves of ſome roots of Wheat alternately, early in the ſpring, and have conſtantly found the ſtalks upon thoſe roots much ſmaller, the ears ſhorter, and the grain thinner than thoſe of the intermediate roots, whoſe blades were not cut. This ſhews the abſurdity of that practice of feeding ſheep upon Corn in the winter and ſpring. I have frequently ſeen in ſome gardens, plants diveſted of their lower leaves, which ignorant perſons have ſuppoſed to draw away the nouriſhment from the head; but wherever this has been practiſed, I have always ſeen the plants have been greatly weakened by it; ſo that until thoſe leaves decay naturally, they ſhould never be taken off.

Of late years, many compoſts have been advertiſed for the ſteeping of the ſeeds of Corn, in order to improve their growth, ſome of which have been ſold at a dear rate; but as ſo great ſucceſs was aſſured by the inventors to thoſe who ſhould make uſe of them, there were numbers of perſons who made the trial; but ſo far as I have been able to get information of their experiments, they did not ſucceed ſo well as to encourage the uſe of theſe compoſitions; and from ſeveral trials which I made myſelf with great care, I always found, that the Wheat which had been ſteeped in theſe compoſitions came up ſooner, and grew much ranker in the winter, than that which had not been ſteeped; but in the ſpring the unſteeped Wheat had a greater number of ſtalks to each plant, and the ears were better fed than thoſe which had been ſteeped; therefore theſe ſorts of compoſts have been found of no real uſe to the crop.

My experiments were made in the following manner. The Wheat was ſown in drills, on the ſame ſpot of ground; the ſeeds that had been ſteeped were ſown in alternate rows, and the intermediate rows were ſown with unſteeped Corn. The rows were a foot and a half aſunder, and the grains were all taken out of one meaſure, and ſown as equally as poſſible: the ſteeped Corn appeared above ground three days before

fore the other, and continued to grow faſter than the unſteeped Corn during the winter, but in the ſpring the blade of the ſteeped Corn changed its colour, and their points became of a brown colour, when I gave a light dreſſing to one of the rows, which ſoon recovered its verdure, and cauſed it to be the ſtrongeſt row of the whole; but the others which had not this dreſſing, produced weaker ſtalks and ears than that which was not ſteeped.

I have before obſerved, that in general the farmers ſow more than double the quantity of Corn on their lands than is neceſſary; therefore there is a great waſte of grain, which in ſcarce years amounts to a conſiderable ſum in large farms, and to a whole country it is an object worthy the attention of the public: but I fear whatever may be ſaid to prevent this, will have but little weight with the practitioners of agriculture, who are ſo fond of old cuſtoms, as rarely to be prevailed upon to alter them, though they are extremely abſurd. But if theſe people could be prevailed on to make the trial with care, they muſt be ſoon convinced of their error; for if they would but examine a field of Corn ſown in the common way, they will find but few roots which have more than two or three ſtalks, unleſs by chance, where there may be ſome few roots which have room to ſpread, upon which there may be ſix, eight, or ten ſtalks, and frequentiy many more; but in a field of Wheat which had not a greater allowance than one buſhel of Corn to an acre, ſo that the roots had room to ſpread, I have obſerved the roots produced from ſix to twelve, or fourteen ſtalks, which were ſtrong, and had long well nouriſhed ears, and the produce was much greater than in any of thoſe fields in the neighbourhood, which were ſown with the common allowance. And if the land is good, and the roots ſtand at a proper diſtance from each other, there will be few roots which will not produce as many ſtalks as I have here mentioned, and the ears will be better nouriſhed.

But if the land is not covered with the blades of Corn by the ſpring, the farmers think they ſhall have no crop; whereas, if they would have patience to wait till the roots put out their ſtems, they would ſoon be convinced of the contrary; eſpecially if they could be prevailed on to draw a weighty roller over the Wheat in march, which will cauſe it to ſpread; and by ſettling of the looſe ground to the roots, the drying winds in the ſpring would be prevented from penetrating to their fibres, ſo that the roots will produce the more ſtalks; but before this operation, it will be proper to have the Corn cleaned from weeds; if theſe are permitted to grow, they will draw away much nouriſhment from the Corn; and if, at this ſeaſon, the land is made clean from weeds, the Corn will ſoon after ſpread and cover the ground, whereby the growth of weeds will be greatly leſſened.

There is not any part of huſbandry which requires the farmer's attention more, than that of keeping his land clean from weeds; and yet there are few who trouble themſelves about it, or who underſtand the proper method of doing it; few of them know thoſe weeds which are annual, ſo as to diſtinguiſh them from thoſe which are perennial; and without this knowledge, it will be much more difficult for a perſon to clean his land, let his induſtry be ever ſo great, for annual weeds may be ſoon deſtroyed if taken in time; whereas, if they are negiected, their ſeeds will ſoon ripen and ſcatter; after which it will require three times the labour and expence to get rid of them, as would have been ſufficient at the beginning, and then the crop would have had no bad neighbours to rob it of its nouriſhment. The common method now practiſed is a very abſurd one, for the weeds are left to grow till the Wheat is beginning to ear, and the weeds are in flower; ſo the ground being covered by the Corn, all the low weeds are hid, and theſe are left to ripen and ſcatter their ſeeds; the tall weeds only are taken out, and if the people employed are not careful, many of theſe will eſcape them, as they will be ſo intermixed with the ſtalks of Wheat as not to appear, unleſs diligently ſought after. By this method the weeds of tall growth are permitted to ſtand, and rob the Corn of its nouriſhment, during the principal time of its growth, and the humble weeds are never deſtroyed; and by going amongſt the ſtalks when they are tall, great numbers of them are broken and trod under the work people's feet; yet however obvious this is to every farmer, none of them have thought of altering this practice. I would therefore recommend a method which is now in common practice amongſt the kitchen gardeners, which has been found of great benefit to their crops, and has alſo been a great ſaving to them in the expence of weeding; and this is making uſe of hoes for cleaning the Wheat early in the ſpring, before the ground is covered with blades of Corn. With this inſtrument, all the low as well as the tall weeds will be cut up, and if it is performed in dry weather, the weeds being then ſmall will ſoon die. Where the ground happens to be very full of weeds, it may be neceſſary to go over it a ſecond time, at about a fortnight after the firſt, to cut up any weeds which may have before eſcaped. By laying the ground clean at this time, the Corn will not be robbed of its nouriſhment; and there will not be time for the weeds to grow ſo as to prejudice it much after, for the ground will be ſo much ſhaded by the Corn, as to keep down the weeds, ſo that they cannot have time to ripen their ſeeds before harveſt.

If, at the time of this operation, the roots of Corn are cut up where they are too cloſe, it will be found of great ſervice to the other; but this, I fear, few of the old farmers will ever agree with me in; though what I mention is not from theory but experiments, which have been repeated with great care; and where it was practiſed the produce of twenty rods of ground, was much greater both in weight and meaſure, than the ſame quantity of ground in the beſt part of the field where this was not practiſed, and the ſtalks ſtood upright, when a great part of the Corn in the ſame field was lodged.

I have often obſerved in thoſe fields where foot-paths are made through Corn-fields, that by the ſide of thoſe paths where the Corn is thin, and has been trodden down in the winter and ſpring, that the ſtalks have ſtood erect, when moſt of the Corn in the ſame field has been laid flat on the ground, which was owing to the ſtalks being ſo much ſtronger from their having more room, the other having been drawn up tall and ſlender by being ſo cloſe together. There is alſo another great advantage in keeping Corn clean from weeds, and giving it room to ſpread, which is, that the Corn is not ſo liable to take the ſmut as when it is full of weeds, and the roots too much crowded, as I have frequently obſerved; ſo that cleanneſs and free air, is as eſſential to the well doing and growth of vegetables as animals; and the changing of the ſeed annually is alſo as neceſſary, as the change of air is to all ſorts of animals; for where this has been carefully practiſed, there has rarely happened any ſmutty Corn in the field.

Brining of the ſeed Wheat is what the farmers generally practiſe to prevent the ſmut, which in moſt years anſwers very well, but there is nothing which contributes more to this, than keeping the plants in good health, which is better effected by the method before propoſed; for by ſtirring of the ground with the hoe between the roots of Corn in the ſpring, they will be better ſupplied with nouriſhment; for in ſtrong lands, where the water may have lain in the winter, the ſurface of the ground will bind ſo hard on the firſt dry weather as to flint the Corn, and frequently cauſe it to change colour. When this happens, the roots ſeldom put out many ſtalks, and thoſe which are put out, are weak; but where the ſurface of the ground can be ſtirred to looſen the parts, the Corn will ſoon recover its colour and ſtrength, and cover the land with ſhoots.

What has been here directed, muſt be underſtood to relate to Wheat ſown in broad-caſt, which is the uſual method practiſed by farmers in every part of England; for the horſe-hoeing huſbandry which was practiſed by Mr. Tull, has been almoſt univerſally rejected by the farmers in every country, it being ſo oppoſite to their accuſtomed practice, that they cannot be prevailed

vailed upon to make trial of it; and indeed, by the abſurdity of the author in a few particulars, he has diſcouraged many from engaging in it, who would have practiſed it; but upon finding Mr. Tull poſitively aſſerting, that the ſame land would nouriſh the ſame ſpecies of plants without changing the crops for ever, and this without manure, which being contrary to all experience, led them to believe his other principles had no better foundation. And he practiſed this method of ſowing the ſame ſpecies upon the ſame ground, till his crops failed, and were much worſe than thoſe of his neighbours who continued their old method of huſbandry, and hereby his horſe-hoeing huſbandry was ridiculed by them, and laid aſide by gentlemen who were engaging in it. But notwithſtanding theſe and ſome other particulars which have been advanced by Mr. Tull, yet it is much to be wiſhed that this new huſbandry might be univerſally practiſed; for ſome few perſons who have made ſufficient trial of it, have found their crops anſwer much better than in the common or old method of huſbandry; and the French, who have learned it from Mr. Tull's book, are engaging in the practice of it with greater ardour than thoſe of our own country: and although they had not the proper inſtruments of agriculture for the performance, and met with as ſtrong oppoſition from the perſons employed to execute the buſineſs as in England, yet the gentlemen ſeem determined to perſiſt in the practice of it, though as yet few of their experiments have had the ſucceſs they hoped for; partly from the aukwardneſs of their labourers, and partly from their averſeneſs to practiſe this huſbandry, and alſo from their being made in land not well conditioned, but yet their produce has been equal to that of the old huſbandry; and they ſay, that if the produce of the land in the new method of huſbandry does not exceed that in the old way, yet by ſaving ſeven parts from eight of the ſeed Corn, it is a great affair to a whole country, eſpecially in times of ſcarcity.

As Mr. Tull has given a full direction for the practice of this huſbandry, I ſhall refer the reader to his book for inſtruction, and ſhall only mention two or three late experiments which have been made in his method, whereby the utility of it will more fully appear.

The firſt was in a field of Wheat, which was ſown partly in broad-caſt in the common method, and partly according to Tull's method; the ſpots thus ſown were not regular in lands, but interſperſed indifferently in many directions. Thoſe parts of the field in Tull's method, were in rows at two feet diſtance, and ſtood thin in the rows. The roots of the Wheat in theſe ſpots had from ten to thirty ſtalks on a root, and continued upright till it was reaped; whereas few of the roots in the common method had more than two or three ſtalks, and theſe were moſt of them lodged before harveſt; ſo that upon trial of the grain when threſhed, there was near a third part more in weight and meaſure, than from the ſame extent of ground, taken in the beſt part of the field ſown in the common way.

Another trial was made in ſowing of the Corn in rows at different diſtances, with ſome ſown in two parts of the ground broad-caſt. The event was, that all which was ſown broad-caſt in the uſual way was lodged, as was alſo moſt of that where the rows were ſix or nine inches aſunder; thoſe which ſtood a foot diſtance eſcaped better, but the rows two feet aſunder were the beſt, and the produce much greater than any of the other; which plainly ſhews the abſurdity of that practice, in ſowing a great quantity of ſeeds to have a better produce, which is the opinion of moſt of the old farmers; and it was formerly the prevailing opinion among gardeners, who allowed near eight times the quantity of ſeeds for the ſame ſpace of ground as is now uſually ſown, and theſe crops are greatly ſuperior to any of thoſe.

The produce of an acre of Wheat is various, according to the goodneſs of the ſoil. In ſome of the ſhallow, chalky, down lands, where there have been near four buſhels of Corn ſown, I have known the produce not more than double of the ſeed; but when this is the caſe, the farmer had much better let his land lie waſte, ſince the produce will not defray the expence, ſo that more than the rent of the land is loſt: and although theſe ſorts of crops are frequently ſeen on ſuch land, yet ſuch is the paſſion for ploughing among the huſbandmen at preſent, that if they were not reſtrained by their landlords, they would introduce the plough into every field, notwithſtanding they are ſure to loſe by it.

But although the produce of theſe poor downs is ſo ſmall, as before related, yet upon good land, where the Corn has ſtood thin upon the ground, I have known eight or ten quarters reaped from an acre, over the whole field, and ſometimes much more. And I have been informed by perſons of great credit, that on good land, which was drilled and managed with the horſe-hoe, they have had twelve quarters from an acre of land, which is a great produce; and this is with greater certainty, if the ſeaſons prove bad, than can be expected by the common huſbandry.

The fineſt field of Wheat I ever yet ſaw, was ſown in rows at a foot and a half diſtance; the allowance of ſeed to this field was three gallons, and by the common practice of the farmers, there is ſeldom leſs than three buſhels, which is eight times the quantity: this Wheat was hoed by the hand twice in the ſpring, which coſt five ſhillings and ſix-pence per acre. When the Corn was in ear, it was not leſs than ſix feet high; there were from twelve to twenty ſtalks on each root, which were ſo ſtrong as to all ſtand upright; the ears were very long, the ground perfectly clean from weeds, and the produce was more than eleven quarters to an acre of land. Theſe experiments, one ſhould imagine, would excite an induſtry among farmers to the practice; but on the contrary, not one of thoſe in the neighbourhood would follow it.

[This work not profeſſing to be a complete body of Huſbandry, it is not to be expected that we ſhould enter into all the minutiæ of the culture of Wheat; and yet, as it is a ſubject of primary importance, we ſhould ſcarcely be excuſed, if we did not treat of it ſufficiently though ſuccinctly.

Preparation.

The old Preparation for Wheat is a naked ſummer fallow. If there is one practice in huſbandry, ſays Mr. Young, ſhown by modern improvements to be worſe than another, it is that of ſowing Wheat on fallows. And yet it is ſtill the practice in many places. Where they are thought neceſſary, let them be ſown with barley or oats, or any thing rather than Wheat.

In ſome counties the fallows are ploughed juſt before harveſt on to two bout ridges, ready to plough and ſow under furrow in *the ſpraining method*, a ſeedſman to every plough, which reverſes the ridges. In others they lay their lands into ten or twelve furrow ſtitches or lands, and ſow ſome under furrow, ſome under the harrow. Ridges vary exceedingly, according to their wetneſs; and in Kent, by means of the turn-wreſt plough, they have no ridges, but the whole field an even ſurface [r].

Other preparations for Wheat are, Beans, Clover, Lay, Peas, Potatoes, Rape, Tares and Turneps. Wheat ſhould never be ſown after Rie, Barley or Oats, nor ſhould the land be manured for it, but for the preceding crop [s].

Beans, if well cultivated, form the beſt preparation for wheat. Mr. Young ſaw in Kent a field of Wheat, which followed beans, clover, tares and fallow, the firſt was ſuperior to all the reſt, next the clover, then the tares, and the worſt was after the fallow. The bean-ſtubble ſhould have its due tillage as early as poſſible: this will depend on ſoil, for on ſome it will be more advantageous to truſt to the ſhim, ſcarifiers and ſcufflers, than to the plough. If the land be very clean, the great Iſle of Thanet ſhim will cut through every thing, and looſen the ſurface ſufficiently to enable the harrows to leave it as clean and fine as a garden; women attending to pick and burn. If leſs

[r] Calendar, 483. [s] Midd. ſurvey, 367. Young's ann. 18. 444.

clean, the Kentiſh broad-ſhare may do the work more effectually. In other caſes the ſcuffler may be equal to the buſineſs. It is now to be conſidered whether the land ſhould be ploughed or not: if the ſoil be of a firm, ſolid, tenacious quality, and it is not intended to drill, it may be adviſeable; there will then be no apprehenſion of the Wheat being root-fallen, but a new ſurface will be brought up, which will drill with difficulty. If the ſoil be of a more looſe, friable quality, and the finer ſurface gained ſhould be ploughed down, the Wheat having too looſe a bottom will run the chance of being root-fallen. In ſuch caſes, it is beſt not to plough, but drill directly; which ſaves tillage, and gives the probability of a better produce. This is new practice on ſtrong land, but there is no reaſon to doubt of its being right. Mr. Ducket purſued it on a ſandy ſoil for many years with great effect. Whatever other circumſtances may influence the growth of this grain, it loves a firm bottom to root in, and rarely flouriſhes to profit, when that is looſe and crumbly; nor muſt the under ſtratum be in its quality repellent. The beſt baſis is the cultivable earth, firm from not having been lately diſturbed[e].

Clover forms a very excellent preparation for Wheat; and while the Norfolk huſbandry of 1. Turneps. 2. Barley. 3. Clover. 4. Wheat; is practicable on a farm, dry enough for turneps, and rich enough for wheat, a farmer might be ſatisfied with his profit. But after many repetitions of this courſe it has been found, that Turneps required ample manuring, where they had not wanted any; and that Clover became ſo ſubject to failures, that it was no longer eaſy to have it every fourth year. This created the neceſſity of variations, but ſtill retaining clover as the preparation for Wheat. The huſbandry however was very imperfect, by the mode of putting in the Wheat by the harrow, when the ſeed was apt to fall into the ſeams of the furrows, and conſequently to come up among whatever graſs and weeds might be in the land. The diſcovery of dibbling was a great improvement: by this method the ſeed was depoſited in the centre of the flags, and the regular treading the land received, preſſed down the furrow, and gave a degree of firmneſs not otherwiſe attainable. The ſucceſs was great, but the labourers have done it of late years in ſo ſlovenly a manner, that drilling is every where coming in, both in Norfolk and Suffolk. At preſent, it is thought in thoſe counties the mark of a bad farmer to ſow Wheat broad-caſt on clover.

The land having been ploughed a fortnight or three weeks, it is to be well rolled down with a heavy roller, and then dibbled: the chief attention is to be paid to the dibblers making the holes deep enough, and to the children dropping equally without ſcattering. It is then buſh-harrowed. Six pecks of ſeed are ſufficient for two rows on a flag in ſeptember; but in one row as much ſhould be put in: and if the land is given to mildew, an increaſe of ſeed on that account is right, whatever be the ſoil or ſeaſon; it being well known, that thin crops ſuffer moſt from that diſtemper. For drilling, it ſhould be remembered, that in ploughing all lays, the uſe of the ſkim-coulter is very great, and in ſome caſes indiſpenſable: an effective harrowing ſhould preceede the drill: the quantity of ſeed is the ſame as in dibbling[f].

Wheat is ſometimes ſown on graſs land, broken up in the ſummer, after the hay has been cut off: but on old lays it is more uſual firſt to take a crop or two of oats, according to the ſtrength of the land.

Peas are a good preparation for Wheat, on land which is too light for beans, being a good ſmothering crop.

Great crops of Wheat have been grown after potatoes, well manured for, and on a proper ſoil; but barley has been generally found to do better. See *Potatoes* under SOLANUM; art. *Crops following*.

A good crop of winter Tares leaves the ground in ſuch looſe, friable order, that it is much better huſbandry to ſow turneps or plant cabbages on it, than to leave it to receive tillage for Wheat. However if this management ſhould take place, the land ſhould not be ploughed, but left to conſolidate at bottom, for the roots of the Wheat to fix in, and the ſurface worked with the ſcarifiers or ſcufflers, according to its temper, juſt ſufficient to keep it clear of weeds, and in that ſtate, drill the Wheat without any ploughing[g].

Wheat is ſometimes ſown after Rape and Turneps, and I have ſeen Turneps ſown after Wheat; the land being ploughed whilſt the ſhocks were ſtanding in the field. It is more common to ſow Barley after Turneps.

Steeping the Seed.

It has been a great controverſy whether this operation be beneficial or not; the evidence certainly goes much in favour of doing it; and there can be no objection to it except the expence and trouble; unleſs the ſeed-Wheat be ſuffered to lie too long in ſome mixtures. The intention of them is to guard againſt the ſmut, and the modes of ſteeping, liming and ſtirring are innumerable. Arſenic has lately had the preference; and Mr. Young informs us, that it appears from his experiments that ſteeping the ſeed from twelve to twenty-four hours in a ley of wood aſhes, in lime water, and in a ſolution of arſenic, gave clean crops from extremely ſmutty ſeed; but a ſhort time in thoſe mixtures had a much leſs effect[h].

In Northumberland, and ſome other parts, the ſeed Wheat is thrown into a veſſel full of chamberley; it is ſtirred about with a ſtrong ſtick, and the light grains are ſkimmed off; the liquor is then let off, and the Wheat taken out, and mixed with powdered quick-lime, till it is dry enough for ſowing: the ſooner this is done the better; becauſe it is apt to heat if ſuffered to continue in the ſacks, or in large heaps; but if dried and ſpread thin on a granary floor, will keep ſeveral days. Five or ten minutes are as long as the ſeed ſhould ſteep in the liquor; its vegetative powers will be injured if it remain much longer in very putrid chamberley[i].

Salt water, where the ſea is near, and brine, where it is not ſo, are the common ſteeps for ſeed Wheat in moſt places. After ſoaking for a few hours, it is taken out, and a ſufficient quantity of lime, to dry it for ſowing, is ſifted over it. This however is ſaid often to prove ineffectual: and Mr. Wyborn of Hull in Kent, whoſe Wheat one year after briming was uncommonly full of ſmut, endeavoured to inveſtigate the nature of this diſtemper, and diſcovered that it was an infectious diſeaſe, and curable by arſenic. But if the Wheat ſtands much more than ten or twelve hours in the ſolution of arſenic, vegetation will be totally deſtroyed[k].

Mr. Middleton, in his ſurvey of Middleſex, (p. 168.) ſays, he has prevented the ſmut, by putting lime recently burnt, into a copper of boiling water, and pouring this mixture, boiling hot, on the Wheat, previouſly ſpread on a ſtone floor, immediately turning the Wheat and the mixture well together with ſhovels. This is done over night, and the ſeed is commonly ſown the next day.

On good authority it is affirmed that the ſmut may be prevented by ſimply waſhing the ſeed Wheat in clean water, ſeveral times if neceſſary[l].

It is ſuppoſed by ſome, but ſeemingly without much reaſon, that ſteeps act as prolific liquors, to invigorate the germ; but they probably act no farther than in deſtroying the ſmut, whatever it be. They may be too weak to do this; and if they are too ſtrong, or the ſeed remain too long in them, they may injure the vegetation.

Time of ſowing.

October and november are the months in which Wheat is commonly ſown. It has been lately thought in ſome places that ſeptember is a ſtill better time, provided it be wet enough, but few farmers are ready ſo early[m].

[e] Young's calendar, 484. [f] Idem, 456. See Suffolk ſurvey—47-52.

[g] Young calendar, 459. [h] Idem, 455. and Suffolk ſurvey, 45. and Marſh's Yorkſh. 2. 10. [i] Northumb. ſurvey, 67. [k] Kent ſurvey, 82. Young's annals, 16. 512. [l] Yorkſh. N. R. ſurvey, 111. [m] Suffolk ſurvey, 45.

In

In Mid-Lothian it is ſown with ſucceſs from the end of auguſt, when it is common with ſeveral farmers to ſow their fallows, to the beginning of april, when turnep-land has been known to be ſown [1].

In Northumberland, the fallows are ſown in ſeptember and october; after drilled beans Wheat is ſown in october and november; and after turneps all through the winter, until the middle of march. On account of ſnow lying late, many hundred acres have been ſown in april, and produced a good crop. The experienced ſurveyors are diſpoſed to think, that on thoſe light ſoils, february is the beſt ſeed-time for Wheat, maſlin and rie [2].

Good crops have been had in the north riding of Yorkſhire, from ſowing at the beginning of april; but ſowing ſo late as this, or even at candlemas, is very precarious, for if the ſummer be wet, the corn is little worth. Upon warm turnep land, Wheat may be put in as late as Chriſtmas, with great advantage; but beyond that time, it is apt to be lean in the ear, and to be infected with ſmut [3].

In Middleſex, Wheat is ſometimes ſown after turneps in january and february, and even ſo late as the middle of march: but october is thought to be the moſt promiſing ſeaſon, and of courſe, all the land that is then ready ought to be ſown [4].

In Kent, on wet and cold lands Wheat is ſown early in october; on ſtiff and drier clay ſoils ſomewhat cold, about the middle of that month; but the general time for the county is the month of november. Sometimes it happens, by badneſs of weather, &c. that a conſiderable quantity is ſown the firſt week in december, but the more early ſowings generally produce the ſtrongeſt crops [5].

Upon all cold, wet, backward ſoils, ſeptember is the beſt ſeaſon for putting in Wheat, provided there has been rain in tolerable plenty. Upon drier and warmer ſoils it is better to poſtpone it to october. But clover and other layers ſhould be ploughed, if rain comes, in ſeptember, for it is a great advantage to have them remain unſown for three weeks or a month after ploughing [6].

In the vale of Gloceſter, the time of ſowing is november and december; and if a farmer get his ſeed into the ground before Chriſtmas, he is thought to finiſh in due ſeaſon: this country is therefore nearly a month behind the reſt of the kingdom. There are two diſadvantages attending this late ſowing: the uncertainty of the ſeaſon, and the want of a greater quantity of ſeed.

On the contrary, the Cotſwold hills are in a manner proverbial for early ſowing; auguſt and ſeptember being the principal months. The general rule is to begin ploughing in july, and to begin ſowing the firſt wet weather in auguſt. Wheatſeed time therefore generally commences in Wheat harveſt; and the farmers wiſh to ſee the ground covered before michaelmas. The diſtricts that form the two extremes, with reſpect to the time of ſowing Wheat, are included within the ſame county, and even lie contiguous to each other [7].

Mr. Young relates a ſucceſsful experiment of early ſowing, with a view to eſcape the mildew. He ſowed eight acres after tares the beginning of ſeptember, finiſhing the fifteenth. It came up in eight or nine days; the autumn proved remarkably dry; it was the eleventh of november before any rain fell, and all the farmers were ſowing at the end of november and beginning of december. In the ſpring and ſummer the early-ſown Wheat flouriſhed remarkably, while ſeven-eighths of the crops around had a miſerable appearance, and ſome parts of fields were actually ploughed up. At harveſt this field was ready to cut three weeks before any other, and a month before many. Reaping was commenced on the twenty-eighth of july, and on the fourteenth of auguſt the whole was carted to the ſtack. This earlineſs of harveſt will generally be a great advantage. In reſpect to the mildew, it totally eſcaped; yet ſeveral fields near it were conſiderably attacked. The crop, though extraordinary for the ſeaſon, was not large, owing to its being ſown too thick; namely, two buſhels and a peck to the acre, whereas ſo early one buſhel and a half would have been enough. The year following he ſowed twelve acres thinner, in ſeptember, which were a very capital crop, quite bright and clean from mildew, except ſome few ſpots; it was quite ripe, and reaping on the fifteenth of auguſt [8].

Mr. Pitt of Pendeford in Staffordſhire obſerves, that very early ſowings exhauſt the land too much the firſt ſummer, and give too much time for the growth of noxious weeds; he adds, that he always remarked Wheat ſown the beginning of ſeptember new ſtyle to be much fouler the ſucceeding ſpring, than that ſown a month later on equal land.

The greateſt evil he has found to attend late ſowing on found land, is from vermin, eſpecially rooks and larks [9].

Quantity of ſeed ſown.

The quantity of ſeed ſown for a crop of Wheat is in general from two to three buſhels. Mr. Marſhall ſays, pretty univerſally three buſhels an acre, in the midland counties, without much regard to the time of ſowing. That however ought to be attended to, and accordingly the Cotſwold farmers do attend to it, by ſowing in auguſt ſix pecks (about fourteen gallons), and in ſeptember two buſhels (of nine and a half gallons each). But it has been found that one buſhel ſown in auguſt, provided the land be clean and in heart, is abundantly ſufficient; and we may venture to ſay that one third of the ſeed Wheat ſown in moſt other diſtricts is ſaved in this [10].

It is remarkable that in the Vale of Gloceſter, though they ſow very late, yet the quantity of ſeed ſown there is conſiderably leſs than in other parts of the kingdom: even at Chriſtmas ſeldom more than two buſhels on an acre; in the more early part of the ſeaſon ſeven pecks is the uſual quantity. The meaſure being large, this is near ſeventeen gallons. But in Norfolk, three buſhels, containing near twenty-five gallons, are uſually ſown, ſome weeks perhaps before ſeed-time commences in this county. Two buſhels and a half (about twenty-two gallons), may be taken as the middle quantity of ſeed Wheat, throughout the kingdom [11].

At Michaelmas this quantity is commonly reputed moſt advantageous to ſow broadcaſt on a medium ſoil; a gallon of ſeed may be added to this for every fortnight later. But the quantity ſhould vary alſo with the quality of the land; a poor ſoil requiring more ſeed than a rich one [12].

In Suffolk, two buſhels are the common allowance of ſeed to an acre; ſome will ſow a peck more, and if late in the ſeaſon, even three buſhels: ſome however will, on good land truſt to ſeven pecks, but even in dibbling, that quantity is often put in [13].

In Northumberland they ſow from two to three buſhels; in Nottinghamſhire two buſhels; in Somerſetſhire two buſhels and a half or three buſhels; in Kent three buſhels; in ſome parts of the North Riding of Yorkſhire from five to eight pecks, in others ten or twelve pecks [14]: about Doncaſter in the ſame county they ſow four buſhels on an acre: a gentleman in that neighbourhood ſows only two buſhels, and thinks that his ſucceſs has been at leaſt equal to that of his neighbours, who ſow, or rather throw away, ſo much more ſeed [15].

It appears from a table in Young's Annals of Agriculture (16. 340.), that a leſs quantity of ſeed ſuffices in warm countries than in cold ones. This ſeems to be a conſtant rule founded upon the experience and cuſtom of people, wherever wheat is cultivated.

A pole is 16 feet and a half or 198 inches in length, and the number of ſquare inches in a pole is 39204. Now there being 160 poles in an acre, the number of ſquare inches in an acre is 6,272,640. Allowing

[1] Survey. 93. [2] Survey. 68. [3] Survey. 112. [4] Survey. 169. [5] Survey. 83. [6] Young's Calendar, 352. [7] Marſh. Gloc. 1. 116. and 2. 51. [8] Annals agr. 2. 192. [9] Idem. 5. 470. [10] Marſh. Gloc. 2. 52. [11] Idem. 1. 117. [12] Midd. Survey. 168. [13] Survey. 45. [14] Surveys. [15] Young's ann. 18. 371.

then one grain of Wheat to an inch, it will require that number of grains to an acre, or twelve bushels, six gallons, and three quarters of a pint. For thirty-two grains taken from the middle of the ear make a penny weight troy; therefore an ounce contains 640, and a pound 6780 grains of Wheat, and a bushel, 491,540 grains, supposing a bushel of Wheat to weigh sixty-four pounds troy, which is about fifty-six pounds avoirdupoids.

The following table will give the quantity of Wheat required to sow an acre at different distances, from one to ten inches.

Inches	Bushels	Gallons	Pints	Odd grains
1	12	6	¾	
2	3	1	4	1440
3	1	3	2¾	
4	0	6	3	360
5	0	4	⅓	1305
6	0	2	6½	480
7	0	2	⅛	627
8	0	1	4	184
9	0	1	1	640
10	0	1	0	1286

Culture whilſt growing.

The growing Wheat is generally weeded in june and the beginning of july, by cutting up thiſtles and other perennial weeds with a ſmall angular hook, and by pulling up charlock and other annual weeds by hand.

When a dry ſpring ſucceeds a wet winter, it makes the ſurface of ſtrong land ſo hard, that the new or coronal roots cannot freely penetrate into the ſoil. This is diſcovered by the corn turning of a ſickly yellow. In this caſe the crop ſhould be harrowed once or twice in a place, and afterwards rolled.

In caſe the land is not ſufficiently rich, or has not been thoroughly manured, ſow top-dreſſings, or drench the crop with the drainings of dunghills, and immediately after harrow and roll. This ſhould be done as early in ſpring as the land is dry enough to bear the treading of horſes without poaching.

When worms or ſlugs attack Wheat, it is uſual to turn a flock of ſheep upon it; and ſome perſons ſend a boy with a dog to drive them about, in order to tread the more of the vermin to death.

After a froſty winter, the crowns of the roots are ſometimes expoſed for two or three inches in length; in that caſe, turning ſheep in after a moderate ſhower, and driving them about, will tread the Wheat into the moiſt ground, where it will produce freſh roots[f].

The practice of eating the Wheat in ſpring with ſheep is not uncommon, eſpecially when it is what is called winter-proud. It is alſo thought to have a good effect when the crop is thin, becauſe it occaſions it to tiller or branch more than it would otherwiſe have done[g]. It is alſo ſometimes eat down in autumn when it gets too rank from early ſowing; not however by a few ſheep kept long upon it, but by a large flock at once[h].

In the vale of Gloceſter Wheat is univerſally hoed; and this valuable operation is leſs difficult and more effectual in practice, than it appears to be in theory. Two hoeings are generally ſpoken of, but are executed only by good managers. One hoeing and a hand-weeding are eſſential to good management; for the early hoeing will unavoidably miſs many weeds, which afterwards run up to ſeed, and foul the ſucceeding crops. The firſt hoeing is begun in april, or as ſoon as the ſeaſon will permit; and ought to be finiſhed before the plants begin to branch or tiller. The ſooner the ſecond hoeing ſucceeds, the leſs difficulty there is in doing it; but the later it is given, the more ſerviceable it proves.

A thin crop requires a wide hoe; a thick crop, a narrow one. They are from three to five inches; made like the turnep-hoe, except that the corners are rounded off[i].

[f] Midd. ſurvey, 169.
[g] Marſh. Glou. 2. 53.
[h] Yorkſh. N. R. ſurvey, 113.
[i] Idem. i. 118.

When Wheat is dibbled one row on a flag or furrow, it is always well hand-hoed[j]; but if two rows, it is too thick to admit that operation conveniently. Sometimes however ſuch is alſo hoed[k].

Drilled crops are hoed once or twice, and hand-weeded where wanted. Theſe hoeings not only deſtroy the weeds, but make a good preparation for clover and graſs ſeeds, which ſeldom fail where this operation is properly performed[l].

Dibbling Wheat.

This excellent practice, which originated in Norfolk, is well eſtabliſhed in Suffolk. In the maritime land diſtrict, many thouſand acres are thus put in; and upon light lands after peas, where Wheat was formerly little cultivated. The ground being rolled with a light barley roller, a man walking backwards on the flag, as the furrow ſlice is called, with an iron dibber, the handle about three feet long, in each hand, ſtrikes two rows of holes, about four inches from one row to the other, on each flag; and he is followed by three or four children, to drop the grains, three, four, or five in each hole. In this way from ſix to ſeven pecks of ſeed are depoſited in an acre, at very equal depths, in the centre of the flag. A buſh-harrow follows to cover it. The expence is from eight to nine ſhillings an acre. The treading ſo equally is very beneficial upon light ſoils; and in dry weather hurtful upon none. The ſeed is laid in at an equal and proper depth; and it is all in the flag itſelf, not in the ſeams, where weeds, if any, will ariſe: and there is ſome ſaving in ſeed. The crops are ſuperior to the common, and the ſample is more equal. Some uſe a frame, which ſtrikes many holes at a time, but the work is not ſo well done. The ſyſtem of well-paid employment for the poor, which this practice carries with it, is of great importance.

This practice has lately been improved: a narrow ſet plough of only ſeven inches width at bottom, is uſed to plough with; then follows a one-horſe roll, to level the flag or furrow for the dibblers. It is ſufficient to depoſit two or three grains in each hole. Inſtead of buſh-harrowing, a two-horſe roll follows, afterwards the harrows twice in a place; when the field is finiſhed in this manner, it is harrowed up again obliquely; by this method the Wheat is depoſited in the middle of the flag, at nine inches diſtance in the rows; and when come up, has the appearance of being drilled: the two-horſe roller is of material uſe in cloſing up the holes, and preventing the Wheat from being diſturbed by harrowing; and the land is made ſo ſolid by rolling, that very little apprehenſions are entertained about the flug or worm. Six pecks of ſeed are enough for an acre[m].—Some talk of two pecks, and even one peck; others inſiſt upon eight or ten; and ſome, at the other extreme, tell us that almoſt as much ſeed ſhould be dibbled in as is ſown broadcaſt. Certainly very thin ſowing is bad economy. And this practice is better calculated for light, than for ſtrong land.

Mr. Marſhall, in his Rural Economy of Norfolk (vol. 2. 35.) gives an account of the firſt riſe of this practice, as well as the particulars of it.

Drilling Wheat.

Drilling Wheat is practiſed with great intelligence and ſucceſs by individuals in different parts of the country, but it is by no means common any where. The deficiency of the machines, the awkwardneſs of labourers in uſing them, and the ſmall quantity of ſeed recommended by the venders of them to be ſown, have been obſtacles to the general eſtabliſhment of this neat culture.

In all drilling, the land ſhould be well ploughed, and made fine, before the drill comes upon it, by rolling and harrowing; a one-horſe roll ſhould follow the drill, to cloſe the land upon the ſeed, and then the more the land is harrowed, the better; very little ſeed ought to be ſaved by drilling; for it is found by

[j] Suffolk ſurvey, 52.
[k] Northumb. ſurvey, 89.
[l] Suffolk ſurvey, 47, 49.

experience,

experience, that corn drilled in rows at nine inches aſunder, requires thickneſs in the ridges [s].

Others are of opinion that they get greater crops from wheat drilled in rows eighteen inches diſtant, and ſave half the ſeed [t].

Others again think that even nine inches are too far aſunder for the rows, except on very rich land, and conſider ſeven inches as the moſt profitable diſtance for the farmer. Theſe gentlemen allow that ſome ſeed may be ſaved, but they do not drill leſs than two buſhels to the acre [u].

It would be entering too wide a field, to determine the comparative merits of the broad-caſt and drill huſbandry. Much may be ſeen upon the ſubject in Mr. Young's Annals of Agriculture; and ſomething in the Bath papers, and the County ſurveys drawn up for the conſideration of the Board of Agriculture, and other publications.

On light ſoils it ſhould ſeem that drilling may be adopted to great advantage; but on clays and foul lands, the drills and horſe-hoes cannot work.

Tranſplanting Wheat.

That Wheat increaſes very greatly, where it has room to ſpread, by the branching of the roots, or tillering as it is called in ſome counties, or ſtocking, as in others, is a well known fact. It is alſo no leſs certain that plants of Wheat raiſed in a good ſoil, may be divided into ſeveral, and theſe again ſubdivided almoſt *ad libitum*; ſo as to produce a conſiderable quantity of grain from a ſingle ſeed. This may be illuſtrated from the following experiment, which was conducted under my own eye, in the botanic garden at Cambridge, by Mr. Charles Miller then Curator there. A few grains of the common red Wheat were ſown on the ſecond of june 1766. On the eighth of auguſt, one of the moſt promiſing plants was ſelected, and ſeparated into eighteen parts, each of which was planted ſeparately. Theſe were divided, as they would bear without injuring them, between the middle of ſeptember and the middle of october, and made in all ſixty-ſeven plants. Theſe were left to ſtand during the winter; and another diviſion of them made between the middle of march and the twelfth of april, produced five hundred plants. The ſubdiviſion might have been carried much farther; but theſe were deemed amply ſufficient to produce the quantity of grain ſtipulated for, which was half a buſhel.

The number of ears was ——— 21,109.
The number of grains, by eſtimation, 576,840.
The meaſure 3¼ pecks and one quart.
The weight 47 pounds 7 ounces.

The plants were ſtrong, and were tied up to ſtakes to prevent their lodging. Some of them produced an hundred ears from a ſingle root. Many of the ears meaſured ſeven inches in length, and contained from ſixty to ſeventy grains. The ſoil was a blackiſh garden mould, but light and poor, and on a gravelly bottom; half the ground was well dunged, the other half had no manure, but little or no difference was diſcoverable in the plants. The whole was covered with nets to keep off the ſparrows.

The above account is given from my own minutes, made at the time on the ſpot. It may be ſeen in the Philoſophical Tranſactions, in the Annual Regiſter for 1769, and in the ſecond volume of Letters and Papers publiſhed by the Bath Agricultural Society.

Another experiment is communicated by Dr. Hunter of York.—In october 1795, a quart of Wheat was drilled in a piece of garden ground; and on the 22d of march, the plants were taken up, and tranſplanted into a field, which had borne a crop of potatoes; it contained 600 ſquare yards or half a rood, and the ſoil was a light loam. The land was only once ploughed, harrowed and rolled; after which the plants were pricked in at the depth of one inch, and at the diſtance of nine inches from each other; each ſquare yard containing ſixteen plants. The expence of planting was eſtimated at one guinea an acre, ſuppoſing the work to be chiefly done by women and children. The crop was neglected, not having been properly hoed. Beſides it was much blighted and mildewed, owing, as was ſuppoſed, to its growing in the middle of a field of very tall oats. The loſs by mildew and neglect, was eſtimated at ſix buſhels to the acre. The produce was eleven pecks, which is at the rate of twenty-two buſhels to the acre.

Another experiment was made on better Wheat land, and every neceſſary attention was beſtowed upon the crop. But it was planted a month later than the other, with a view to aſcertain the beſt time for tranſplanting. The conſequence was, that the plants were induced to tiller more than neceſſary during the whole ſummer. Upon the whole, the ſecond week in march ſeems the beſt time for tranſplanting Wheat; for about that time the ſecond roots begin to ſprout from the crown. The produce of this crop was four pecks on 101 ſquare yards, or the forty-eighth part of an acre, which is at the rate of forty-eight buſhels to the acre. The plants were nine inches from each other. From the great ſpace allowed for each plant (eighty-one inches), it was neceſſary to hoe two or three times during the ſummer. The ears of corn were in both experiments uncommonly long.

The advantages of this practice would be a conſiderable ſaving of ſeed; the employment of the feeble hands when there is little work; planting land in the ſpring, that was too wet for ſowing in autumn or winter; hoeing and keeping the land clean at a ſmall expence; and having a crop of turneps, cabbages, peas, beans, tares or potatoes, as preparatory to a crop of planted Wheat, inſtead of lying waſte under a ſummer fallow [v].

Another mode of tranſplanting Wheat has been ſuggeſted, by collecting ſeedling plants from the ſtubbles, which have been ſelf-ſown the preceding autumn. Theſe plants are of little utility to the farmer, and are ſometimes, by winds and other accidents, ſo abundant on the ground as to afford ſufficient ſtock to plant many acres. When the autumnal ſeaſon is unfavourable, theſe ſeedling plants might be rendered uſeful [w].

HARVESTING.

It is well known that Wheat is for the moſt part cut with the ſickle; in ſome parts, where ſtraw is more than ordinarily valuable, it is cut near the ground, but in moſt places at a conſiderable height. Men only or chiefly reap throughout the greater part of England. In the northern counties and in Scotland it is almoſt entirely done by women.

In the north riding of Yorkſhire, in reaping, provincially ſhearing, three women and one man make a ſet, who of a middling crop do an acre a day. If corn be thin, a man will bind after four women; if very thick, he requires a boy to make bands for him [x]. In Lothian, moſt of the reapers are women from the Highlands. A man binds to eight reapers, who generally cut two Scotch acres a day, the ſtubble being from four to ſix inches high. The ſheaves are made about twelve inches in diameter: fourteen of them form a ſtock or ſhock, covered with two ſheaves [y].

In Middleſex, Kent, Surry, and Weſt Devonſhire, Reaping, (provincially near London called *bagging*,) is moſtly done with a toothleſs hook of about twice the weight of a common ſickle. It is ſharpened in the ſame manner as a ſcythe; and the corn is cut by a ſucceſſion of blows, made within two or three inches of the ground. The reaper collects enough for one ſheaf at a time, binds and ſets it up in tens, called a ſhock. This bagging is, to all intents and purpoſes, mowing with one hand againſt the ſtanding corn. By this operation the ſtraw is cut much cloſer to the ground than can be done by hand-reaping; it is equally expeditious, and ſecures a greater quantity of ſtraw, which near London is a conſiderable object [z].

In Weſt Devonſhire this operation is called hewing. The hook is formed much like the common-reaping-hook, but ſomewhat larger every way, longer, broader

[s] Idem. 48. 50. [t] Idem. 51. [u] Bath papers, 6. 189.
[v] Young's annals, 27. 242, 440. [w] Bath papers, 6. 166.
[x] Survey, 124. [y] Survey, 93. [z] Midd. ſurvey, 172.

broader and ſtouter, with a hooked knob at the end of the handle, to prevent its ſlipping. The corn is ſtruck at horizontally and almoſt cloſe to the ground with one hand; whilſt the other hand and arm ſtrike it at the ſame inſtant about the middle of the ſtraw; thus driving it upright againſt the ſtanding corn: the workman taking a ſweep round as much as will form a ſheaf, and collecting the whole together in the centre, into a ſort of leaning cone; finally ſtriking the hook under its baſe, to diſengage it entirely from the ſoil; but ſtill ſupporting it with the left arm and the leg, until the hook be put beneath it, to lift it horizontally to the band. Sometimes the hewer forces his way up one ſide of a narrow ridge, againſt the wind, and back on the other ſide, thus collecting half a ſheaf, and then fetching another half ſheaf in the ſame manner. If a crop of Wheat be free from weeds, and ſtand well, this method of cutting is expeditious and eligible enough; but if it be lodged, or ravelled, or foul at bottom, it is improper: at beſt it requires expert workmen to make good work. A ſcythe in good hands will do as well or better, and is ſtill more expeditious. To ſecure the ſcattered corn, women or boys collect and ſet up the ſheaves; and theſe are followed by women with rakes [a].

Much Wheat on the Yorkſhire wolds is mown againſt the ſtanding corn with a cradle ſcythe, bound in ſheaf, and ſet up in ſtooks or ſhocks, at the time of mowing [b].

Whenever there is any appearance of blight on Wheat, it can hardly be cut too early. The greenneſs of the ſtraw is no indication that the grain is not ripe; for it never gets to a bright yellow, but remains green till it turns abſolutely black. When the ſtraw is in this ſtate, the circulation of the ſap ceaſes, and the grain ſhrinks in ſize daily. Nothing can keep up its plumpneſs but cutting it, and laying it down on the ſtubble, to receive the dews; turning it frequently, and not tying it up, till the corn is dry and fit to carry. It will thus prove good marketable grain; whereas had it been left ſtanding longer, part would never have been threſhed out of the ears, and the reſidue would have been ſo light and horny, as to fly off entirely in the tailing. The ſtraw alſo will be tough and fit for thatching, which would otherwiſe have been beaten to pieces in threſhing [c].

It is the univerſal practice to tie up Wheat in a ſheaf, and to ſet up the ſheaves in ſhocks or ſtooks: but the ſheaves are made larger in ſome diſtricts than others, and the number of ſheaves that go to make a ſhock is not the ſame in all places. In general ſheaves are made too large, and much inconvenience reſults from it in a wet harveſt. The bands are commonly made by tying two handfuls together, but if the ſtraw be not very ſhort, one length will be ſufficient. In forming the ſhocks, ten or twelve ſheaves are uſually ſet together in two rows, without capping or other precaution againſt rain [d].

In Yorkſhire and ſome of the Midland counties Wheat is hooded or capped; that is, covered with two ſheaves inverted. Unleſs the ſtraw be long, two ſheaves are not equal to the ſafe covering of ten. It is therefore now the more general practice to ſet them up in tens. If Wheat be ripe, this is a ſafe and eligible practice, in a wet ſeaſon. But in fine weather the ears of corn cannot be too much expoſed to ſun and dews; or if the corn be cut green, or the grain be thin from mildew, or any other cauſe, it muſt be very improper to cover it, nay a ſlight ſhower is of great benefit to it. In covering of Wheat therefore the farmer ought to be directed, not by cuſtom but by the ſtate of the crop and of the weather [e].

In Weſt Devonſhire nine ſheaves are crouded together in a ſquare of three ſheaves every way, and a tench is put over them, as a cloak or hood, the whole forming a ſort of cone or pyramid. This is a bad practice. The cloſe poſture of the ſheaves prevents a circulation of air; and in moſt caſes the covering is very imperfect, one ſheaf, unleſs it be very large and the ſtraw very long, not being ſufficient to ſecure the reſt from wet, but ſerving rather to conduct the rain into the centres of the upright ſheaves [f].

In Kent, between Sandwich and Dover, they cover the ſhocks (of from twelve to twenty ſheaves, in two rows) with cloths or mats, juſt wide enough ſecurely to cover about one third of the length of the ſheaf, and faſtened at each corner by a peg ſtuck into the ſheaf. Mats are more commonly uſed, which coſt ſeven-pence each. The expenſe is conſiderable, but the practice is found to improve the ſample ſo much that the Dover bakers give a clear preference to it [g].

In many parts of the Weſt of England Wheat is ſtacked, or mowed, as they call it, in the field, immediately after it is bound. Theſe mows are round, and uſually contain from a cart to a waggon load; they are drawn up to a point, and are covered with a ſingle ſheaf inverted. Thus the day's cutting is ſecured every evening; and the corn remains in the field frequently five or ſix weeks, till the farmer is at leiſure to take it into the barn or the great mow or rick. The men are very dextrous in making theſe mows, ſo as to prevent rain from injuring the corn. In a late harveſt, and a moiſt climate, eſpecially after a wet ſummer, which ſeldom fails of filling the butts of the ſheaves with green ſucculent herbage; thus ſecuring the ears from injury, and at the ſame time expoſing the butts to the air, ſeems a good expedient. The objections to it are, that mice are apt to be brought home in the ſheaves, and that the corn ſeldom has ſufficient dryneſs for winter threſhing [h].

In the reſt of England Wheat is carried immediately either to the barn, or to the great rick in the farm yard; theſe ricks are, or ſhould be ſet upon poſts, turned ſtones or brick piers, capped with flat ſtones, and a frame of timber laid over them, to keep out vermin.

It is unqueſtionably an advantage to Wheat, to expoſe it as much as poſſible to the weather between cutting and carrying. If the ſeaſon be unſettled at the time of cutting, cover immediately, and as ſoon as the weather ſettles uncover; keeping the ears expoſed to the ſun, wind, dews and moderate ſhowers, until they are ſufficiently weathered. But if the ſeaſon be tolerably ſettled at the time of cutting, it is beſt to ſet the ſheaves up uncovered, and ſo to let them remain until the ears are opened, the chaff looſened, and the grain mellowed: then, if the weather be hazardous, they may be covered, until the butts are dry. In ſome caſes, in ſettled weather, it may be beſt not to tie up the corn immediately, but to let it lie upon the ſtubble for ſome time. The ſhocks ſhould be ſet up north and ſouth, not eaſt and weſt; for in the latter caſe the ſheaves on the north ſide will not be fit to carry till ſeveral days after thoſe on the ſouth ſide [i].

Threſhing and Cleaning.

Threſhing of Wheat, as is well known, is performed with a flail, and in all except very ſmall farms, on an oaken floor. Threſhers in moſt counties ſtrike inceſſantly without changing hands, or reducing the force of the blows, till the principal part of the grain is beat out on one ſide; they then turn the ſheaf, and repeat the operation on the other ſide: they next change hands, and ſtrike in an oblique direction, which draws the ſtraw from the ſheaf an inch or two at every ſuch blow, till the whole is compleated. This gives the threſher an opportunity of ſeeing and hitting every ear, till it is cleared of the grain: and it is the only method of doing ſo by the flail. This practice toſſes the ſtraw about and bruiſes it, conſequently it cannot be ſent in handſome truſſes to market: the threſhers therefore near London ſtrike with an irregular blow; their rule is to hit two or three blows rather ſmartly, and one or two ſo ſlightly as to be of little uſe, thus relieving themſelves from the neceſſary fatigue which the men of other places undergo in

[a] Marſh. Weſt. 1. 168. [b] Marſh. York. 2. 256. [c] Young's ann. 29. 491. [d] Suffolk ſurvey. 52. [e] Marſh. York. 1. 389. Middl. 2. 15, 160. York. N. R. ſurvey, 115.

[f] Marſh. Weſt. 1. 170. [g] Young's ann. 16. 353. and 17. 145. [h] Marſh. Weſt. 1. 171. Survey Somer. 97. Middleſex 173. [i] Marſh. midl. 2. 17.

threſhing

threſhing clean. This ſhifting or deſiſting from labour, with the neceſſary perpendicular blows for preſerving the ſtraw ſtraight, for the ſake of ſending it to market in handſome truſſes, is the reaſon of their not threſhing clean[e].

With the ſame view of keeping the ſtraw entire, not only for litter indeed, but for thatching, in the weſt of England, Wheat is not threſhed in the ſtraw, but the ears are cut off[a]. Or elſe the ears are threſhed ſlightly with the flail, or beaten acroſs a caſk by hand until the grain is got pretty well out of them. Then the ſtraw is ſuſpended in large double handfuls in a ſhort rope, fixed high above the head, with an iron hook at the looſe end of it, which is put twice round the little ſheaf, juſt below the ears, and faſtened by the hook laying hold of the tight part of the rope: the left hand being now firmly placed upon the hook, and pulling downward, ſo as to twitch the ſtraw hard, and prevent the ears from ſlipping through it, the butts are freed from ſhort ſtraws and weeds, by means of a ſmall long-toothed rake or comb. This done, the rope is unhooked, and the ſtraw laid evenly in a heap. A quantity of clean ſtraight unbruiſed ſtraw being thus obtained, it is formed into ſmall ſheaves, returned to the floor, and the ears threſhed again with the flail, or by hand over the caſk, to free it from any grain which might have been miſſed in the former beating. Laſtly, the ſtraw is made up into large bundles, of thirty-ſix pounds weight each, with all the ears at one end, and laid quite ſmooth and level[f].

Threſhing machines are now gaining ground, in ſome parts of the kingdom, particularly in Scotland and the north of England. They are yet too expenſive for any but great farmers; and perhaps it is not to be wiſhed that they ſhould be generally uſed, as in ſome part of winter the farmers would find it difficult to employ all the labourers were it not for the flail.

In Kent, Wheat is univerſally cleared with a caſting ſhovel, and flat broom called a ſpry, which ſweeps off the chaff, &c. This method is certainly the moſt expeditious and beſt, where the barn-floor is large, and of a ſufficient length: but in a ſmall room the winnowing machines will do it better, and perhaps cheaper[g]. A machine-fan is in uſe in ſome parts of Yorkſhire; it is too complex to come into general uſe, but if it could be ſimplified would probably be univerſally adopted. It was made by Sharp, and ſince by Winlaw[h].

Produce.

We have accounts here and there of heavy crops of Wheat. As of a piece of thirty-one acres near Lewes in Suſſex, which for ſix years together yielded from forty to fifty-ſix buſhels on an acre throughout[m]. The average at Mawby near Caſtor in Norfolk, for ten years together was forty buſhels; and from forty-eight to ſixty have been gotten there: but ſuch products are out of the common courſe[n]. In the ſurvey of the north riding of Yorkſhire, twenty-four buſhels to the acre is ſaid to be eſteemed a good crop, though in the beſt cultivated parts from twenty-eight to thirty-two buſhels are frequently obtained, and even forty buſhels are not rare[o]. In Middleſex the produce is ſtated to vary from under ten to upwards of forty buſhels to the acre; but twenty-four, or at moſt twenty-eight to be perhaps the average of the county[p].

Mr. Marſhall gives the average produce of the Midland Counties at twenty-four buſhels of nine gallons; and adds that from thirty-two to forty buſhels are produced, and on fifty acres together forty-five buſhels. But he juſtly remarks that this produce is very high[q].

On the Cotſwold hills in Glocesterſhire, on the contrary, the average produce is only ſixteen buſhels: but theſe hills are better adapted to barley than Wheat[r].

Mr. Young ſays, that the crops in Suffolk vary from twelve buſhels on ſands, to twenty-eight on rich loam, and that thirty-two and forty buſhels on an acre are not uncommon crops. He ſtates however twenty-two buſhels as the average of ſeven years[s]. Mr. Howlett alſo gives the average for Eſſex at twenty-two buſhels of eight gallons and a half[t].

I am diſpoſed to admit the laſt as a fair average for a great part of England. Heavier crops are very partial, and by no means to be depended upon in a general account. In making that out, conſiderable deductions even from twenty-two buſhels ought perhaps to be made, for ſlovenly farmers, improper ſoils ill managed, untoward ſeaſons, ſmut, mildew, inſects, &c. I have reduced the above ſtatements to buſhels, becauſe every body does not know that a comb is four, and a quarter eight buſhels; that a load in ſome places is forty buſhels, in others only five.

Diſtempers.

Mildew, or more properly *Meldew*, from an old but falſe notion that this diſtemper is occaſioned by a honey dew falling upon the ſtraw from the air. It is now generally ſuppoſed to be a ſpecies of Fungus, which cauſes the black or red ſpots in the ſtraw, and like other paraſitical plants draws to itſelf that nutriment which ſhould go to the increaſe of the grain.

Mr. Neſfield ſuppoſes that Mildew in Wheat is occaſioned by froſts late in the ſpring, or in the early part of ſummer; that the froſts moſt likely to cauſe it are ſuch as follow warm days, from the time that the Wheat is pretty far advanced upon the ſpindle, that is in general from about the 20th of may to the 10th of june; that the effect of theſe froſts is leſs or more pernicious according as they are or are not immediately followed by gentle ſhowers; and according to the real or only apparent vigour of the Wheat, which depends chiefly upon the nature of the ſoil and the ſtate of the weather, as to wet or dry through the winter. A thin crop upon a looſe ſoil will almoſt certainly be mildewed, not being able, from its luxuriancy, to reſiſt the ſlighteſt froſt late in the ſpring. And if it be too thick, it will have a weakneſs equally liable to injury. Wheat on fallow is, in general, more ſubject to mildew than that on clover-lay, except on very ſtiff ſoils[u].

In contradiction to this theory, Mr. Young remarks, that in 1791, the ſpring froſts were uncommonly ſevere; particularly that on the ſeventh and eighth of may there was ice a quarter of an inch thick, and on the 25th a ſtill ſharper froſt; and yet there was mildew, in hills or in vales, in forward luxuriant crops or ſuch as were backward and poor[x].

Mr. Jenkinſon obſerves, that at leaſt in the northern part of England, froſt is the moſt general cauſe of this malady, and ſometimes wet ſtormy weather. When it proceeds from froſt, and the mildew is only partial, then low hollow places, and ground much confined only ſuffer. When grain is near ripe, it is ſooner affected, but the damage is not ſo great as when it is farther from maturity. When the froſt is attended with a thick fog, almoſt inevitable deſtruction enſues[y].

Modern obſervers know, ſays Fontana, that the Mildew appears when a ſcalding ſun and cold nights ſucceed ſtrong dry fogs; the nutritive juice being contained during the night in the ſmall veſſels of the plant near the epiderms, which, being heated with the ſun, is diſordered, ferments, and burſts thoſe ſmall veſſels, forming a cautery whence the humour proceeds; and as the fibres and veſſels break with the leaſt reſiſtance, and more eaſily open lengthways than croſſways, ſo the mildew, or the ſpots of that diſeaſe, that is to ſay, the paraſitical plants which find a commodious ſituation in thoſe apertures, ſpread themſelves the whole length of the plant, but no ſpot is obſerved croſſways. The ſeeds of the mildew, or the buds of the paraſitical plants of which the air is full, as with the ſeeds of a thouſand other microſcopic plants, are depoſited in theſe wounds or apertures,

[e] Middleſex ſurvey. 174. [a] Somers. ſurvey. 97. [f] Marſh. Weſt. 1. 181. [g] Kent ſurvey, 84. [h] Marſh. York. 1. 281. [m] Young's ann. 29. 445. [n] Idem. 12. 45. [o] Survey. 116. [p] Survey, 175. [q] 1. 238. [r] Marſh. 2. 56.

[s] Survey, 53. [t] Young's ann. 15. 188. [u] Idem. 1. 530. [x] Idem. 16. 423. [y] Idem. 3. 318.

take

take root within them, and meeting with the ſickly humour, which however is capable of nouriſhing and fructifying them, they quickly adhere and fix themſelves in theſe parts[a].

Mr. Marſhall aſks, whether the Mildew or Blight is not cauſed, or at leaſt encouraged by a ſucceſſion of wet ſeaſons? It is well known that the diſeaſe is moſt injurious in a wet ſeaſon. An old man, who has obſerved a particular farm fifty or ſixty years, ſays that the blight comes on at once, about the end of july; and that Wheat, which is forward enough to be filled by that time, eſcapes it[b].

In 1785, a ſtrong blight took place the beginning of auguſt. The ſtraw of backward crops was much diſcoloured; and the north ſides of ſome lands were much mildewed, whilſt the ſouth ſides were not. It was evident from this and every year's obſervation, that the forwardeſt Wheats are leaſt liable to be blighted; and that having paſſed a certain ſtage of ripeneſs, no obvious injury is incurred. No perceptible blight took place this year, whilſt dry weather continued; but no ſooner was ſhowery weather uſhered in, than a blight became obvious[c].

I do not know any thing ſo likely to diſcover the cauſe of the Mildew, as an accurate obſervation of the ſeaſons, from the time of the Wheat's coming out of the ground, to its flowering and beginning to mature the grain.

In the year 1803, the Wheat was much mildewed in the midland and eaſtern counties. There were catching froſts of ſhort duration in october, november and december 1802. From the 10th to the 21ſt of january 1803 there was froſt, with ſnow on the 17th and 19th. Towards the end of the month there was more ſnow and ſome froſt, and on the 26th the thermometer was at 21° at noon out of doors. The firſt half of february froſt and ſnow; the latter half wet and windy. From the third to the 11th of march froſt and ſnow, but the reſt of the month mild. April was mild till the latter end, when there were cold winds, and covered weather with ſtorms of hail. May was in general wet and windy, but not cold. June was very wet, and the 28th was foggy: ſo was the firſt of july. That month was various, but in general warm and moiſt; on the ſecond and 20th thunder; on the fourth the thermometer was at 77° and on the 15th at 63°. Here was much wet, but no late froſts previous to this mildew. The thermometer never was below 54° during the month of may; nor below 62° in june, ſo that there could not well be any froſt to ſignify all that time.

The Barberry is ſuppoſed to blight Wheat partially to a certain extent. It is a common notion in Norfolk, and accordingly the farmers have induſtriouſly extirpated this ſhrub from their hedges. It cannot be accounted for from the farina of the Barberry being ſhed over the flower of the Wheat; becauſe the Barberry is out of flower before the Wheat ſhoots up into ear. Such ſtrong atteſtation is given to the fact, that there is no diſputing it, though we cannot at preſent account for it; and Mr. Marſhall, who had ridiculed the notion, aſcertained the fact by an experiment[d]. See *Berberis*.

The only guard, ſays Mr. Marſhall[e], which the farmer has againſt the attack of this ſecret enemy appears to be, at preſent, that of ſowing early. But may not ſomething lie within the power of manure or tillage? Perhaps ſodburning might be ſerviceable as a preventive.

The chief remedy, according to Mr. Neſfield is, every thing that tends to give ſtrength, not luxuriancy; ſuch as ſowing upon clover-lays manured with compoſt or clay, as beſt ſuits the ſoil; as little pulverization by ploughing as poſſible, unleſs in ſtrong clay ſoils; feeding in the ſpring, if the Wheat be too ſtorid; rolling light ſoils, &c.[f]

But when Wheat is once fully attacked with this fatal diſeaſe, the only remedy is to reap it as ſoon as poſſible.

Fontana informs us, that he took ſome green plants of corn, which appeared to be moſt affected with the mildew; the grains were ſo unripe, that a milky fluid iſſued from them when preſſed; but the ſeaſon being hot and every thing drying apace, he ſoon found the grain hard and reſiſting; it was lighter than the good ripe corn, and even ſomewhat withered, but it was full of a fine white meal, of an excellent quality. The Wheat reaped from the ſame farm had not yielded one tenth part of the ſeed. Many farmers in Tuſcany, the Bologneſe and Romagna, at the firſt appearance of the mildew had cut their corn green, and had moderate crops, but conſiderably greater than their neighbours in the ſame circumſtances, who waited until the cuſtomary time of harveſt[g].

Mr. Marſhall gives us a well authenticated inſtance of the good effect of cutting mildewed Wheat whilſt very green. A fine piece being lodged by heavy rains, and being ſoon after perceived to be infected with the mildew, was cut, though ſtill in a perfectly green ſtate: namely, about three weeks before the uſual time of cutting. It lay ſpread abroad upon the ſtubble until it became dry enough to prevent its caking in the ſheaf: when it was bound, and ſet up in ſhocks. The grain, though ſmall, was of a fine colour, and the heavieſt Wheat which grew upon the farm that ſeaſon, owing no doubt to the thinneſs of its ſkin. What appears more remarkable is, that the ſtraw was perfectly bright, without a ſpeck upon it[h].

It is a received idea in a part of Yorkſhire, that Meſſlin or wheat and rie together, is never affected by the blight or mildew, and that the nature of rie is ſuch, that a very ſmall quantity of it ſown among Wheat prevents this deſtructive effect[i].

Mildew is a diſeaſe incident to the ſtraw of Wheat, but ultimately affecting the ear. *Smut* or *Brand* affects the grain directly, by converting it into a black duſt like ſoot, whence in many counties it is called *Burnt* (corruptly Bunty) Wheat.

Some are of opinion that this diſeaſe is generated by a very wet ſeaſon happening during the time that the Wheat is in bloſſom, and that it is propagated and continued, by uſing the corn thus vitiated, for ſeed. Mr. Wimpey drilled part of a ridge with good ſound ſeed; another part immediately adjoining with ſeed taken from very ſmutty corn, waſhed in two waters till no blackneſs remained, and carefully ſkimmed; and a third portion adjoining, with the ſame ſmutty Wheat unprepared. The crop from the ſound ſeed was perfectly free from ſmut: that from the ſecond had many ſmutty ears among it, perhaps one in twenty: the third had at leaſt half the ears infected[k].

Mr. Arthur Young ſowed fourteen beds, with the ſame ſmutty ſeed. That which was ſown dry, and alſo that which was well waſhed in clean water, turned out very ſmutty: that waſhed in lime-water, was the next in order for badneſs, but much better than the two others; then thoſe which were waſhed in a lye of wood aſhes, and in a mixture of arſenic and ſalt; and next that which was ſteeped in lime water four hours: thoſe which were ſteeped in the lye four hours, in lime-water twelve hours, in the arſenic ſteep twelve hours, and in the ſame twenty-four hours, had very few ſmutty ears, and that which was in the arſenic ſteep four hours, had only one ſmutty ear: thoſe which were ſteeped in the lye twelve hours, in the lime water twenty-four hours, and in the lye twenty-four hours, had none[l].

Though the uſe of ſteeps to prevent the ſmut has been in uſe for many ages, and innumerable experiments have been inſtituted and caſes occurred, which prove their efficacy; yet there are ſtill perſons who think that they are of no uſe, any farther than as they ſeparate light grains and ſeeds of weeds, and guard the ſown Wheat againſt vermin.

That it is not the ſeaſon alone, as ſome inſiſt, that occaſions the ſmut in Wheat, is plain, becauſe it has

[a] Idem. 17. 272. [b] Midland. 2. 135. [c] Id. ib. 149. [d] Young's annals, 27. 542. Marſh. Norf. 2. 19. and 359. [e] Midland, 2. 150. [f] Young's ann. 1. 325. [g] Idem. 17. 273. [h] Gloc. 2. 54. [i] Marſh. York. 2. 13. [k] Bath papers, 5. 40. [l] Annals, 10. 231.

frequently happened, that a field having been moſtly ſown with grain prepared according to cuſtom, the ſeedſman finding that a ſufficient quantity had not been ſteeped, has taken ſome dry out of the barn to finiſh: and the latter has proved very ſmutty, when the former was clean and ſound.

It would take up too much room to enter into this controverſy. We muſt refer therefore to Young's Annals, vol. 4. p. 202. 6. 173, 243. 8. 115, 181, 407. 10. 434. 16. 311. Marſhall's Midland Counties, 2. p. 13. Bath letters and papers, vol. 5. p. 244, 270. vol. 6. 116, 186. &c.

Smutty Wheat may be made a tolerably good ſample, by waſhing and ſtirring it well about in two or more waters, and then kiln-drying it by a very moderate fire[1].

To avoid the danger of Smut every prudent farmer will ſow ſound uninfected ſeed, brine and lime it well, and get it into the ground as ſoon as the ſeaſon and condition of his land will permit.

Of late years a minute inſect has been remarked to do conſiderable damage occaſionally to the Wheat crop. It is called Tipula tritici, and is deſcribed, and the hiſtory of it given at large, in the third and fourth volumes of the Tranſactions of the Linnean Society of London. It varies from a yelloviſh white to a deep yellow. In a ſingle flower of the ear there are ſometimes thirty, and ſeldom fewer than eight or nine larvæ or caterpillars of this minute fly. The greateſt part of theſe are providentially deſtroyed in their pupa or chryſalis ſtate, by a friendly Ichneumon, which lays one egg in each pupa. The larva appears to feed upon the pollen or duſt of the anthers, for in thoſe florets in which it reſides the germ never ſwells. It does not appear that the grain is injured in any other way by this inſect, but it invariably produces the ſtunting of it in the floret which it inhabits. It may always be detected by the diſcoloured appearance of the baſe of the corolla, which is its uſual ſtation.

To aſcertain the quantity of miſchief produced by this inſect within particular limits, Mr. Kirby went into a field of fifteen acres, partly of red and partly of white Wheat; and took five ſtations, one on each ſide, and one in the centre. The reſult was, that in thirty ears of white Wheat, ſeventy-three grains were deſtroyed, or not quite two grains and a half to an ear; and in twenty ears of red Wheat, twenty-nine grains were deſtroyed, which is nearly a grain and half to an ear, on the whole, about two grains to an ear; which might be near a twentieth part of the produce, and would make a difference of at leaſt twenty buſhels in the crop. Leaſt miſchief ſeemed to be done on the ſouth ſide of the north hedge, but no part eſcaped wholly. In a field which was ſown later, there was ſcarcely any of theſe grubs; but it was much infeſted by a ſpecies of Aphis or plant-louſe, called in ſome places the Dolphin.

The red-gum, which is undoubtedly a kind of Fungus, is totally unconnected with theſe inſects. In the field where Mr. Kirby found an infinity of the larvæ of the Tipula tritici, and Thrips phyſapus, he ſcarcely ſaw any florets which produced this little plant called the red-gum; but ſome ears of a kind of bearded Wheat, which he cultivated in his garden, were quite diſcoloured by it, without any larva attending upon it. Of all the inſects that are found in Wheat, this laſt, in all its ſtates, is by far the moſt numerous, and ſeems to derive its nouriſhment from the grain, though ſome doubt it[m].

The Tipula tritici, ſays Mr. Ruggles, ſo accurately deſcribed by Mr. Kirby, has laſt year (1799), in all the country about Finchingfield in Eſſex, and alſo about (Clare) his other place of reſidence in Suffolk, extended itſelf in quantity and miſchief to a ſurpriſing degree, inſomuch that he is convinced, from repeated facts expoſed to his obſervation in his own farms in the two counties, and alſo in thoſe of his neighbours, that where no mildew or red-gum affected the Wheat, and no other apparent cauſe than this inſect, the crop of laſt harveſt has been deficient one third, if not more. He received the ſame or ſimilar accounts from different farmers in both counties; and found that the damage done to moſt of the ears of Wheat was a total deſtruction of all the grains, eſpecially where the yellowneſs of the chaff appeared early. He remarks, that theſe inſects particularly infeſt the American Wheats, which on account of their plumpneſs and weight have been generally ſown in his neighbourhood; and ſuggeſts a hint whether, as it has not been long obſerved, it may not have been recently introduced.

In the beginning of december 1800, on the examination of ſome Wheat out of a field very much tainted with this inſect, Mr. Ruggles found in the chaff of the ear, which appeared to him, by feeling it, leaſt filled with the grain, ſeveral little neſts of theſe minute yellow grubs ſtill alive, which proves that they are not all killed that remain after the ichneumon is produced. And a tenant of his, who had dreſſed a conſiderable quantity for ſeed, informed him, that the boſom of the heap, after it was thrown, was totally diſcoloured of a high yellow, from the quantity of grubs which had been beaten out of the chaff by the flail.

Mr. Ruggles alſo obſerved, that many kernels of Wheat in theſe diſeaſed ears, had the appearance of one or two very minute, white ſpecks about the germ, and thoſe which ſo appeared were particularly tender about that part. If theſe ſpecks be the eggs of the future larva, the continuation of the inſect from its egg ſtate may be eaſily conceived; for if the egg be attached to the eye or germ of the mature grain, and be ſown with it, the alarming increaſe of this diſeaſe may eaſily be accounted for[n]. Till this laſt obſervation be verified, I ſhould rather conceive, that the fly lays her egg in the ear of Wheat, probably at the baſe of the chaff, whilſt it is yet in a tender ſtate. But this ſubject merits the farther attention of Mr. Ruggles and the ingenious entomologiſts who have ſtarted it.]

5. Poliſh Wheat growing tall, and having long heavy ears, is very ſubject to be lodged; and therefore is little regarded by farmers; but as it produces much flour, it might on that account be worthy of cultivation.

[6. Spelt is common in many parts of the continent. In Spain they ſow it in ſeptember or october, and it ripens earlier than any other corn; for which reaſon it is of great uſe to the poor, although it is a light grain, yields but little flour, and the bread made from it is indifferent[o].]

13. This has a creeping root, which ſpreads far in the ground, and is a very troubleſome weed in gardens and arable land; for every ſmall piece of the root will grow and multiply exceedingly, ſo it is very difficult to extirpate where it once gets poſſeſſion: in gardens, the common method of deſtroying it is, to fork out the roots as often as the blades appear above ground; where this is two or three times carefully repeated, it may be totally rooted out; but when the ſurface of the ground is very full of the roots of this graſs, the ſhorteſt way of deſtroying it, is to trench the ground two ſpits and a ſhovelling deep, turning all the couch into the bottom, where it will rot, and never ſhoot up; but this can only be practiſed, where there is a ſufficient depth of ſoil; for in ſhallow ground the roots cannot be buried ſo deep, as to lie below the depth to which they naturally ſhoot.

Where the roots of this graſs get poſſeſſion in arable fields, it is very difficult to root out again; the uſual method is by laying the land fallow in ſummer, and frequently harrowing it well over to draw out the roots: where this is carefully practiſed, the ground may be ſo well cleaned in one ſummer, as that the roots cannot much injure the crop which may be ſown upon it; but ſuch land ſhould be cropped with beans, peaſe, or ſuch things as require the horſe-hoeing culture; for where the land can be frequently ſtirred and harrowed afterward, it will be of great ſervice in cleaning it from the roots of this graſs and other bad weeds.

[Several of the perennial graſſes are comprehended

[1] Bath papers, 5. 234. [m] Linn. tranſ. 4. 230. [n] Young's annals, 36. 133. 215. [o] Idem, 32. 647.

by

by huſbandmen under the name of Quich. The black Quich, ſo troubleſome in dry arable land, is the *Agroſtis vulgaris*. The creeping red-ſtalked Bent-graſs, *Agroſtis ſtolonifera*, is the worſt Quich-graſs on ſtrong wet lands. The dogs-graſs, *Triticum repens*, is the Quich of gardens, and is common both on ſand and clay, running prodigiouſly in the former, and bedding itſelf almoſt inextricably in the clods of the latter. Several others of the perennial graſſes interfere in a leſs degree with the growth of corn, and as they have all the habit of eſtabliſhing themſelves in the ground when it lays in turf, ſummer fallowing becomes neceſſary for their extirpation previous to ſowing Wheat; for that can be only partially effected by hoeing, or in any other way than by repeated deep ſummer ploughings; and as mixed ſoils, which are too moiſt for turneips, have a particular propenſity to the production of theſe graſſes, ſummer fallowing becomes abſolutely neceſſary, and every attempt to crop without it, for any length of time, on ſuch land, has terminated to the injury of the land, and the loſs of the occupier[f]. We may add, that the radical extirpation of Quich and other root-weeds, is the only caſe in which a naked fallow is ever neceſſary; and that when this is once well done, it need not be repeated for many years, provided a proper attention is given to the management of the land.

On ſands, Quich may be deſtroyed by ſtrong harrowing, collecting into heaps, and burning.

TRITICUM. See *Bromus* and *Elymus*.

——— vaccinum. See *Melampyrum*.

TRITONIA. See *Gladiolus* and *Ixia*.]

TRIUMFETTA. *(So named by Plumier, in memory of Giov. Battiſta Triumfetti, Preſect of the botanic garden at Rome. Author of* Hortus Romanus, *1681. Obſervationes, 1685. Proluſio, 1700. Vindiciæ, 1703, &c. His brother* Lælius *was a ſkilful botaniſt.)*

Lin. gen. n. 600. *Reich. n.* 655. *Schreb. n.* 819, *et p.* 832. *Plum.* 8. *Juſs.* 290. *Gærtn. t.* 111. Bartramia. *Gærtn. t.* 111.

Claſs 11. 1. Dodecandria Monogynia.

Nat. order of *Columniferæ*. *Tiliaceæ* Juſs.

GENERIC CHARACTER.

CAL. *Perianth* five-leaved: *leaflets* lanceolate, arilled below the tip, deciduous.

COR. *Petals* 5, linear, erect, obtuſe, concave, bent back, awned below the tip.

STAM. *Filaments* 16, equal, aſcending, length of the corolla, awl-ſhaped, erect. *Anthers* ſimple.

PIST. *Germ* roundiſh. *Style* length of the ſtamens. *Stigmæ* biſid, acute.

PER. *Capſule* globular, fenced on every ſide with hooked prickles, four-celled.

SEEDS 2, convex on one ſide, angular on the other.

OBS. Triumfetta *has no calyx, and a four-celled valveleſs capſule.*

Bartramia *has a five-leaved calyx: five glandular neCtaries at the baſe of the petals: a quadripartile, eight-celled capſule; and ſolitary adnate ſeeds.*

ESSENTIAL CHARACTER.

Cal. five-leaved. *Cor.* five-petalled. *Capſ.* hiſpid, opening in four parts.

SPECIES.

1. Triumfetta Lappula. *Prickly-ſeeded Triumfetta.*
Lin. ſpec. 637. *ſyſt.* 444. *Reich.* 2. 420. *Willd.* 2. 853. *hort. cliff.* 210. *hort. upſ.* 148. *Jacqu. amer.* 146. *pict.* 72. *Plum. gen.* 50. *ic.* 255. *Pluk. phyt. t.* 245. *f.* 7. (Lappula) *Sloan. jam.* 1. 211. *Raii hiſt. ſuppl.* 247. (Agrimonia.)
T. Plumieri *Gærtn. fruct.* 2. 137.
Leaves emarginate at the baſe, flowers unequal.

[2. Triumfetta glandulosa. *Glandular Triumfetta.*
Lin. ſpec. ed. Willd. 2. 854. *Vahl. ſymb.* 3. 62. *Forſk. cat. arab. n.* 297.
Flowers complete, leaves ovate-lanceolate tomentoſe-hoary beneath.

3. Triumfetta Bartramia. *Currant-leaved Triumfetta.*
Lin. ſpec. 638. *ſyſt.* 444. *Reich.* 2. 420. *Willd.* 2. 854. *Pluk. phyt. t.* 41. *f.* 5. (Lappula) *Pet. gaz. t.* 42. *f.* 10. (Agrimonia.)

[f] Pitt's Staffordſh. ſurvey, 50.

Bartramia. *Lin. zeyl. n.* 174. *ſpec. ed.* 1. 389.
B. Lappago. *Gærtn. fruct.* 2. 137.
Lappago amboinica. *Rumph. amb.* 6. 59. *t.* 25. *f.* 2.
Leaves entire at the baſe undivided.

4. Triumfetta velutina. *Velvet Triumfetta.*
Lin. ſpec. ed. Willd. 2. 854. *Vahl. ſymb.* 3. 62.
Flowers complete, leaves ovate ſomewhat angular acuminate tomentoſe-hoary beneath.

5. Triumfetta procumbens. *Procumbent Triumfetta.*
Lin. ſpec. ed. Willd. 2. 855. *Forſt. prodr. n.* 204.
Leaves roundiſh-cordate ſubtrilobate tomentoſe, ſtem procumbent.

6. Triumfetta hirta. *Hairy Triumfetta.*
Lin. ſpec. ed. Willd. 2. 855. *Vahl. ſymb.* 3. 63.
Flowers complete, leaves three-lobed, the branches of the terminating panicle dichotomous rough-haired.

7. Triumfetta ſemitriloba. *Mallow-leaved Triumfetta.*
Linn. ſyſt. 444. *Reich.* 2. 420. *Willd.* 2. 855. *mant.* 73. *Jacqu. amer.* 147. *pict. t.* 133. *hort.* 3. 41. *t.* 76. *Brown. jam.* 233. *n.* 2.
Flowers complete, leaves half-three-lobed.

8. Triumfetta grandiflora. *Great-flowered Triumfetta.*
Lin. ſpec. ed. Willd. 2. 855. *Vahl. ecl.* 2. 34.
Flowers complete, leaves ſubcordate-ovate entire ſerrate ſomewhat hairy, floral leaves lanceolate, branches rough-haired.

9. Triumfetta macrophylla. *Long-leaved Triumfetta.*
Lin. ſpec. ed. Willd. 2. 855. *Vahl. ecl.* 2. 34.
Flowers complete, leaves ovate-cordate entire unequally ſerrate acuminate tomentoſe glandular at the baſe.

10. Triumfetta rhombeæfolia. *Rhomb leaved Triumfetta.*
Linn. ſpec. ed. Willd. 2. 856. *Swartz prodr.* 76. *deſcr.* 2. 863.
T. rhomboidea. *Jacqu. amer.* 147. *t.* 90 *pict. t.* 134.
Leaves rhomboid, the upper ones lanceolate-ovate, flowers complete.

11. Triumfetta annua. *Annual Triumfetta.*
Lin. ſyſt. 444. *Reich.* 2. 421. *Willd.* 2. 856. *mant.* 73. *Mill. fig.* 199. *t.* 298.
Leaves ovate undivided, ſometimes but rarely lobed.]

DESCRIPTIONS, &c.

1. This riſes with an upright ſtem to the height of ſix or ſeven feet, towards the bottom it becomes woody, and at top divides into four or five branches. Leaves placed alternately the whole length of the ſtem, about two inches and a half long, and almoſt two inches broad near the baſe, divided almoſt into three lobes toward the top, and the middle diviſion ending in an acute point; they are veined on their under ſide, are covered with a ſoft brown down, and have ſeveral nerves running from the midrib to the ſides; their upper ſide is of a yellowiſh green, and a little hairy; their borders are acutely but unequally ſerrate, and ſtand upon foot-ſtalks an inch in length. The branches are terminated by long ſpikes of flowers, which come out in cluſters from the ſide of the principal foot-ſtalk, at the diſtances of about an inch. The flowers are ſmall, the petals narrow and of a yellow colour: they are ſucceeded by burry capſules, ſomewhat like thoſe of Agrimony, but round, and with longer prickles placed on every ſide.

[Jacquin only remarks, that it is an upright branching ſhrub, eight feet high; and that the flowers have no veſtige whatſoever of a calyx.

Gærtner deſcribes the pericarp as a globular coriaceous capſule, echinated with little hooked prickles hiſpid backwards, quite entire, three-celled but more frequently four-celled, valveleſs and not ſeparable into little grains. Seeds ſolitary, ovate, convex on one ſide, angular on the other, ſmooth, hard, aſh-coloured, faſtened to the inner angle of the cells near the top.

Native of Jamaica, Martinico, and other iſlands of the Weſt Indies, the Bermudas, and Brazil.—Cultivated here in 1739, by Mr. Miller[g].] It flowers in july and auguſt, and in warm ſeaſons the ſeeds ſometimes ripen in England.

[2. Branches woody, round, villoſe. Leaves petioled, alternate, frequent, three inches long, gradually ſmaller upwards, ſoftly villoſe on both ſides

[g] Hort. kew.

with ſtellate hairs, but greener above, marked with lines along the nerves, ſerrate with the lower ſerratures of the upper leaves glandular, entire at the baſe. Petioles ſhort, villoſe with ſtellate hairs. Stipules awl-ſhaped. Flowers from the axils of the upper leaves. Germ covered with minute briſtles. It differs from the velutina (n. 4.) in having the leaves only half the width, not angular towards the outſide, acute not acuminate, with the hairs beneath more diſtinct, and the ſtipules ſetaceous-ſubulate[a]. Native of Arabia Felix and India.

3. Root annual. Leaves reſembling thoſe of currants. Flowers ſmall, purple or roſe-coloured.—Capſule ſpherical, white-tomentoſe, echinated with briſtle-ſhaped, hooked, ſmooth little prickles, four-grained, quadripartile: grains coriaceous, convex on one ſide, angular on the other, two-celled, valveleſs, growing to the ſeeds. Seeds ſolitary, two in each grain, and eight in the whole, from an ovate drawn to a point upwards, convex on one ſide, angular on the other, ruſeſcent. Sometimes the capſules are only three-grained and tripartile; others may eaſily be divided into ſix or eight parts, ſo that each ſeed is covered with its proper cell, as in ſome of the Malvaceæ. This differs therefore from Triumfetta, not only in the calyx, and five globular nectaries at the baſe of the petals, but in its many-grained capſule and confined ſeeds[b]. Linnæus alſo, in his firſt works, conſidered this plant as a middle ſpecies between this genus and Urena, and did not allow it to be a Triumfetta, on account of its having a corolla. But he changed his mind, when he publiſhed the thirteenth edition of his Syſtema Vegetabilium. Native of the Eaſt Indies.

4. Stem ſoftly villoſe, round. Leaves petioled, alternate, from two to three inches long, five-nerved, unequally ſerrate, ſoftly villoſe above, hoary with minute ſubſtellate hairs beneath, very ſoft, entire at the baſe. Stipules lanceolate, attenuated, ciliate, ferruginous. Flowers in the upper axils. Native of the Iſle of France[c].

5. Native of the Society Iſles[d].

6. Stem fruteſcent. Leaves alternate, a hand long, equal in length and breadth, ſmooth above, ſeven-nerved, appearing rough beneath with very ſmall ſtellate hairs, when examined with a magnifier; the nerves, eſpecially at the baſe, have fewer but longer hairs; they are veined, unequally ſerrate, with the three or five ſerratures next the petiole glandular, ſubcordate at the baſe, divided above into three ovate diſtant acuminate lobes. Petioles rough-haired, but becoming ſmoothiſh by age. Panicle terminating, diffuſed: branches hirſute, leſs hairy at the tip, twice or thrice dichotomous, alternate, the two laſt oppoſite. Flowers pedicelled, aggregate at intervals, ſmall, ſolitary at the diviſions. Calyx hoary. Native of the iſland of Santa Martha in America; where it was found by von Rohr[a].

7. This is an upright branching ſhrub, ſix feet high. It is ſo like the firſt ſpecies in its habit, that at firſt ſight they might eaſily be miſtaken; but the flowers of this have always a calyx[b].

Browne ſays, it frequently riſes to the height of ſix or ſeven feet, where the ſoil is rich and moiſt; the flowers, which generally grow in two diſtinct parcels near the axils of the leaves, are ſuſtained by a few narrow ſtipules, that perform the office of an involucre; half the capſule is echinated, the other ſmooth.

The leaves and tender buds, infuſed in water, yield a fine clear mucilage, from whence we may conclude this plant to be a good emollient. The bark is tough and ſtrong, and ſerves for ropes, and other conveniences of that kind, in the inland parts of the country.

Native of the Weſt Indies. Introduced in 1773 by John Earl of Bute. It flowers in july[c].

8. This differs from the other ſpecies, in having the corollas twice or thrice as large.—Stem woody, round, with the branches ſmooth below, rough-haired above, bifid at the end. Leaves alternate, two or three inches long, a little attenuated, three-nerved, ſomewhat rugged, having a few hairs either in bundles or ſingle ſcattered over the upper ſurface, leſs hairy underneath, ſerrate, the alternate ſerratures larger, the four loweſt terminated by an orbicular hollow gland. Petiole two inches long, thicker near the leaf, aſh-coloured with ſtellate hairs. Stipules lanceolate, acuminate. Lower peduncles axillary or oppoſite to a leaf, many-flowered: partial umbelled; terminating with partial peduncles racemed: pedicles umbelled, two or three-flowered, tomentoſe as the common peduncle is, and rough-haired. Braſtes lanceolate. Calyx ſmooth, with lanceolate acuminate leaflets. Petals oblong, clawed, a little ſhorter than the calyx. Style longer than the calyx. Native of Montſerrat, where it was found by Ryan.

9. Branches round, tomentoſe as the whole plant is. Leaves alternate, five or ſix inches long, as wide in the middle as they are in length, ſpreading very much, without any ſinus at the inſertion of the petal, ſerratures frequent, alternately larger and blunter, the lower ones glandular; they are ſoft on both ſides, but more villoſe underneath, veined; the lower ones five-nerved, the upper ones three-nerved. At the inſertion of the petiole on each ſide are two brown approximating glands. Petioles two inches long, round. Stipules lanceolate, attenuated, ſmooth within. Peduncles from the upper axils, often ſeveral, ſome ſimple, others compound: pedicels umbelled, with briſtle-ſhaped braſtes at the baſe. Calyx five-leaved, with linear acuminate leaflets. Petals five, linear, length of the calyx. It reſembles T. Lappula, but the flowers being calycled it ſhould ſeem to be different. It may be diſtinguiſhed from T. rhombæfolia by the form and tomentoſeneſs of the leaves. Native of South America, where it was found by von Rohr[a].

10. This is an upright branching ſhrub, three feet in height, the whole having an unpleaſant ſmell, eſpecially the ſeeds. Branches ſubdichotomous. Leaves alternate, ſubſeſſile, ſerrate, acute, entire, wrinkled, villoſe, the upper ones leſs rhomboidal. Flowers very numerous, with yellow petals, and red calyxes, on many-flowered, very ſhort, axillary and aggregate peduncles; hence they are in whorls. A cell or two is often wanting in the pericarps, but they are moſtly ſix-celled. It differs from T. Bartramia in the leaves not being angular. The French call it Couſin, on account of the capſules adhering to the clothes. Native of the Weſt Indies[b].

11. This is an annual plant, riſing about two feet and a half high, and ſending out ſeveral branches on every ſide. Leaves ending in long acute points, ſome are heart-ſhaped, others have an angle on each ſide towards the point; they are from three to four inches long, and almoſt as much in breadth where broadeſt; they ſtand upon very long footſtalks, and are notched on their edges. The flowers come out in long looſe ſpikes at the top of the plant: they are ſmall and yellow: ſome have four petals and eight ſtamens, others five petals with ten ſtamens. Fruit roundiſh, burry, four-celled, with one ſeed in each cell. Native of India. Cultivated by Mr. Miller before 1760, though it is not inſerted in the editions of his Dictionary of 1768 and 1771. It flowers in ſeptember and the ſeeds ripen in november[c].]

PROPAGATION AND CULTURE.

1. Sow the ſeeds on a hot-bed early in the ſpring; when the plants come up, tranſplant each into a ſeparate pot filled with light, freſh, kitchen garden-earth, and plunge them into a moderate hot-bed of tanners' bark, ſhading them from the ſun until they have taken new root, and then treating them in the ſame manner as other tender exotic plants. In autumn remove them into the bark ſtove, and refreſh them with water frequently, except in very cold weather. If the plants live through the winter, they will flower the following ſummer, and ripen their ſeeds in autumn; but may be continued two or three years if carefully managed.

[a] Vahl. [b] Gærtner. [c] Vahl. [d] Forſter.
[a] Vahl. [b] Jacquin. [c] Hort. kew.

[a] Vahl. [b] Jacquin. [c] Miller's figures.

[Triumfetta. See *Corchorus*.

Trixago. See *Rhinanthus*.

TRIXIS. (*From* τριξος *for* τριπλεκ. *triplex.*)
Lin. gen. Schreb. n. 1336. *Swartz. prodr.* 115.
Baillieria *Aubl. t.* 317. *Juſſ.* 188.
Claſſ. 19. 4. Syngeneſia Polygamia Neceſſaria.
Nat. order of *Compoſitæ Oppoſitifoliæ*.
Corymbiferæ Juſſ.

GENERIC CHARACTER.

Cal. *Common* imbricate, ovate: *ſcales* eight to ten, oblong, acuminate, convex, almoſt equal: outer ſomewhat keeled, membranaceous at the tip.

Cor. Compound. *Corollets* hermaphrodite numerous, in the diſk: *Females* fewer, ſhorter, in the ray.
Proper in the Hermaphrodites funnel-form; with a very ſhort tube, and an erect five-cleft border. In the Females funnel-form; with a compreſſed tube, and a triſid border: the hinder ſegment larger, the anterior ones ſmaller.

Stam. in the Hermaphrodites *Filaments* five, length of the tube. *Anther* cylindrical, above the border.

Pist. in the Hermaphrodites: *Germ* linear, pubeſcent. *Style* filiform, length of the ſtamens, bifid at the tip. *Stigmas* reflexed.

Per. none. *Calyx* unchanged, converging.

Seeds in the Hermaphrodites often abortive. In the Females ovate, ſomewhat compreſſed, margined, convex behind, blunt at the tip, ſubtrigonal, hirſute. *Down* none.

Rec. chaffy: *Chaffs* oblong, acute, concave, membranaceous.

ESSENTIAL CHARACTER.

Corollets of the ray triſid. *Seeds* hairy at the tip, without any Down. *Recept.* chaffy.

SPECIES.

1. Trixis terebinthinacea.
Swartz prodr. 115.
Leaves ovate ſerrulate biſpid hirſute beneath, flowers corymbed.

2. Trixis aſpera.
Swartz prodr. 115.
Baillieria aſpera. *Aubl. guian.* 804. *t.* 317.
Leaves ovate attenuated at the baſe and tip, tooth-ſerrate rough, flowers paniced.

3. Trixis erosa.
Swartz prodr. 115.
Leaves broad-ovate gaſh-ſerrate wrinkled rugged, petioles longer.
Theſe are natives of the Weſt Indies, the firſt of Jamaica; and the laſt of Dominica and St. Chriſtopher's[a].

Trixis. See *Perdicium* and *Proſerpinaca*.

Trochera. See *Ehrharta*.]

TROLLIUS. (Trollibume *ſeems to ſignify in German a magical flower.*)
Lin. gen. n. 700. *Reich. n.* 758. *Schreb. n.* 954. *Gærtn. t.* 118. *Juſſ.* 233.
Claſs 13. 7. Polyandria Polygynia.
Nat. order of *Multiſiliquæ*. *Ranunculaceæ* Juſſ.

GENERIC CHARACTER.

Cal. none.

Cor. *Petals* about 14, ſubovate, deciduous, in the three outer rows three, in the inmoſt five.
Nectaries nine, linear, flat, curved in, perforated at the baſe inwards.

Stam. *Filaments* numerous, briſtle-ſhaped, ſhorter than the corolla. *Anthers* erect.

Pist. *Germs* numerous, ſeſſile, columnar. *Styles* none. *Stigmas* mucronate, ſhorter than the ſtamens.

Per. *Capſules* numerous, collected into a head, ovate, with a point curved back.

Seeds ſolitary.

ESSENTIAL CHARACTER.

Cal. none. *Pet.* about 14. *Capſ.* numerous, ovate, many-ſeeded.

SPECIES.

1. Trollius europæus. *European Globe-flower.*
Lin. ſpec. 782. *Jyſt.* 518. *Reich.* 2. 668. *Willd.* 2. 1333. *fl. ſuec. n.* 510. *Gærtn. fruct.* 2. 177. *Huſſ. angl.* 244. *Wither. arr. ed.* 3. 510. *Smith brit.* 597. *engl. bot. t.* 28. *Lightf. ſcot.* 695. *Fl. dan. t.* 133. *Hall helv. n.* 1189. *Hoffm. germ.* 198. *Roth. germ.* 1. 236. 2. 608. *Leers herborn. n.* 420. *Scop. carn. n.* 694. *Krock. ſiles. n.* 888. *Villars dauph.* 3. 719. *Allion. pedem. n.* 1919. *Gmel. ſib.* 4. 190. *Pallas it.* 3. 253. *Knipb. cent.* 4. *n.* 90. *Knorr. del.* 2. *t.* T. 4.

T. altiſſimus. *Crantz auſtr.* 134.

Helleborus. *Lin. hort. cliff.* 227. *fl. lapp. n.* 226.

H. niger Ranunculi folio flore globoſo. *Tournef. inſt.* 272.

Ranunculus montanus, Aconiti folio, flore globoſo. *Bauh. pin.* 182.

R. glomerato flore. *Cluſ. hiſt.* 1. 237.

R. flore globoſo. *Dod. pempt.* 430.

R. globoſus. *Ger.* 809. 13. *emac.* 955. *Park. parad.* 218. 8. *t.* 219. *f.* 11. *Raii hiſt.* 700. *ſyn.* 272. *Petiv. brit. t.* 43. *f.* 2.

R. flore globoſo, quibuſdam Trollius. *Bauh. hiſt.* 3. 419.

R. ſextus. *Camer epit.* 385.

Pſeudo-helleborus ranunculoides luteus flore globoſo.
Mor. hiſt. 3. 461. *ſ.* 12. *t.* 2. *f.* 2.
Corollas converging, nectaries length of the ſtamens.

2. Trollius aſiaticus. *Aſiatic Globe-flower.*
Lin. ſpec. 782. *Jyſt.* 518. *Reich.* 2. 669. *Willd.* 2. 1334. *Pallas it.* 2. 528. *Curt. magaz. t.* 235.
Helleborus aconiti folio, flore globoſo croceo. *Amman. ruth.* 101.
Corollas ſpreading, nectaries longer than the ſtamens.

DESCRIPTIONS, &c.

1. Root perennial, fibrous, black; from which ſpring up many leaves reſembling thoſe of Wolf's-bane, cut into five ſegments almoſt to the bottom. The ſtalk riſes almoſt two feet high; it is ſmooth, hollow, and branches toward the top. Each branch is terminated by one large yellow flower, ſhaped like that of Crowfoot, but without any calyx. The corolla is compoſed of ſeveral (about fourteen) concave petals, the points of which are turned inwards, ſo as almoſt to cloſe up the ſtamens and piſtils, and the whole is of a globular form, whence its name of Globe-Ranunculus or Globe-Crowfoot.

[Stem upright, round. Leaves many-parted, pinnatifid, gaſhed, ſmooth; the lower ones on long petioles[b]: round, entire at the baſe, jagged upwards; theſe again deeply divided into three, the middle diviſion trifid, all ſharply ſerrate or jagged on the outer edge, nearly entire on the inner[c]: ſtem-leaves ſubſeſſile, alternate. Nectaries linear-ſpatulate, ſcarcely equal to the ſtamens, ſhorter by half than the petals. Stamens linear: anthers curved in[d]. Capſules numerous, above thirty, collected into a head, ſubcylindrical, curved inwards, ribbed tranſverſely, mucronate at the end[e], (or terminated by a crooked horn; pointing outwards, and giving the head a ſtar-like appearance[f]:) they are one-celled, and open on the inner ſide. Seeds numerous, about twelve in each capſule, ſmall, angular, black and ſhining; faſtened to the opening future. [g] Leers ſays there are only four ſeeds in a capſule. Native of the North of Europe, Carniola, Dauphiné, Piedmont, Siberia. In the northern counties of England, in Wales, and Scotland, on the ſides of mountains, and mountainous meadows, in moiſt ſhady places. Mr. Miller found it in great plenty in the park of Burrow-hall in Lancaſhire. Mr. Curtis in Skirrith wood, and moiſt woods about Settle in Yorkſhire. Mr. Woodward, near Troutbeck in Weſtmoreland. Mr. Atkinſon, at the road ſide near Dale Park, in Furneſs Fells. Mr. Robſon, in the marſhes of the county of Durham. In Scotland, at Drumlanrig in Nithſdale; at Corrys-Lyn, the famous fall of the Clyde; at Cartland rocks near Lanerk; in Carubber-Den near Linlithgow; and in Achendenny wood. It is too common in the north to ſpecify more places of growth. In the ſouth it is ſeen only in gardens. It flowers at the end of may and beginning of june. In the northern counties it is called Lockergoulans; which I ſuppoſe is corrupted from the Lucken-Gowan (Cabbage Daiſy) of the Scots.

[a] Swartz.
[b] Smith brit.
[c] Gærtner.
[d] Woodw. mss.
[e] Woodw. mss.
[f] Smith brit.
[g] Gærtner.

This ſplendid flower, ſays Linneus, adorns the pavements of the ruſtics, on feſtival days. [1] Allan Ramſay makes his young laird wiſh to gather theſe flowers to weave a chaplet for his Katy's brow [2]. In Weſtmoreland this plant is collected with great feſtivity by the youth of both ſexes about the beginning of june; at which time it is uſual to ſee them return from the woods in an evening laden with it, to adorn their doors and cottages with wreaths and garlands.

In habit and ſenſible qualities the Trollius agrees with Hellebore and Ranunculus, but is leſs acrid than moſt of them [3].

Cluſius ſays, that in 1581 he ſaw it at London, having been then newly brought from the mountains of the north.]

2. The Siberian Globe-flower differs from the firſt in having larger leaves, of a lighter green colour, with fewer and larger ſegments, reſembling thoſe of yellow Monk's-hood. The petals ſpread open, not converging at their points, like thoſe of the firſt ſort. The corolla, ſtamens and nectaries, are of an elegant ſaffron colour.

[It differs little, according to Linneus, from the preceding, by its ſulvous nectaries longer than the ſtamens, its deep yellow gaping corollas, and its germ or piſtils bent outwards, and as it were procumbent [4].

Native of Siberia. Cultivated by Mr. Miller in 1759. It flowers in may and june [5].]

PROPAGATION AND CULTURE.

1. Part the roots at the end of ſeptember, when the leaves are beginning to decay, planting them at a foot diſtance, in a ſhady ſituation and a moiſt ſoil. The plants ſhould not be parted oftener than once in three years, nor into parts too ſmall.

2. This may be increaſed and treated like the firſt, but requires a moiſter ſoil; it ſhould have a ſhady ſituation, but not under the drip of trees: it thrives beſt on a north border, where the ſoil is loamy, but not too ſtiff. In a dry ſoil, or much expoſed to the ſun, the plants frequently die in ſummer. It may be kept in a flouriſhing ſtate by covering the ſurface of the ground with moſs.

[Mr. Curtis adds, that it ſhould be planted in a compoſition of loam and bog earth, in a north border, taking care that it does not ſuffer from want of watering in dry ſummers. It may be raiſed from ſeeds, which frequently ripen on ſtrong healthy plants.]

As the flowers of both theſe plants make a pretty appearance, they deſerve a place in every good garden, eſpecially as they will thrive in moiſt ſhady places, where few better plants will live. By thus ſuiting plants to different ſoils and ſituations, every part of a garden may be well furniſhed, and a greater variety obtained.

[TRONGUM. See *Solanum inſanum.*]

TROPÆOLUM. (*Dimin. from* Tropæum, *a trophy.* *Lin. gen. n.* 466. *Reich. n.* 502. *Schreb. n.* 634. *Gærtn. t.* 79. *Hellen. monogr. Juſſ.* 269. Cardamindum. *Tournef. t.* 244.

Claſſ. 8. 1. Octandria Monogynia.

Nat. order of *Tribilatæ. Gerania.* Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* one-leafed, five-cleft, from upright ſpreading, acute, coloured, deciduous; the two lower ſegments narrower; horned at the back with an awl-ſhaped, ſtraight, longer *nectary.*

COR. *Petals* five, roundiſh, inſerted into the diviſions of the calyx: two upper ſeſſile; the others lower, with oblong, ciliate claws.

STAM. *Filaments* eight, awl-ſhaped, ſhort, declining, unequal. *Anthers* erect, oblong, riſing.

PIST. *Germ* roundiſh, three-lobed, ſtriated. *Style* ſimple, erect, length of the ſtamens. *Stigma* trifid, acute.

PER. *Berries* (or *Nuts*) ſomewhat ſolid, three, on one ſide convex grooved and ſtriated, on the other angular.

SEEDS three, gibbous on one ſide, angular on the other, roundiſh, grooved and ſtriated.

ESSENTIAL CHARACTER.

Cal. one-leafed, with a ſpur. *Pet.* four, unequal. *Nuts* three, coriaceous.

SPECIES.

1. Tropæolum minus. *Small Indian Creſſ.*
Lin. ſpec. 490. *ſyſt.* 357. *Reich.* 2. 144. *Willd.* 2. 298. *hort. cliff.* 145. *upſ.* 93. *Curt. magaz. t.* 98.
Cardamindum minus & vulgare. *Tournef. inſt.* 430. *Feuill. peruv.* 3. 14. *t.* 8.
Naſturtium indicum. *Dod. pempt.* 397. *Lob. ic.* 516. *f.* 2, 1. *Ger.* 196. *emac.* 252. *Park. parad.* 280. *t.* 279. *f.* 9. *Raii. hiſt.* 487.—majus. *Baub. pin.* 306.
N. ind. folio peltato ſcandens. *Baub. hiſt.* 2. 175.
Leaves peltate ſubrepand mucronate, petals acute.

2. Tropæolum majus. *Great Indian Creſs.*
Lin. ſpec. 490. *ſyſt.* 357. *Reich.* 2. 144. *Willd.* 2. 298. *hort. cliff.* 143. *upſ.* 93. *mat. med.* 101. *Gærtn. fruct.* 1. 380. *Knorr. del.* 1. *t.* R. 18. *Curt. magaz. t.* 23. *Plenc. ic.* 294. *Regnault bot.*
Cardamindum ampliori folio et majori flore. *Tournef. inſt.* 430. *Feuill. peruv.* 3. 14. *t.* 8.
C. majus. *Rivin. pent. t.* 97.
Acriviola maxima odorata. *Boerh. lugd.* 1. 244.
Viola indica ſcandens, naſturtii ſapore, maxima odorata. *Herm. lugdb.* 628. *t.* 629. *Raii hiſt.* 1869.
Leaves peltate repand, petals obtuſe.

[3. Tropæolum hybridum. *Baſtard Indian Creſs.*
Lin. ſyſt. 357. *Reich.* 2. 144. *Willd.* 2. 298. *mant.* 64. *Berg. act. holm.* 1765. *p.* 32. *t.* 1.
Leaves ſubpeltate five-lobed, lobes obtuſe ſubrepand, petals wedged toothed at the tip.

4. Tropæolum peregrinum. *Fringe-flowered Indian Creſs.*
Lin. ſyſt. 357. *Reich.* 2. 145. *Willd.* 2. 299. *mant.* 371. *Jacqu. hort. Schoenb.* 1. 51. *t.* 68.
Cardamindum Quinquefolii folio, vulgo Malla. *Feuill. peruv.* 2. 756. *t.* 42.
Leaves ſubpeltate five-lobed-palmate ſomewhat toothed, petals laciniated.

5. Tropæolum pentaphyllum. *Five-leaved Indian Creſs.*
Lin. ſpec. ed. Willd. 2. 299. *Lamarck encycl.* 1. 605. *t.* 277. *f.* 2.
Leaves quinate, leaflets quite entire acute, petals ſhorter than the calyx quite entire acute.]

DESCRIPTIONS, &c.

1. Stem herbaceous, trailing. Leaves almoſt circular, ſmooth, grayiſh. Flowers axillary, on very long peduncles; compoſed of five acute-pointed petals, the two upper large and rounded, the three under narrow jointed together at bottom and lengthened out into a tail two inches long. There are two varieties of this, one with a deep orange-coloured flower inclined to red, and the other with a pale yellow flower.

[This is diſtinguiſhed from the next by its ſmallneſs, and by the points at the top of the petals, and at the end of the nerves in the leaves. It was cultivated in 1596 by Gerarde, and was a great favourite with Parkinſon in 1629; but it was afterwards loſt in our gardens, till it was lately re-introduced by Dr. J. E. Smith, who by diſtributing it to his friends, and the nurſery-men near London, has again rendered it tolerably plentiful [6].] Mr. Miller (in 1768) ſays only it is leſs common at preſent in the Engliſh gardens than the ſecond.

Linneus ſays, it became known at Lima in 1580 by Dodonæus. That author informs us, that he ſaw this very rare foreign plant at Cologne, in the garden of Chriſtina Bertolf, widow of Joachin Hopper, and that ſhe had the ſeed from Spain.]

2. The ſecond ſort is larger in all its parts. The borders of the leaves are indented almoſt into lobes; and the petals are rounded at the top. There are two colours of this, as of the former, and alſo a variety with double flowers, as in that.

[The fruit conſiſts of three berries, (ſome conſider them rather as nuts),—becoming juiceleſs when ripe, fungous, deeply grooved and wrinkled, gibbous on one ſide, angular on the other, narrowing upwards,

[1] Fl. ſuec. [2] Lightfoot. [3] Engl. bot.
[4] Syſt. veg. [5] Hort. kew. [6] Curtis.

of a dirty white colour. Seeds ſolitary, of an oblong ſpheroidal form, but wrinkled by age, ſhaped as the berry is externally, ruſeſcent, terminated at top by the umbilical chord[a].]

The flowers of this ſpecies being larger and making a finer appearance than thoſe of the preceding, was probably the reaſon why that was neglected, and for a time in a manner loſt to our gardens. They are both natives of Peru, and commonly eſteemed to be annual plants, though they may be continued through the winter, if they are kept in pots, and ſheltered in a green houſe or glaſs caſe, in like manner as the variety with double flowers is preſerved.

The ſtalks will climb ſix or eight feet high, when they are trained up, and thus the flowers make a good appearance; but when they trail upon the ground, they will ſpread over the neighbouring plants and become unſightly.

The flowers are frequently eaten in ſallads; they have a warm taſte like the garden Creſs, and hence the plant has its common name of Naſturtium; they are likewiſe uſed for garniſhing diſhes. The ſeeds are pickled, and by ſome are preferred to moſt pickles for ſauce, under the falſe name of capers.

[It begins to flower in july, and continues till the approach of winter.

Eliſabeth Chriſtina, daughter of the celebrated Linneus, we are informed by her father, obſerved the flowers of the great Indian Creſs to emit ſpontaneouſly, at certain intervals, ſparks like electric ones, viſible only in the evening, (ante crepuſculum.)

It is ſaid by Linneus to have been firſt brought into Europe by the care of Count Bewerning, in 1684.—If ſo, it quickly migrated into England, for according to Collinſon's manuſcripts, it was introduced in 1686 by Dr. Lumley Lloyd[b].

3. This agrees with the other Tropæolums in ſtature, ſize, &c. The leaves are different, not being peltate, but widely cuneate, nodding, moſtly five-lobed, with the lobes ſharpiſh; they are naked, nerved, veined, three times ſhorter than the petiole, with the whole margin aſcending, eſpecially the lateral one, which is ſo united to the oppoſite baſe, as to form there an almoſt cowled leaf, and the moſt ſlightly peltate of any. Nectary blunt. Corolla ſcarcely ever determinate. This plant took its riſe from the preceding at Stockholm, in the Ehrenreich garden, and can ſeldom be increaſed by ſeeds, but by ſlips or cuttings.

4. Root annual. Leaves ſlightly peltate, deeply five-cleft: the middle ſegment three-lobed, the next with a ſingle outer lobe. Petals ſcarcely longer than the calyx, ciliate-multifid. Tube of the calyx thickiſh, much longer than the corolla[c].

According to Willdenow, the petals are longer than the calyx, laciniated, ciliate and pale yellow.

Native of Peru. Introduced in 1775, by Benjamin Bewick, Eſq. It flowers in ſeptember and october[d].

5. Leaflets oval, ſubpetioled. All the petals ſeſſile and ſhort. Native of Monte Video[e].]

PROPAGATION AND CULTURE.

1, 2. Sow the ſeeds in april, in the places where they are to remain, which ſhould be where their ſtalks may have ſupport. The varieties with double flowers are continued by cuttings, and are kept under ſhelter all winter.

[The ſmaller ſort ſhould be raiſed on a hot-bed, like other tender annuals, if we with to have it flower early in the ſummer, continue long in bloſſom, and produce perfect ſeeds. But it will grow readily in the open air, in warm ſheltered ſituations[f]. The greater ſort may alſo be brought forward in a hot-bed, if the flowers or fruit are wanted for uſe. But plants will come up ſpontaneouſly from ſeeds dropped in the autumn, which is rather extraordinary in a Peruvian plant.

TROPHIS. (*From* τροφω, *nutrio: on account of its nouriſhing quality as fodder for cattle.*)

Lin. gen. n. 1103. *Reich. n.* 1207. *Schreb. n.* 1502. *Juſſ.* 442. *Browne.* Bucephalon. *Lin. gen. ed.* 6. *p.* 575.

Claſſ. 22. 4. Dioecia Tetrandria.

Nat. order of *Calycifloræ. Incertæ ſedis.* Juſſ.

GENERIC CHARACTER.

* *Male.*

CAL. none.

COR. *Petals* four, obtuſe, ſpreading.

STAM. *Filaments* four, capillary, longer than the corolla.

* *Female* on a diſtinct plant.

CAL. one-leafed, very ſmall, cloſely inveſting the germ.

COR. none.

PIST. *Germ* ovate. *Style* filiform, two-parted. *Stigmas* adnate.

PER. *Berry* ſubſtriated, wrinkled, one-celled.

SEED ſingle, ſubglobular.

ESSENTIAL CHARACTER.

MALE. *Cal.* none. *Cor.* four-petalled.

FEM. *Cal.* none. *Cor.* none. *Style* two-parted. *Berry* one-ſeeded.

SPECIES.

1. Trophis americana. *The Ramoon Tree.*
Lin. ſpec. 1451. *ſyſt.* 882. *Reich.* 4. 239. *amoen.* 5. 410. *Brown. jam.* 357. *t.* 37. *f.* 1. *Swartz obſ.* 372.

β. Bucephalon racemoſum. *Lin. ſpec.* 2. 1668.

B. fructu racemoſo rubro. *Plum. gen.* 52. *ic.* 67.

DESCRIPTION, *&c.*

1. This is a tree twenty feet high at moſt, with nearly upright, round, even branches. Leaves oblong, acuminate with the point blunt, entire, beneath netted-veined and paler. Male flowers in peduncled roundiſh aments, an inch long, erect, axillary, ſubſolitary: flowers approximating, minute, whitiſh. Female flowers in axillary racemes, two together, longer than the petioles, compoſed of ſeven or eight ſeſſile, alternate, horizontal flowers. Germ pubeſcent: ſtyle parted to the baſe; ſegments length of the germ, ſpreading and bent down, with ferruginous hairs on them. The fruit is a ſtriated, one-ſeeded drupe. A clammy very white milky juice flows from an inciſion in the trunk of the tree, or from the branches when broken[a]. The leaves and twigs make an agreeable wholeſome fodder for all ſorts of cattle, and are often uſed as ſuch in dry ſeaſons, in the inland woody parts of Jamaica, where graſs is frequently very ſcarce. The berries (or drupes, as Swartz calls them) are generally about the ſize of large grapes, and of an agreeable pleaſant flavour[b].

Native not only of Jamaica, but of other iſlands in the Weſt Indies, in dry expoſed ſituations[c].

β. The leaves of this are ovate, acuminate, quite entire, alternate, on very ſhort petioles. Spikes lateral, ſolitary. Native of America[d]. Perhaps a different ſpecies.

Koenig found another ſpecies in the Eaſt Indies, which he named Trophis aſpera, or Rough-leaved Trophis. It is thus characterized and deſcribed by Sir William Jones in the fourth volume of the Aſiatic Reſearches.

MALE Flowers.

CAL. *Common* imbricated: *leaflets* ſix or eight, ovate, acute, ſmall, expanding, withering, containing generally from five to ſeven florets: *partial* four-parted; *diviſions* ovate, expanded, villous.

COR. none, unleſs you aſſume the calyx.

STAM. moſtly four (in ſome three, in one five.) *Filaments* awl-ſhaped, fleſhy, rather compreſſed, ſpreading over the diviſions of the calyx, and adhering to them at the point. *Anthers* double, folded.

The *buds* elaſtic, ſpringing open on a touch.

FEMALE Flowers.

CAL. four-parted; *diviſions* ovate, concave, pointed, permanent, propped by two ſmall *bractes*, unleſs you call them the calyx.

COR. none, unleſs you give the calyx that name.

PIST. *Germ* roundiſh. *Style* very ſhort, cylindric. *Stigma* long, two-parted, permanent.

[a] Gærtner. [b] Hort. kew. [c] Lamarck. [d] Lina. mant. [e] Curtis.

[a] Swartz. [b] Browne. [c] Swartz. [d] Linn. ſpec.

PER.

PER. *Berry* one-seeded, navelled, smooth, somewhat flattened.

SEED globular, arilled.

Leaves various, some obovate, some oblong, some oval, pointed, irregularly notched, alternate (some opposite), crowded, crisp, very rough veined and paler beneath, smoother and dark above. Berry deep yellow. The Pandits having only observed the male plant, insist that it bears no fruit. Female flowers axillary, from one to four or five in an axil.

On poor rocky soil it is low and bushy, but in the plains it is a tree of considerable magnitude. From an idea of its astringent or antiseptic virtue, the natives use little pieces of the wood, split at one end into a kind of brush, for cleaning their teeth.

TRUE LOVE. See *Paris*.

TRUMPET FLOWER. See *Bignonia*.

TRUMPET HONEYSUCKLE. See *Lonicera*.

TSIAGERI NUREN. See *Dioscorea*.

TSIAMA PULLU. See *Panicum*.

TSIAM CUMULU. See *Orobanche*.

TSIAM PACA. See *Michelia*.

TSIAM PANGAM. See *Cæsalpinia*.

TSIANA KUA. See *Costus*.

TSIANGA PUSPAM. See *Gratiola*.

TSIELA. See *Ficus*.

TSIELI. See *Scirpus*.

TSIEM TANI. See *Rumphia*.

TSIERA BELUTTA. See *Celosia*.

TSIEREGAM MULLA. See *Nyctanthes*.

TSIERE MARAM. See *Croton*.

TSIERIA KUREN PALLU. See *Perotis*.

TSIERIA MAYA NARI. See *Gratiola*.

TSIERIA SAMSTRAVADI. See *Eugenia*.

TSIEROU KANDEL. See *Rhizophora*.

TSIEROU MAU MARAVARA. See *Epidendrum*.

TSIEROU POUNA. See *Calophyllum*.

TSIERU. See *Calamus*.

TSIERU KIRGANELI. See *Phyllanthus*.

TSIERU KOTSIJELLETI PULLU. See *Eriocaulon*.

TSIERU PARUA. See *Sida*.

TSIERU TSIUREL. See *Calamus Rotang*.

TSIERU VALLI PANNA. See *Ophioglossum*.

TSIERU VEELA. See *Cleome*.

TSIERU UREN. See *Melochia*.

TSIETTI MANDARU. See *Poinciana*.

TSIETTI PU. See *Chrysanthemum indicum*.

TSJIN KIN. See *Lagerstroemia*.

TSIOVANNA ARELI. See *Nerium*.

TSITTI PULLU. See *Cynosurus*.

TSIUDE MARAM. See *Justicia*.

TSIUNDA TSIERA. See *Hottonia*.

TSIURIA CRANTI. See *Ipomœa*.

TSUBAKKI. See *Camellia*.

TSUTSUSI. See *Azalea*.

TUBA BACCIFERA. See *Menispermum*.

TUBER. See *Lycoperdon*.

Dr. Withering separates the Lycoperdons that are more solid, stemless, do not become powdery, nor open at top, under this name of *Tuber*.

Dr. Withering names the eatable Truffle, (in some places called *Trubs*), *Tuber cibarium*. It is globular, the size of a large plumb, whitish, rugged with elevated dots, in the centre containing a brown powder like that of Lycoperdon Bovista, but in small quantity, opening with a rent [a]. It is found under the surface of the earth, at the depth of four or five inches. It has no proper root; the colour is dark approaching to blackness: when young it is white within, but when old black with whitish veins [b].

This is one of the best of the esculent Fungi. Dogs are taught to hunt it; when they scent it, they bark a little, and begin to scratch up the earth. In Italy, they watch the pigs, who root it up. In England, it is found in high woods and pastures, and on the downs of Wiltshire, Hampshire and Kent [c].

It is said that Truffles may be cut by their eyes, like Potatoes, and propagated in the same manner. They delight in a clayey soil, and in shady places.

TUBERARIA. See *Cistus*.

TUBEROSE. See *Polianthes*.

TULBAGIA. (*So named by Linnæus, from* de Tulbagh, *governor of the Cape of Good Hope, a patron of Botany, who sent the Cape plants to the Burmanns in Holland.*

Lin. gen. Reich. n. 435. *Schreb. n.* 549. *Gærtn. t.* 16. *Juss.* 54.

Class. 6. 1. Hexandria Monogynia.

Nat. order of *Spathaceæ*. *Narcissi* Juss.

GENERIC CHARACTER.

CAL. *Spathe* two-valved, oblong, membranaceous; with the flowers peduncled.

COR. *Petals* six, lanceolate, length of the nectary, placed on the tube, three in the middle, three behind the border. *Nectary* one-petalled, cylindrical; with the border six-parted, awl-shaped, spreading.

STAM. *Filaments* six, very short, three in the throat, three within the tube. *Anthers* somewhat oblong acute.

PIST. *Germ* superior, ovate. *Style* cylindrical, short. *Stigma* turbinate, hollow.

PER. *Capsule* ovate, subtrigonal, three-celled, three-valved: partition contrary to the valves.

SEEDS two in a cell. *G.*

OBS. *Corolla one-petalled, funnel-form, with a six-cleft border. Nectary crowning the aperture, three-leaved; leaflets bifid. G. It cannot be associated with* Narcissus, *on account of its superior Germ. The corolla bears more resemblance to the* Hyacinth.

ESSENTIAL CHARACTER.

COR. funnel-form, with a six-cleft border. *Nect.* crowning the aperture, three-leaved; leaflets bifid, the size of the border. *Caps.* superior.

SPECIES.

1. Tulbagia alliacea. *Narcissus-leaved Tulbagia.*
   Lin. syst. 316. *Willd.* 2. 33. *Suppl.* 193. *Thunb. prodr.* 60.
   T. capensis. *Lin. mant.* 223. *Jacqu. hort.* 2. 52. *t.* 115. *Reich. syst.* 2. 16.
   T. inodora. *Gærtn. fruct.* 1. 57.
   Nectary one-leafed, six-toothed.
2. Tulbagia cepacea.
   Lin. syst. 316. *Willd.* 2. 34. *Suppl.* 194. *Thunb. prodr.* 60.
   Nectary three-leaved.

DESCRIPTIONS, &c.

1. Stature of Galanthus or Snow drop. Root bulbous, with numerous thick subfusiform fibres. Leaves radical, numerous, linear, even. Scape twice as long as the leaves. The spathe contains from five to seven flowers. Corolla green, like the oriental Hyacinth, with a small acute border. Nectary very dark purple, length of the border [e].

Leaves almost filiform, somewhat fleshy. Scape a foot high. Spathe umbelliferous, two-valved. Flowers drooping, dusky purple. Corolla one-petalled, tubular, gibbous at the base: border six-parted, with the parts linear obtuse spreading length of the tube. Nectary placed at the mouth of the tube, six-toothed but very indistinctly, obtuse, thick, length of the border. Filaments none: anthers six sessile ovate twin, the three upper alternate, under the top of the nectary, the three lower in the nectary, below the others. Germ superior: style short: stigma simple, obtuse. Capsule ovate, triangular, obtuse, three-celled, three-valved. Seeds many, compressed, almost triangular [b].

Native of the Cape of Good Hope; where it flowers in august.—Here it flowers in may; and was introduced in 1774, by Mr. Francis Masson [f].

2. Root bundled. Leaves radical, from two to four, lanceolate-linear, somewhat fleshy. Scape a span high. Spathe umbelliferous, two-valved. Flowers erect, purple. Corolla one-petalled, tubular, gibbous at the base: border six-parted, with the parts lanceolate, obtuse, spreading, length of the tube. Anthers sessile below the mouth of the tube; the three upper ones alternate. It differs from the first in being of smaller stature, and in having a three-

[a] Linn. suec. [b] Bolt. [c] Withering.

[e] Linn. mant. [b] Linn. suppl. [f] Hort. kew.

leaved nectary. Native of the Cape. Both species smell strong of Garlick, when the leaves are rubbed or broken[k]. By Gærtner's naming the first *indora*, I should suppose he found little or none of this smell in it.]

TULIPA. (*From the resemblance of the flower to the eastern head-dress called* Tulipan *or* Turban. *Gerarde calls it* Turkes Cap Dalmatian Cap *or* Tulipa.)

Lin. gen. n. 415. *Reich. n.* 448. *Schreb. n.* 563. *Tournef. t.* 199, 200. *Juss.* 48. *Gærtn. t.* 17.

Class. 6. 1. Hexandria Monogynia.

Nat. order of *Coronariæ*. *Lilia* Juss.

GENERIC CHARACTER.

CAL. none.

COR. bell-shaped. *Petals* six, ovate-oblong, concave erect.

STAM. *Filaments* six, awl-shaped, very short. *Anthers* quadrangular, oblong, erect, distant.

PIST. *Germ* large, oblong, from three-cornered round. *Style* none. *Stigma* three-lobed, triangular: *angles* protuberant, bifid: permanent.

PER. *Capsule* three-sided, three-celled, three-valved: *valves* ciliate at the edge, ovate.

SEEDS numerous, flat, incumbent in a double row, semicircular, separated by similar flocks.

ESSENTIAL CHARACTER.

Cor. six-petalled, bell-shaped. *Style* none.

SPECIES.

1. Tulipa sylvestris. *Wild or yellow Tulip.*
   Lin. spec. 438. *Syst.* 325. *Reich.* 2. 50. *Willd.* 2. 96. *fl. suec. n.* 284. *Wuber. ar. ed.* 3. 336. *Smith brit.* 361. *engl. bot. t.* 63. *Abbot beds. n.* 253. *Fl. dan. t.* 375. *Hoffm. germ.* 118. *Roth. germ.* 1. 152. 2. 397. *Hall. helv. n.* 1236. *Scop. carn. n.* 407. *Lœrs herborn. n.* 259. *Villars dauph.* 2. 248. *Allion. pedem. n.* 1891. *Pallas it.* 3. 562. *Desfont. atlant.* 294. *Gouan illustr.* 25. *Kniph. cent.* 8. *n.* 96. *Berg. phyt.* 2. 179.
   T. minor lutea italica. *Bauh. pin.* 63.
   T. minor lutea narbonensis. *Bauh. hist.* 2. 677. *Raii hist.* 1149.
   T. narbonensis. *Clus. hist.* 1. 151. *Ded. pempt.* 232.
   T. bononiensis. *Ger.* 116. 1. *emac.* 138. 1.
   β. T. turcica. *Roth. catal.* 1. 45.
   T. minor lutea gallica. *Bauh. pin.* 63. *Sauv. monsp.* 306. *Tournef. inst.* 376. *Mor. hist. s.* 4. *t.* 17. *f.* 9.
   Flower solitary nodding a little, stigma obtuse three-sided, stamens hairy at the base, leaves lanceolate.
[2. Tulipa suaveolens. *Early dwarf Tulip.*
   Lin. spec. ed. Willd. 2. 97. *Roth. catal.* 1. 45.
   T. pumilio. *Lob. ic.* 127.
   Stem one-flowered pubescent, flower erect, petals obtuse smooth, leaves ovate-lanceolate.]
3. Tulipa gesneriana. *Common garden Tulip.*
   Lin. spec. 438. *Reich.* 2. 50. *Willd.* 2. 97. *hort. cliff.* 118. *upsal.* 82. *Pallas it.* 3. 652. *Kniph. cent.* 2. *n.* 95, 96. *Knorr. del.* 1. *t.* T. et T. 1. 2. 3. *Thornton.*
   T. hortensis. *Gærtn. fruct.* 1. 64.
   T. præcox & serotina. *Bauh. pin.* 57, &c. *Raii hist.* 1146. *Clus. hist.* 1. 138, &c. *Ger.* 117. *emac.* 138. 3. 139, &c.
   T. turcarum. *Cord. hist.* 213.
   Tulipa. *Dod. pempt.* 231. *Besl. eyst. vern.* 2. *t.* 7. *f.* 4. 5.—3. *t.* 10. *f.* 3. *t.* 17. *f.* 2.—4. *t.* 1—9, &c. *Park parad.* 45, &c. *Mor. hist. s.* 4. *t.* 17. *f.* 1.
   Stem one-flowered smooth, flower erect, petals obtuse smooth, leaves ovate-lanceolate.
[4. Tulipa bistora. *Two-flowered Tulip.*
   Lin. syst. 325. *Willd.* 2. 98. *suppl.* 196. *Pallas it.* 3. *app. n.* 86. *t.* D. *f.* 3.
   Flowers erect flattish, stem two-leaved and two or three-flowered, leaves linear-subulate.
5. Tulipa breyniana. *Cape Tulip.*
   Lin. spec. 438. *Reich.* 2. 51. *Willd.* 2. 98. *Trunb. prodr.* 65.
   Sisyrinchium, ex phœniceo suaverubente flore æthiopicum. *Breyn. cent. t.* 36. *Rudb. elys.* 2. 13. *f.* 11.
   Stem many-flowered, many-leaved, leaves linear.

[k] Linn. suppl.

DESCRIPTIONS, *&c.*

1. Bulb ovate, gibbous. Stem quite simple, nearly upright, round, smooth, leafy in the middle, attenuated at the base. Leaves alternate, slightly embracing, lanceolate, acute, keeled, glaucescent. Flower always yellow, greenish on the outside. Petals elliptic-lanceolate, without any nectary. Filaments flatted. Anthers terminating, versatile, oblong. Germ three-cornered. Stigma sessile, three-cornered[l].

The wild Tulip has most of these characters in common with the garden species; but the circumstances that abundantly distinguish this are the narrow leaves, the nodding flower, the hairiness at the base of the stamens and on the tips of the petals, and especially the simple obtuse form of the stigma, which is totally different from that of the garden Tulip: the flower too is fragrant; the pollen yellow, not black; and the anthers remarkably long. In Flora Danica they are represented short and round[m].

Lœrs remarks, that all the petals are villose at the tip, and the three inner ones at the base also. Desfontaines observes, that the petals are acute, the three outer ones narrower by half, and greenish on the outside.

Native of the South of Europe, Germany and Switzerland; also of Siberia and Barbary. It was first given as a native or at least a naturalized species, in English Botany, from the observations of W. Mathew, Esq. who found it in an old chalk-pit near Bury; and on the opinion of Mr. Rose of Norwich, and of Dr. Smith, who have both found it in a chalk-pit near that city. It has also been observed near Bury by Sir Thomas Gery Cullum, Bart. and at Whipsnade, on the borders of Hertfordshire and Bedfordshire, by the Rev. D. Jenks. It grows in a bed of good mould, above the chalk, the roots lying several inches below the surface, and flowers in april[n].

Linneus remarks, that the flower does not begin to open till about ten o'clock; whereas the garden Tulip opens before eight a. m. He reports, from Parkinson, that the roots boiled, and eaten with oil and pepper, are sapid and wholesome: whereas Haller says they are acrid and cause vomiting.

According to the Kew catalogue, it was cultivated in 1597 by Gerarde.] Mr. Miller says, it was formerly preserved in the English gardens, but since so many varieties of the third sort have been propagated in England, that has been rejected, and is now only to be found in old neglected gardens.

[2. This is distinguished both from the preceding and succeeding species, by its pubescent scape, spreading sweet-smelling corolla, the earliness of its flowering, and the smallness of its size. Native of the South of Europe[o].

3. Stem nearly upright or bending a little, taller and stronger than in the first, from a foot to eighteen inches in height. Leaves three, four or five, embracing, doubled, lanceolate, acute, nerved, glaucous; the lowest near the bulb two inches and a half wide, the others gradually narrower. Flower large, erect, in a wild state, most commonly red with a black base; petals ovate, blunt, smooth. Anthers commonly very dark-coloured or black. Stigma three-lobed, each lobe bifid, bent back, and the edge curled back.—Capsule superior, of a triangular prismatic form, three-grooved, transversely striated: valves having a partition in the middle, and ciliate at the sutures with white silky vibrissæ turned inwards. Seeds obovate, narrowed towards the navel, flat on both sides, margined, rufescent, fastened horizontally in a double row to the central margin of the partitions. Before the fruit is fully ripe, the vibrissæ in this genus, and in that of Fritillaria, are glued together into three thin membranes, which being interposed between the columns of seeds, make the unripe capsules six-celled[p].

Native of many parts of the Levant. Linneus (from Gesner) says, Cappadocia, whence it came to Europe in 1559. It is common in Syria, and is sup-

[l] Smith brit.
[m] Engl. bot.
[n] Idem.
[o] Willdenow.
[p] Gærtner.

posed

poſed by ſome to be the lily of the field alluded to by our Saviour. In Perſia, where it is abundant, they conſider it as the emblem of perfect lovers. When a young man, ſays Chardin, preſents one to his miſtreſs, he gives her to underſtand, by the general colour of the flower, that he is on fire with her beauty, and by the black baſe of it, that his heart is burnt to a coal. Chardin ſaw it on the northern confines of Arabia. Rauwolff found it at Aleppo, and on mount Libanus; Shaw, between Jaffa and Rama; Buſbequius, between Adrianople and Conſtantinople, every where in abundance, with Narciſſus, Hyacinths, &c. in the middle of winter. It grows alſo in Macedonia, Thrace, and the Crimea. According to Cluſius, the early-blowing flowers were brought to Conſtantinople from Cavala, a town on the eaſtern coaſt of Macedonia; and the late-blowing ones, from Caffa, a town in the Crimea.

Conrad Geſner firſt made the eaſtern Tulip known by a deſcription and figure. In his additions to Cordus, he tells us that he firſt ſaw it in the beginning of april 1559 at Augſbourg, in the garden of John Henry Harwart. The ſeeds were brought from Conſtantinople, or according to others from Cappadocia. Balbinus aſſerts, that Buſbequius brought the firſt Tulip roots to Prague, whence they were ſpread all over Germany. Buſbequius himſelf ſays, in a letter written 1554, that this flower was then new to him. We know that he collected natural curioſities, and brought many from the Levant. He relates that he paid very dear to the Turks for Tulips; but he no where affirms that he was the firſt who brought them from the Eaſt. In 1565, there were Tulips in the garden of Mr. Fugger, from whom Geſner wiſhed to procure ſome [1].

Cluſius informs us, that Augerius de Buſbeque (Buſbequius) received a great quantity of the ſeed, together with many bulbs, from Conſtantinople, the year that Cluſius came to Vienna, and going the year following to France, he left them under the care of Cluſius, who in 1575 and the following year, committed them to the ground in a heap, thinking they were ſo old and withered that they would not come to any thing; they grew however, and produced a great variety of flowers.

Cluſius relates alſo that he gave more than a hundred bulbs to an apothecary at Vienna to be preſerved in ſugar, in the ſame manner as the roots of the Orchis, with a view to aſcertain whether they had not the ſame qualities, but he neglected the buſineſs. However in the year 1592, John Muler, another apothecary, preſerved a quantity of the roots, and they were found to be far more ſweet and pleaſant than Orchis roots, but whether they had the ſame virtues was not aſcertained. A merchant of Antwerp had a cargo of the roots thirty years before this (1562), and taking them for a ſort of onion, ordered ſome to be roaſted under embers, and ate them with oil and vinegar like common onions: the reſt he ſet in the kitchen garden among the cabbages, where moſt of them periſhed, except a few that George Rye, a merchant of Mecklin took under his care, and which produced a variety of beautiful flowers.

According to the Kew catalogue the Tulip was cultivated in England, by Mr. James Garret, in 1577. Reference is made to Gerarde's herbal, publiſhed in 1597: where it is ſaid—"my loving friend Maſter "James Garret, a curious ſearcher of ſimples, and "learned apothecary in London, hath undertaken to "find out if it were poſſible, the infinite ſorts, by "diligent ſowing of their ſeeds, and by planting thoſe "of his own propagation, and by others received "from his friends beyond the ſeas, for the ſpace of "*twenty* years not being yet able to attain to the "end of his travaile, for that each new year bringeth "forth new plants of ſundry colours not before ſeen: all "which to deſcribe particularly were to roll Siſyphus "ſtone, or number the ſands." Gerarde ſays alſo, that he received it from Aleppo, and he mentions Maſter Garth, a worſhipful gentleman, as a cultivator of this bulb.

This era of the introduction of the Tulip into England is confirmed by the remembrances for Maſter S. by Richard Hakluyt, in 1582, wherein it is ſaid, —"now within theſe four years there have been "brought in England, from Vienna in Auſtria, divers "kinds of flowers called Tulipas."

They firſt appeared in Provence, in the garden of the celebrated Peyreſc.

Towards the middle of the ſeventeenth century the Tulip became the object of a conſiderable trade, and the price of the roots roſe higher than that of the moſt precious metals. It was chiefly carried on in ſome cities of the Netherlands, and roſe to its greateſt height in 1634 and the three following years. For one root of a variety called the *Viceroy*, articles to the value of 2500 florins were agreed to be delivered. The *Semper Auguſtus* has been often ſold for 2000 florins: one perſon agreed to give 4600 florins, with a new carriage, two horſes and complete harneſs; and another agreed to give twelve acres of land for a ſingle root. The trade was generally followed for a time, but it was a mere gambling buſineſs, like the Miſſiſippi and South ſea ſchemes, and was rightly named *Tulipomania*[1].

No plant affords more varieties than the Tulip. Sometimes, but rarely, it has two flowers; ſix petals is the regular number, but it is not uncommon to find ſeven or eight, and the flowers are ſometimes quite double; ſome of the varieties produce their flowers earlier than others; and the capſules are not very unfrequently four-ſided and four-celled. But the moſt remarkable variation in the Tulip is in the colours of the petals, an almoſt infinite variety of theſe having been produced by art.

The old authors divided Tulips into *Præcoces* or early-blowers, and *Serotinæ* or late-blowers, with an intermediate diviſion of *Dubiæ Mediæ*, doubtful or middle-blowers, which flowered between the two others, and for the moſt part *rather* belonged to the late-blowers. Modern floriſts have almoſt neglected the early-blowers.]

Theſe are not near ſo fair, ſays Mr. Miller, nor do they riſe half ſo high as the late ones; but they are chiefly valued for appearing early in the ſpring: ſome of them will flower the middle of march in mild ſeaſons, if planted in a warm border near a wall or other ſhelter, and others will ſucceed them, ſo that they will keep flowering until the general ſeaſon for theſe flowers is come, which is towards the end of april. As theſe early-blowers are few in compariſon with the others, Mr. Miller gives the names of the principal ones, to the number of forty-one. By thoſe names the roots were to be obtained in Flanders and Holland, where the floriſts are very exact in keeping up their liſts of flowers complete.

The ſeveral varieties of theſe early-blowing Tulips riſe to different heights in their ſtems, and ſcarcely any two of them are equal. The Duke Van Toll, which is one of the firſt that appears in the ſpring, is generally very ſhort-ſtalked, and the others in proportion to their earlineſs are ſhorter than thoſe which ſucceed them; and the late-blowers are all conſiderably longer in their ſtems than any of the early-blowers, ſo that when they are mixed together confuſedly, they make a very indifferent appearance.

The late-blowing Tulips producing much finer flowers than the early ones, have engroſſed almoſt the whole attention of the floriſts. It would be to little purpoſe to enumerate all the varieties, ſince there is ſcarcely any end of their numbers, and what ſome value at a conſiderable rate, others reject; and as there are annually many new flowers obtained from breeders, thoſe which are old, if they have not very good properties to recommend them, are thrown out and deſpiſed.

[Parkinſon, ſo long ſince as 1629, enumerates 140 varieties in his Paradiſus terreſtris. But to tell you

[1] Epiſt. 79. fo. Tg. 1577. 8vo. Beckmann hiſt. of Inventions, 1. 31, &c.

[1] Beckmann.

of

of all the ſorts, ſays he, which are the pride of delight, they are ſo many, and as I may ſay, almoſt infinite, doth both paſs my ability, and as I believe, the ſkill of any other. There is ſuch a wonderful variety and mixture of colours in them, that it is almoſt impoſſible for the wit of man to decipher them thoroughly, and to give names that may be true, and ſeveral diſtinctions to every flower. Threeſcore ſeveral ſorts of colours ſimple and mixed I can reckon up that I have, and of eſpecial note, and yet I doubt not, but for every one of them there are ten others differing from them. But beſides this glory of variety in colors that theſe flowers have, they carry ſo ſtately and delightful a form, and do abide ſo long in their bravery, that there is no lady or gentlewoman of any worth that is not caught with this delight.

In Parkinſon's time the early-blowers, and doubtful or mean-flowering Tulipas, as he calls them, furniſhed moſt of the varieties: the ſerotina or late-flowering Tulipa, as he ſays, having no ſuch plentiful variety of colours or mixtures in his flowers, as are in the two former ſorts. Accordingly he enumerates only five varieties of theſe, which now furniſh the Floriſts with all thoſe beauties which attract their admiration. But probably many which he calls meane (that is, intermediate) flowering, are properly late-blowers. He divides the flowers into their four primary or principal colours, white, purple, red and yellow; and under every one of theſe, ſets down the ſeveral mixtures which he has ſeen and obſerved in them.

Modern Floriſts in Holland and Flanders, and our Engliſh Floriſts from them, boaſt a prodigious variety of late-blowing Tulips. Mr. Maddock of Walworth, in his catalogue of flowers for 1792, has no leſs than about 665 of theſe admired beauties, all ranged under their proper families and colours, with their names and prices: beſides the early ſorts, double tulips, parrot-tulips, french tulips; and breeders.

The late-blowers are diſtributed into five families. 1. Primo Baguets: very tall; fine cups with white bottoms, well broken with fine brown, and all from the ſame breeder. 2. Baguet Rigauts: not quite ſo tall, but with ſtrong ſtems, and very large well-formed cups with white bottoms, well broken with fine brown, and all from the ſame breeder. 3. Incomparable Verports: a particular kind of Bybloemens; with moſt perfect cups; very fine white bottoms; well broken with ſhining brown; and all from the ſame breeder. Some of theſe are from two to five guineas a root. 4. Bybloemens: with bottoms white or nearly ſo, from different breeders, and broken with variety of colours. Thoſe of the Verports are cherry and roſe. 5. Bizarres: ground yellow, from different breeders, and broken with variety of colours.—Theſe barbarous terms uſed by the Dutch Floriſts, are a mixture of Dutch and French. Baguet, is from the French Baguette, a rod or wand, ſo named from its tall ſlender ſtem. Bizarre is alſo French; and the Tulips of that family have the name from the variety and irregularity of their colours. Rigauts are probably from the name of ſome eminent floriſt, Rigaud. The other terms are Dutch.—Breeders are of one colour, and when broken produce new varieties.

The properties of a fine variegated late Tulip, according to the beſt modern Floriſts are theſe. 1. The ſtem ſhould be ſtrong, upright, and tall, about thirty inches high. 2. The flower ſhould be large, compoſed of ſix petals, proceeding a little horizontally at firſt, and then turning upwards ſo as to form an almoſt perfect cup with a round bottom, rather wider at the top. 3. The three outer petals ſhould be rather larger than the three inner ones, and broader at their baſe: all the petals ſhould have the edges perfectly entire; the top of each ſhould be broad and well rounded; the ground colour at the bottom of the cup ſhould be clear white or yellow; and the various rich ſtripes, which are the principal ornament of a fine flower, ſhould be regular, bold, and diſtinct on the margin, and terminate in fine broken points, elegantly feathered or peacilled. 4. The centre of each petal ſhould contain one or more bold blotches or ſtripes, intermixed with ſmall portions of the original colour, abruptly broken into many irregular obtuſe points. Some Floriſts are of opinion that the central ſtripes or blotches do not contribute to the beauty of the Tulip, unleſs they are confined to a narrow ſtripe exactly down the centre; and that they ſhould be perfectly free from any remains of the original colour: it is certain that ſuch flowers appear very beautiful and delicate, eſpecially when they have a regular narrow feathering at the edge: but it is unanimouſly agreed, that the Tulip ſhould abound in rich colouring, diſtributed in a diſtinct and regular manner throughout the flower, except in the bottom of the cup, which ſhould indiſputably be of a clear bright white or yellow, free from ſtain or tinge, in order to conſtitute a perfect flower[1].

The double and Parrot Tulips are in no ſort of eſteem among the Floriſts.

4. Plant the ſize of Ornithogalum luteum. Stem very ſmooth. Leaves two alternate linear attenuated to both ends recurved channelled, ſheathing the ſtem at bottom. Peduncles ſhorter than the leaves two or three in a ſort of umbel. Flowers like thoſe of Ornithogalum luteum, but ſeveral times bigger and ſpreading. The three outer petals lanceolate, pale ſky-blue or greeniſh; the inner ones white with a large orange ſpot at the baſe. Filaments bearded at the baſe. The bulb every year drops down perpendicularly a little bulb, which ſucceeds the old one.

Native of Ruſſia, by the Wolga[2].

5. Stem-leaves ſix or ſeven alternate, linear, lanceolate, the upper ones gradually ſhorter. Flowers at the top, three or four, ſmaller than in Breynius's cultivated plant. Petals narrowed at the baſe. Style none. Native of the Cape of Good Hope[3]. Introduced in 1787, by Mr. Francis Maſſon. It flowers in july[4].]

PROPAGATION AND CULTURE.

3. The roots of early blowing Tulips ſhould be planted the beginning of September, in a warm border, near a wall, pale, or hedge; becauſe if they are put into an open ſpot of ground, their buds are in danger of ſuffering by morning froſts in the ſpring. The ſoil for theſe ſhould be renewed every year, where people intend to have them fair. The beſt ſoil for this purpoſe is that which is taken from a light ſandy paſture, with the turf rotted amongſt it, and to this ſhould be added a fourth part of ſea ſand. This mixture may be laid about ten inches deep, which will be ſufficient for theſe roots, which need not be planted more than four or five inches deep at moſt. The offſets ſhould not be planted amongſt the blowing roots, but in a border by themſelves, where they may be planted pretty cloſe together, eſpecially if they are ſmall; but theſe ſhould be taken up when their leaves decay, in the ſame manner as the blowing roots, otherwiſe they would rot if the ſeaſon ſhould prove very wet; for theſe are not ſo hardy as the late blowers, nor do they increaſe half ſo faſt as thoſe, ſo that a greater care is required to preſerve the offſets of them. When theſe Tulips come up in the ſpring, the earth upon the ſurface of the borders ſhould be gently ſtirred and cleared from weeds; and as the buds appear, if the ſeaſon ſhould prove very ſevere, it will be of great ſervice to cover them with mats, for want of which many times they are blighted, and their flowers decay before they blow, which is often injurious to the roots, as is alſo the cropping of the flowers ſo ſoon as they are blown; becauſe their roots, which are formed new every year, are not at that time arrived to their full magnitude, and are hereby deprived of proper nouriſhment.

If, when theſe flowers are blown, the ſeaſon ſhould prove very warm, it will be proper to ſhade them with mats, &c. in the heat of the day; as alſo if the nights are froſty, they ſhould be in like manner covered, whereby they may be preſerved a long time in beauty; but, when their flowers are decayed, and their ſeed-veſſels begin to ſwell, they ſhould be broken off juſt at the top of the ſtalks, becauſe if they are permitted to ſeed, it will injure the roots.

[1] Maddock, 67. [2] Linn. ſuppl. [3] Linn. ſpec. [4] Hort. kew.

When the leaves of theſe flowers are decayed (which will be before the late blowers are out of flower) their roots ſhould be taken up, and ſpread upon mats in a ſhady place to dry; after which they ſhould be cleared from their filth, and put in a dry place where the vermin cannot come to them, until the ſeaſon for planting them again, being very careful to preſerve every ſort ſeparate, that you may know how to diſpoſe of them at the time for planting; becauſe it it is the better way to plant all the roots of each ſort together (and not to intermix them, as is commonly practiſed in moſt other kinds of flowers;) for as there are few of them which blow at the ſame time, ſo when the ſeveral roots of one ſort are ſcattered through a whole border, they make but an indifferent appearance; whereas, when twenty or thirty roots of the ſame ſort are placed together, they will all flower at the ſame time, and afford a more agreeable appearance.

There are many curious perſons, who, in order to preſerve their ſeveral kinds of Tulips, and other bulbous-rooted flowers ſeparate, have large flat boxes made, which are divided into ſeveral parts by ſmall partitions, each of which is numbered in the ſame manner as the diviſions of their beds; ſo that when a catalogue of their roots is made, and the numbers fixed to each ſort in the beds, there is nothing more to do when they take up their roots, but to put every kind into the diviſion marked with the ſame number which was placed to each ſort in the bed, which ſaves a great deal of trouble in making freſh marks every time the roots are taken up, and effectually anſwers the purpoſe of preſerving the kinds ſeparate.

The late blowing Tulips are generally obtained from breeders, which is a term applied to all ſuch flowers as are produced from ſeeds, which are of one ſelf-colour, and have good bottoms and chives; theſe in time break into various beautiful ſtripes, according to the ground of their former ſelf-colour, but this muſt be entirely thrown off, otherwiſe they do not eſteem a flower well broken.

Of theſe breeders there has been a great variety brought into England from Flanders which is the grand nurſery for moſt ſorts of bulbous-rooted flowers; but there are ſome curious perſons, who have lately obtained many valuable breeders from ſeed ſown in England; and doubtleſs, were we as induſtrious to ſow the ſeeds of theſe flowers as the people of France and Flanders, we might in a few years have as great a variety as is to be found in any part of Europe; for, although it is ſix or ſeven years from the ſowing before the flowers blow; yet, if after the firſt ſowing there is every year a freſh parcel ſown, when the ſeven years are expired, there will be conſtantly a ſucceſſion of roots to flower every year, which will reward the expectation, and keep up the ſpirit of raiſing; but it is the length of time at firſt, which deters moſt people from this work.

The manner of propagating theſe flowers from ſeeds is as follows: you ſhould be careful in the choice of the ſeed, without which there can be little ſucceſs expected. The beſt ſeed is that which is ſaved from breeders which have all the good properties before related, for the ſeeds of ſtriped flowers ſeldom produce any thing that is valuable.

The beſt method to obtain good ſeeds is to make choice of a parcel of ſuch breeding Tulip roots as you would ſave ſeeds from, and place them in a ſeparate bed from the breeders, in a part of the garden where they may be fully expoſed to the ſun, obſerving to plant them at leaſt nine inches deep; for if they are planted too ſhallow, their ſtems are apt to decay before their ſeed is perfected.

Theſe flowers ſhould always be expoſed to the weather, for if they are ſhaded with mats, or any other covering, it will prevent their perfecting the ſeed. About the middle of july, (a little ſooner or later, as the ſummer is hotter or colder) the ſeeds will be fit to gather, which may be known by the dryneſs of their ſtalks, and the opening of the ſeed-veſſels, at which time they may be cut off, and the ſeeds preſerved in the pods till the ſeaſon for ſowing, being careful to put them up in a dry place, otherwiſe they will be ſubject to mould, which will render them good for little.

Having ſaved a parcel of good ſeed, about the beginning of September is the beſt ſeaſon for ſowing it, when there ſhould be provided a parcel of ſhallow ſeed-pans, or boxes, which ſhould have holes in their bottoms to let the moiſture paſs off; theſe muſt be filled with freſh ſandy earth, laying the ſurface very even, upon which the ſeeds ſhould be ſown as regularly as poſſible, that they may not lie upon each other; then there ſhould be ſome of the ſame light ſandy earth ſifted over them, about half an inch thick. Theſe boxes or pans ſhould be placed where they may have the morning ſun till eleven of the clock, in which ſituation they may remain until october, at which time they ſhould be removed into a more open ſituation, where they may enjoy the benefit of the ſun all the day, and be ſheltered from the north winds, where they ſhould remain during the winter ſeaſon; but in the ſpring, when the plants are up, they ſhould be again removed to their firſt ſituation; and if the ſeaſon ſhould be dry, they muſt be refreſhed with water while the plants remain green; but as ſoon as their tops begin to decay, there muſt be no more given them, leſt it rot their tender bulbs; therefore the boxes ſhould be placed in a ſhady ſituation during the ſummer ſeaſon, but not under the drip of trees.

Theſe plants, at their firſt appearance, have very narrow graſſy leaves like thoſe of onions, and come up with bending heads, in the ſame manner as they do; ſo that perſons who are unacquainted with them, may pull them up inſtead of graſs whilſt they are very young, before their leaves are a little more expanded, which is rarely performed the firſt year; for they ſeldom appear before the middle of march, and they commonly decay about the latter end of may, or the beginning of june, according as the ſeaſon is hotter or colder.

The weeds and moſs ſhould alſo be cleared off from the ſurface of the earth in the boxes, and a little freſh earth ſifted over them ſoon after their leaves decay, which will be of great ſervice to their roots. Theſe boxes ſhould be conſtantly kept clear from weeds, which, if permitted to grow therein, when they are pulled up, the roots will be apt to draw the bulbs out of the ground. At michaelmas they ſhould be freſh earthed again, and as the winter comes on, they muſt be again removed into the ſun as before, and treated in the ſame manner, until the leaves decay in the ſpring, when the bulbs ſhould be carefully taken up, and planted in beds of freſh ſandy earth, which ſhould have tiles laid under them, to prevent their roots from ſhooting downward, which they often do when there is nothing to ſtop them, and thereby are deſtroyed. The earth of theſe beds ſhould be about five inches thick upon the tiles, which will be ſufficient for nouriſhing theſe roots while they are young.

The diſtance which theſe young bulbs ſhould be allowed, need not be more than two inches, nor ſhould they be planted above two inches deep; but toward the end of october, it will be proper to cover the beds over with a little freſh earth about an inch deep, which will preſerve the roots from the froſt, and prevent moſs or weeds from growing over them; but, if the winter ſhould be very ſevere, it will be proper to cover the bed either with mats or peas-haulm, to prevent the froſt from entering the ground, becauſe theſe roots are much tenderer while young, than they are after they have acquired ſtrength.

In the ſpring the ſurface of the ground ſhould be gently ſtirred to make it clean, before the plants come up; and if the ſpring ſhould prove dry, they muſt be frequently refreſhed with water during the time of their growth; but this muſt not be given to them in great quantities, leſt it rot their tender bulbs; and when the leaves are decayed, the weeds ſhould be taken off, and the beds covered with freſh earth, which ſhould alſo be repeated again in autumn.

In theſe beds the bulbs may remain two years, during which time they muſt be conſtantly kept clear from weeds, and in ſpring and autumn freſh earthed, in the manner already directed; after which the bulbs

must be taken up, and planted into freſh beds, at four inches aſunder, and as many deep, where they may remain two years more, during which time they ſhould have the ſame culture as before; and after that, the bulbs being large enough to blow, they ſhould be taken up, and planted in freſh beds at the uſual diſtance, and in the ſame manner as old roots; where, when they flower, ſuch of them as are worthy to be preſerved, ſhould be marked with ſticks; and at the ſeaſon for taking up the bulbs, they muſt be ſeparated from the others, in order to be planted as breeders in different beds; but you ſhould by no means throw out the reſt until they have flowered two or three years, becauſe it is impoſſible to judge exactly of their value in leſs time; for many, which at firſt flowering appear beautiful, will afterwards degenerate ſo as to be of little value; and others, which did not pleaſe at firſt, will many times improve, ſo that they ſhould be preſerved until their worth can be well judged of.

In this method many ſorts of new breeders will be annually raiſed, from which there will always be fine flowers broken, which, being the produce of a perſon's own ſowing, will be greatly valued, becauſe they are not in other hands, which is what enhances the price of all flowers; and it has been entirely owing to this method of raiſing new flowers, that the Dutch have been ſo famous, amongſt whom the paſſion for fine Tulips did ſome time reign ſo violently, that many of the floriſts near Haerlem have often given a hundred ducats for one ſingle root; which extravagance was the occaſion of an order being made by the States, to limit the utmoſt price that ſhould be afterward given for any Tulip root, were it ever ſo fine.

Having thus given an account of the method of raiſing theſe flowers from ſeeds, I ſhall now proceed to the management of thoſe roots which are termed breeders, ſo as to have ſome of them every year break out into fine ſtripes.

There are ſome who pretend to have a ſecret how to make any ſort of breeders break into ſtripes whenever they pleaſe, but this, I dare ſay, is without foundation; for from many experiments which I and others have made of this kind, I never could find any certainty of this matter. All that can be done by art, is to ſhift the roots every year into freſh earth of different mixtures, and into a different ſituation, by which method I have had very good ſucceſs.

The earth of theſe beds ſhould be every year different, for although it is generally agreed that lean, hungry, freſh earth haſtens their breaking, and cauſes their ſtripes to be the finer and more beautiful, yet, if they are every year planted in the ſame ſort of ſoil, it will not have ſo much effect on them, as if they were one year planted in one ſort of earth, and the next year in a very indifferent one, as I have ſeveral times experienced; and if ſome fine ſtriped Tulips are planted in the ſame beds with the breeders, intermixing them together, it will alſo cauſe the breeders to break the ſooner.

The beſt compoſt for theſe roots is a third part of freſh earth from a good paſture, which ſhould have the ſward rotted with it, a third part of ſea ſand, and the other part ſifted lime rubbiſh; theſe ſhould be all mixed together ſix or eight months at leaſt before it is uſed, and ſhould be frequently turned, in order to mix the parts well together. With this mixture the beds ſhould be made about two feet deep, after the following manner: after the old earth is taken from out of the bed to the depth intended, then ſome of the freſh earth ſhould be put in about eighteen inches thick; this ſhould be levelled exactly, and then lines drawn each way of the bed, chequerwiſe; at ſix inches diſtance, upon the center of each croſs, ſhould be placed the Tulip roots, in an upright poſition, and after having finiſhed the bed in this manner, the earth muſt be filled in, ſo as to raiſe the bed ſix or eight inches higher, obſerving, in doing this, not to diſplace any of the roots, and alſo to lay the top of the beds a little rounding to throw off the water.

There are many perſons who are ſo careleſs in planting their Tulip roots, as only to dig and level the beds well, and then with a blunt dibble to make holes, in-

to which they put the roots, and then fill up the holes with a rake, but this is by no means a good method; for the dibble, in making the holes, preſſes the earth cloſely on each ſide, and at the bottom, whereby the moiſture is often detained ſo long about the roots as to rot them, eſpecially if the ſoil is inclinable to bind; beſides the earth being hard at the bottom of the bulbs, they cannot ſo eaſily emit their fibres, which muſt certainly prejudice the roots.

Theſe beds ſhould be ſunk, more or leſs, below the ſurface, according to the moiſture or dryneſs of the ground, for the roots ſhould be ſo elevated as neve to have the water ſtand near the reach of their fibre in winter, for moiſture is very apt to rot them; ſo that where the ſoil is very wet, it will be proper to lay ſome lime rubbiſh under the earth, in order to drain off the wet, and the beds ſhould be entirely raiſed above the level of the ground; but to prevent their falling down into the walks, after froſt or hard rains, it will be proper to raiſe the paths between them, either with ſea coal aſhes or rubbiſh, eight or ten inches, which will ſupport the earth of the beds; and theſe paths may ſlope at each end from the middle, which will make paſſage for the water to run off as it falls. But where the ſoil is dry, the bottom of the beds may be ſunk eighteen or twenty inches below the ſurface, for in ſuch places the beds need not be more than four or ſix inches above the ſurface, which will be allowance enough for their ſettling.

During the winter ſeaſon there will be no farther care required. The roots being planted thus deep, will be in no danger of ſuffering by ordinary froſts, but if the winter ſhould prove very ſevere, ſome rotten tan or peas-haulm may be laid over the beds to keep out the froſt during the continuance, but this muſt be removed when the froſt is over; and in the ſpring, when their leaves begin to appear above ground, the earth upon the ſurface of the beds ſhould be ſtirred to clear it from weeds, moſs, &c. and when the flower-buds begin to come up, they ſhould be guarded from froſt, otherwiſe they are very ſubject to blight and decay ſoon after they appear, if the froſt pinches their tops; but they need only be covered in ſuch nights when there is a proſpect of froſt, for at all other times they ſhould have as much air as poſſible, without which they will draw up weak, and produce ſmall flowers.

When the breeding Tulips are in flower, you ſhould carefully examine them, to ſee if any of them have broken into beautiful ſtripes, which, if you obſerve, there ſhould be a ſtick put into the ground by every ſuch root, to mark them, that they may be ſeparated from the breeders, to plant amongſt the ſtriped flowers the following year; but you ſhould carefully obſerve, whether they have thrown off their former colour entirely, as alſo when they decay, to ſee if they continue beautiful to the laſt, and not appear ſmeared over with the original colour, in both which caſes they are very ſubject to go back to their old colour the next year: but if their ſtripes are diſtinct and clear to the bottom, and continue ſo to the laſt, (which is what the floriſts call dyeing well,) there is no great danger of their returning back again, as hath been by ſome confidently reported; for if one of theſe flowers is quite broken (as it is termed,) it will never loſe its ſtripes, though ſometimes it will blow much fairer than at others, and the flowers of the offſets will be often more beautiful than thoſe of the old roots.

This alteration in the colour of theſe flowers may be ſeen long before they are blown, for all the green leaves of the plant will appear of a fainter colour, and ſeem to be ſtriped with white, or of a browniſh colour, which is a plain proof, that the juices of the whole plant are altered, or, at leaſt, the veſſels through which the juice is ſtrained; ſo that hereby particles of a different figure are capable of paſſing through them, which, when entered into the petals of the flower, reflect the rays of light in a different manner, which occaſions the variety we ſee in the colours of flowers. This breaking of the colours in flowers proceeds from weakneſs, or at leaſt is the cauſe of weak-

neſs in plants; for it is obſervable, that after Tulips are broken into fine ſtripes, they never grow ſo tall as before, nor are the ſtems, leaves, or flowers, ſo large as before; and it is the ſame in all other variegated plants and flowers whatever, which are alſo much tenderer than they were before they were ſtriped; ſo that many ſorts of exotic plants which by accident became variegated in their leaves, are often rendered ſo tender, as not to be preſerved without much more care, though indeed the ſtriping of Tulips never occaſions ſo great weakneſs in them as to render them very tender. The greateſt effect it has on them, is in leſſening their growth, cauſing ſome (which, while they continued in their original plain colours, roſe near three feet in height) to advance little more than two after their colours were altered; and the more beautifully their ſtripes appear, the ſhorter will be their ſtems, and the weaker their flowers.

There is nothing more to be obſerved in the culture of ſtriped flowers than what has been directed for breeders, excepting that theſe ſhould be arched over with tall hoops and rails, that they may be ſhaded from the ſun in the day time, and protected from ſtrong winds, hard rains, and froſty mornings, otherwiſe the flowers will continue but a ſhort time in beauty; but where the inſtructions here given are duly followed, they may be preſerved in flower a full month, which is as long as moſt other flowers continue.

There are ſome perſons who are ſo extremely fond of theſe flowers, as to be at a great expenſe in erecting large frames of iron work to cover their beds of Tulips, in ſuch a manner, that they may walk between two beds under the frames, over which are ſpread tarpaulins, ſo as to keep off ſun, rain, and froſt, whereby they can view the flowers without being at the trouble of taking off or turning up the tarpaulins, or being incommoded by the ſun or rain, which cannot be avoided where the covering is low; beſides, by thus raiſing the covers, the flowers have a greater ſhare of air, ſo that they are not drawn ſo weak, as they are when the covering is low and cloſe to them; but theſe frames being expenſive, can only be made by perſons of fortune; however, there may be ſome of wood contrived at a ſmaller expenſe, which being arched over with hoops, may anſwer the purpoſe as well as the iron frames, though they are not ſo ſightly or laſting.

But after the flowers are faded, the heads of all the fine ſorts ſhould be broken off to prevent their ſeeding; for if this is not obſerved, they will not flower near ſo well the following year, nor will their ſtripes continue ſo perfect; and this will alſo cauſe their ſtems to decay ſooner than otherwiſe they would do, ſo that their roots may be taken up early in June, for they ſhould not remain in the ground after their leaves are decayed. In taking the roots out of the ground, you muſt be very careful not to bruiſe or cut them, which will endanger their rotting, and, if poſſible, it ſhould be done a day or two after rain. When theſe roots are taken out of the ground, they muſt be cleared from their old covers, and all ſorts of filth, and ſpread upon mats in a ſhady place to dry, after which they ſhould be put up in a dry place, where vermin cannot get to them, obſerving to keep every ſort ſeparate, but they ſhould not be kept too cloſe from the air, nor ſuffered to lie in heaps together, leſt they ſhould grow mouldy, for if any of the roots once take the mould, they commonly rot when they are planted again, if not before.

The offſets of theſe roots, which are not large enough to produce flowers the ſucceeding year, ſhould be alſo put by themſelves, keeping each ſort diſtinct; theſe ſhould be planted a month earlier in autumn than the blowing roots, in particular beds by themſelves in the flower-nurſery, where they may not be expoſed to public view; but the earth of the beds ſhould be prepared for them in the ſame manner as for larger roots, though theſe ſhould not be planted above five inches deep, becauſe they are not ſtrong enough to puſh through ſo great covering of the earth as the old roots; they may be placed much nearer together than thoſe which are to flower, and in one year moſt of them will become ſtrong enough to flower, when they may be removed into the flower-garden, and placed in the beds amongſt thoſe of the ſame kinds.

[The moſt proper time to plant Tulip roots is from the end of October to the tenth of november. The bed ſhould be in an open airy part of the garden. Having marked out the ground according to the intended dimenſions of the bed, take out the ſoil to the depth of twenty inches: fill up the bottom with ſound freſh earth, ten inches thick; upon this put a mixture of rotten cow-dung and freſh earth in equal quantities and two years old, to the thickneſs of twelve inches; and upon this more of the ſame kind of earth as that of the bottom, two inches thick at the ſides, and three in the middle, to give the bed a ſmall degree of convexity. This operation is to be performed about the 20th of October, or a week or two before planting, that the bed may have time to ſettle. It will then be about two inches higher than the alleys. If heavy rains ſhould intervene, it will be proper to cover the bed to keep them off; becauſe they would render it too compact and adheſive for the tender fibres to paſs freely through it.

On the day of planting, rake the ſurface of the bed even, ſtill preſerving its convexity, and mark the places for the roots ſeven inches from each other every way. Adapting the length of the bed, and the number of rows to the quantity of your roots.

If the bed conſiſts of ſeven rows, which makes the handſomeſt appearance, it ſhould be fifty inches wide, which will allow a ſpace of four inches between the outer rows and the ſides of the bed; and there ſhould be an alley or path round it two feet and an half or three feet wide. If the bed ſhould contain only five rows, it muſt be three feet wide to give the roots the ſame diſtances. Such a bed will require only one path in front.

Having ſprinkled a little clean ſand where the roots are to be ſet, place them with great exactneſs, and add ſome very ſandy earth, ſo as to envelope each root completely in a little cone of it; then cover the whole very carefully with ſtrong ſound freſh loam, about four inches thick at the middle of the bed, gradually decreaſing to three inches at the ſides: thus will the convexity be increaſed in a proper degree, and the roots will be covered with ſoil proportioned to their ſize and ſtrength: the largeſt and ſtrongeſt being placed in the centre rows; the ſmalleſt and weakeſt on the outſide. No Tulip root, however ſtrong, ſhould be planted more than four inches deep from the crown of it; nor ſhould any blooming root be ſet leſs than two inches and a half or three inches deep, however ſmall it may be. The ſoil which is made uſe of for covering the bulbs, ſhould have been frequently turned over, and well expoſed to the ſun and air, ſome time before it is uſed, that it may be perfectly ſweet, and free from that acrid quality which moſt ſoils are ſubject to, when taken conſiderably below the ſurface.

If the bed contain but five rows, with a path in front only, the ſmalleſt and loweſt-growing roots ſhould be planted in front, and ſo on to the laſt row, which ſhould contain the ſtrongeſt and largeſt: and the bed may ſlope towards the front; in which caſe the back ſhould be ſupported with boards or brick-work, to prevent the earth from crumbling down, and leaving the roots bare.

When the planting is finiſhed, hoop the bed over, that it may be covered occaſionally with mats or canvas, to preſerve it from heavy rains and ſevere froſts: either in moderation will be of more ſervice than injury to it.

By the end of february every plant in health will be above ground, except a few very late ones, which may be a week longer before they appear. If any canker is diſcernible, it ſhould be carefully cut out with a ſharp knife, on ſome fine dry day.

If the ſurface of the bed appears to be of too cloſe a contexture, it ſhould be carefully ſtirred up, about two inches deep.

By the end of april, ſome of the plants may be grown ſo tall as to require the hoops to be raiſed a little. As ſoon as any of the earlier ones begin to ſhow colour, they ſhould be ſhaded from the ſun, which will cauſe the colours to run and intermix in

ſuch a manner as to deſtroy the elegance and beauty of the flower; ſome are more liable to this injury than others, and may be ſpoiled in five minutes.

When the greater part of the flowers have begun to open, a frame or awning ſhould be erected over the bed and paths, to keep out the rain, and to admit as much light as poſſible; for which purpoſe the cloth covering ſhould be rolled up in the morning early, if the weather be favourable, otherwiſe the colours of the flowers will be faint and weak. This cloth covering ſhould come down on each ſide within about three feet of the ground, to allow a free circulation of air, except in windy weather, and then the windward ſide muſt be protected quite to the ground.

Tulips never require to be watered; but moderate rains may be admitted before, and in ſmall quantity after the bloom is over; early in the ſpring they are neceſſary, in order to procure a ſtrong bloom.

When the awning is erected, the hoops ſhould be carefully taken away; the ſides and ends of the bed neatly boarded up, and the paths lowered two or three inches, to bring the flowers nearer to the eye: a ſlight frame about two feet high, ſhould ſurround the bed, to prevent any injury being done to the flowers: lines of ſmall twine, painted green, ſhould paſs from one end of the bed to the other between the rows of flowers; and to theſe the ſtems are to be looſely tied with ſhort pieces of green worſted. The awning may be continued on for three weeks with great ſafety.

When the petals of many flowers begin to drop off, the awning ſhould be taken down, together with the frame, boards, &c. and the mats and hoops replaced, to throw off exceſs of rain. As the petals fall, the ſeed-veſſel ſhould be broken off, cloſe to the ſtem; for if this be ſuffered to remain on the plant, it will weaken the root conſiderably.

The bed may remain in this ſtate about a fortnight longer, by which time the foliage will become of a yelloviſh brown, and two or three inches at the top of the ſtem will wither, dry up, and become purpliſh: this denotes the critical period to take up the roots: if it be done earlier, they will be weak and ſpongy; and if deferred later, their juices will become groſs; and at the next blooming the flowers will be what is generally termed foul.

When the roots are taken up, they are to be gradually dried, and kept dry. In auguſt or ſeptember take off the looſe ſkins, fibres, and ſuch offſets as are eaſily ſeparated; obſerving not to leave the roots too bare. The laſt brown ſkin, which is intimately connected with the root, ſhould remain on it till the time of planting; it ſhould then be entirely ſtripped off, and the root left perfectly bare and white; but it ſhould be performed with great care with a ſmall ſharp-pointed penknife, to avoid bruiſing or wounding the root, eſpecially at the lower end, where the fibres are formed, for that is at this time extremely tender, and will ſcarcely bear to be touched.

The ſmalleſt and weakeſt offſets, particularly ſuch as are not provided with a brown ſkin, may be replanted as ſoon as they are taken up, about an inch and half deep, in a freſh ſandy loam, in a dry ſituation, defending the bed from heavy rains by hoops covered with mats; or they may be buried in dry ſand till the autumn, and then planted with the larger roots, only not quite ſo deep.

Tulips are hardier than moſt other flowers; the offſets, and more ordinary ones may be planted in any part of the garden, from two to four inches deep, according to the ſize of the roots, in a good ſound ſoil, with a little rotten cow-dung, placed from ſeven to twelve inches below the ſurface.

Hail-ſtorms are very injurious to the foliage of Tulips, early in the ſpring: therefore although it is not neceſſary to cover the beds of inferior Tulips, during a common winter, yet it is highly proper to defend them againſt ſpring ſtorms, and to cover them when in bloom, in caſe of hot or windy weather[7].

[7] Maddock, Floriſt's Directory, 46, &c.

TULIPA JAVANA. See *Amaryllis zeylanica.*

[TULIPIFERA. See *Liriodendron.*

And TULIP TREE.

TUMBA. See *Plumbago.*

TUNA. See *Caſtus.*

TUNICA. See *Dianthus* and *Gypſophila.*

TUPA. See *Lobelia.*

TUPEICAVA. See *Scoparia.*

TUPELO. See *Nyſſa.*

TURBITH. See *Convolvulus* and *Seſeli.*

TURIA. See *Œſchynomene.*

TURKEY-BERRY TREE. See *Cordia.*]

TURKEY WHEAT. See *Zea.*

TURK'S CAP. See *Lilium.*

[TURMERIC. See *Curcuma.*]

TURNEP. See *Braſſica.*

TURNERA. (*So named by Plumier, in memory of William Turner, M. D. Prebendary of York, Canon of Windſor, and Dean of Wells. Student of Pembroke Hall in Cambridge*, 1538. *Died* 1568. *Author of* A New Herball, *Lond.* 1551. *fol.*—ſecond part, *Cologn*, 1562.—Second edition, *Collen*, 1566. *with the addition of a third part*, &c. &c.

Lin. gen. n. 376. *Reich. n.* 407. *Schreb. n.* 514. *Gartn. t.* 76. *Juſſ.* 313. Burcardia. *Schreb. gen. n.* 530. Piriqueta. *Aubl. t.* 117. *Juſſ.* 295.

Claſſ. 5. 3. Pentandria Trigynia.

Nat. order of *Columniferæ. Portulaceæ* Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* one-leafed, funnel-form, deciduous: *tube* oblong, erect, cylindric-angular: *border* erect, five-parted; *ſegments* lanceolate, length of the tube.

COR. *Petals* five, obcordate, acuminate, flat, from upright ſpreading; *claws* narrow, inſerted into the tube of the calyx.

STAM. *Filaments* five, awl-ſhaped, ſhorter than the corolla, inſerted into the tube of the calyx. *Anthers* acuminate, erect.

PIST. *Germ* conical. Styles three, filiform, length of the ſtamens. *Stigmas* capillaceous-multifid.

PER. *Capſule* ovate, one-celled, three-valved. *Receptacles* annexed to the valves longitudinally, linear.

SEEDS numerous, oblong, obtuſe.

ESSENTIAL CHARACTER.

Cal. five-cleft, funnel-form; exterior two-leaved. *Pet.* five, inſerted into the calyx. *Stigmas* multifid. *Caps.* one-celled, three-valved.

SPECIES.

1. Turnera ulmifolia. *Elm-leaved Turnera.*
Lin. ſpec. 387. *ſyſt.* 296. *Reich.* 1. 741. *Willd.* 1. 1503. *vir. cliff.* 20. *hort. cliff.* 122. *t.* 10. *Gærtn. fruct.* 1. 366. *Swartz obſ.* 116. *Mill. fig. t.* 268. *f.* 2. *Brown jam.* 189.
T. fruteſcens ulmifolia. *Plum. gen.* 15. *Mart. cent. t.* 49.

β. T. anguſtifolia. *Mill. dict. n.* 2. *fig. t.* 268. *f.* 1. *Curt. magaz. t.* 281.
T. fruteſcens folio longiore et mucronato. *Mart. cent. t.* 49. Ciſtus urticæ folio, &c. *Sloan jam.* 1. 202. *t.* 127. *f.* 4, 5.
Flowers ſeſſile petiolary, leaves biglandular at the baſe.

[2. Turnera Pumilea.
Lin. ſpec. 387. *ſyſt.* 297. *Reich.* 1. 742. *Willd.* 1. 1503. *amœn.* 5. 395. *Swartz. obſ.* 116.
Pumilea. *Brown. jam.* 188. *n.* 1.
Chamæ-Ciſtus luteus, foliis parvis ſerratis. *Pet. gaz.* 59. *t.* 38. *f.* 9.—urticæ folio, flore luteo. *Sloan. jam.* 1. 202. *t.* 127. *f.* 6.
Flowers ſeſſile petiolary, leaves u landular.

3. Turnera rupeſtris.
Lin. ſpec. ed. Willd. 1. 1504. *Aubl. guian.* 1. 289. *t.* 113. *f.* 1.
Peduncles axillary two-briſtled, leaves linear ſerrate.

4. Turnera ſidoides.
Lin. ſyſt. 297. *Reich.* 1. 742. *Willd.* 1. 1504. *mant.* 58.
Peduncles axillary two-briſtled, leaves obovate-wedge-ſhaped ſerrate.

5. Turnera fruteſcens.

Lin.

Lin. ſpec. ed. Willd. 1. 1504. *Aubl. guian.* 1. 290 *t.* 113. *f.* 2.

Peduncles axillary two-briſtled, leaves lanceolate acuminate equally ſerrate.

6. Turnera rugoſa.
Lin. ſpec. ed. Willd. 1. 1504.
Piriqueta villoſa. *Aubl. guian.* 1. 298. *t.* 117.
Burcardia. *Gen. plant. ed. Schreb. n.* 530.

Peduncles axillary leafleſs, flowers five-ſtyled, leaves oblong eroſe-toothed wrinkled.

7. Turnera ciſtoides. *Betony-leaved Turnera.*
Lin. ſpec. 387. *ſyſt.* 297. *Reich.* 1. 742. *Willd.* 1. 1505. *Swartz obſ.* 117.
Pumilea. *Brown. jam.* 189. *n.* 2.
Helianthemoides. *Boerh. lugdb.* 2. 269.
Helianthemum betonicæ folio, caule hirſuto. *Plum. ſpec.* 7. *ic.* 150. *f.* 1.
Chamæciſtus. *Sloan. jam.* 1. 202. *t.* 127. *f.* 7.

Peduncles axillary leafleſs, leaves ſerrate at the top.

8. Turnera racemoſa.
Lin. ſyſt. 297. *Willd.* 1. 1505. *Jacqu. hort. vind.* 3. *t.* 94.

Racemes terminating elongated, leaves ovate toothed.

9. Turnera guianenſis.
Lin. ſpec. ed. Willd. 1. 1505. *Aubl. guian.* 1. 291. *t.* 114.

Raceme terminating few-flowered naked, leaves linear ſerrate biglandular at the baſe.]

DESCRIPTIONS, *&c.*

1. Stem ſhrubby, eight or ten feet high, ſending out branches on every ſide the whole length. Leaves ovate-lanceolate, two inches and a half long, and an inch and half broad, rough on their upper ſide, and of a lucid green, their under ſide has many ſtrong veins, and is of a lighter green, the edges are ſerrate: the flowers ſit cloſe upon the footſtalks of the leaves, having two pretty large leafy appendages to the calyx. The corolla is large and of a bright yellow. [Capſule ſuperior, ovate, indiſtinctly three-cornered, pubeſcent, opening from the top to the middle in three parts. Receptacle, three raiſed lines, inſcribed longitudinally on the inner wall of the capſule, accompanied by very numerous ſhort umbilical chords. Seeds ſlightly curved inwards, attenuated towards the navel, ſcored with many minute excavations in rows, cheſtnut-brown: aril halved, tongue-ſhaped, membranaceous, thin, whitiſh, lying on the concave part of the ſeed, free on all ſides, inſerted into the navel[a].]

Found by Father Plumier in Martinico; it is native of other parts of the Weſt Indies. [Browne ſays, it grows in great abundance about the red hills in Jamaica, and ſeldom riſes above four or five feet from the root; that it has a ſhrubby but weakly ſtalk, with a few ſerrated ovate leaves, and large yellow flowers, having ſomewhat of the appearance of the malvaceous tribe at firſt ſight.

Cultivated in 1733, by Mr. Miller[b].

β. Narrow-leaved Turnera has a ſmaller corolla, with pointed petals; the bractes have no glands; the leaves are more obtuſe; the anthers orange not yellow[b].]

It riſes with a ſhrubby ſtalk to the height of eight or ten feet; with branches leſs ſlender and ſtiff than in broad-leaved Turnera. Leaves narrow-lanceolate, hairy, near three inches long, and about three quarters of an inch broad, terminating in acute points, obtuſely ſerrate on their edges, and ſtanding upon very ſhort foot-ſtalks: when rubbed they emit a diſagreeable odour. The flowers are of a pale yellow; the petals large and oval, with the tails or claws twiſted and joining. They are not ſo large or of ſo bright a yellow as in the true Elm-leaved Turnera. Sloane firſt diſcovered it in Jamaica, [where he ſays it grows between Guanaboa and the town on the Red Hills very plentifully, and in ſeveral other places of the iſland.]—This as well as the other was obſerved by Dr. William Houſtoun in ſeveral parts of America, and was cultivated in 1733, by Mr. Miller, who conſidered it as a diſtinct ſpecies, having found from an experience of thirty years, that plants raiſed from its ſeeds, conſtantly differed from thoſe of the ulmifolia. [Mr. Curtis alſo has given it as a ſpecies; and informs us, that the narrow-leaved Turnera is generally known to the nurſerymen about London as the ulmifolia, to which name the foliage by no means anſwers. The true Elm-leaved Turnera is figured in Martyn's Decades, and in Linneus's Hortus Cliffortianus. On the ſame plate in the former of theſe works, there is a very excellent figure of what he conſidered as another ſpecies, and which is this narrow-leaved variety. It flowers from june to auguſt: the flowers are ſhowy, but of ſhort duration. The circumſtance of their growing out of the footſtalk of the leaf is remarkable[c].

I am at a loſs to underſtand what Linneus means by the leaves of this variety being more obtuſe than the other, for they are rather acuminate. The petals are very obtuſe at the top, and crenated there, with ſometimes a ſhort point, ſtanding out in the middle. See Mr. Curtis's figure.

2. Root annual, branching, thready. Stem herbaceous, from three to ſix inches high, branched, nearly upright, but often decumbent, round, hirſute; branches ſimple, erect. Leaves alternate, diſtant, broad-lanceolate, ſhort, deeply ſerrate, nerved, hirſute, cluſtered towards the end of the branchlets, ſpreading. Petioles round, ſhort, hirſute, terminating, flower-bearing. Stipules two, linear, erect, at the baſe of the leaves, within which is a ſmall yellow flower, ſcarcely open. Flowers terminating, cluſtered, in the centre of the leaves. Calyx corolliferous, connate with the corolla; ſegments linear, acute, preſſed to the corolla, erect, hirſute. Corolla deciduous: claws linear, long, roundiſh at top, veined, orange; border convoluted ſo that the corolla is ſcarcely open. Filaments of the ſame length with the petals, erect. Anthers oblong, blue. Germ ovate. Valves of the capſule ovate, acute, revolute. Seeds roundiſh, compreſſed, wrinkled, brown. Native of Jamaica, in dry ſandy fields; flowering towards the end of the year[d].

Brown named this plant and the ſeventh ſpecies Pumilea, from their ſmallneſs. This, he ſays, grows about Old-harbour, and the foot of Liguanea mountains; is always ſimple and upright, and never riſes more than two or three inches; the flowers always ſolitary, from the axils of the upper leaves.

3. This is a ſhrub three feet high. Leaves alternate, ſeſſile, narrow, oblong, toothletted, acute. Flowers ſmall, yellow, axillary, ſolitary. Native of Guiana. Aublet found it in the moiſt cleſts of rocks, on the high banks of the river Sinemari; flowering and fruiting in november[e].

4. Stems palmary, ſimple, hairy. Leaves alternate, ſubſeſſile, deeply ſerrate except towards the baſe where they are quite entire, very evenly tomentoſe on both ſides, hairy beneath along the veins and edge. Flowers ſolitary in the axils, on very ſhort pedunceles. Bractes on the peduncle two oppoſite linear rough-haired length of the calyx. Calyx turbinate, five-cleft, hairy. Petals obovate, inſerted into the calyx. Filaments ſhorter by half than the petals. It agrees with T. ciſtoides in having a hairy ſtem; but that wants the bractes and the nap on the leaves. Native of Braſil. *Arduini*[f].

5. This is a ſhrub eight feet in height. Leaves alternate, ſubſeſſile, lanceolate, acute, toothletted, yellowiſh green. Flowers axillary, yellow, ſmall, ſolitary. Native of Guiana, in cleſts of rocks, on the banks of the Sinemari, flowering in december.

6. This is an annual plant, with a fibrous root. Stem branched, two feet high, hirſute with ruſeſcent hairs. Leaves alternate, ovate, oblong, toothed, villoſe, wrinkled, ſubſeſſile. Flowers at the ends of the branches and ſtem, ſolitary, axillary, on long pedunceles. The whole plant is covered with rigid ruſeſcent hairs. Native of Cayenne and Guiana on ſandy coaſts[g]. Not only Aublet gave it as a genus diſtinct from

[a] Gærtner. [b] Hort. kew. [c] Curt. magaz. [d] Swartz. [e] Aublet. [f] Linn. mant. [g] Aublet. [h] Linn. ſyſt.

Turnera under the name of Piriqueta; but Schreber alſo under that of Burcardia.

7. Root annual, undivided, long, erect, white, thready. Stem ſubdivided, erect, half a foot high, round, hirſute; with alternate, ſpreading branches. Leaves on ſhort petioles, linear-lanceolate, bluntiſh, ſpreading, toothed or ſerrate, nerved, ſomewhat hiſpid. Bractes none. Flowers ſolitary in the axils, peduncled and not ſeſſile on the petioles, yellow, ſmall. Peduncles ſhorter than the leaves, round, filiform, hirſute. Calyx corolliferous: ſegments lanceolate, acute. Petals contiguous, rounded, entire, ſlightly ſtriated. Filaments ſhorter by half than the petals, from the baſe of the corolla: anthers oblong, vertical, yellow. Germ oblong, ſubtrigonal: ſtyles diverging: ſtigmas pencilled. Capſule roundiſh: valves ovate, revolute. Seeds minute, roundiſh, ferruginous [b]. Browne ſays, it ſeldom riſes above four inches; that it is erect, and has very narrow leaves; and that the flowers grow ſingle at the axils of the upper leaves.

Native of Jamaica, Surinam, &c. in South America.—Introduced in 1774, by Monſ. Richard. It flowers from june to october [i].

8. This is an annual plant, with an upright rough-haired ſtem, ſuberous at the baſe. Peduncles very long one-flowered [k]. Flowers yellow [l].

9. This plant puts forth from the root a ſomewhat woody ſtem, two feet high. Leaves alternate, linear, ſerrulate, ſeſſile, biglandular towards the baſe. Flowers in terminating ſpikes, on ſhort peduncles, each biglandular at its riſe. Corolla yellow. Capſule ſubtrigonal, three-valved. Seeds three, wrinkled. Native of Guiana in marſhy meadows; flowering in april [m]. Annual [n].]

PROPAGATION AND CULTURE.

Theſe plants are eaſily propagated by ſowing their ſeeds on a hot-bed early in the ſpring, and when the plants are come up two inches high, they ſhould be tranſplanted into ſmall pots, and plunged into a hot-bed of tanners bark, obſerving to water and ſhade them until they have taken root; after which they muſt be treated as hath been directed for the Guavas, and other tender plants from the ſame countries. The ſeeds of theſe plants will often fall into the pots which are placed near them in the ſtove, which will grow, and ſoon furniſh plants enough, after a perſon is once poſſeſſed of them. As they are too tender to live in the open air in England, they muſt be placed in the bark-bed in the ſtove, where, during the winter ſeaſon, they muſt be kept warm and frequently watered; but in the ſummer ſeaſon they muſt have a great ſhare of air, otherwiſe they will draw up tender, and not produce many flowers.

When the plants are grown pretty large, they may be treated more hardily, by placing them in the dry ſtove; where, if they are kept in a moderate degree of heat, they will thrive and flower very well. Thoſe who would ſave the ſeeds of theſe plants, muſt watch them carefully, becauſe, when they are ripe, they ſoon ſcatter if they are not gathered.

Theſe plants produce their flowers great part of the year, if they are kept in a proper degree of warmth, ſo that there are ſome of the flowers in beauty for at leaſt nine or ten months, which renders the plants more valuable.

They ſeldom continue more than two or three years.

TURNSOLE. See *Croton* and *Heliotropium*.

[TURPENTINE TREE. See *Piſtacia Terebinthus*.

TURPETHUM. See *Convolvulus*.

TURRÆA. (*So named by Linnæus, in memory of* Giorgio à Turre, *author of a* Hiſtory of Plants, *printed at Padua*, 1685. *We may add*, Antonio Turræ *of Vicenza, author of a diſſertation* de Farſetia, &c.

Lin. gen. Reich. n. 574. *Schreb. n.* 722. *Cavan. diſſ.* 7. *Smith. ic. ined.* 1. *t.* 10—12. *Juſſ.* 264.

Claſſ. 10. 1. Decandria Monogynia.

Nat. order of *Tribilatæ*. *Meliæ* Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* one-leafed, bell-ſhaped, five-toothed, very ſmall, permanent.

COR. *Petals* five, linear, ſpreading, long.

Nectary: tube cylindrical, length of the petals, with a ten-cleft mouth.

STAM. *Filaments* ten, within the mouth of the nectary, very ſhort. *Anthers* ſubovate.

PIST. *Germ* roundiſh. *Style* filiform, length of the nectary. *Stigma* thickiſh, wrinkled.

PER. *Capſule* roundiſh, pentacoccous: with the valves opening longitudinally.

SEEDS two, kidney-ſhaped.

OBS. *Corollas of Melia, Swietenia and Trichilia are very like them.*

ESSENTIAL CHARACTER.

Cal. five-toothed. *Pet.* five. *Nect.* toothed, cylindrical, bearing the anthers at the mouth between the teeth. *Capſule* pentacoccous. *Seeds* two.

SPECIES.

1. Turræa virens.
Lin. ſyſt. 399. *Reich.* 2. 271. *Willd.* 2. 555. *mant.* 237. *Smith ic. ined.* 1. *t.* 10.
Leaves elliptic-lanceolate emarginate very ſmooth, calyxes and fruits ſilky-villoſe.

2. Turræa pubeſcens.
Lin. ſpec. ed. Willd. 2. 555. *Hellen. act. holm.* 1788. *p.* 296. *t.* 10. *f.* 3.
Leaves ovate emarginate pubeſcent beneath, calyxes villoſe.

3. Turræa maculata.
Lin. ſpec. ed. Willd. 2. 555. *Smith ic. ined.* 1. *t.* 11.
T. glabra. *Cavan. diſſ.* 7. 360. *t.* 204.
Leaves ovate acute ſmooth, calyxes ciliate.

4. Turræa ſericea.
Lin. ſpec. ed. Willd. 2. 555. *Smith ic. ined.* 1. *t.* 12.
T. tomentoſa. *Cavan. diſſ.* 7. 361. *t.* 205.
Leaves ovate bluntiſh tomentoſe on both ſides, calyxes peduncles and petals villoſe.

5. Turræa lanceolata.
Lin. ſpec. ed. Willd. 2. 556. *Cavan. diſſ.* 7. 361. *t.* 205. *f.* 1.
Leaves lanceolate rounded on both ſides ſmooth, ſegments of the calyx very long lanceolate.

DESCRIPTIONS, &c.

1. This is an evergreen tree or ſhrub, with ſcattered divaricating leafy branches, and a ſmooth cloven bark, ſilky-villoſe on the twigs. Leaves alternate, ſubacuminate, quite entire, a little rolled back at the edge, naked ſhining and veined on both ſides, paler beneath. Petioles very ſhort, ſilky, curved inwards. Stipules none. Flowers lateral ſhaped into a very ſmall axillary ſpike, with a few ſmall leaves interpoſed. Bractes ſmall linear villoſe. Peduncles angular one-flowered ſomewhat ſilky. Calyx ſmall pentangular. Petals linear-lanceolate tender naked yellow. Nectary tubular oblique, widening a little towards the top, ſtriated, ſegments linear acute bent down ſpreading. Stamens placed alternately between the ſegments of the nectary. Anthers ſubovate, margined, in the throat of the nectary. Style declined, deciduous. Capſule depreſſed, ten-valved, five-celled. Allied to Melia, Swietenia and Trichilia in the nectary, but very diſtinct from them all in the fruit. Found by Koenig among heaps of ſcoriæ on worn-out volcanos in the Eaſt Indies.

Hellenius, in the Stockholm acts for 1788, has deſcribed a ſpecies very different from this under the name of Turræa virens. Dr. Smith thinks this and another, which he names T. pubeſcens (*n.* 2.) are doubtful ſpecies; the anthers being on the tips of the nectary, not between the ſegments, and the fruit being unknown [o].

2. Leaves entire or emarginate membranaceous; flowers umbelled. Fruit as yet unknown. Native of the iſle of Hainam.

3. This is a tree with deciduous leaves, alternate branches, and a cloven but very ſmooth bark. Leaves alternate elliptic quite entire, ſmooth on both ſides, with pale ſpots beneath eſpecially near the nerves. Petioles ſtraight channelled ſmooth. Stipules none.

[a] Swartz. [i] Hort. kew. [o] Willdenow.
[k] Jacquin. [l] Aublet. [n] Willdenow.

[o] Smith ic. ined.

Flowers in lateral bundles, with ſmall acute ciliate bractes interpoſed. Peduncles ſmooth, thicker towards the top, one-flowered, erect. Calyx ſmall, hemiſpherical, ſmooth, ciliate at the edge. Petals very long, linear, yellow, a little wider at the end, pubeſcent on the outſide. Nectary of the ſame length and colour with the petals, exactly cylindrical, very ſlender, ſmooth, ten-ſtreaked, margin ten-cleft, the clefts linear-lanceolate acute ſpreading. Stamens in the throat of the nectary. Style of the ſame length with the nectary. Native of Madagaſcar, where it was found by Commerſon. Communicated by Thouin.

4. This alſo is a tree with deciduous leaves. Branches alternate, with a duſky bark ſlightly pubeſcent. Leaves alternate elliptic quite entire, on both ſides, the younger ones at leaſt, very ſoftly villoſe, nerved; the nerves ſtraight. Petioles ſtraight, villoſe. Stipules none. Flowers from the lateral buds, moſtly ſolitary, very large red drooping, burſting forth whilſt the leaves are yet tender. Bractes numerous acute villoſe. Peduncles ſhort thick angular tomentoſe-hoary. Calyx bell-ſhaped angular, the whole tomentoſe-hoary not ciliate. Petals four inches in length linear recurved, ovate and obtuſe at the end, hoary on the outſide. Nectary the length of the petals, curved in, hairy, ſcarcely widening at the top, border ten-cleft; clefts bifid linear acute ſpreading. Stamens in the throat of the nectary, with the anthers ſtanding out between the clefts. Anthers two-horned. Style a little longer than the nectary. Stigma club-ſhaped. Found in Madagaſcar by Commerſon, and communicated by Thouin[r].

5. Stem fruteſcent, covered with a gray bark; branches wand-like. Leaves alternate, ſubcoriaceous, ſhining, quite entire, one-nerved, pale beneath, ſupported on ſhort petioles. Stipules none. Peduncles axillary, one or two-flowered. Petals yellow with a ſcarlet baſe. Fruit covered with a rufous nap. Found by Commerſon in Madagaſcar[s].

TURRÆA. See *Trichilia*.

TERRITA. See *Arabis*.]

TURRITIS. (*From* turris, *a tower. Linnæus ſays, becauſe it is tall and narrow.*—Ray, *that it had the name*—ab extremorum caulium forma, qui in metæ aut pyramidis effigiem deſinit.)

Lin. gen. n. 819. *Reich. n.* 883. *Schreb. n.* 1095. *Tournef. Inſt.* 238. *Gærtn. t.* 143.

Claſs. 15. 2. Tetradynamia Siliquoſa.

Nat. order of *Siliquoſæ*, *Cruciformes* or *Cruciferæ*.

GENERIC CHARACTER.

CAL. *Perianth* four-leaved: *leaflets* ovate-oblong, from parallel-converging, deciduous.

COR. four-petalled, cruciform. *Petals* ovate-oblong, obtuſe, erect, entire: *claws* erect.

STAM. *Filaments* ſix, awl-ſhaped, erect, length of the tube: two of them ſhorter. *Anthers* ſimple.

PIST. *Germ* length of the flower, round, ſomewhat compreſſed. *Style* none. *Stigma* obtuſe.

PER. *Silique* longeſt of all, ſtiff, four-cornered; angles oppoſite alternate obſolete and ſomewhat compreſſed, two-celled, two-valved: *valves* ſcarcely equal to the partition.

SEEDS very numerous, roundiſh, emarginate.

ESSENTIAL CHARACTER.

Silique very long, angular. *Cal.* converging, erect. *Cor.* erect.

SPECIES.

1. Turritis glabra. *Smooth Tower-Muſtard.*

Lin. ſpec. 930. *Syſt.* 600. *Reich.* 3. 274. *Willd.* 3. 542. *herb. cliff.* 339. *fl. ſuec. n.* 606. *Gærtn. fruct.* 2. 297. *Hudſ. angl.* 291. *Wither. arr. ed.* 3. 588. *Smith. brit.* 715. *engl. bot. t.* 777. *Curt. lond.* 4. *t.* 47. 253. *Sibth. oxon. n.* 577. *Fl. dan. t.* 809. *Hall. helv. n.* 455. *Hoffm. germ.* 240. *Retz. germ.* 1. 286. 2. 114. *Pollich pal. n.* 637. *Krock. ſiles. n.* 1091. *Crantz auſtr.* 36. *Scop. carn. n.* 839. *Villars dauph.* 3. 322. *Allion. pedem. n.* 977.

T. perfoliata. *Neck. gallob.* 283.

T. fol. inferioribus cichoraceis, cæteris Perfoliatæ. *Tourn. inſt.* 224.

Turritis. *Ger.* 212. *emac.* 272. *Raii hiſt.* 799. *Jon.* 293. *Petiv. brit. t.* 47. *f.* 10.

T. vulgatior. *Park. theat.* 852. 1. *Bauh. hiſt.* 2. 836.

Turrita vulgatior. *Cluſ. hiſt.* 2. 126. 1.

Braſſica ſylveſtris, foliis circa radicem cichoraceis. *Bauh. pin. Mor. hiſt.* 2. *ſ.* 3. *t.* 2. *f.* 22.

Root-leaves toothed hiſpid, ſtem-leaves quite entire embracing.

[2. Turritis lævigata.

Lin. ſpec. ed. Willd. 3. 543.

Leaves ſmooth, root-leaves obovate ſerrate, ſtem-leaves lanceolate linear quite entire embracing.

3. Turritis ſtricta.

Lin. ſpec. ed. Willd. 3. 543. *Allion. auct. pedem.* 18. *n.* 978.

Leaves ſmooth ſhining radicate ovate ſomewhat toothed, ſtem leaves lanceolate ſharply toothed ſeſſile.]

4. Turritis hirſuta. *Hairy Tower-Muſtard.*

Lin. ſpec. 930. *Reich.* 3. 275. *Willd.* 3. 543. *hort. cliff.* 339. *fl. ſuec. n.* 607. *Hudſ. angl.* 291. *Wither. arr. ed.* 3. 589. *Smith brit.* 716. *engl. bot. t.* 589. *Lightf. ſcot.* 358. *Relh. cant. ed.* 2. *n.* 555. *Sibth. oxon. n.* 576. *Fl. dan. t.* 1040. *Hall. helv. n.* 456. *Hoffm. germ.* 240. *Pollich. pal. n.* 638. *Crantz. auſtr.* 35. *Jacqu. collect.* 1. 70. *ic. rar.* 1. 126. *Neck. gallob.* 283. *Villars dauph.* 3. 323. *Allion. pedem. n.* 978. *Gmel. ſib.* 3. 263. *Tunub. jap.* 260.

T. hirta. *Krock. ſiles. n.* 1092.

T. muralis minor. *Raii ſyn.* 294. *Petiv. brit. t.* 47. *f.* 12.

Arabis hirſuta. *Scop. carn. n.* 835. *Roth. germ.* 1. 285. 2. 112.

Eryſimo ſimilis hirſuta alba. *Bauh. pin.* 101. *prodr.* 42. *ic. Park. theat.* 834. 6. *Mor. hiſt. ſ.* 3. *t.* 3. *f.* 5.

Barbarea muralis. *Bauh. hiſt.* 2. 269. *Raii hiſt.* 799. *non deſcr.*

All the leaves hiſpid, ſtem rough-haired, hairs ſimple ſpreading; ſilique quadrangular.

[5. Turritis patula.

Lin. ſpec. ed. Willd. 3. 544. *Ehrh. beitr.* 7. 259.

All the leaves hiſpid, ſtem-leaves embracing toothed at the end, branches ſpreading.

6. Turritis pubeſcens.

Lin. ſpec. ed. Willd. 3. 544. *Deſfont. atlant.* 2. 92. *t.* 163.

All the leaves hiſpid, ſtem leaves ſeſſile bluntly toothed at the end, branches ſpreading.

7. Turritis ciliata.

Lin. ſpec. ed. Willd. 3. 544. *Schleicher cat.* 59.

Leaves ſmooth, ſtem-leaves ſeſſile toothed at the baſe, with forked ciliate hairs at the baſe and tip.

8. Turritis alpina.

Lin. ſyſt. 600. *Reich.* 3. 275. *Willd.* 3. 545. *Hoffm. germ.* 240. *Krock. ſiles. n.* 1093.

Root-leaves toothed hiſpid, ſtem-leaves half embracing.

DESCRIPTIONS, &c.

1. Root annual, (biennial, *Lin. and Curt.*) fuſiform. The ſtraight upright wand-like ſtem is two feet or more in height (one to three *Curt.* two to three *Woodv.* a foot and half *Miller.*) round, leafy, at firſt ſimple, but producing a few lateral upright flowering-branches after the main ſpike of pods is full grown; (near the ground hairy, but ſmooth above, *Curtis*) Root-leaves lanceolate, broadly toothed and almoſt ſinuate, rough on both ſides with rigid forked or ſimple hairs: ſtem-leaves numerous, alternate, ſeſſile, upright, ſagittate, entire, ſmooth, glaucous, embracing. Flowers numerous, ſmall, in a corymb which ſoon becomes a ſpike: petals pale ſulphur-coloured (or greeniſh white, *With.*) entire. Pods long, linear, flat, burſting at their baſe, and containing a great number of ſeeds[t].—Pods upright, approximating to the ſtem ſo as almoſt

[r] Idem. [s] Cavanilles. [t] Fugl. bot.

to conceal it; roundiſh ſomewhat flattened, faintly quadrangular, *Curt.* When fully grown cylindrical compreſſed, *With.* According to Gærtner, three inches and more in length, linear, rhomb-compreſſed, ſmooth: partition membranaceous, parallel to the valves, or equal to the greateſt breadth of the pod, terminated by the ſtigma which is ſeſſile and ſhortly two-necked: valves in the middle very obtuſely angular. Seeds about ſixty in each cell, ovate compreſſed a little, terminated by a very narrow almoſt obſolete membranaceous margin, fulvous, (reddiſh brown, *Curt.*)

Scarcely to be diſtinguiſhed from Arabis either by its natural habit or technical characters[1]. Pollich remarks that he could not diſcover any nectareous glands; Scopoli however mentions them. Gærtner ſays, that the great length of the pod is the beſt mark of the genus.

Native of moſt parts of Europe in paſtures, pits and other waſte places, and on banks near hedges, on a dry gravelly ſoil; flowering from may to july. Near London not common; Mr. Curtis noticed it only near Charlton, but ſays that farther on in Kent it is more common, as well as in many other parts of England. It has been found near Lewiſham. A. B. Lambert, Eſq. and Mr. Groult gathered it near Richmond. It occurs in ſeveral parts of Norfolk, as between Norwich and Yarmouth in many places, at Spixwort, and in the road to Coltiſhall. The Rev. H. J. Wollaſton found it in Thurſton churchyard, Suffolk, and in the field adjoining. Near Colcheſter in Eſſex, by Hudſon. Stow wood in Oxfordſhire, by Sibthorp. Near Lichfield, by Mr. Whateley. Near Caſtle Bromwich, by Mr. Jones. Between Aſhbourne and Okeover in Derbyſhire, by Dr. Stokes. In the quarries above Bath, by Mr. Swaine. On St. Vincent's rocks near Briſtol, by Dr. Withering. About Darfield near Barneſley in Yorkſhire, by Mr. Salt[2].

Mr. Curtis remarks, that it varies ſo much in ſize, that the old botaniſts make two ſpecies of it. Dr. Withering would have it named Towerwort in Engliſh.

2. Root biennial. Stem quite ſimple, a foot high. Root-leaves ſmooth, obtuſe, very ſlightly ſerrate, petioled: ſtem-leaves ſmooth, ſagittate; the lower ones an inch long, lanceolate, obtuſe, ſerrate at the top; the reſt an inch and half long, narrow, lanceolate-linear, quite entire. Flowers like thoſe of the preceding, but a little ſmaller. Pods erect. It is clearly diſtinct from the preceding, which it otherwiſe reſembles, by its ſmooth obovate ſerrate root-leaves, and its narrower lanceolate-linear ſtem leaves. Native of Penſylvania.

3. Stem quite ſimple, two feet high, erect. Root-leaves ſcarcely toothed: ſtem-leaves ſhining, narrowed at the baſe, remotely and ſharply toothed. It is allied to the next ſucceeding ſpecies, from which it differs chiefly in its ſmoothneſs. Native of Piedmont, in moiſt meadows[3].

4. Root ſtrong, woody, perennial. Stems generally ſeveral, one of which is much ſtronger than the reſt, erect, a foot high, leafy, branched round, clothed with thickſet, ſimple, white, prominent hairs; the upper part and flowering branches ſmooth. Leaves toothed, all more or leſs hairy with ſimple or forked hairs: root-leaves ſlender at the baſe: thoſe on the ſtem ſeſſile or partly embracing. Flowers ſmall, white. Pods numerous, forming a very long ſpike, erect, but finally nodding, narrow-linear, compreſſed, but with four angles, ſmooth and ſomewhat ſhining, beaded as it were by the projecting ſeeds, rather blunt at the top, and crowned with the almoſt ſeſſile ſtigma[4].

Mr. Woodward remarks, that the plant does not grow ſo tall, and that the pods are not nearly ſo numerous as in the ſmooth Towerwort. The corolla alſo is white; and Mr. Miller obſerves that it flowers earlier. Scopoli has ranged it in the genus Arabis on account of its glands.

Native of many parts of Europe, on rocks, in ſtony places, on old walls and caſtles, and in dry mountainous paſtures; flowering in may. In the weſtern and northern counties, by Ray. Near Midhurſt in Suſſex, by Doody. In Swithan bottom near Croydon in Surry, by Hudſon. On Lakenham church near Norwich, by Mr. Crowe. Near Bury in Sufforlk, by W. Matthew, Eſq. In ſeveral places in Cambridgeſhire. Rewley Abbey, Oxfordſhire, by Dr. Sibthorp. Ruins of Old Sarum. St. Vincent's rocks. Wick Cliffs. Baydales, Darlington. About Settle. King's park, Edinburgh, &c.

Linneus originally confounded with this, not only T. alpina, which has all the leaves ſmooth; but alſo T. hirſuta of Gerard's Flora Galloprovincialis, which has perfectly flat pods without any lateral angles, and the hairs on its ſtem depreſſed and forked, as are all thoſe on its leaves; which in the proper T. hirſuta are for the moſt part ſimple[1].

5. Root annual. It is different from the hirſuta in this circumſtance, in being of a ſmaller ſtature, in having a more flexuoſe ſtem, with ſpreading inſtead of upright ſtiff branches; the leaves toothed towards the tip, not as in the hirſuta in the middle and towards the baſe. It agrees with that ſpecies, which it reſembles very much, in its hairineſs, forked hairs, leaves cordate at the baſe, and ſmooth calyx. Native of Hungary, on open hills.

6. This alſo reſembles T. hirſuta, but the branches are ſpreading, the leaves obtuſely toothed towards the tip, the ſtem-leaves ſeſſile attenuated at the baſe not cordate[2]. Desfontaines ſays that it is leſs villoſe, that the ſtem-leaves are more deeply toothed; and the pods fewer and pubeſcent. Native of Algiers on the mountains.

7. The whole of this is ſmooth, the ſtem quite ſimple and erect, the root-leaves oblong, attenuated at the baſe into the petiole, ciliate along the margin and at the baſe and tip with forked hairs, ſtem-leaves attenuated at the baſe and toothed, ciliate at both ends with long forked hairs. Native of Switzerland[3].

8. Stature the ſame as that of T. hirſuta, but the ſtem even, and the ſtem leaves altogether ſmooth, quite entire, ſeſſile or little cordate at the baſe and blunt, ſcarcely half embracing. The flowers are larger: the petals white, very blunt, obovate-oblong, twice as long as the calyx; which is compreſſed a little and erect. The flowers indicate that this is different from the hirſuta[4]. Native of Germany, Sileſia, Auſtria.]

PROPAGATION AND CULTURE.

If the ſeeds be permitted to ſcatter, or if they be ſown on a wall, among rock-work, or in a dry border, there is no hazard of theſe plants maintaining their ſituation.

TURRITIS. See *Arabis*, *Braſſica*, *Cardamine*, *Dentaria*, *Eryſimum*, *Heſperis*, *Siſymbrium*.

TUSSI. See *Fritillaria imperialis*.

TUSSILAGO. (*From tuſſis, on account of its uſe in curing coughs.*)

Lin. gen. n. 952. *Reich. n.* 1032. *Schreb. n.* 1289. *Tournef. t.* 279. *Vaill. act. gall.* 1720. *f.* 46. *Juſſ.* 181. *Gærtn. t.* 170. Petaſites. *Tournef. t.* 258. *Vaill. act. gall.* 1719. *Gærtn. t.* 166.

Claſſ. 19. 2. Syngeneſia Polygamia Superflua.

Nat. order of *Compoſitæ Diſcoideæ*. *Corymbiferæ* Juſſ.

GENERIC CHARACTER.

CAL. *Common* cylindrical: *ſcales* lanceolate-linear, (15 or 20,) equal, as long as the diſk, ſubmembranaceous.

COR. *Compound*, various.

Corollets in ſome all hermaphrodite and tubular, or only in the diſk.

Females in ſome none, in others ligulate.

Proper of the Hermaphrodite funnel-form: *border* five-cleft (or four-cleft,) acute, reflexed, longer than the calyx.

Females none, or ligulate, very narrow, longer than the calyx, entire.

STAM. in the Hermaphrodites; *Filaments* five, capillary, very ſhort. *Anther* cylindric, tubular.

PIST. in the Hermaphrodites. *Germ.* ſhort. *Style* filiform, longer than the ſtamen. *Stigma* thickiſh.

[1] Idem. [2] Smith brit. With. &c. [3] Willdenow. [4] Smith brit. and engl. bot.

[1] Idem. [2] Willdenow. [3] Idem. [4] Linn. ſyſt.

PER.

In the Females *Germ* ſhort. *Style* filiform, length of the hermaphrodite. *Stigma* bifid, thickiſh.

PER. none. *Calyx* ſcarcely changed.

SEEDS in the Hermaphrodites ſolitary, oblong, compreſſed. *Down* capillary, ſtipulate.
In the *Females*, if any, like the others.

REC. naked.

OBS. Petaſites Tourn. *has no ligulate florets in the ray, though in ſome there are naked female florets.*
Tuſſilago Tourn. *has always female florets in the ray, with a ligulate corolla.*
Anandria *has a ſeſſile down.*
T. frigida *varies with floſcular and radiate flowers.*

ESSENTIAL CHARACTER.

Cal. ſcales equal, as long as the diſk, ſomewhat membranaceous. *Down* ſimple. *Recept.* naked.

SPECIES.

1. Tuſſilago Anandria.
Lin. ſpec. 1213. *ſyſt.* 755. *Reich.* 3. 784. *hort. upſ.* 259. *t.* 3. *f.* 1. *Gmel. ſib.* 2. 141. *t.* 68. *f.* 1. *Laur. cochinch.* 503. *ed. Willd.* 614.
Anandria. *Lin. amoen.* 1. 120. *t.* 11.
β. T. ſcapo uniflоro, calyce ſubaperto. *Gmel. ſib.* 1. 143. *t.* 67. *f.* 2.
Scape one-flowered ſcaly erect, leaves lyrate-ovate.
[2. Tuſſilago dentata.
Lin. ſpec. 1213. *Reich.* 3. 785. *Burm. plum.* 28. *Plum. ſpec.* 10. *ic.* 40. *f.* 2. (After.)
Scape one-flowered without any bractæ, leaves lanceolate toothed villoſe.
3. Tuſſilago albicans.
Swartz prodr. 113.
Leontodon tomentoſum. *Lin. ſuppl.* 347.
Scape one-flowered without any bractæ, flower nearly erect, leaves lanceolate-ovate tomentoſe beneath indiſtinctly ſerrate backwards.
4. Tuſſilago pumila.
Swartz prodr. 113.
Scape one-flowered without any bractæ erect, leaves lyrate gaſhed toothletted tomentoſe.
5. Tuſſilago nutans.
Lin. ſpec. 1213. *Reich.* 3. 785. *amoen.* 5. 406. *Swartz obſ.* 305. *Brown. jam.* 310. (Leontodon.) *Sloan. jam.* 1. 255. *t.* 150. *f.* 2. (Dens Leonis.) *Plum. ſpec.* 14. *ic.* 41. *f.* 1. (After.)
Scape one-flowered without any bractæ, flower nodding, leaves lyrate obtuſe.]
6. Tuſſilago alpina. *Alpine Colt's-foot.*
Lin. ſpec. 1213. *ſyſt.* 755. *Reich.* 3. 785. *hort. cliff.* 411. *Gouan monſp.* 438. *Jacqu. auſtr.* 3. 26. *t.* 246. *Krock. ſiles. n.* 1384. *Villars dauph.* 3. 174. *Allion. pedem. n.* 639. *Curt. magaz. t.* 84.
T. ſylveſtris. *Scop. carn. n.* 1057. *Jacqu. auſtr.* 5. *app. t.* 12.
T. alpina rotundifolia glabra. *Baub. pin.* 197.
T. alpina 2. *Cluſ. hiſt.* 2. 113.—flore aperto, *Ger. emac.* 812.
T. alp. folio glabro. *Park. theat.* 1373. 1. *Raii hiſt.* 260. 3.
Petaſites. *Hall. helv. n.* 142. *Planta adulta.*
β. T. alp. rotundifolia canеſcens. *Baub. pin.* 197.
T. alp. folio canеſcente. *Park. theat.* 1373. 2.
T. alpina. *Scop. carn. n.* 1056. *Raii hiſt.* 260. 2.—flore evanido. *Ger. emac.* 812. *Cluſ. hiſt.* 2. 113.
T. diſcolor. *Jacqu. auſtr. t.* 247.
Petaſites. *Hall. helv. n.* 142. *Planta junior.*
Scape clothed naked one-flowered, leaves cordate-orbicular crenate.
7. Tuſſilago Farfara. *Common Colt's-foot.*
Lin. ſpec. 1214. *ſyſt.* 755. *hort. cliff.* 411. *fl. ſuec. n.* 743. *mat. med.* 185. *Woodv. med. bot.* 37. *t.* 13. *Gærtn. fruct.* 2. 447. *Hudſ. angl.* 364. *Wither. arr. ed.* 3. 719. *Smith. brit.* 878. *engl. bot. t.* 429. *Hull.* 187. *Curt. lond.* 2. *t.* 60. *Lightf. ſcot.* 475. *Relh. cant. ed.* 2. *n.* 683. *Sibth. oxon. n.* 726. *Abbot. eadf. n.* 594. *Fl. dan. t.* 595. *Pollich pal. n.* 791. *Leers herborn. n.* 663. *Krock. ſiles. n.* 1385. *Scop. carn. n.* 1059. *Villars dauph.* 3. 175. *Allion. pedem. n.* 640. *Gmel. ſib.* 2. 140. *Nock. galloh.* 351. *Lour. cochinch.* 502. *ed. Willd.* 614. *Blackw. t.* 204. *Kniph. cent.* 6. *n.* 96. *Knorr del. t.* 1. H. 10. *Ludw. ect. t.* 50. *Regnault bot.*
Tuſſilago. *Fuchſ. hiſt.* 140. *Camer. epit.* 590, 591. *Matth.* 844. *valgr. v.* 2. 198. *Lob. obſ.* 320. 1. 2. *ic.* 1. 589. 1, 2. *Ger.* 666. *emac.* 811. *Park. theat.* 1220. *Baub. hiſt.* 563. 3. *Raii hiſt.* 259. *ſyn.* 173. *Petiv. brit. t.* 17. *f.* 8. & 7.
T. vulgaris. *Baub. pin.* 197. *Mor. hiſt. ſ.* 7. *t.* 12. *f.* 1.
Petaſites. *Hall. helv. n.* 143.
Ungula caballina. *Trag. hiſt.* 418.
Bechium ſ. Farfara. *Dod. pempt.* 596.
Scape one-flowered ſcaly, leaves cordate angular toothletted.
[8. Tuſſilago japonica.
Lin. ſyſt. 755. *Reich.* 3. 786. *mant.* 113. *Thunb. jap.* 313.
Arnica tuſſilaginea. *Burm. ind.* 182.
Doronicum tuſſilaginis folio. *Pluk. amalth.* 71. *t.* 390. *f.* 6. *Burm.*
Flowers alternate radiate.
9. Tuſſilago frigida.
Lin. ſpec. 1214. *ſyſt.* 755. *Reich.* 3. 786. *fl. lapp. n.* 303. *ſuec. n.* 744. *mant.* 469. *Fl. dan. t.* 61. *Hall. helv. n.* 141. *Krock. ſiles. n.* 1387. *Villars dauph.* 3. 175. *Gmel. ſib.* 2. 150. *t.* 70?
Petaſites minor tuſſilaginis folio. *Mor. hiſt.* 3. 95. *ſ.* 7. *t.* 10. *f.* 4.
Cacalia tomentoſa. *Baub. pin.* 198. *prodr.* 102. *Schench. alp.* 130. *t.* 18. *f.* 1.
Thyrſe faſtigiate, flowers radiate.
10. Tuſſilago palmata. *Palmate-leaved Colt's-foot. Ait. kew.* 3. 188. *t.* 11.
Thyrſe faſtigiate, leaves palmate toothed.
11. Tuſſilago alba. *White Colt's-foot* or *Butter-bur.*
Lin. ſpec. 1214. *ſyſt.* 755. *Reich.* 3. 787. *hort. cliff.* 411. *fl. ſuec. n.* 745. *Fl. dan. t.* 524. *Krock. ſiles. n.* 1386. *Villars dauph.* 3. 178. *Allion. pedem. n.* 641. *Pallas it.* 1. 36.
Petaſites. *Hall. helv. n.* 139.
P. *n.* 2. *Mill. dict. ed.* 7.
P. minor. *Baub. pin.* 197. *Mor. hiſt. ſ.* 7. *t.* 12. *f.* 3.
P. albus. *Gærtn. fruct.* 2. 406.
P. flore albo. *Camer. epit.* 593.
P. albus angulоſo folio. *Baub. hiſt. Raii hiſt.* 261.
Thyrſe faſtigiate, female florets naked ſeed.
12. Tuſſilago hybrida. *Long-ſtalked Colt's-foot,* or *Butter-bur.*
Lin. ſpec. 1214. *Reich.* 3. 787. *hort. cliff.* 411. *Hudſ. angl.* 364. *Wither. arr. ed.* 3. 721. *Smith brit.* 879. *engl. bot. t.* 430. *Hull.* 188. *Lightf. ſcot.* 476. *Leers herborn. n.* 664. *Krock. ſiles. n.* 1388. *Villars dauph.* 3. 181. *Allion. pedem. n.* 642. *Pallas it.* 1. 36.
Petaſites. *Hall. helv. n.* 140. *Buxb. hal.* 258.
P. *n.* 4. *Mill. dict. ed.* 7.
P. major & vulgaris prima. *Rupp. jen. ed.* 1. 180. *ed. Hall.* 190.
P. major, floribus pediculis longis inſidentibus. *Dill. elth.* 309. *t.* 230. *f.* 297. *Raii ſyn.* 179.
Thyrſe oblong, female florets numerous, hermaphrodite florets very few, anthers ſeparate.
13. Tuſſilago paradoxa. *Downy-leaved Colt's foot* or *Butter-bur.*
Retz. obſ. 2. 24. *n.* 81. *t.* 3. *Ait. kew.* 3. 188.
Petaſites. *Hall. helv. n.* 141.
P. *n.* 3. *Mill. dict. ed.* 7. *n.* 3.
Thyrſe ſubovate, female florets naked many, hermaphrodites in threes, anthers free, leaves triangular-cordate toothletted.
14. Tuſſilago Petaſites. *Common Butter-bur.*
Lin. ſpec. 1215. *ſyſt.* 756. *Reich.* 3. 787. *hort. cliff.* 411. *fl. ſuec. n.* 746. *mat. med.* 186. *Hudſ. angl.* 364. *Wither. arr. ed.* 3. 720. *Smith brit.* 880. *engl. bot. t.* 431. *Hull* 187. *Curt. lond.* 2. *t.* 59. 134. *Lightf. ſcot.* 477. *Relh. cant. ed.* 2. *n.* 684. *Sibth. oxon. n.* 727. *Abbot. eadf. n.* 595. *Fl. dan. t.* 842. *Pollich pal. n.* 792.
Leers

Lees herborn. n. 675. *Neck. gallob.* 350. *Krock. ſiles. n.* 1389. *Villars dauph.* 3. 180. *Alſton. pedem. n.* 643. *Thumb. jap.* 314. *Knorr. del.* 2. *t.* T. *Reynault. bot.*

T. major. *Matth.* 845. *valgr.* 2. 199. *Camer. epit.* 592.

Petaſites. *Hall. helv. n.* 138. *Fuchſ. hiſt.* 644. *Dod. pempt.* 597. *Cluſ. hiſt.* 2. 116. 1, 2. *Ger.* 668. *emac.* 814. *Raii hiſt.* 260. *ſyn.* 179. *Petiv. brit. t.* 15. *f.* 11, 12. *Blackw. t.* 222.

P. vulgaris. *Park. theat.* 419. *f.* 3.

P. major & vulgaris. *Bauh. pin.* 197. *Mor. hiſt. ſ.* 7. *t.* 12. *f.* 1.

P. vulg. rubens rotundiore folio. *Bauh. hiſt.* 3. 566. 2.

Thyrſe ovate, almoſt all the flowers hermaphrodite fyngeneſious.]

DESCRIPTION, *&c.*

1. This is a very low plant, the leaves of which grow cloſe to the ground. The flowers ſtand upon ſhort foot-ſtalks which riſe between the leaves, and are three or four inches long, each ſuſtaining one flower at the top, of a dirty purpliſh colour. Theſe appear early in the ſpring, and are ſucceeded by downy ſeeds which ripen in june.

[Stem none. Root perennial, with branching radicles, creeping far and wide. Leaves radical, ſubovate, ſubhyrate, veined, on long erect petioles. Scape one-flowered, thick, ſhorter than the leaves, with acute imbricate ſcales. Flower yellow, with an erect ſomewhat open calyx[a].

In cooler ſituations the calyx is cloſed and the flower floſcular; in warmer ones the flower is radiate and ſpreading. The down is ſeſſile and hairy[b]. Native of Siberia, and the northern provinces of China.

2. Native of America.

3. Root annual, ſimple. Leaves radical, a finger's length, webbed above, white-tomentoſe beneath. Scape longer than the leaves, more tomentoſe at top. Calyx oblong, imbricate; ſcales ſomewhat pappoſe, linear, acute. Seeds ſtriated. Down ruſeſcent. Native of Jamaica[c].

4. Annual. Native of Jamaica[d].

5. This is an annual ſtemleſs plant, about a foot high. Leaves radical, petioled, wedge-ſhaped, ſometimes ovate and only deeply toothed, gathed in the middle, gradually attenuated to the baſe, white tomentoſe beneath. Scape long, ſimple, ſomewhat tomentoſe. Flower nodding during the time of flowering, ſolitary. Calyx imbricate: ſcales lanceolate-ovate, tomentoſe at the baſe. Corolla radiate: corollets of the diſk five-cleft, white: of the ray ligulate, longer than the calyx, linear, bifid, purple. Seeds angular. Native of Jamaica[e].]

6. This is a low perennial plant. The upper ſurface of the leaves is ſmooth and of a bright green colour; the under a little downy and whitiſh: their foot-ſtalks ariſe from the ground, and are three inches long. The pedincles ſpring from the root, are four inches long, woody, and ſuſtain one purpliſh flower at the top.

[Flower floſcular, with female florets in the ray. The ſcapes has one or two bracles[f].

The creeping root often produces two bundles of leaves, which are round, hard, and kidney-ſhaped, often toothed, and cottony underneath. From the centre of one of theſe bundles riſes a ſcape ſix or eight inches long, having one or two linear leaves on it, and a reddiſh flower at the top. Calyx hard and ſingle, a little ſwoln at the baſe where one or two ſcales are often found. It incloſes from forty to fifty florets, ten or fifteen of which are females naked at the edge; the reſt are floſcular. The ſeeds are grooved[g].

Scopoli and Jacquin make two ſpecies of this.

Native of the Alps; Switzerland, Auſtria, the South of France, Piedmont; alſo of Siberia.—Cultivated by Mr. Miller in 1731[h]. It flowers in march, april and may.

7. Root perennial, creeping horizontally far and wide. Scape erect, ſimple, from three to five inches high, lengthening after flowering, channelled, downy, clothed with lanceolate imbricate ſcales, preſſed cloſe to the ſcape, tinged with reddiſh brown. Flowers ſolitary, terminating, yellow, more conſpicuous on account of their radiate form than moſt of the other ſpecies. The calyx conſiſts of ſeveral ſimple parallel linear equal flat three-nerved ſmooth reddiſh brown ſcales, the length of the diſk, finally bent back, accompanied at the baſe by a few ſcattered ſcales like thoſe on the ſcape. Florets of the ray numerous, ſpreading, linear, in two or three rows, twice as long as thoſe of the diſk, with a more ſlender ſtigma. Seeds ſmooth, ſlightly attenuated upwards, roundiſh or indiſtinctly angular, pale brown or bay-coloured. Down ſeſſile, longer than the calyx, twice as long as the ſeed, ſcarcely toothletted, never ſtriped as Linneus makes it. Receptacle at firſt flat or ſlightly concave; afterwards pillowed and almoſt globular, pitted, naked and ſmooth. The leaves grow on long foot-ſtalks, cluſtered, from ſhort lateral branches; they are very ſmooth above, green with reddiſh veins, but tomentoſe-white beneath: when young they are rolled back, and in that ſtate they are thickly clothed with cotton, as is the ſcape alſo[i].

The flowers come up early in the ſpring before the leaves, and at ſome diſtance from them: they are upright, but as ſoon as the bloom is paſt, and the ſeeds with their down as yet moiſt are incloſed within the calyx, the heads hang down, as the moiſture evaporates in ripening they become lighter, are again erected, and the down expands[k]. The ſeeds, eſpecially in the diſk, are commonly barren. Thus is often the caſe with plants, which, like the Colt's-foot, run much at the root.

Native of Europe, Siberia and the northern provinces of China, in moiſt ſtiff clayey and marley ſoil; Dr. Withering remarks, that it is the firſt plant which vegetates in marle or limeſtone rubble.

The cotton on the leaves eaſily rubs off; this wrapped in a rag, dipped in a ſolution of ſaltpetre, and dried in the ſun, makes the beſt tinder. The leaves are the baſis of the Britiſh herb-tobacco. They are ſomewhat auſtere, bitteriſh and mucilaginous; were formerly much uſed in coughs and conſumptive complaints. Dr. Cullen has found them to do conſiderable ſervice in ſcrophulous caſes. He gave a decoction of the dried leaves, and found it ſucceed where ſea-water had failed. And Fuller relates the caſe of a girl, with twelve ſcrophulous ſores, who was cured by drinking daily as much as ſhe could for above four months, of a decoction of the leaves made ſo ſtrong as to be ſweetiſh and glutinous[l].

It is remarkable that the ſmoaking of Colt's-foot for a cough has the recommendation of Dioſcorides, Galen, Pliny, Boyle, &c. And Linneus ſays it is ſtill uſed in Sweden for this purpoſe. According to Pliny's direction it may be an efficacious remedy in a cough —" in fingulos hauſtus, paſſum guſtandum eſt." A ſip of raiſin wine, or rather ſyrup, is to be taken after each puff[m]. Upon which Mr. Curtis obſerves, that this is the only account among the ancients which tends towards the practice of ſmoaking. He has given an excellent figure of this plant in his Flora Londinenſis, accompanied with a very entertaining account of its virtues, and the hiſtory of ſmoaking.

Colt's-foot derives the Greek Βηχιον, as well as the Latin name, from its property of curing coughs. The modern European names are taken from the ſhape of the leaves.

8. Leaves radical, cordate-orbicular, angular, toothed, naked above, obſcurely villoſe beneath; dichotomouſly nerved, a hand long. Petioles angular, ſubtomentoſe, a ſpan in length. Scapes ſtriate-angular, tomentoſe, erect, half a foot high. Braſtes on the ſcape ſcattered, and under the petioles, ſolitary, lanceolate, above naked, beneath tomentoſe. Flowers alternate. Pedincles tomentoſe, one-flowered, ſeldom

[a] Tournefort. [b] Linn. ſpec. [c] Linn. ſuppl. [d] Swartz prodr. [e] Swartz obſ. [f] Linn. ſpec. & ſyſt. [g] Villars. [h] Hort. kew. [i] Smith brit. & engliſh bot. Curt. lond. Woodw. mss. [k] Curtis. [l] Withering. [m] Curtis.

two-flowered; the lower ones longer, a finger's length; the upper ſhorter, aggregate, faſtigiate, an inch long. Scales of the calyx linear, ſubtomentoſe. Corollets yellow. Seeds of all oblong, roundiſh, villoſe. Down ſubfaſtigiate, white, the ſame length with the tube of the corolla. Root bitter, eſteemed a counterpoiſon by the Japoneſe [p].

Linnæus, in mantiſſa, remarks that the leaves are the ſize of thoſe of Calcha; the ſcape a foot high; the flowers of the ſame ſize as in Arnica. Native of Japan.

9. Root perennial, creeping. Leaves all radical, triangular, excavated at the baſe into a deep ſinus, having ſeven or eight prominencies on each ſide, ſmooth above, white-tomentoſe beneath. Petioles ſlender, ſcarcely a ſpan long. Scape a ſpan high, round, having one or two broad membranaceous embracing wings, ending in the rudiment of a leaf. Flowers from ſix to twelve, terminating, faſtigiate. Calyx oblong. Corolla white, rayed. Stamens in the florets of the diſk, but none in thoſe of the ray. Stigma biſid in the former, ſimple in the latter. Down thrice or four times as long as the calyx [q].

It varies, according to Linnæus, in ſyſt. veg. with ſolecular and with radiate flowers.

Monſ. Villars ſeems to have taken ſome pains to aſcertain this ſpecies. He deſcribes it as having in Dauphiné, a root creeping a little and aromatic, ſuperficial and much leſs deep or thick than in the alba, Petaſites, &c. Its heart-ſhaped leaves a little triangular, are on cylindrical woolly petioles, a foot long; they are unequally toothed like the common Colt's-foot, greeniſh and woolly above when young, but ſmooth and deep green in a more advanced ſtate, beneath ſnow-white. The flowers come out very early; they are frequently accompanied by a leaf or two, even at the baſe of the ſtem, which is eight or ten inches high, with reddiſh pointed ſcales on it, and terminated by eight, ten or twelve to fifteen flowers in a corymb: theſe have a reddiſh calyx compoſed of thirteen flat pointed ſcales, beſides three four or five ſmaller ones on the pedunicle: the florets are all hermaphrodites white or ſlightly tinged with red, and forty-five or fifty in number. Seed brown, ſurmounted by a ſimple duſky egret.

He remarks that Moriſon's figure agrees well with the plant found in Dauphiné; that Linnæus, Gmelin, Haller, Scheuchzer, Tournefort and Vaillant have all quoted this figure; that Linnæus and Gmelin having found angular leaves and radiate flowers, he has deſcribed their plant exactly, and aſſembled a certain number of ſynonyms; and that Linnæus having cited Haller, and the Swiſs plant not differing from that of Dauphiné, he has little doubt of its being the ſame with that of the north.

Native of Lapland, Switzerland, Sileſia, Dauphiné and Siberia.

10. Native of Newfoundland and Labrador. Perennial; flowering in april. Introduced in 1777, by John Fothergill, M. D. [r]. It is ſufficiently diſtinguiſhed by its palmate leaves.

11. Root perennial, leſs ſuperficial than that of the frigida, ſmaller and not ſtriking ſo deep as the Petaſites. Leaves of a ſize between them, kidney-ſhaped, villoſe on both ſides, ſoft, leſs firm, and of a yellowiſh green. Flowers of a beautiful white, on a ſcape from four to eighteen or twenty inches in height, diſpoſed in a corymb, from thirty to forty in number, on peduncles a little villoſe, having two or three ſcales, the lower ones two or even three-flowered, the others ſimple. Scape ſtriated, hollow: ſcales obtuſe, marked with ſeveral nerves. Calyx cylindric, compoſed of eighteen or twenty linear ſcales. Florets twenty to twenty-five, of which two or three at the edge are female. The piſtil of the females is ſimple and white; that of the hermaphrodites thicker and terminated by two lanceolate very apparent ſtigmas. It flowers earlier than the frigida [s].

Native of ſeveral parts of Europe. Cultivated in 1683, by Mr. James Sutherland [t].

[p] Thunb. jap. [q] Linn. ſup. [r] Hort. kew. [s] Villars. [t] Hort. kew.

12. Root perennial, thick and fleſhy, creeping very far. Leaves radical, heart-ſhaped, pointed, irregularly toothed, cut away cloſe to the ſide nerves at the baſe, very broad, downy beneath, ſtanding on long upright fleſhy cottony foot-ſtalks. Scape erect, riſing above the leaves, a foot and half high, ſimple, round, cottony, inveſted with lanceolate ſcales, the lowermoſt of which moſtly terminate in a ſmall leafy appendage. Thyrſe terminating, nearly ovate and denſe, after flowering cylindrical and more looſe: pedicels one or two-flowered, ſometimes three-flowered, ſlender, ſcaly and downy. Flowers fleſh-coloured, without any ray: calyx ſhort, nearly ſmooth, tipped with purple: florets very numerous, all tubular, and for the moſt part female, except two or three in the middle which are hermaphrodites, red, with the anthers either quite diſtinct or connected very ſlightly, and the ſtigma obtuſe, club-ſhaped, emarginate, and the germ always abortive; the females have a more ſlender and whitiſh corolla, a two-parted acute ſtigma, and a germ naturally fertile, but frequently abortive, as in other plants that run much at the root. Seed obovate. Down ragged, ſilvery-white. Receptacle pitted. Linnæus deſcribes the female florets as naked, or without corolla, but in his own ſpecimen there is no floret naked. —We are almoſt perſuaded, ſays Dr. Smith, of what nobody has hitherto hinted, that this plant is the true female of T. Petaſites, being furniſhed with a ſmall proviſion only of the other ſex to perform its office occaſionally, as in Spinachia, Cannabis, Muſa, &c.

Native of Germany, Holland, Sileſia, Switzerland, Dauphiné, Piedmont, Britain; by the ſides of ditches: in ſeveral parts of Leiceſterſhire, about Mancheſter, near Banbury in Oxfordſhire. It flowers in april. The down of the ſeeds, forming a ſilvery plume, is very ornamental and conſpicuous [u].

13. Root ſcarcely creeping. Leaves radical, on long petioles, white-tomentoſe beneath. Scape near the root ſcaly-leafed, naked, below white-tomentoſe above, the whole covered with lanceolate looſe tomentoſe ſcales. Flowers nearly upright, about twenty in a thyrſe. Pedicels a little longer than the flowers, having from two to four ſmooth linear bractes on them. Calyx compoſed of from twelve to ſixteen lanceolate obtuſe erect ſcales or leaflets, red at the tip. Female florets above eighty, length of the down, with the border ſcarcely widening, unequally triſid, the ſtyle long and exceeding the calyx, the ſtigma ſlightly biſid. In ſome the border being oblique appears to be entire, but then two minute toothlets may be obſerved at the baſe of the lower ſinus. Hermaphrodite florets about three, funnel-form, length of the calyx, with a five-parted erect border; the ſegments acute: anthers linear, ſtyle ſhort, ſtigmas two long, ſtraight, linear-lanceolate, ſhorter than the corollet. Down the length of the tube [w].

Native of Switzerland. Cultivated in 1758, by Mr. Miller. It flowers in april [x].

It is worth conſideration, ſays Dr. Smith, whether the T. alba may not ſtand in the ſame relation to this paradoxa, as Petaſites does to hybrida; the anthers in paradoxa being ſeparate as in hybrida, and united in alba as in Petaſites [y].

14. Root perennial, creeping very far, and increaſing rapidly ſo as to be extirpated with difficulty; in which reſpect it agrees with the hybrida, as well as in the appearance and form of its leaves, which however are ſomewhat larger in this. The ſcape is rather ſhorter, and the thyrſe is not ſo much lengthened out after flowering. The flowers are larger, and the ſcales of the calyx twice as long. All the florets are hermaphrodite in appearance, with the anthers united, and the ſtigma thickened and emarginate, but the germ entirely abortive. The younger Linnæus and Haller have occaſionally noted a very few female florets to accompany the others, which the latter tells us produce good ſeeds. This circumſtance is rare, and has not been obſerved in England; nor, if general, would it invalidate the conjecture, that this is the real male of

[u] Smith brit. & engl. bot. [w] Retzius. [x] Hort. kew. [y] Engl. bot.

T. hybrida,

T. hybrida, forming but one ſpecies with that. All theſe plants increaſe ſo much by root, that impregnation rarely takes place, which is alſo the caſe with mints and many other vegetables. As the florets of the circumference only in this genus produce perfect ſeeds, the central ones having the thickened ſtigma which appears always to be barren, Dr. Stokes and Profeſſor Sibthorp would remove it to the order Polygamia Neceſſaria, but ſyngeneſious plants are ſubject to ſuch variations in the perfection of their organs of impregnation, that it is by no means certain how far that order, or indeed ſome others, are founded in nature *.

Native of Europe. Common in Britain, on the banks of rivers and ditches: flowering in april. The roots abound with a reſinous matter: they have a ſtrong ſmell, and a bitteriſh acrid taſte. Linnæus remarks, that the large leaves afford ſhelter from rain to poultry and other ſmall animals †.

From the largeneſs of the leaves it had its Greek name Petaſites. In Engliſh, Butter-bur, from their being uſed formerly to wrap up butter in. Peſtilent-wort, from their ſuppoſed efficacy in the plague.]

PROPAGATION AND CULTURE.

Theſe plants are eaſily propagated by parting their roots in autumn, and muſt be planted in a moiſt ſhady border, where they will thrive, and require no farther care but to keep them clean from weeds.

[Colt's-foot is a bad weed on ſome lands, eſpecially ſuch as have been over-cropped and exhauſted. Ploughing and harrowing alone will not deſtroy it; but it muſt be drawn out by the roots, which may be eaſily done at no great expenſe where land is well tilled. Root weeds are hardly to be deſtroyed effectually any other way.

TUSSILAGO. See *Arnica*, *Cacalia*, *Senecio*.

TUTSAN. See *Hypericum*.

TUZPATLIZ. See *Dorſtenia Contrayerva*.

TWAYBLADE. See *Ophrys*.

TYPHA (*of Pliny. Twen of Theophraſtus and Diaſcorides. From Τυφω palus, a marſh. Thoſe plants growing in marſhes.*)

Lin. gen. n. 1040. *Reich. n.* 1131. *Schreb. n.* 1401. *Tournef. t.* 301. *Juſſ.* 25. *Gærtn. t.* 2.

Claſs. 21. 3. Monoecia Triandria.

Nat. order of *Calamariæ*. *Typhæ*. Juſſ.

GENERIC CHARACTER.

* *Males* numerous in an ament terminating the culm.

CAL. *Ament common* cylindrical, very cloſe, compoſed of three-leaved ſetaceous *proper Perianths*.

COR. none.

STAM. *Filaments* three, capillary, length of the calyx. *Anthers* oblong, pendulous.

* *Females* numerous in an ament ſurrounding the ſame culm, digeſted very compactly.

CAL. none.

COR. none.

PIST. *Germ* placed on a briſtle, ovate. *Style* awl-ſhaped. *Stigma* capillary permanent.

PER. none. *Fruits* numerous, forming a cylinder.

SEEDS ſingle, ovate, retaining the ſtyle, placed on a briſtle. *Down* capillary, from the baſe to the middle faſtened to the ſeed-bearing briſtle, length of the piſtil.

ESSENTIAL CHARACTER.

MALE. Ament cylindrical. *Cal.* indiſtinct, three-leaved. *Cor.* none.

FEM. Ament cylindrical, below the males. *Cal.* a villoſe hair. *Cor.* none. *Seed* one, placed on a capillary down.

SPECIES.

1. Typha latifolia. *Great Cat's-tail or Reed-mace.*

Lin. ſpec. 1377. *Jacq. fl.* 841. *Reich.* 4. 94. *fl. ſuec. n.* 830. *Hudſ. angl.* 400. *Wither. arr. ed.* 3. 111. *Smith. brit.* 959. *Hull.* 203. *Curt. lond.* 3. *t.* 61. 171. *Lightf. ſcot.* 538. *Relh. cant. ed.* 2. *n.* 742. *Sibth. oxon. n.* 72. *Abbot. bedf. n.* 651. *Fl. dan. t.* 645. *Hall. helv. n.* 1305. *Pollich pal. n.* 870. *Leers herborn. n.* 727. *Scop. carn. n.* 1144. *Villars dauph.* 2. 192. *Allion. pedem. n.* 2348. *Kniph. cent.* 6. *n.* 97. *Deſcript. atlant.* 2. 333. *Lour. cochinch.* 552. *ed. Willd.* 675. *Foiſk. prodr. n.* 336. *Brown. jam.* 336. *Gærtn. fruct.* 1. 8.

Typha. *Camer. epit.* 607. *Matth.* 863. *Fuchſ. t.* 823. *Lonic.* 1. 174. 1. *Lob. obſ.* 42. 1. *ic.* 1. 81. 1. *Ger.* 42. *emac.* 46. *Raii hiſt.* 1312. *ſyn.* 436.

T. paluſtris. *Tabern. ic.* 246. *Dod. pempt.* 604.

T. pal. major. *Bauh. pin.* 20. *hiſt.* 2. 529. *Mor. hiſt. ſ.* 8. *t.* 13. *f.* 1. *Tournef. inſt.* 530.

T. pal. maxima. *Park. theat.* 1204. 1.

T. aquatica. *Trag.* 681.

Leaves ſomewhat ſword-ſhaped, male and female ſpike approximating.

2. Typha angustifolia. *Narrow-leaved Cat's-tail.*

Lin. ſpec. 1377. *Jacq. fl.* 841. *Reich.* 3. 94. *hort. cliff.* 439. *fl. ſuec. n.* 830. *Hudſ. angl.* 400. *Wither. arr. ed.* 3. 111. *Smith. brit.* 459. *Hull* 203. *Curt. lond.* 3. *t.* 62. 169. *Relh. cant. ed.* 2. *n.* 743. *Sibth. oxon. app. n.* 1169. *Abbot. bedf. n.* 652. *Fl. dan. t.* 815. *Hall. helv. n.* 1306. *Pollich pal. n.* 871. *Scop. carn. n.* 1145. *Villars dauph.* 2. 192. *Allion. pedem. n.* 2349. *Deſcript. atlant.* 2. 333. *Gmel. ſib.* 1. 133.

T. paluſtris clava gracili. *Bauh. pin.* 20. *theat.* 340. *Tournef. inſt.* 530. *t.* 301.

T. pal. media. *Bauh. hiſt.* 2. 540. *Raii hiſt.* 1312. *ſyn.* 436. *Mor. hiſt. ſ.* 8. *t.* 13. *f.* 2.

T. minor. *Park. theat.* 1204. 2.

3. T. paluſtris minor. *Bauh. pin.* 20. 3. *Raii hiſt.* 1312. *ſyn.* 436.

T. minor. *Baub. hiſt.* 2. 540. *Lob. ic.* 1. 81. *Tabern. Kreuterb.* 559. *Smith brit.* 960.

T. minima. *Park. theat.* 1204. 3.

T. paluſtris minima, duplici clava. *Mor. hiſt. ſ.* 8. *t.* 13. *f.* 3.

Leaves ſemicylindrical-flattiſh, equalling the culm, male and female ſpike remote.

DESCRIPTIONS, *&c.*

1. Root perennial, creeping, the thickneſs of the human thumb, jointed, ſpongy, furniſhed with ſmall fibres of a whitiſh colour; the young ſhoots white, tender, terminating in a ſharp hard point, like quick-graſs. Stalk from three to ſix feet high, ſimple, upright, leafy, round and ſmooth, without knots, leafy at the baſe. Leaves alternate, upright, twiſted, at bottom ſword-ſhaped and fleſhy, at top flat, and of a blueiſh colour, about an inch in breadth, and two or three feet in length, incloſing the ſtalk in a very long ſheath. Sheaths two, deciduous, one at the bottom of the male ſpike, the other at the middle: Mr. Woodward remarks, that there is frequently a third ſmaller between the middle and the top of the ſpike. Filaments before the ſhedding of the pollen very ſhort, ſuſtaining from one to four anthers; the pollen being ſhed, they hang down and become longer than the anthers, which are four-grooved, and terminated by a greeniſh gland. The female ament is contiguous to the male; the germ very minute, ſitting on a ſhort foot-ſtalk; the ſtyle thickened above; and the ſtigma black. Seed very ſmall, on a downy peduncle, terminated by an awn. Receptacle of the male catkin hairy. The quantity of impregnating duſt in the male ſpike is exceedingly great, but proportioned to the great number of ſeeds in the female ſpike below; whether theſe generally vegetate has not yet been aſcertained: we only know that many plants which increaſe much by the root ſeldom produce perfect ſeed.

The part which Linnæus deſcribes as the calyx, appears rather to conſiſt of ſome hairs proceeding from the receptacle, and which ſeem more evidently to be ſo, from the hairy appearance of the receptacle when the ſtamens drop off. Mr. Curtis thinks it would be much leſs puzzling, and perhaps more agreeable to the ſyſtem, to place this plant in the order Polyandria, there being many ſtamens, and all united to one receptacle.

Haller ſays that the roots are eaten in ſalads, that cattle eat the leaves, and that the downy ſeeds ſerve for ſtuffing pillows. Linnæus relates, that coopers uſe the leaves to faſten the hoops round their caſks. Schreber affirms that the leaves are ſuſpected to be

* Smith brit. & engl. bot.

† Withering.

poiſonous. Browne informs us, that in Jamaica, the leaves make good mats, and are ſometimes uſed for thatch.

The appearance of the Typha has engaged gentlemen fond of plants to introduce it on the edges of ponds; and painters frequently repreſent it in aquatic ſcenes[1]. Rubens has put it into the hand of Chriſt as a ſceptre when he was ſaluted as a king in mockery by Herod's ſoldiers.

This plant is a native of the four continents, is common in Britain, and has been found in Jamaica and in New Zealand: in ponds, ditches, and by the ſides of rivers and brooks. It flowers with us in july.

2. The ſmaller Cat's-tail differs from the preceding in having much narrower leaves, not exceeding one third the breadth of the other, ſemicyndrical below, flat and ſtrap-ſhaped towards the end, more ſlender ſpikes, though the plant grows as tall and as firm as the great Cat's-tail, and the male and female ſpikes about an inch aſunder[2].

Native of Europe, Barbary and Siberia. Gerarde ſays, that he found it in the iſle of Shepey. Ray ſays, that he obſerved both ſpecies growing together in a brook near Leez houſe in Eſſex. He adds that it is no leſs common than the great one; that the leaves are not only narrower but of a paler green; the ſpike not only more ſlender, but leſs coloured and appearing earlier. Mr. Curtis remarked it on the middle of Woolwich common: Mr. Woodward in clay-pits in Norfolk and Suffolk: Mr. Relhan by the brick-kilns on the Cheſterton road, by the Cam below Ditton, in Swan pond, &c. Dr. Sibthorp, at Cowley: Dr. Abbot, at Knotting green in Bedfordſhire. Hounſlow heath.

β. Dr. Smith conſiders this as a diſtinct ſpecies, and thus deſcribes it. Culm a foot and half high, three times as ſlender as in T. anguſtifolia. Leaves flat, broadiſh, ſcarcely the length of half the culm. Spike three times as thick as in anguſtifolia, abbreviated, ſubfoloſe, interrupted, the upper ament either entirely male, as in the others, or female at bottom. Dr. Smith has admitted it in his Flora on the authority of Dillenius. He had it from the territory of Geneva.

He names it Typha minor, and thus characterizes it.—Leaves enſiform twice as ſhort as the culm, ſpike interrupted abbreviated incraſſated, culm extremely ſlender.

When growing among rocks, with its roots confined, it becomes ſmaller, with the ſpikes more numerous[3]. Ray ſays that he found this at the confluence of the Rhone and Arve near Geneva, where Lobel and John Bauhin had obſerved it before him[4]. It is ſaid alſo to have been found by Mr. Dandridge on Hounſlow heath[5].

PROPAGATION AND CULTURE.

Theſe plants increaſe ſo much by their creeping roots, that they ſoon choak up a ſmall piece of water, and overpower moſt other aquatics: they are beſt therefore cultivated for curioſity in a moiſt border of the garden, where they will flouriſh and produce ſpikes even more abundantly than in the water.

TYPHA. See *Acorus*.
TYPHALÆA. See *Urena*.
TYSSILINUM. See *Selinum*.

V.

VACCARIA. See *Saponaria*.
VACCINIUM (*of Pliny and Virgil: vel.* ΥΑΚΙΝΘΟΣ *or* ΥΑΚΙΝΘΟΣ, *for* ΥΑΚΙΝΘΟΣ. *Mart. Virg. georg. A.* 183.) *Lin. gen. n.* 483. *Reich. n.* 523. *Schreb. n.* 658. *Gærtn. t.* 28. *Juſſ.* 162. Vitis idæa. *Tournef. t.* 377. Oxycoccus. *Tournef. t.* 431.
Claſſ. 8. 1. Octandria Monogynia.
Nat. order of *Bicornes*. *Ericæ* Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* very ſmall, ſuperior, permanent.
COR. one-petalled, bell-ſhaped, four-cleft: *ſegments* revolute.
STAM. *Filaments* eight, ſimple, inſerted into the receptacle. *Anthers* two-horned, furniſhed at the back with two ſpreading awns, opening at the tip.
PIST. *Germ* inferior. *Style* ſimple, longer than the ſtamens. *Stigma* obtuſe.
PER. *Berry* globular, umbilicate, four-celled.
SEEDS few, ſmall.

OBS. *The number often adds one fourth part in all the parts of the fructification.*

Calyx *in moſt ſpecies four-cleft; in* Myrtillus *quite entire.*

Corolla *when freſh almoſt entire is revolved to the baſe in* Oxycoccus.

ESSENTIAL CHARACTER.

Cal. ſuperior. *Cor.* one petalled. *Filam.* inſerted into the receptacle. *Berry* four-celled, many-ſeeded.

SPECIES.

* *With deciduous leaves.*

1. Vaccinium Myrtillus. *Bilberry, Blaeberry, Whortleberry, Black Whorts.*
Lin. ſpec. 498. *Reich.* 2. 164. *Willd.* 2. 348. *fl. lapp. n.* 143. *ſuec. n.* 333. *mat. med.* 103. *hort. cliff.* 148. *Hudſ. angl.* 163. *Wither. arr. ed.* 3. 370. *Smith brit.* 414. *engl. bot. t.* 456. *Lightf. ſcot.* 200. *Sibth. oxon. n.* 369. *Abbot beſf. n.* 293. *Dicſf. hort. ſicc.* 5. 12. *Fl. dan. t.* 974. *Hall. helv. n.* 1020. *Hoffm. germ.* 134. *Roth. germ.* 1. 169. 2. 440. *Pollich pal. n.* 374. *Krock. ſilez. n.* 593. *Leers herborn. n.* 290. *Neck. gallob.* 180. *Scop. carn. n.* 458. *Villars dauph.* 3. 512. *Allion. pedem. n.* 490. *Aſſo. arag. n.* 338. *Deſfont. atlant.* 1. 327. *Gmel. ſib.* 3. 136. *Gærtn. fruct.* 1. 142. *Du Roi harbocc.* 2. 471. *Duham. arb.* 2. 364. *t.* 107. *Willd. arb.* 397. *Knipb. cent.* 8. *n.* 97. *Knorr. del.* 1. *t. S.* 18. *n.* 1. *Blackw. t.* 463. *Regnault bot. ſuppl. Pluuk. ic.* 298.
Vaccinia nigra. *Dod. pempt.* 768. 2. *Lob. obſ.* 548. 2. *ic.* 2. 109. *Gtr. emac.* 1415. 1. *Park. theat.* 1456. 1.
Myrtillus. *Camer. epit.* 135. *Matth.* 231. *Pauli dan. t.* 298.
M. germanica. *Dalech. hiſt.* 192.
Vitis idæa foliis oblongis crenatis, fructu nigricante. *Bauh. pin.* 472. *Tournef. inſt.* 608.
Vitis idæa ſ. Myrtillus 1. *Tabern. ic.* 1078.
Vitis idæa anguloſa. *Baub. hiſt.* 1. 520. (non ic.) *Raii hiſt.* 1288. *ſyn.* 457.
β. Vaccinium foliis oblongis crenatis, fructu albo. *Rupp. jen.* 52. *Gmel. ſib.* 3. 136. *n.* 9.
Peduncles one-flowered, leaves ovate ſerrate deciduous, ſtem angular.
2. Vaccinium pallidum. *Pale Bilberry* or *Whortleberry. Ait. kew.* 2. 10. *Willd. ſpec.* 2. 349.
Racemes bracted, corollas cylindric, bellſhaped, leaves ovate acute ſerrulate ſmooth deciduous.
3. Vaccinium hirtum. *Hairy Bilberry* or *Whortle-berry. Lin. ſyſt.* 363. *Willd.* 2. 349. *Thunb. jap.* 155.
Peduncles one-flowered, leaves ovate-ſerrate, branches round divaricating.
4. Vaccinium ſtamineum. *Green-wooded Bilberry* or *Whortleberry.*
Lin. ſpec. 498. *Reich.* 2. 165. *Willd.* 2. 349. *Ait. kew.* 2. 10. *Gron. virg.* 43. *Pluk. phyt. t.* 339. *f.* 3. (Vitis idæa.)
Peduncles ſolitary naked one-flowered, anthers longer than the corolla, leaves oblong-ovate acute quite entire ſomewhat glaucous beneath.
5. Vaccinium uliginoſum. *Great* or *marſh Bilberry* or *Whortleberry.*
Lin. ſpec. 499. *ſyſt.* 363. *Reich.* 2. 165. *Willd.* 2. 350. *fl. lapp. n.* 142. *ſuec. n.* 332. *Hudſ. angl.* 164. *Wither. arr. ed.* 3. 370. *Smith. brit.* 415. *engl. bot. t.* 581. *Lightf. ſcot.* 201. *Fl. dan.* 231. *Hall. helv. n.* 1021. *Hoffm. germ.* 135. *Roth. germ.* 1. 169. 2. 441. *Pollich. pal. n.* 375. *Krock. ſilez. n.* 594. *Villars dauph.* 3. 513. *Allion. pedem. n.* 491. *Gmel. ſib.* 3. 137. *n.* 10. *Du Roi harbocc.* 2. 473. *Willd. arb.* 397. *Knipb. cent.* 9. *n.* 96.
Vitis idæa foliis ſubrotundis exalbidis. *Baub. pin.* 479. *Schreb. it.* 1. 52.

[1] Curtis. [2] Curtis and Woodw. mss. [3] Linn. Hiſt. [4] Syn. ed. 1.

V. Geſneri major. *Camer. hort.* 182.
V. 2. *Cluſ. hiſt.* 1. 61. *t.* 62. 1.
V. fol. ſubr. major. *Ger. emac.* 1416. 6.
V. magna quibuſdam, ſ. Myrtillus grandis. *Bauh. hiſt.* 1. 518. *Raii hiſt.* 1487. *ſyn.* 457. *Tournef. inſt.* 608.
Vaccinia nigra fructu majore. *Park. theat.* 1456. 2.
Peduncles one-flowered, leaves obovate, quite entire ſmooth, branches round.
6. Vaccinium album. *White Bilberry* or *Whortleberry.*
Lin. ſpec. 499. *Reich.* 2. 165. *Willd.* 2. 350.
Peduncles ſimple, leaves quite entire ovate tomentoſe beneath.
7. Vaccinium mucronatum. *Pointed-leaved Bilberry* or *Whortleberry.*
Lin. ſpec. 499. *Reich.* 2. 165. *Willd.* 2. 350.
Peduncles quite ſimple one-flowered, leaves ovate mucronate ſmooth quite entire.
8. Vaccinium diffuſum. *Shining-leaved Bilberry* or *Whortleberry.*
Ait. kew. 2. 11. *Willd. ſpec.* 2. 351.
Peduncles ſolitary naked one-flowered, leaves ovate acute indiſtinctly ſerrate ſomewhat villoſe.
9. Vaccinium anguſtifolium. *Narrow-leaved Bilberry* or *Whortleberry.*
Ait. kew. 2. 11. *Willd. ſpec.* 2. 351.
Peduncles ſolitary one-flowered, leaves elliptic-lanceolate ſmooth indiſtinctly ſerrulate.
10. Vaccinium corymboſum. *Corymbed Bilberry* or *Whortleberry.*
Lin. ſpec. 499. *Reich.* 2. 166. *Willd.* 2. 351.
Flowers corymbed ovate, leaves oblong acuminate quite entire.
11. Vaccinium bracteatum. *Bracted Bilberry* or *Whortleberry.*
Lin. ſyſt. 363. *Willd.* 2. 351. *Thunb. jap.* 156.
Racemes leafed, leaves ſerrate acute.
12. Vaccinium ciliatum. *Ciliate Bilberry* or *Whortleberry.*
Lin. ſyſt. 363. *Willd.* 2. 351. *Thunb. jap.* 156.
Racemes leafed, leaves ovate quite entire hiſpid.
13. Vaccinium fuſcatum. *Cluſter-flowered Bilberry* or *Whortleberry.*
Ait. kew. 2. 11. *Willd. ſpec.* 2. 351.
Racemes almoſt naked, corollas cylindric-ovate, calyxes acute, leaves elliptic acute quite entire, veins ſomewhat villoſe beneath.
14. Vaccinium frondoſum. *Obtuſe-leaved Bilberry* or *Whortleberry.*
Lin. ſpec. 499. *Reich.* 2. 166. *Willd.* 2. 352.
Ait. kew. 2. 11. *Gron. virg.* 155.
Racemes bracted, pedicels bracteolate, corollas ſubcampanulate, leaves obovate-oblong quite entire deciduous.
15. Vaccinium venuſtum. *Red-twigged Bilberry* or *Whortleberry.*
Ait. kew. 2. 11. *Willd. ſpec.* 2. 352.
Racemes bracted, pedicels bracteolate, corollas ſubcampanulate, leaves elliptic quite entire deciduous ſmooth.
16. Vaccinium liguſtrinum. *Naked-racemed Bilberry* or *Whortleberry.*
Lin. ſpec. 500. *Reich.* 2. 166. *Willd.* 2. 352.
Racemes naked, ſtem ſhrubby, leaves crenulate oblong.
17. Vaccinium reſinoſum. *Clammy Bilberry* or *Whortleberry.*
Ait. kew. 2. 12. *Willd. ſpec.* 2. 352.
Andromeda baccata. *Wangenh. amer.* 11. *t.* 30. *f.* 69.
Racemes bracted, corollas ovate, leaves elliptic ſharpiſh quite entire deciduous bedewed with reſinous atoms.
18. Vaccinium amœnum. *Broad-leaved Bilberry* or *Whortleberry.*
Ait. kew. 2. 12. *Willd. ſpec.* 2. 353.
Racemes bracted, corollas ſubcylindrical, leaves elliptic ſubſerrulate deciduous, veins ſomewhat villoſe beneath.
19. Vaccinium virgatum. *Privet-leaved Bilberry* or *Whortleberry.*
Ait. kew. 2. 12. *Willd. ſpec.* 2. 353.
Racemes ſeſſile, corollas ſubcylindrical, leaves oblong-elliptic ſerrulate deciduous ſmooth on both ſides, flowering branches elongated.
20. Vaccinium tenellum. *Gale-leaved dwarf Bilberry* or *Whortleberry.*
Ait. kew. 2. 12. *Willd. ſpec.* 2. 353.

Racemes bracted ſeſſile, corollas ovate-cylindrical, leaves oblong elliptic ſomewhat wedge ſhaped ſerrulate deciduous ſmoothiſh.
21. Vaccinium Arctoſtaphylos. *Madeira Bilberry* or *Whortleberry.*
Lin. ſpec. 500. *Reich.* 2. 166. *Willd.* 2. 353.
Vitis idæa orientalis maxima, ceraſi folio, flore variegato. *Tournef. cor.* 42. *it.* 2. 223. *it.*
β. Vitis idæa cappadocia maxima, meſpili folio, flore variegato. *Tournef. cor.* 42.
Flowers racemed, leaves crenulate ovate acute, ſtem arboreous.

** *With evergreen leaves.*

22. Vaccinium meridionale. *Jamaica Bilberry* or *Whortleberry.*
Ait. kew. 2. 12. *Willd. ſpec.* 2. 353. *Swartz prodr.* 62. *deſcr.* 2. 676.
Leaves ovate-oblong acute ſerrate perennial flat lucid, racemes terminating erect, corollas priſmatical.
23. Vaccinium cereum. *Waxen Bilberry* or *Whortleberry.*
Forſt. prodr. n. 167. *Willd. ſpec.* 2. 354.
Andromeda cerea. *Lin. ſuppl.* 238. *ſyſt.* 406.
Peduncles ſolitary one-flowered, corollas quinquangular-ovate, leaves ovate-roundiſh ſerrate.
24. Vaccinium Vitis adæa. *Red Bilberry* or *Whortleberry*, or *Cowberry.*
Lin. ſpec. 500. *ſyſt.* 363. *Reich.* 2. 167. *Willd.* 2. 354. *fl. lapp. n.* 145. *ſuec. n.* 334. *hort cliff.* 148. *mat. med.* 103. *Hudſ. angl.* 164. *Wither. arr. ed.* 3. 371. *Smith brit.* 415. *engl. bot. t.* 598. *Lightf. ſcot.* 202. *Dickſ. hort. ſicc.* 5. 10. *Fl. dan. t.* 40. *Gunn. norv. n.* 109. *Hall. helv. n.* 1022. *Hoffm. germ.* 135. *Roth. germ.* 1. 169. 2. 441. *Pollich. pal. n.* 376. *Kruck. ſileſ. n.* 595. *Villars dauph.* 3. 513. *Allion. pedem. n.* 492. *Scop. carn. n.* 459. *Du Roi barbarc.* 2. 475. *Knipb. cent.* 9. *n.* 95. *Knorr del.* 1. *t.* S. 18. *n.* 2. *Plenck. ic.* 299.
Vaccinia rubra. *Dod. pempt. t.* 770. *f.* 1. *Ger. emac.* 1415. 2.—*buxeis foliis. Park. theat.* 1456. 4.
Vitis idæa foliis ſubrotundis non crenatis, baccis rubris. *Bauh. pin.* 470. *Duham. arb.* 7.
Vitis idæa buxeis nec deciduis foliis. *Cluſ. pan.* 77.
Vitis idæa rubra. *Camer. epit.* 136.
Vitis idæa ſempervirens fructu rubro. *Bauh. hiſt.* 1. 522. *Raii hiſt.* 1488. *ſyn.* 457.
Racemes terminating nodding, leaves obovate revolute toothletted dotted beneath.
25. Vaccinium Oxycoccus. *European Cranberry.*
Lin. ſpec. 500 *ſyſt.* 363. *Reich.* 2. 167. *Willd.* 2. 354. *fl. lapp. n.* 143. *ſuec. n.* 355. *Hudſ. angl.* 164. *Wither. arr. ed.* 3. 372. *Smith brit.* 416. *engl. bot. t.* 319. *Lightf. ſcot.* 202. *Relh. cant. ed.* 2. *n.* 338. *Abbot beaſ. n.* 294. *Dickſ. hort. ſicc.* 5. 11. *Fl. dan. t.* 80. *Gunn. norv. n.* 72. *Hall. helv. n.* 1203. *Hoffm. germ.* 135. *Pollich. pal. n.* 377. *Kruck. ſileſ. n.* 596. *Villars dauph.* 3. 514. *Scop. carn. n.* 457. *Blackw. t.* 593. *Plenck t.* 300.
Vaccinia paluſtria. *Dod. pempt.* 770. 2. *Lob. obſ.* 547. 3. *ic.* 2. 109. *Ger.* 1367, *emac.* 1419. *Park. theat.* 1229. *Raii hiſt.* 685.
Oxycoccos. *Cord. hiſt.* 2. 146.
O. ſ. Vaccinia paluſtria. *Bauh. hiſt.* 1. 227. 2. *Raii ſyn.* 267. *Tournef. inſt. app.* 655.
Vitis idæa paluſtris. *Bauh. pin.* 471.
Schollera Oxycoccos. *Roth. germ.* 1. 170. 2. 442.
Leaves ovate quite entire revolute acute, ſtems creeping filiform ſmooth.
26. Vaccinium hiſpidulum. *Hairy-ſtemmed American Cranberry.*
Lin. ſpec. 500. *Reich.* 2. 168. *Willd.* 2. 355. *Kalm itin.* 3. 37. *ed. angl.* 2. 79.
Leaves quite entire revolute ovate, ſtems creeping filiform hiſpid.
27. Vaccinium macrocarpon. *Smooth-ſtemmed American Cranberry.*
Ait. kew. 2. 13. *t.* 7. *Willd. ſpec.* 2. 355.
V. hiſpidulum. *Wangenh. amer.* 108. *t.* 30. *f.* 67.
Vitis idæa paluſtris virginiana fructu majore. *Raii hiſt.* 685. *Pluk. phyt. t.* 326. *f.* 6. *mala.*

Leaves quite entire oval-oblong, obtuſe flat, ſtems creeping filiform.

DESCRIPTIONS, &c.

1. Root perennial woody. Stem ſhrubby, erect, ſcarcely a foot high, very much branched, forming a ſmall tufted buſh. Branches ſmooth, green, twiſted, ſharply angular eſpecially the young ones. Leaves alternate, on ſhort foot-ſtalks, ſmooth, veiny, bright green, without any ſtipules. Flowers axillary, ſolitary, on ſhort round ſimple peduncles, drooping, globular (or nearly ſo, but a little flatted at the baſe,) fleſh-coloured (or pale reddiſh purple,) inodorous. The calyx and corolla have each five teeth, the former very ſmall, and the teeth of the latter ſmall, reflected, reddiſh white. Stamens incloſed, very often or perhaps generally ten; the numbers four or five in the two former, and eight or ten in the latter, being indifferent in this natural order as to the determination of genera or ſpecies. Anthers cloven, diſcharging their pollen by a pore at each point, and accompanied beſides by two briſtles or horns, as in many of the Heaths. Germ obconical, green, ſmooth. Berry globular with a dimple at the top, five-celled before it ripens, but when arrived at maturity the numerous ſeeds are imbedded in one continued ſoft acrid blood-red pulp [b]: they are often deſcribed as black, but they are in reality very dark blue. There are as many as thirty ſeeds in a cell; they are oblong, angular, very finely ſtriated in waves, yelloviſh or of a red-ruſt colour [b].

Native of Europe, Siberia and Barbary, on heaths and ſtony moors, and in woods where the ſoil is ſpongy. It is abundant in the mountainous parts of Great Britain. On Porland heath, the higheſt ſpot in Norfolk. In Aſpley wood, Bedfordſhire; Dr. Abbot. Checkendon-woods near Clump Houſe; Dr. Sibthorp. Rocks above Great Malvern, Worceſterſhire; Mr. Ballard. The Biſhop's woods, near Eccleſhall. Lightwoods, near Birmingham; Dr. Withering. In the woods of Purbeck, Dorſetſhire, particularly at the Grange, the ſeat of John Bond, Eſq; Dr. Pulteney. Both Gerarde and his editor Johnſon mention its growing on Hampſtead heath. Near Loughborough in Leiceſterſhire. In Scotland abundant, both in woods and heaths.

About may the young freſh-green leaves, and wax-like red flowers, make an elegant appearance. Towards autumn the leaves grow darker and more firm, and the ripe berries are gathered in the north for tarts, and in Devonſhire are eaten with clotted cream [k].

The berries are very acceptable to children, either eaten by themſelves or with milk, or in tarts. The moor-game live upon them in the autumn. The juice ſtains paper or linen purple. Goats browſe upon the plant; ſheep are not fond of it; horſes and cows refuſe it [l].

The berries have an aſtringent quality; and in Arran and the Weſtern iſles are given in diarrhœas and dyſenteries with good effect. The Highlanders eat them with milk, and make them into tarts and jellies, which laſt they mix with Whiſkey to give it a reliſh to ſtrangers.

A variety with white berries was diſcovered by the Duke of Athol in the woods about midway between his two ſeats of Dunkeld and Blair [m].

2. Native of North America, where it was found by Samuel Martin, M. D. Introduced in 1772. It flowers in may and june [n].

3. Stem ſhrubby, very much branched. Branches alternate, round, divaricate and ſpreading very much, ſerruginous, ſmooth: branchlets filiform, wrinkled, villoſe at the end. Leaves alternate, ſubſeſſile, acute, villoſe, a little paler beneath, ſpreading, unequal, half an inch long. Flowers ſcattered over the branchlets, ſolitary, drooping, on peduncles half a line in length. Calyx four-cleft, three times ſhorter than the corolla. Corolla five-cleft. Filaments eight, very ſhort. Anthers ovate, ſhorter than the corolla, pointed with an awl-ſhaped biſid tip. Style filiform, angular, a little longer than the corolla. Native of Japan, in the mountains between Miaco and Jedo [o].

4. Peduncles axillary, filiform, longer than the corolla. Corollas five-cleft, ſpreading bell-ſhaped. Anthers ten. Style longer than the flower [p].

Native of North America. Introduced in 1772 by Mr. William Young. It flowers in may and june [q].

5. This grows taller than the common Bilberry, (n. 1.) and the ſtem and branches are round. Leaves obtuſe, (ſometimes ſlightly dented at the end,) rarely inclined to be pointed, a little revolute, ſmooth and even, not at all rugged, glaucous beneath, with a net-work of veins, often tinged with red. Flowers fleſh-coloured or pink, the calyx and corolla moſtly four-cleft. Stamens generally eight, each with two horns as in V. Myrtillus. Berry large, globular, black with a glaucous hue. Seeds finely ſtriated [r].—The young leaves are ciliate at the baſe [s].

Native of many parts of Europe and of Siberia.—On marſhy mountainous heaths in Britain, but not general. Obſerved at Gambleſby in Cumberland, and in Whinfield foreſt, Weſtmoreland; by Ray: in the Highlands of Scotland, by Lightfoot. It flowers in april and may, and the berries ripen in auguſt. The fruit has leſs flavour than the common Bilberry, but abounds with a weak acid juice [t]. In large quantities it occaſions giddineſs, and a ſlight head-ach, eſpecially when full grown and quite ripe [u]. Many vintners in France are ſaid to make uſe of the juice to colour their wines red [w]. They furniſh an ardent ſpirit which is highly volatile and intoxicating. The alpine birds feed upon the fruit, and it is very common there [x].

6. Flowers two or three at the ends of the branches. Peduncles aggregate, very ſhort, naked. Native of Penſylvania, where it was found by Kalm.

7. Branches round, glaucous. Leaves elliptic, ſmooth on both ſides, on channelled petioles. Peduncles a little ſhorter than the leaves. Native of North America, where it was found by Kalm [y].

8. Native of South Carolina, where it was found by Mr. John Cree. Introduced in 1765. It flowers from may to july.

9. Native of Newfoundland and Labrador. Introduced about 1776, by Benjamin Bewick, Eſq. It flowers in april and may [z].

10. Nerves of the leaves villoſe underneath. Corymbs from a gemmaceous involucre, ſeſſile. Corollas cylindric-ovate, longer than in the others. Stamens ten. Found in North America by Kalm [a].

11. Stem entirely ſmooth. Branches and branchlets alternate, divaricating. Stem-leaves alternate, on very ſhort petioles, ovate, revolute, veined, ſmooth on both ſides, an inch long; on the racemes lanceolate, a line in length. Racemes axillary with the flowers turned one way, ſpreading very much, a finger's length. Bractes on the middle of the peduncle, two, briſtle-ſhaped, length of the peduncle, which is ſcarcely half a line long. Calyx very ſhort. Corolla cylindrical, white. Native of Japan on the iſland of Nipon; flowering in june. Japoneſe name Ki-Fuſi.

12. Stem aſh-coloured, ſmooth. Branchlets alternate, erect, villoſe. Branch-leaves ſcattered, ovate, acute, nerved with the nerves all over hiſpid, unequal, from an inch to two inches in length; on the racemes lanceolate, ſmooth, a quarter of an inch long. Racemes at the ends of the branchlets, directed one way, a finger's length. Calyx very ſhort. Corolla red. Native of Japan. In the language of that country Sasjebu [b].

13. Native of North America, where it was found by Mr. William Young. Introduced in 1770. It flowers in may and june [c].

14. Racemes below the leaves, with ſmall oblong bractes. Pedicels longer than the bractes, having two little filiform bractes. Corolla ovate-campanulate. Stamens ten [d]. Native of North America. Introduced

[b] Smith brit. and engl. bot. [c] Gærtner. [d] Engl. bot. [e] Withering. [m] Lightfoot. [n] Hort. kew.

[o] Thunberg. [p] Linn. ſpec. [q] Hort. kew. [r] Smith brit. and engl. bot. [s] Woodw. mſs. [t] Linn. fyſt. [u] Engl. bot. [w] Linn. fuec. and Withering. [x] Withering. [y] Villars. [z] Linn. ſpec. [a] Hort. kew. [b] Linn. ſpec. [c] Thunberg. [d] Hort. kew. [e] Linn. ſpec.

troduced in 1770, by Mr. William Young. It flowers in june.

15. Native of North America. Found by Mr William Young, and introduced in 1770. It flowers in may and june [f].

16. Flowers in alternate numerous racemes, entirely deſtitute of bractes or leaflets; by which mark it is eaſily diſtinguiſhed. Native of Pennſylvania, where it was found by Kalm [g].

17, 18, 19, 20. Natives of North America. The ſeventeenth introduced in 1772, by Samuel Martin, M. D; the eighteenth in 1765, by Mr. John Cree; they flower in may and june. The nineteenth and twentieth were introduced by Mr. William Young, the former in 1770, the latter in 1772. The nineteenth flowers in april and may, the twentieth in may and june [h].

21. Racemes longer than the leaves, ſituated below them, and furniſhed with ovate leaflets [i].

Native of Madeira and the Levant. Introduced in 1777, by Mr. Francis Maſſon. It flowers in june and july [k].

22. Corollas ſeldom five-cleft. Fruit like that of Vitis idæa, and ſapid. It reſembles the preceding; but in that the leaves are annual, the racemes leafy, and the flowers variegated. Native of Jamaica, in the blue mountains [l]. Introduced in 1778, by Thomas Clark, M. D. [m]

23. Leaves on ſhort petioles. Corolla bell-ſhaped. Anthers oblong, yellow, two-horned at the back [n].

The younger Linneus ſays that he placed this plant in the genus Andromeda at the perſuaſion of Forſter; he however has put it among the Vacciniums in his prodromus. It is a native of Otaheite.

24. Roots creeping, woody.] It is of very humble growth, ſeldom riſing above ſix or eight inches high; [and is almoſt herbaceous, but evergreen. Stems moſtly upright, little branched, twiſted or flexuoſe, angular, ſmooth, pliant. Leaves alternate, on footſtalks, obſcurely ſerrate or toothed towards the top, and by no means quite entire as Linneus ſays they are, retuſe, very ſmooth and ſhining above, pale and dotted beneath. Mr. Woodward remarks, that they are furrowed above, with correſponding nerves beneath; and that with the larger leaves much ſmaller ones are intermixed, ſimilar in ſhape: and Mr. Miller that] they are ſo like thoſe of the dwarf Box, as to be taken for it, even by perſons of ſkill, at a diſtance. [An elegant drooping cluſter of bell-ſhaped, bluſh-coloured or pale pink flowers terminates the ſtem or branches. But Mr. Curtis obſerves that it is ſeldom found in flower. The flowers do not ſeem to vary from their proper four-cleft form, and eight ſtamens; though Pollich reckons ten; and Krocker ſays there are often ten filaments. Under each flower is a ſingle, elliptic, concave, ciliate bracle. The anthers terminate in a pair of taper points, through a pore at the end of which the pollen is diſcharged, but they have not the lateral horns which are found in ſome of the ſpecies. Dr. Withering remarks, that the floral leaves and calyxes are coloured; the filaments very white and woolly; the anthers red, two-celled, with a yelloviſh tube at the point of each. Berries red, acid, aſtringent and bitter. They are ſcarcely to be eaten raw, and though made into pies in Derbyſhire, where they are called Cow-berries, their flavour is far inferior to the Cranberry. Their beſt uſe is for making a rob or jelly, which is eaten with all kinds of roaſt meat in Sweden, and is far preferable to that of the red currant as a ſauce for veniſon. It is alſo an excellent medicine in colds, ſore throats, and all irritation of the mouth or fauces [o].

Linneus ſays that they are ſent in large quantities from Weſt Bothnia to Stockholm for pickling; that in Switzerland and other more ſouthern parts of Europe they leave them to the birds; and that in upper Tornoa they are found perfectly white.]

Mr. Miller ſays, he has been informed, that in Sweden and Norway this ſhrub is planted for edgings to borders in gardens: and that he has ſeveral times received plants of it from Greenland by the whale ſhips.

[Native of moſt parts of Europe, particularly the northern countries, on dry ſtony heaths or moors, on the mountains. Many places in Derbyſhire, and our northern counties are clothed with this humble evergreen, as alſo in Scotland and Wales. In Ireland, on the tops of all mountains the elevation of which is 500 yards and upwards. It flowers in june, (Dr. Withering ſays, march and april;) and the berries ripen in auguſt [p].

25. Roots perennial, fibrous. Stems ſuffruticoſe, very ſlender, ſmooth, and creeping by means of long fibres. Branches ſcattered, procumbent, leafy, flowering about the upper part. Leaves alternate, erect, on ſhort footſtalks, ſmall, acute, dark ſhining green above, glaucous beneath. Peduncles terminating, aggregate, about an inch long, red, one-flowered, having a few ſcattered or oppoſite bractes. According to Linneus, the raceme is very ſhort, and the peduncles very long, with two alternate bractes on them: but the bractes are not always alternate, and there are ſometimes more than two. Flowers drooping, of a beautiful roſe colour or deep fleſh-colour, ſingularly elegant. Calyx ſmooth, coloured, compoſed of four obtuſe fringed ſegments. Corolla divided to the baſe into four ovate petals, rolled back, and according to Withering falling off ſeparate. Hence ſome have judged this ſpecies to form a genus diſtinct from Vaccinium: but there is no end to thus ſubdividing genera. Filaments flat, downy, ſtanding out above the corolla: anthers deeply cloven, diſcharging the pollen by a hole in each point. Sometimes, according to Mr. Gough, there are ten ſtamens. Style red: ſtigma acute, and an open hole. Berry globular or pear-ſhaped, pale red mottled with purple, when fully ripe purpliſh red.

Theſe berries, made into tarts, are much eſteemed, but on account of a peculiar flavour, are diſliked by ſome. They may be kept ſeveral years, if wiped dry, and then cloſely corked in dry bottles; or the bottles may be filled with water. They are brought to London from the moorland counties, and even imported from Ruſſia; the Cambridge market is ſupplied from Lincolnſhire. At Longtown in Cumberland twenty or thirty pounds-worth are ſold by the poor people each market day for five or ſix weeks together. The Swedes have no idea of putting them to any other uſe than to boil ſilver plate to its proper whiteneſs; the ſharp acid of the Cranberry corroding the external particles of the copper alloy.

Native of Europe, on turfy bogs, moſtly entangled in Sphagnum and other bog-moſſes, which cover the ſurface of ſhallow waters, ſo that thoſe who gather the fruit are obliged to wade in ſearch of it. The flowers come out in june, and the berries ripen in auguſt.

Plentiful in the north of England, in Scotland, and Ireland in their ſlow bogs. On Derſingham moor near Norfolk, on Bootham moor near Lincoln, and in great quantities in many parts of the county. Gamlingay bogs, Cambridgeſhire; and Potton bogs, Bedfordſhire. Biſhop's woods near Eccleſhall, Staffordſhire; Birmingham heath, &c.

It has many names in Engliſh—Cranberries, Moſſberries, Moor-berries, Fen-berries, Marſh Worts or Whortleberries, Corn-berries. The moſt general name Cranberry probably originated from the peduncles being crooked at the top, and before the expanſion of the flower, reſembling the head and neck of a crane [q].

26. This has the ſame ſtructure with the European Cranberry, but is bigger in all its parts, and the ſtem is imbricate with briſtle-ſhaped ſcales [r]. It is extremely abundant over all North America, and is called by the Canadian French Atopa, which name they have borrowed from the Indians. They are brought to market every wedneſday and ſaturday at Philadelphia, late in autumn. They are boiled and

[f] Hort. kew. [g] Linn. ſpec. [h] Hort. kew. [i] Linn. ſpec. [k] Hort. kew. [l] Swartz. [m] Hort. kew. [n] Linn. ſpec. [o] Smith brit. and engl. bot. [p] Engl. bot. [q] Smith brit. and engl. bot. Withering. [r] Linn. ſpec.

prepared in the ſame manner as the Swedes do their red Whortleberries, (Vacc. Vitis idæa;) and they are made uſe of during winter, and part of ſummer, in tarts and other kinds of paſtry. But as they are very ſour, they require a great quantity of ſugar. Quantities of theſe berries are ſent over preſerved to Europe and the Weſt Indies[1].

27. The leaves are more oblong in this, and not rolled back at the edge, but flat. The ſtems have not the ſcales upon them, which are found in the preceding ſpecies. Ray ſays, that the berries are ſent to London from New England, that he had eaten them, and that they were uſed for making tarts: but whether they were from this or the former ſort may perhaps be doubted.—It is a native of North America, in boggy grounds; was cultivated in 1760, by Mr. James Gordon; and flowers here in may[2].

It is uncertain whether the hiſpidulum of Miller belongs to the preceding, as he has given the character of that from Linneus, and Ray's ſynonym which is attributed to this by Willdenow. See Arbutus thymifolia.

Miller's Vaccinium penſylvanicum, (n. 3.) ſeems rather to be a variety of V. Vitis idæa.] He refers to *Pluk. phyt. t.* 321. *f.* 4. for a figure of it: and deſcribes it as having a low ſhrubby ſtalk, like the Vitis idæa; ſmall ovate pointed leaves, not unlike ſome varieties of the Myrtle, and continuing green all the year; the flowers axillary at every joint, nodding on pretty long peduncles, ſolitary, ſmall, white. Berries red. Native of Virginia and other parts of North America.

PROPAGATION AND CULTURE.

Theſe are ſhrubs or ſhrubby plants, and hardy, (except n. n. 3. 11. 12. 21. 22. 23.) But they are difficult of culture in gardens, becauſe they require a mooriſh or boggy ſoil, which for ſome of the ſpecies muſt be covered with moſs, and conſtantly kept wet.

1 and 24. Vaccinium Myrtillus and Vitis idæa increaſe very faſt by their creeping roots, and when fixed in a proper ſoil will ſoon overſpread the ground. The firſt is frequently found on ſandy heaths, intermixing its roots with Heath; but the other grows only upon mooriſh land.

25, &c. The european and american Cranberries, being natives of bogs, cannot be propagated upon dry land; but on natural or artificial bogs they will ſpread and increaſe, if they are taken up carefully with ſome of the ſoil to their roots, and tranſplanted in autumn. But they can only be cultivated for curioſity in gardens, for they will not thrive much or produce fruit out of their native ſwamps and bogs.

[Vaccinium cantabricum. See *Andromeda Daboecia* or *Erica Daboeci.*

VAHLIA. *(So named by Thunberg, in honour of Martin Vahl, Regius Profeſſor of Botany at Copenhagen, and member of ſeveral academies. Author of* Symbolæ Botanicæ: Eclogæ Americanæ, &c. *One of the Editors of the* Flora Danica.)

Lin. gen. Schreb. n. 452. *Thunb. nov. gen.* 36. *Juſſ.* 318. Ruſſelia *Lin. ſuppl.* 24.

Claſſ. 4. 2. Pentandria Digynia.

Nat. order of *Succulentæ. Onagræ.* Juſſ.

ESSENTIAL CHARACTER.

CAL. *Perianth* five-leaved: *leaflets* lanceolate, acute, concave, ſpreading.

COR. *Petals* five, ovate, concave, ſpreading, ſhorter by half than the calyx.

STAM. *Filaments* five, filiform, erect, inſerted between the petals, length of the calyx. *Anthers* oblong, four-grooved.

PIST. *Germ* inferior. *Styles* two, filiform, from upright ſpreading, longer than the ſtamens. *Stigmas* ſimple, obtuſe.

PER. *Capſule* ovate, truncate, ſcored with five raiſed lines, crowned with the permanent calyx, one-celled, two-valved.

SEEDS numerous, minute.

ESSENTIAL CHARACTER.

Cal. five-leaved. *Cor.* five-petalled. *Capſ.* inferior, one-celled, many-ſeeded.

[1] Kalm. [2] Hort. kew.

SPECIES.

1. Vahlia capenſis.
Lin. ſpec. Willd. 1. 1354. *Thunb. diſſ.* 2. 36. *cum ic. prodr.* 48.
Ruſſelia capenſis. *Lin. ſuppl.* 175.

DESCRIPTION, *&c.*

This plant has the ſtature of a Silene, half a foot or ſcarcely a foot in height. Stem herbaceous, round, without knots, below brachiate and ſubpubeſcent. Leaves oppoſite, ſeſſile, ſubpubeſcent, narrow-lanceolate. Stipules none. Flowers from the upper branches, peduncled, two or more frequently three together, yellow. Petals and anthers ſnow-white. Native of the Cape of Good Hope, in ſandy places near Verkeerde valley[1].

VALANTIA. *(So named by Tournefort, in honour of* Sebaſtien Vaillant, *an eminent French Botaniſt. Demonſtrator at the botanic garden at Paris. Author of* Diſcours ſur la ſtructure des Fleurs, 1718. 4to. *and treatiſes on Compound Flowers, in the Memoirs of the French Academy for* 1718, *&c.* Botanicum Pariſienſe, 1723, 8vo. 1726, fol. *after his death, which happened in* 1722.)

Lin. gen. n. 1151. *Reich. n.* 1258. *Schreb. n.* 1575. *Tournef. mem. par.* 1706. *t.* 3. *Dill. gen.* 8. *Mich.* 7. *Juſſ.* 197. Cruciata *Tournef. t.* 39. Galium Hall. Scop. Smith, &c.

Claſſ. 23. 1. Polygamia Monoecia: vel. 4. 1. Tetrandria Monogynia.

Nat. order of *Stellatæ. Rubiaceæ* Juſſ.

GENERIC CHARACTER.

* *Hermaphrodite Flower* ſolitary.

CAL. ſcarcely any, in place of it the Germ.

COR. one-petalled, flat, four-parted: *ſegments* ovate, acute.

STAM. *Filaments* four, length of the corolla. *Anthers* ſmall.

PIST. *Germ* large, inferior. *Style* length of the ſtamens, ſemibifid. *Stigmas* headed.

PER. coriaceous, compreſſed, reflexed.

SEED ſingle, globular.

* *Male Flower*, one on each ſide of the hermaphrodite.

CAL. ſcarcely any, in place of it the Germ.

COR. one-petalled, flat, three-parted, or four-parted: *ſegments* ovate, acute.

STAM. *Filaments* four or three, length of the corolla. *Anthers* ſmall.

PIST. *Germ* ſmall, inferior. *Style* and *Stigmas* obſolete, and ſcarcely to be obſerved.

PER. abortive: but a ſlender oblong rudiment adheres to the ſide of the hermaphrodite.

SEED none.

OBS. *The male flowers are trifid in* V. muralis *and* Aparine: *quadrifid* in articulata *and* Cruciata.

ESSENTIAL CHARACTER.

HERM. *Cal.* none. *Cor.* four-parted. *Stam.* four. *Style* bifid. *Seed* one.

MALE. *Cal.* none. *Cor.* three or four-parted. *Stam.* four or three. PIST. obſolete.

SPECIES.

1. Valantia muralis. *Wall Croſs-wort.*
Lin. ſpec. 1490. *fyſt.* 908. *Reich.* 4. 318. *hort. cliff.* 468. *upſ.* 302. *Sauv. monſp.* 162. *Allion. pedem. n.* 40. *Sabb. hort.* 1. *t.* 83. *Mich. gen.* 13. *t.* 7.
Rubeola echinata ſaxatilis. *Baub. pin.* 334.
Rubia echinata ſaxatilis. *Park. theat.* 276. *n.* 7.
Cruciata muralis minima romana. *Col. eaphr.* 1. 298. *t.* 297. *Rait hiſt.* 479. *Mor. hiſt.* 3. 328. *ſ.* 9. *t.* 21 *f.* 2
Male flowers trifid placed upon the ſmooth germ of the hermaphrodite.
2. Valantia hiſpida. *Briſtly Croſs-wort.*
Lin. ſpec. 1490. *fyſt.* 908. *Reich.* 4. 319. *hort. cliff.* 461. *Deſfont. atlant.* 2. 389.
Galium floribus maſculis trifidis, omnibus plantæ partibus hiſpidis. *Zin. goett.* 233.
Male flowers trifid placed upon the hiſpid germ of the hermaphrodite.

[1] Linn. ſuppl.

[3. Valantia filiformis. *Leaſt Croſs-wort.*
Ait. kew. 3. 328.
Capſules longer than the pedicel cylindrical hairy unarmed, leaves lanceolate ſmooth ſubciliate.
4. Valantia Cucullaria. *Hooded Croſs-wort.*
Lin. ſpec. 1491. *Reich.* 4. 319. *amoen.* 4. 295.
Cucullaria. *Buxb. cent.* 1. 13. *t.* 19. *f.* 2.
Each of the fructifications covered with an ovate bractle which is bent down.]
5. Valantia Aparine. *Smooth-ſeeded Croſs-wort.*
Lin. ſpec. 1491. *Reich.* 4. 319. *hort. upſ.* 302.
Saxv. monſp. 162. *Gouan monſp.* 516. *Deſfont. atlant.* 2. 390.
Galium ſaccharatum. *Allion. pedem. n.* 39.
Aparine ſemine coriandri. *Park. theat.* 567. *Vaill. par. t.* 14. *f.* 3. *b.*
Male flowers trifid pedicelled placed on the peduncle of the hermaphrodite.
6. Valantia articulata. *Jointed Croſs-wort.*
Lin. ſpec. 1491. *ſyſt.* 908. *Reich.* 4. 320. *hort. upſ.* 303.
Cruciata orientalis latifolia erecta glabra.
Tournef. cor. 4.
Male flowers quadrifid, peduncles dichotomous leafleſs, leaves cordate.
7. Valantia Cruciata. *Common Croſs-wort.*
Lin. ſpec. 1491. *Reich.* 4. 320. *hort. upſ.* 303. *Sibth. oxon. n.* 190. *Neck. gallob.* 417. *Leers herborn. n.* 771. *Pollich pal. n.* 939. *Vidurs dauph.* 2. 334. *Berg. phyt.* 2. 183.
Galium cruciatum. *Smith brit.* 173. *engl. bot. t.* 143. *Wither. arr. ed.* 3. 186. *Relh. cant. ed.* 2. *n.* 127. *Dill. neſt. n.* 48.
G. Cruciata. *Scop. carn. n.* 145. *Allion. pedem. n.* 32.
G. *n.* 709. *Hall. helv.*
G. latifolium, Cruciata quibuſdam, flore luteo. *Bauh. hiſt.* 3. 717.
Cruciata. *Dod. pempt.* 357. 1. *Ger.* 965. *emac.* 1123. 1.
Raii hiſt. 479. *ſyn.* 223. *Petiv. brit. t.* 30. *f.* 1. *Blackw. t.* 76.
C. hirſuta. *Bauh. pin.* 335. *Tournef. inſt.* 115.
C. vulgaris. *Park. theat.* 566.
Male flowers quadrifid, peduncles lateral two-leaved.
[8. Valantia glabra. *Smooth Croſs-wort.*
Lin. ſpec. 1491. *Reich.* 4. 320. *Villars dauph.* 2. 334.
Galium vernum. *Scop. carn. n.* 144. *t.* 2. *Allion. pedem. n.* 33. *Hall. helv. n.* 720.
G. latifolium glabrum. *Bauh. prodr.* 146. *Raii hiſt.* 479.
Cruciata glabra. *Bauh. pin.* 335.
C. minor lutea. *Park. theat.* 566. 2.
Male flowers quadrifid, peduncles dichotomous leafleſs, leaves oval ciliate.
9. Valantia hypocarpia.
Lin. ſpec. 1491. *Reich.* 4. 320. *amoen.* 5. 412. *Swartz obſ.* 385. *Brown. jam.* 141. Rubia.
All the flowers quadrifid below the germ, peduncles naked one-flowered.

DESCRIPTIONS, *&c.*

1. Root annual. Stem and leaves ſmooth[a]. Leaves four in a whorl; flowers herbaceous; fruit echinate. Native of Italy on the whole coaſt of Tuſcany, eſpecially in dry rocky places; alſo on old walls at a diſtance from the coaſt, as in the Farneſe garden, Diocletian's baths, &c. at Rome[b]. On the ſandy ſhores of the County of Nice: and in the South of France, where Cherler found it about Nemours, and Magnol about Montpellier. Columna firſt diſcovered it near Leghorn.

2. Root annual. Stems hiſpid. Leaves rugged. Fruit rounded, hiſpid all over; not even or beaked. It is nearly allied to V. muralis, but is larger and erect[c]. Stems erect, ſometimes branched at bottom. Leaves ſmall, in fours, elliptic (or wedge-ſhaped,) hirſute, toothletted, on very ſhort petioles. Flowers axillary, in threes; the middle one hermaphrodite, with a four-cleft corolla. Fruit hiſpid, creſted-echinate[d].

[a] Linn. ſyſt. [b] Micheli. [c] Linn. ſpec. and ſyſt. [d] Desfontaines.

Native of the South of Europe, and of Barbary about Algiers.

Theſe two ſpecies were cultivated by Mr. Miller in 1768, and flower in may and june.

3. Native of the Canary iſlands, where it was found by Mr. Francis Maſſon, and introduced in 1780. It is annual, and flowers in july.

4. Native of the Levant. Introduced in 1780 by Monſ. Thouin. It is annual, and flowers in may and june[a].

5. This has the appearance of Galium Aparine. Stem rugged backward, ſcandent. Leaves in ſixes, rugged at the edge. Peduncles the length of the leaves, three-flowered at the top; the hermaphrodite flower ſeſſile, the two ſide ones male and pedicelled, trifid or quadrifid[b].

Stems branched, procumbent, angular; angles toothletted, rough. Leaves moſtly in ſixes, linear, toothed at the edge, blunt with a point. Flowers axillary, in threes. Corolla white. Middle flower four-cleft; the two ſide ones three or four-cleft. Seeds round, wrinkled-papilloſe, thick, ſmooth. It ſhould not be confounded with Galium ſpurium of Linneus, which is very like it, but has the ſeed as ſmall again, a little wrinkled, ſmooth or villoſe[c].

The Aparine ſemine lævi of Vaillant, *t.* 4. *f.* 3. *a. a.* to which moſt authors refer, Aparine ſemine læviore of Ray; which Smith and Withering call Galium tricorne; Huſſon, &c. G. ſpurium, differs from this in having the leaves about eight in a whorl, ſerrate backwards, not rugged at the edge forwards; and the tubercles of the fruit much ſmaller. G. ſpurium of Linneus has only ſix leaves, with the fruiting peduncles from upright ſpreading, twice as long as the leaf, and the ſurface of the fruit even, ſcarcely granular or roughened[d].

The plant which is figured as Valantia Aparine in Flora Ruſtica, is determined by Dr. Smith to be his Galium tricorne.

Valantia Aparine is native of Germany, France, Sicily and Barbary.

6. Root annual. Leaves ſmooth, ſubciliate with the edge rugged: floral leaves ſeſſile, ſubcordate, rolled in at the baſe, after the flower is paſt turned back cloſely and concealing the fruit; when that is ripe the flowering-ſtem with the leaves ſeparates in joints. Native of Egypt, Syria and Barbary[e]. Both theſe were cultivated in 1768 by Mr. Miller, if he has rightly named them, for he gives no deſcriptions.

7. This, with glabra, Aparine, and articulata, belongs more properly to the Galiums. For the deſcription of the preſent ſpecies, See *Galium cruciatum.*

8. Linneus ſays this is very nearly allied indeed to the preceding.—Bauhin, to whom Linneus refers, deſcribes it as having a very ſlender, creeping, jointed root; the little ſtalks tender, jointed, leſs than a palm in height; leaves from each joint four, decuſſated, ſmooth, nerved like thoſe of Plantain, pale green, an inch and half in length; flowers ſmall, yellow, on ſhort pedicels. Common about Bologna the whole ſummer among buſhes.—Scopoli alſo ſays that the flowers are yellow. It ſeems doubtful whether Villars's glabra be the ſame with this; the flowers in his plant being white and ſmall, and the plant itſelf bearing no reſemblance to V. Cruciata.

Native of the South of Europe. Introduced in 1783, by William Pitcairn, M. D. It flowers in july[f].

9. Stem herbaceous, from one to three feet high, looſe, branched, grooved, rugged. Branches oppoſite, numerous, divaricating, ſubdivided, patulous, looſe, hirſute. Leaves in fours, ſeſſile, ſmall, oblong, entire, convex, channelled at the baſe above, hirſute-hiſpid. Flowers pedunculed, axillary, ſmall, yellow. Peduncles ſhorter than the leaves or of the ſame length, pubeſcent. Calyx four-leaved, inferior, ſcarcely bigger than the corolla: leaflets ovate with a ſhort point, rough-haired, rugged. Filaments very ſhort. Anthers roundiſh, very minute. Germ ſuperior, minute, two-grooved.

[a] Hort. kew. [b] Linn. ſpec. [c] Desfontaines. [d] Smith brit. 177. [e] Linn. ſyſt. [f] Hort. kew.

Style very short. Stigma two-lobed, pellucid. Berries two, connate, fulvous, small, one-seeded. Seeds roundish, whitish, shining. Native of Jamaica, in the cool mountains [k].]

PROPAGATION AND CULTURE.

If the annual sorts are permitted to scatter their seeds in autumn, the plants will come up, and require no farther care but to thin them, and keep them clean from weeds.

The roots of the seventh and eighth spread greatly, [and may be easily increased by dividing them. They are all hardy plants, except the third and last.

VALANTIA. See *Gulium.*

VALDIA. See *Oviedo.*

VALENTINIA. (*So named by Swartz, probably in honour of* Mich. Bernh. Valentini, *professor of medicine at Giessen.*)

Lin. gen. Schreb. n. 1748. *p.* 801. *Swartz prodr.* 63.

Class. 8. 1. Octandria Monygynia.

GENERIC CHARACTER.

CAL. *Perianth* one-leafed, spreading, concave, coloured, five-parted: *segments* obtuse, concave, entire.

COR. none, unless the calyx be taken for it.

STAM. *Filaments* eight, awl-shaped, erect, a little shorter than the calyx. *Anthers* roundish.

PIST. *Germ* roundish, superior. *Style* length of the stamens, round, thick. *Stigma* headed.

PER. *Capsule* berried, roundish opening into three or four parts which afterwards roll back, one-celled, pulpy within.

SEEDS four, oblong.

ESSENTIAL CHARACTER.

Cal. five-parted, coloured, spreading. *Cor.* none. *Capf.* berried, four-seeded, pulpy.

SPECIES.

1. Valentinia ilicifolia.
Lin. spec. ed. Willd. 2. 344. *Swartz prodr.* 63. *descr.* 2. 689.
Malpighia aquifolii ampliori bus foliis. *Plum. ic.* 167. *f.* 2.
Ilex folio agrifolii americana. *Pluk. phyt. t.* 196. *f.* 3.

DESCRIPTION, *&c.*

This is a branching shrub, two or three feet high. Leaves alternate ovate-lanceolate an inch and half long, waved and spiny at the edge smooth and very stiff. Flowers terminating, in a sort of umbel, scarlet.

Native of Hispaniola, on the most barren rocks towards the ocean, and in Cuba about the Havanna [l].

VALERANDI. See *Samolus.*]

VALERIANA. (*According to some, named from one Valerius, who is said first to have used this plant in medicine: or as others, from* valor *or* valentia, *or from* valere. *But all this is uncertain.*)

Lin. gen. n. 44. *Reich. n.* 48. *Schreb. n.* 60. *Tournef. t.* 52. *Vaill. mem. par.* 1722. *Juss.* 195. *Gærtn.* 2. *t.* 86.

Valerianella *Tournef.* and *Vaill.* Fedia *Gærtn. t.* 86.

Class. 3. 1. Triandria Monogynia.

Nat. order of *Aggregatæ. Dipsaceæ* Juss.

GENERIC CHARACTER.

CAL. scarcely any. A superior margin.

COR. *Tube* nectariferous on the lower side, gibbous. *Border* five-cleft. *Segments* obtuse.

STAM. Three or fewer, (in one species four). *Filaments* awl-shaped, erect, length of the corolla. *Anthers* roundish.

PIST. *Germ* inferior. *Style* filiform, length of the stamens. *Stigma* thickish.

PER. A crust not opening, deciduous, crowned.

SEEDS solitary, oblong.

OBS. *A wonderful diversity of the parts of fructification is observed in this genus; as to their number and form in the different species: for instance,*

The margin of the calyx is scarcely observable in some, but is five-cleft in others.

The tube of the corolla in some is oblong, in the two first it is furnished with a melliferous spur, in others it is very short. The border in some is equal, in others two-lipped with the upper lip bifid.

Stamens in most three, in some two or one only, in the Siberian species four; in others the sexes are distinct.

Stigma, in some trifid, in others emarginate, in others globular.

Pericarp, in some scarcely any, in others a thick capsule, in others two-celled.

Seeds in some crowned with down, in others without any, and of various forms.

ESSENTIAL CHARACTER.

Cal. none. *Cor.* one-petalled, gibbous on one side of the base, superior. *Seed* one.

SPECIES.

* *Valerians, with a single downy seed.*

1. Valeriana rubra. *Common* or *broad-leaved red Valerian.*
Lin. spec. 44. *fysl.* 79. *Reich.* 1. 84. *Willd.* 1. 175. *hort. cliff.* 15. *upf.* 14. *Gærtn. fruct.* 2. 35. *Hudf. angl.* 12. *Wither. arr. ed.* 3. 65. *Smith brit.* 38. *Relh. cant. ed.* 2. *n.* 26. *Sibth. oxon. n.* 57. *Hall. helv. n.* 213. *Allion. pedem. n.* 1. *Berg. phyt. t.* 141. *Desfont. atlant.* 1. 27. *Lamarck illustr. n.* 392. *t.* 24. *f.* 2. *Tournef. inst.* 131. *Baub. pin.* 165. *Dod. pempt.* 351. 1. *Ger.* 550. 1. *emac.* 678. 1. *Park. theat.* 123. 11. *Raii hist.* 389. *Besl. eyst. ast.* 1. 3. *f.* 1.
V. latifolia rubra. *Baub. hist.* 3. 211. 2.
V. marina. *Riv. Mon. t.* 3. *f.* 2.—latifolia major. *Mor. hist. f.* 7. *t.* 14. *f.* 15.
Phu peregrinum. *Camer. epit.* 24.
Ocimastrum. *Leb. obs.* 184. 2.
Polemonii species. *Dalech. hist.* 1187.
Flowers one-stamened tailed, leaves lanceolate quite entire.

2. Valeriana angustifolia. *Narrow-leaved, red Valerian.*
Mill. dict. n. 4. *Lin. spec. ed. Willd.* 1. 75. *Allion. pedem. n.* 2. *Hall. helv. n.* 213. *β. Desfont. atlant.* 1. 28.
V. rubra β. *Lin. spec.* 44. *fysl.* 79. *Reich.* 1. 84. *mant.* 319.
V. monandra. *Villars dauph.* 2. 280.
V. rubra angustifolia. *Baub. pin.* 165. *prodr.* 88. *Baub. hist.* 3. 211. *Park theat.* 122. *n.* 7. *Raii hist.* 389. *Tournef. inst.* 131.—*ang. & longioribus foliis. Pluk. phyt. t.* 232. *f.* 3.
V. marina angustifolia. *Mor. hist. f.* 7. *t.* 14. *f.* 16.
Flowers one-stamened tailed, leaves linear, quite entire.

3. Valeriana Calcitrapa. *Cut-leaved Valerian.*
Lin. spec. 44. *Reich.* 1. 84. *Willd.* 1. 175. *vir. cliff.* 4. *hort. cliff.* 16. *upf.* 14. *Sauv. monsp.* 275. *Villars dauph.* 2. 286. *Allion. pedem. n.* 3. *Desfont. atlant.* 1. 28. *Knipb. orig. cent.* 9. *n.* 98.
V. foliis calcitrapæ. *Baub. pin.* 164. *Mor. hist. f.* 7. *t.* 14. *f.* 7. *Tournef. inst.* 132.—item, sylvestris, foliis tenuissime divisis. *Baub. pin.* 165.
V. annua f. æstiva. *Clus. hist.* 2. 54. *Ger. emac.* 1077. *f.* 8. *Park. theat.* 121. *f.* 5. *Raii hist.* 390.
Flowers one-stamened, leaves pinnatifid.
[4. Valeriana dioica. *Small* or *Marsh Valerian.*
Lin. spec. 44. *fysl.* 80. *Reich.* 1. 85. *Willd.* 1. 176. *fl. suec. n.* 35. *hort. cliff.* 16. *vir. cliff.* 5. *Hudf. angl.* 12. *Wither. arr. ed.* 3. 65. *Smith brit.* 37. *Engl. bot. t.* 628. *Curt. lond.* 4. *t.* 3. 278. *Relh. cant. ed.* 2. *n.* 27. *Sibth. oxon. n.* 58. *Abbot. becf. n.* 23. *Fl. dan. t.* 687. *Hall. helv. n.* 208. *Hoffm. germ.* 11. *Roth. germ.* 1. 16. 2. 37. *Pollich pal. n.* 30. *Krock. silef. n.* 48. *Neck. gallob.* 18. *Scop. carn. n.* 40. *Villars dauph.* 2. 281. *Allion. pedem. n.* 4. *Knipb. orig. cent.* 11. *Berg. phyt.* 2. 41.
V. palustris minor. *Baub. pin.* 164. *Mor. hist. f.* 7. *t.* 14. *f.* 5.
V. pal. inodora parum laciniata. *Baub. pin.* 86. *fem.*
V. alpina minor. *Baub. pin.* 165. *prodr.* 87.
V. minor, *Ger.* 917. 3. *emac.* 1075. 3. *Mor. umb.* 51. *t.* 10. *d. e. Raii hist.* 388.

V. aquatica

[k] Swartz. [l] Willd. from Swartz.

V. aquatica minor flore minore. *Raii hiſt.* 389. *fem.*
V. ſylveſtris minor. *Cluſ. hiſt.* 2. 55. 2. *Park. theat.* 123. 13. *Raii ſyn.* 200. *maſ.*
V. ſylv. f. paluſtris minor altera. *Raii ſyn.* 200. *fem.*
V. minor pratenſis vel aquatica. *Baub. hiſt.* 3. 211. 1.
V. flore exiguo. *Riv. mon.* 2. 2. *fem.*
V. minima. *Dod. pempt.* 350. *fem.*
V. quarta omnium minutiſſima. *Trag.* 62. *fem.*
V. paluſtris foliis ſubrotundis. *Lee.* 279. *ic.* 84. *fem.*
Phu minimum. *Matth. valgr.* 1. 38. 41. *maſ.*
P. min. f. Valeriana montana paluſtris. *Camer. epit.* 23. *maſ.*
P. minus, f. V. minor. *Tabern.* 165. *Blackw. t.* 284. *maſ.*
Flowers three-ſtamened dioecious, radical leaves ovate, ſtem-leaves pinnate.
5. Valeriana capenſis. *Cape Valerian.*
Lin. ſpec. ed. Willd. 1. 176. *Thunb. prodr.* 7.
Flowers three-ſtamened, leaves pinnate, leaflets ovate toothed.]
6. Valeriana officinalis. *Officinal* or *great wild Valerian.*
Lin. ſpec. 45. *ſyſt.* 80. *Reich.* 1. 86. *Willd.* 1. 177. *fl. lapp. n.* 13. *ſuec. n.* 34. *hort. cliff.* 15. *mat. med.* 42. *Woodv. med. bot.* 262. *t.* 96. *Hudſ. angl.* 12. *Wither. arr. ed.* 3. 66. *Smith brit.* 38. *engl. bot. t.* 698. *Curt. lond. fa.* 1. 3. *Roth. cant. ed.* 2. *n.* 28. *Sibth. oxon. n.* 59. *Abbot. beſſ. n.* 24. *Fl. dan. t.* 570. *Hall. helv. n.* 210. *Hoffm. germ.* 11. *Roth. germ.* 1. 16. 2. 38. *Pollich pal. n.* 31. *Neck gallob.* 18. *Knock. ſileſ. n.* 49. *Scop. carn. n.* 39. *Villars dauph.* 2. 282. *Allion. pedem. n.* 5. *Gmel. ſib.* 3. 120. *Ludw. eſt. t.* 99. *Knipb. orig. cent.* 5. *n.* 97. *Blackw. t.* 271. *Plenck. ic. t.* 27.
V. ſylveſtris major. *Bauh. pin.* 164. *Ger.* 917. 2. *emac.* 1075. 2. *Raii hiſt.* 388. *ſyn.* 200. *Mor. hiſt. ſ.* 7. *t.* 14. *f.* 2. *Tournef. inſt.* 132.
V. ſilveſtris. *Ded. pempt.* 349. 2. *Cluſ. hiſt.* 2. 55. 1. —*magna aquatica. Bauh. hiſt.* 3. 2. 211.
Phu. *Column. phytob.* 114.
P. parvum. *Matth. valgr.* 1. 37. 40.
P. germanicum. *Fuchſ. hiſt.* 857.
β. V. ſylveſtris major montana. *Bauh. pin.* 164. *Dill. in Raii ſyn.* 200—folio anguſtiore. *Rivin. mon.* 2. 1.
Flowers three-ſtamened, all the leaves pinnate, leaflets lanceolate nearly uniform.
7. Valeriana Phu. *Garden Valerian.*
Lin. ſpec. 45. *Reich.* 1. 86. *Willd.* 1. 177. *hort. cliff.* 15. *upſ.* 13. *mat. med.* 42. *Hoffm. germ.* 11. *Roth. germ.* 1. 17. 2. 39. *Knock. ſileſ. n.* 50. *Villars dauph.* 2. 281. *Deſfont. atlant.* 1. 29. *Ludw. eſt.* 2. 98. *Knipb. orig. cent.* 5. *n.* 98. *Blackw. t.* 250. *Plenck. ic. t.* 28.
V. hortenſis. *Bauh. pin.* 164. *Dod. pempt.* 349. *Ger.* 917. *f.* 1. *emac.* 1075. *f.* 1.—Phu folio Oluſatri Dioſcoridis. *Mor. hiſt. ſ.* 7. *t.* 14. *f.* 1. *Tournef. inſt.* 132.
V. hort. flore albo. *Rivin. mon. t.* 3.
V. major odorata radice. *Bauh. hiſt.* 3. 209. *Raii hiſt.* 388.
V. major Phu. *Lob. ic.* 714. *Beſl. eyſt. æſt.* 9. 11. *f.* 1.
Phu magnum. *Fuchſ. hiſt.* 856. *Matth.* 39. *Camer. epit.* 21.
P. ponticum. *Tabern. ic.* 164.
P. majus f. Valeriana major. *Park. theat.* 120. *f.* 1.
Flowers three-ſtamened, ſtem-leaves pinnate, root-leaves undivided.
[8. Valeriana tripteris. *Three-leaved Valerian.*
Lin. ſpec. 45. *ſyſt.* 80. *Reich.* 1. 86. *Willd.* 1. 177. *Hall. helv. n.* 211. *Scop. carn. n.* 41. *Jacq. vind.* 201. *n.* 2. *auſtr.* 3. 38. *t.* 268. *Sauv. monſp.* 276. *Villars dauph.* 2. 282. *Allion. pedem. n.* 6. *Pluk. phyt. t.* 231. *f.* 7. 8. *Barrel. t.* 742.
V. alpina. *Bauh. hiſt.* 3. 208. *Raii hiſt.* 390.
V. alp. prima. *Bauh. pin.* 165. *prodr.* 86. *ic. Tourn. inſt.* 131. *Mill. dict. vol.* 2. 1739. *n.* 2.—item altera. *Bauh. pin.* 165.
V. alp. latifolia. *Ger. emac.* 1077. 9.
Flowers three-ſtamened, leaves toothed, root leaves cordate, ſtem-leaves ternate ovate-oblong.
9. Valeriana montana. *Mountain Valerian.*
Lin. ſpec. 45. *ſyſt.* 80. *Reich.* 1. 87. *Willd.* 1. 178. *Hall. helv. n.* 212. *Scop. carn. n.* 42. *Jacqu. vind.* 202. *auſtr.* 3. 38. *t.* 269. *Villars dauph.* 2. 283. *Allion. pedem. n.* 7. *Knock. ſileſ. n.* 51. *Gmel. ſib.* 3. 121. *n.* 2.
V. alpina ſcrophulariæ folio. *Bauh. pin.* 164. *prodr.* 87. *Raii hiſt.* 390. *Tournef. inſt.* 131. *Scheuch. it.* 1. 51. *Mill. dict. vol.* 2. 1739. *n.* 4.
V. montana ſubrotundo folio. *Bauh. pin.* 165.
V. montana altera. *Bauh. pinax.* 292.
V. ſylveſtris alpina prima. *Cluſ. hiſt.* 2. 55. *ſec. Jacqu.*
Flowers three-ſtamened, leaves ovate-oblong ſomewhat toothed, ſtem ſimple.]
10. Valeriana celtica. *Celtic Valerian.*
Lin. ſpec. 46. *ſyſt.* 80. *Reich.* 1. 87. *Willd.* 1. 178. *mat. med.* 42. *Hall. helv. n.* 209. *Scop. carn. n.* 45. *Jacqu. vind.* 203. *collect.* 1. 24. *t.* 1. *Villars dauph.* 2. 285? *Allion. pedem. n.* 8. *Tournef. inſt.* 131. *Mill. dict. vol.* 2. 1739. *n.* 8.
Nardus celtica. *Bauh. hiſt.* 3. 205. *Lob. adv.* 132. *Ger.* 919. 1. *emac.* 1079. 1. *Raii hiſt.* 391.
N. ex Apulia.—item. N. celtica Dioſcoridis. *Bauh. pin.* 165.—item, N. celt. altera. *Bauh. pin.* 166.
N. f. ſpica celtica. *Park. theat.* 116. *n.* 2.
Nardum celticum. *Matth. valgr. ed.* 1. 27. 2. 33.
Nardus celtica f. alpina. *Cluſ. pann.* 514. 515.
Flowers three-ſtamened, leaves ovate-oblong obtuſe quite entire.
[11. Valeriana tuberoſa. *Tuberous-rooted Valerian.*
Lin. ſpec. 46. *ſyſt.* 80. *Reich.* 1. 87. *Willd.* 1. 178. *Ger. prov.* 218. 7. *Villars dauph.* 2. 285. *Allion. pedem. n.* 10.
V. alpina minor. *Bauh. pin.* 165. *prodr.* 87. 5. *Tournef. inſt.* 132. *Linn. mant.* 319.
Nardus montana. *Ger. emac.* 1079. *f.* 4.—tuberoſa. *Park. theat.* 117. *f.* 6.—radice olivari. *Bauh. pin.* 165. *Raii hiſt.* 392.—longius radicata. *Camer. epit.* 16.
Flowers three-ſtamened, root-leaves lanceolate quite entire, the reſt pinnatifid.
12. Valeriana ſaxatilis. *Rock Valerian.*
Lin. ſpec. 46. *ſyſt.* 80. *Reich.* 1. 87. *Willd.* 1. 179. *Scop. carn. n.* 43. *Jacq. vind.* 204. *auſtr.* 3. *t.* 267. *Villars dauph.* 2. 286. *Allion. pedem. n.* 11. *Knock. ſileſ. n.* 52. *t.* 6. *Pluk. phyt. t.* 232. *f.* 2.
V. alpina nardo celticæ ſimilis. *Bauh. pin.* 165.
V. ſilveſtris alpina 2 ſaxatilis. *Cluſ. hiſt.* 2. 56. *f.* 1.
V. alpina minor. *Park. theat.* 120. *n.* 4. *at ic.* 121. *f.* 3. *Raii hiſt.* 389.
V. alp. anguſtifolia. *Ger. emac.* 1077. 10.
Nardo celticæ ſimilis inodora. *Bauh. pin.* 165. *prodr.* 88. *Burſ.* 8. 122.
Flowers three-ſtamened, leaves ſomewhat toothed, root-leaves ovate, ſtem-leaves linear-lanceolate.
13. Valeriana elongata.
Lin. ſpec. 1664. *ſyſt.* 80. *Reich.* 1. 88. *Willd.* 1. 179. *Scop. carn. n.* 44. *Jacqu. vind.* 205. *t.* 1. *auſtr.* 3. *t.* 219.
Nardo celticæ ſimilis alia. *Lin. amœn.* 1. 154.
Flowers three-ſtamened, root-leaves ovate, ſtem-leaves cordate, ſeſſile gaſhed and ſomewhat haſtate.]
14. Valeriana pyrenaica. *Pyreneau Valerian.*
Lin. ſpec. 46. *Reich.* 1. 88. *Willd.* 1. 179. *hort. cliff.* 15. *Monnier obſ.* 235. *Pluk. phyt. t.* 232. *f.* 1.
V. maxima pyrenaica, Cacaliæ folio. *Tournef. inſt.* 131.
V. canadenſis. *Riv. mon. t.* 6.
V. orientalis, Alliariæ folio, flore albo. *Buxb. cent.* 2. 19. *t.* 11.
Flowers three-ſtamened, ſtem-leaves cordate toothed petioled, uppermoſt ternate.
[15. Valeriana ſcandens. *Climbing Valerian.*
Lin. ſpec. 47. *Reich.* 1. 88. *Willd.* 1. 180. *Loeſl. it.* 235.
Flowers three-ſtamened, leaves ternate, ſtem ſcandent.
16. Valeriana mixta.

Lin

Lin. ſpec. 48. *Reich.* 1. 90. *Willd.* 1. 190. *Sauv. monſp.* 275.

Valerianella ſemine umbilicato hirſuto minore. *Mor. umb.* 68.

Flowers three-ſtamened, ſtem quadrifid, lower leaves bi-pinnatifid, ſeed-down feathered.

17. Valeriana ſupina.
Lin. ſyſt. 81. *Reich.* 1. 91. *Willd.* 1. 180. *mant.* 27. *Jacq. miſc.* 2. 114. *t.* 17. *f.* 2. *Ard. ſpec.* 2. 13. *t.* 3. *Roemer fl. europ. faſc.* 3.

V. ſaliunca. *Allion. pedem. n.* 9. *t.* 10. *f.* 2.

V. alpina foliis integris, radice repente inodora. *Raii hiſt.* 389.

V. montana minor italica, fol. integris, rad. repente. *Barr. rar.* 15. *t.* 868.

Flowers four-ſtamened, involucrets ſix-leaved three-flowered, leaves entire.

** Fediæ G. *with a three-celled crowned fruit.*

18. Valeriana villoſa. *Hairy Valerian.*
Lin. ſyſt. 81. *Willd.* 1. 181. *Thunb. jap.* 32. *t.* 6.

Flowers four-ſtamened equal, lower leaves eared, upper toothed villoſe.

19. Valeriana polyſtachya.
Lin. ſpec. ed. Willd. 1. 181. *Smith ic. ined.* 3. *t.* 51.

Flowers three-ſtamened, leaves pinnate, ſpike compound whorled.]

20. Valeriana ſibirica. *Siberian Valerian.*
Lin. ſpec. 48. *ſyſt.* 81. *Reich.* 1. 91. *Willd.* 1. 181. *hort. upſ.* 13. *Gmel. ſib.* 3. 123. *t.* 24. *Kniph. orig. cent.* 5. *n.* 99.

V. rupeſtris. *Pall. itin.* 3. 215.

Flowers four-ſtamened equal, leaves pinnatifid, ſeeds ſaſtened to an oval chaff.

21. Valeriana ruthenica. *Ruſſian Valerian.*
Lin. ſpec. ed. Willd. 1. 181.

V. lutea humilis. *Amman. ruth.* 18. *n.* 25. *t.* 3.

Flowers four-ſtamened, leaves ovate fleſhy pinnatifid-toothed, ſeeds faſtened to an oval chaff.

[22. Valeriana carnoſa. *Fleſhy Valerian.*
Lin. ſpec. ed. Willd. 1. 181. *Smith ic. ined.* 3. *t.* 52.

Flowers three-ſtamened, leaves oval toothed fleſhy glaucous.]

. Valeriana Cornucopiæ. *Purple Valerian.*
Lin. ſpec. 44. *ſyſt.* 79. *Reich.* 1. 84. *Willd.* 1. 181. *hort. cliff.* 15. *upſ.* 13. *Deſfont. atlant.* 1. 29. *Kniph. orig. cent.* 10. *n.* 91. *Sabb. hort.* 2. *t.* 19.

V. peregrina purpurea albave. *Baub. pin.* 164. *prodr.* 87.

V. indica. *Cluſ. hiſt.* 2. 54.—*f. mexicana. Park. theat.* 122. *f.* 6.

V. mexicana. *Ger. emac.* 1076. *f.* 6. *Raii hiſt.* 394.

V. peregrina ſ. indica. *Baub. hiſt.* 3. 212.

. Valerianella cornucopioides flore galeato. *Tournef. inſt.* 133. *Riv. mon. t.* 5.

Pſeudo-Valeriana cornucopioides annua purpurea. *Mor. hiſt.* 3. 104. *ſ.* 7. *t.* 16. *f.* 27.

Fedia cornucopiæ. *Gærtn. fruct.* 2. 36.

Flowers two-ſtamened ringent, leaves ovate ſeſſile.

[24. Valeriana echinata.
Lin. ſpec. 47. *ſyſt.* 81. *Reich.* 1. 90. *Willd.* 1. 182. *Ger. prov.* 218. 8. *Sauv. monſp.* 130. *Kniph. orig. cent.* 10. *n.* 92. *Deſfont. atlant.* 1. 30. C.

Valerianella echinata. *Baub. pin.* 165. *Raii hiſt.* 393.

V. cornucopioides echinata. *Column. ecphr.* 1. 204. *t.* 206.

Flowers three-ſtamened regular, leaves toothed, fruit-linear three-toothed, outmoſt larger recurved.]

25. Valeriana olitoria. *Common Corn-Salad or Lamb's Lettuce.*
Lin ſpec. ed. Willd. 1. 182. *Allion. pedem. n.* 12.

V. Locuſta. *Lin. ſpec.* 47. *ſyſt.* 80. *Reich.* 1. 89. *fl. ſuec. n.* 36. *vir. cliff.* 5. *hort. cliff.* 16. *upſ.* 14. *Hudſ. angl.* 13. *Wither. arr. ed.* 3. 66. *Smith brit.* 39. *engl. bot. t.* 811. *Curt. lond.* 5. *t.* 4. *Relh. cant. ed.* 2. *n.* 29. *Sibth. oxon. n.* 60. *Abbot beſſ. n.* 25. *Fl. dan. t.* 738. *Hoffm. germ.* 11. *Roth. germ.* 1. 17. 2. 39. *Leers herborn. n.* 28. *Krock. ſilef. n.* 51. *Neck. gallob.* 19. *Villars dauph.* 2. 287. *Deſfont. atlant.* 1. 30. *Berg. phyt.* 2. 235. *Plenck. ic. t.* 30. *Mill. dict. n.* 9. *Fl. ruſſ. t.* 24.

V. campeſtris inodora major. *Baub. pin.* 165. *Raii hiſt.* 392.

Valerianella olitoria. *Pollich pal. n.* 32.

V. *Hall. helv. n.* 214. *Kniph. cent.* 3. *n.* 95.

V. arv. præcox humilis. ſem. compreſſo. *Mor. umb.* & *ſ.* 7. *t.* 16. *f.* 36. *Raii ſyn.* 201. *Tournef. inſt.* 132.

Lactuca agnina. 1. *Tabern. ic.* 167. *Ger.* 242. *emac.* 310. 1.

Phu minimum Lobelii. *Dalech. hiſt.* 1127.

Album olus. *Ded. pempt.* 647. 1.

Locuſta herba prior. *Bauh. hiſt.* 3. 323. 2.

Fedia olitoria. *Gærtn. fruct.* 2. 36.

β. Lactuca agnina 2. *Tabern. ic.* 167. *Ger.* 242. *emac.* 310. 2. *Park. theat.* 812. 3.

Phu minimum alterum. *Lob. ic.* 717. *obſ.* 412. 2.

Locuſta minima. *Riv. mon. t.* 6. *f.* 2. *Bauh. hiſt.* 3. 324. 1.

Lactuca agnina. ſ. Valerianella foliis ſerratis. *Raii hiſt.* 392. *ſyn.* 201. 2. *Mor. hiſt. ſ.* 2.

Valerianella arv. præcox humilis, fol. ſerratis. *Tournef. inſt.* 132.

Flowers three-ſtamened, ſtem dichotomous, leaves lanceolate (linear-tongue-ſhaped) obtuſe entire (or the upper ones toothed.)

[26. Valeriana dentata. *Tooth-ſeeded Corn-ſalad.*
Lin. ſpec. ed. Willd. 1. 183. *Allion. pedem. n.* 13. *Smith brit.* 1385.

V. Locuſta δ dentata. *Lin. ſpec.* 48. *Hoffm. germ.* 12. *Roth. germ.* 1. 17. 2. 39. *Scop. carn. n.* 46. *Withr. var.* 6.

V. altera nudo umbilicato et lævi ſemine. *Column. ecphr.* 208. *t.* 209. *f.* 2.

Valerianella dentata. *Pollich pal. n.* 33. *Hall. helv. n.* 215.

Flowers three-ſtamened, ſtem dichotomous, leaves linear-tongue-ſhaped, quite entire (or ſomewhat toothed,) fruit ovate acuminate three-toothed, two of the teeth very ſhort.]

27. Valeriana veſicaria. *Bladder-fruited Corn-ſalad.*
Lin. ſpec. ed. Willd. 1. 183. *Mill. dict. n.* 10.

V. Locuſta β veſicaria. *Lin. ſpec.* 47. *hort. cliff.* 16. *Hoffm. germ.* 11. *Kniph. orig. cent.* 8. *n.* 98.

Valerianella eretica, fructu veſicario. *Tournef. cor.* 6. *Boerh. lugdb.* 1. 75. *ic.*

Flowers three-ſtamened, ſtem dichotomous, leaves lanceolate toothed, fruit inflated globular.

28. Valeriana coronata. *Crowned Corn-ſalad.*
Lin. ſpec. ed. Willd. 1. 184. *Allion. pedem. n.* 14. *Ger. prov.* 219. *n.* 10. *Mill. dict. n.* 11.

V. Locuſta γ coronata. *Lin. ſpec.* 48. *hort. cliff.* 16.

V. Locuſta coronata B. *Deſfont. atlant.* 1. 30.

Valerianella ſemine ſtellato. *Baub. pin.* 165. *Raii hiſt.* 393.

V. altera tenuifolia ſemine Scabioſæ ſtellato, &c. *Column. ecphr.* 1. 207. *t.* 209.

V. ſem. ſtellato. *Tournef. inſt.* 133.

V. petræa. *Ger. emac.* 1075. 4. *Park. theat.* 123. *f.* 8.

Fedia coronata. *Gærtn. fruct.* 2. 37.

Flowers three-ſtamened, ſtem dichotomous, leaves lanceolate toothed, fruit ſix-toothed.

[29. Valeriana diſcoidea.
Lin. ſpec. ed. Willd. 1. 184.

V. Locuſta ζ diſcoidea. *Lin. ſpec.* 48.

Pſeudo-Valeriana annua, ſemine coronato, major luſitanica. *Mor. hiſt.* 3. 104. *ſ.* 7. *t.* 16. *f.* 29.

Flowers three-ſtamened, ſtem dichotomous, leaves lanceolate toothed, fruit twelve-toothed, teeth hooked.

30. Valeriana radiata.
Lin. ſpec. ed. Willd. 1. 184.

V. Locuſta ε radiata. *Lin. ſpec.* 48. *Walt. carol.* 66. *Gron. virg.* 10.

Valerianella marilandica, foliis oblongis obtuſis. *Raii hiſt. ſuppl.* 244.

Flowers three-ſtamened, ſtem dichotomous, leaves oblong obtuſe, heads involucred.

31. Valeriana pumila. *Dwarf Corn-Sallad.*
Lin. ſpec. ed. Willd. 1. 184. *Sauv. monſp.* 13. *Gouan. hort.* 23.
V. Locuſta α mutica. *Lin. ſpec.* 1676.
V. ſemine umbilicato rotundo nudo. *Tournef. inſt.* 132.
Pha minimum. *Lob. ic.* 716.
Flowers three-ſtamened, ſtem dichotomous, lower leaves toothed, upper linear multifid.]

DESCRIPTIONS, &c.

1. Roots perennial, woody, as thick as a man's finger, ſpreading very wide. Stems about three feet high, round, ſmooth, grayiſh, hollow. At each joint two (ſometimes three,) ſmooth, ſpear-ſhaped leaves, near three inches long, and an inch broad. The upper part ſends out branches by pairs, which, with the principal ſtem, are terminated by red flowers growing in corymbs.

[The whole herb is very ſmooth and even. The upper leaves are ovate and very long pointed. The flowers are diſpoſed in a denſe and very branching corymb; they are ſlender, make a good appearance, and are uſually of a deep roſe colour; but vary to pale fleſh-colour and white [k]. Pericarp none, except the cruſt over the ſeed ſpringing from the calyx. Seed inferior, ovate, narrowed upwards, compreſſed a little, having a ſingle depreſſed ſtreak on one ſide, and three ridges on the other, rufeſcent: down ſeſſile, longer than the ſeed, compoſed of about twenty incurved feathered rays, united at the baſe into a membranaceous inverſely conical cup [l].

Native of France, Switzerland, Italy, the Levant and Barbary. In England on walls, but probably eſcaped by means of its downy ſeeds, from gardens. Gerarde ſays it grew plentifully in his garden, being a great ornament to the ſame, and not common in England. Parkinſon, that it grows in our gardens chiefly, for we know not the natural place of it. It is not acknowledged as an Engliſh plant by Ray, nor by Diſſenius. I have a ſpecimen with a white flower from Ely Minſter, gathered there by Profeſſor John Martyn above ſeventy years ago; and I found it growing abundantly with a red flower on Merton Abbey walls in Surry, on the twenty-third of Auguſt 1758. Mr. Hudſon ſays it is frequent in Devonſhire and Cornwall, both among rubbiſh and on walls. Mr. Relham remarks it to grow at Coton and Babraham, as well as on Ely Minſter and the walls adjoining, where I alſo have frequently ſeen it. Dr. Sibthorp obſerved it on Merton College walls, Oxford; and Dr. Smith in Biſhopgate-ſtreet, Norwich. It flowers all the ſummer and autumn, from the end of may.]

2. The root of this is not ſo large as that of the preceding ſort. Stems two feet high or more, branching on each ſide from the root to within ſix inches of the top. Leaves three or four inches long, but as narrow as thoſe of flax. Upper part of the ſtem naked, and terminated by a compact corymb of bright red flowers, ſmaller than thoſe of the former.

[It ſeems to be very diſtinct from the common Red Valerian, in having very narrow linear leaves. Native of the mountains of France, Switzerland, Italy and Barbary. Cultivated by Mr. Miller before 1743.]

3. This is an annual plant. The lower leaves, which ſpread on the ground, are cut into many obtuſe ſegments; the ſtalks, when the plants are in good ground, will riſe near a foot and half high, but upon dry ſtony ſoils not half ſo high, and when they grow out of the joints of old walls, not more than three inches in height: they are hollow, ſmooth, and round, ſending out branches by pairs from the upper joints. The ſegments of the pinnatifid leaves are very narrow. Stem and branches terminated by tufts (corymbs) of flowers ſhaped like thoſe of the Garden Valerian, but ſmaller and tinged with fleſh-colour at the top.

[Stem upright, ſometimes unbranched. Leaves very ſmooth; the lower ones ſmaller, on a long channelled petiole, ovate, obtuſe, entire or with unequal blunt teeth; the middle and upper ones pinnatifid, with toothed pinnules. Flowers corymbed, then panicled, directed one way, ſeſſile on dichotomous branchlets. Bractes awl-ſhaped, preſſed cloſe. Corolla ſmall, pale roſe-coloured. Seed oblong, compreſſed, attenuated upwards, ſtriated, crowned with a feathered down. It varies with the lower leaves pinnatifid; and flowers early in the ſpring [m].

Native of the South of France, Italy, Portugal, the Levant, and Barbary. Cultivated by Mr. James Sutherland in 1683 [n].

4. Root perennial, jointed, creeping, the thickneſs of a crow-quill, white, but ſometimes tinged with red. Stems from a ſpan to a foot or a foot and half in height, upright, grooved, ſmooth. Leaves next the root ovate, petioled, undivided. Stem-leaves few, oppoſite, pinnatifid or lyrate pinnate, ſmooth, generally entire, but ſometimes toothed or obtuſely ſerrate; the end lobe or leaflet large and ovate in the lower ſtem-leaves, ſmaller and lanceolate in the upper ones. Flowers forming a kind of corymb, or rather cymoſe panicle, and having a tinge of red, but paler in the female flowers; theſe alſo are much ſmaller and in cloſer corymbs: the male flowers are conſiderably bigger and more looſely diſpoſed; and the male plant is leſs and more tender. In the male flowers the filaments are longer than the corolla; the anthers, white or pale red; and ſometimes there is a ſhort minute piſtil in the centre: their number varies from one to four, but is uſually three. The female flowers have the germ ovate, flat, grooved, nearly the length of the corolla; the ſtyle white, ſomewhat thickened near the top, a little longer than the corolla, oblique; and the ſtigma trifid: ſometimes imperfect rudiments of ſtamens are viſible within the tube of the corolla. Seed ovate-oblong, pale brown, with a ſingle rib on one ſide, and three ribs on the other, crowned with a feathery down. Dr. Withering ſays, that in Portugal he obſerved female flowers producing perfect ſeeds, on the ſame plant with the male flowers. Scopoli affirms that he never ſaw any plants truly dioecous, or without perfect ſeeds. That is certainly not the caſe in England.

This ſpecies with us is pretty regularly dioecous; or if there be any hermaphrodite flowers, they are ſuch in ſtructure only, both organs not being perfect [o].

Native of Europe and the Levant, in wet meadows, marſhes, and by the ſide of ditches and ſtreams; flowering in may and june.

The roots have the ſame ſmell with the officinal and garden Valerian, and have like properties with them, but in a much weaker degree than the former.

5. Found at the Cape of Good Hope by Thunberg.]

6. Root perennial, compoſed of long fleſhy ſlender fibres, uniting in heads, [and ſending out from its crown one or more long-extended creeping ſhoots. Stems in dry ground from one foot to two feet in height, but in woods and hedges, moiſt ground, and gardens four or five feet high, upright, round, grooved, hollow, in ſome parts more or leſs hairy, terminating in flowering branches which are brachiate or diſpoſed croſſwiſe. Leaves oppoſite, connate, bearded at the baſe on the under ſide, all pinnate; the midrib ſomewhat downy; the pinnæ or leaflets eleven to thirteen, almoſt all equal, oppoſite or alternate, ſlightly decurrent, unevenly and diſtantly toothed, veiny, wrinkled, paler on the under ſide, ſlightly hairy, the terminating leaflet three-lobed not bigger than the others: the lower leaves on long petioles, the upper ones nearly ſeſſile; the uppermoſt on the flowering-branches trifid, and ſometimes entire. Flowers in a kind of corymb, of a pale fleſh-colour, and having a ſingular odour. Flower-ſtalks much branched, and many times divided. Bractes lanceolate, acuminate, connate, whitiſh, with a green midrib. Calyx only a ſlight margin on the top of the germ. Filaments longer than the corolla, bending back when the anthers have ſhed their pollen; anthers of the ſame colour as the flower. Germ conic: ſtigma obtuſe, white, and trifid. Seed ovate-oblong, compreſſed, furniſhed with a pappus or down, having twelve feathery rays, of a purpliſh colour at the baſe [p].

[k] Smith brit. [l] Gærtner. [m] Deſfontaines. [n] Hort. kew. [o] Curtis. Smith brit. Withering. [p] Curtis, Smith brit. Relh.

Native of Europe and Siberia; in woods, hedges, marſhes, and near rivers: it alſo grows among buſhes in high paſtures and on dry heaths, and is then much ſmaller and more hairy, with the leaves narrower, and the roots more highly aromatic and leſs naufeous. It flowers in june.

The root has a ſtrong, and to moſt people a diſagreeable ſmell; its taſte is warm, bitteriſh and ſubacrid, communicating its properties to wine, water, and ſpirit; but it is beſt in ſubſtance, and may be taken from half a dram to two drams for a doſe. There is no doubt of its poſſeſſing antiſpaſmodic virtues in an eminent degree. It is often preſcribed with advantage in hyſterical caſes; and inſtances are not wanting where it appears to have removed ſome obſtinate epilepſies. In habitual coſtiveneſs it is an excellent medicine, and frequently looſens the bowels, when other ſtronger purgatives have been tried in vain [s].

The unpleaſant flavour of Valerian is beſt concealed by a ſmall addition of mace. A tincture of the root in proof ſpirit, and in volatile ſpirit, are ordered in the London Pharmacopœia. Dr. Cullen ſays, that if it has ſometimes failed, it is from the diſeaſe depending upon different cauſes, or the root being frequently employed in an improper condition, or in doſes not large enough [t]. I have known very great effects produced in hyſterical caſes by Valerian; but then the root was procured from dry calcareous paſtures, and it was given in conſiderable quantities during a long time.

It is well known that cats are much delighted with the roots. Dr. Stokes informs us that rats are equally fond of them, and that rat-catchers employ them to draw the rats together.]

7. Roots thick, fleſhy, jointed, ſpreading near the ſurface in a very irregular manner, croſſing each other, and matting together by their ſmall fibres. Many of the root-leaves entire, others divided into three, five, or ſeven, obtuſe lobes, of a pale green and quite ſmooth. Stems three or four feet high, hollow, ſending out lateral branches by pairs. Stem-leaves oppoſite at each joint, compoſed of four or five pairs of long narrow leaflets, terminated by an odd one. Stem and branches terminated by corymbs of ſmall white flowers. Seeds oblong, flat, with a pappus or downy crown.

[Linneus remarks, that this differs from the officinalis, in not having the ſtem grooved, and the outer leaflets being larger than the others.—The root-leaves are on long petioles oblong, glandular at the edge and ſometimes ſlightly crenate. Petiole channelled. Stem-leaves remote; the lower ones often two-lobed or three-lobed, the middle and upper ones pinnate: pinnules lanceolate, acute, quite entire, except the end ones, which are ſometimes toothed. Stem upright, ſmooth. Bractes linear-ſubulate. Segments of the corolla oblong, obtuſe, crenulate. Stigmas three [u].

Native of Alſace, Sileſia, Dauphiné, Barbary near La Calle: flowering from may to july. Gerarde, in 1597, ſays it was then planted in our gardens.

The odour of the flowers is very pleaſant, whereas that of the officinal Valerian is rather diſagreeable. The root has the ſame ſmell, taſte, and qualities with that, but is inferior to it as a medicine, at leaſt with us. Where it grows wild, it may perhaps be as good.

8. Root perennial, long, unequal, browniſh, ſtrong-ſmelling. Root-leaves oblong-cordate, bluntiſh, ſmooth, obtuſely ſerrate-toothed, on long petioles: the two firſt of theſe that come out are more inclined to roundiſh, and are only ſlightly crenate. Stem upright, undivided, about a foot high. Stem-leaves two or three pairs, ſmooth, ternate, on ſhort petioles: leaflets confluent at the baſe, lanceolate, acute, unequally ſubſerrate, the middle one larger than the others: they vary much, being gaſh-ſerrate, crenate, or even quite entire; the uppermoſt are ſometimes lanceolate-linear and quite entire, ſometimes pinnate with five leaflets. Flowers numerous, white, in looſe corymbs. Seeds downy [w].

Linneus remarks, that the proper involucres are two-leaved and briſtle-ſhaped.—And Villars, that the roots are thick, woody, and creeping, forming conſiderable tufts on the rocks; and that the leaves are of an aſh green or glaucous.

Native of the Alps of Switzerland, Auſtria, Carniola, Dauphiné and Piedmont; flowering all the ſummer. —With us it flowers from march to may; and was cultivated by Mr. Miller in 1739 [x].

9. This agrees in ſtature and habit with the preceding; but this is more tufted, and has the root commonly creeping horizontally, more divided, and not ſmelling ſo ſtrongly. All the leaves are acute, unequally ſerrate or toothed and ſmooth; the root-leaves are on long petioles, and are more or leſs attenuated at the baſe towards the petiole; the ſtem-leaves vary in number, are on ſhort petioles, and rather oblong. Stem upright, ſimple, a foot or eighteen inches high. Flowers in a corymb, whitiſh or purpliſh. Seeds downy [y].

Scopoli remarks, that the lower leaves are oval and blunter; the upper ones oblong-acuminate, toothed; the uppermoſt ſubſeſſile: and that the leaves being always ſubdivided, is a ſufficient diſtinction of this from the preceding.

Native of the mountains of Switzerland, Auſtria, Carniola, Dauphiné, Piedmont, Sileſia, Siberia: flowering there all the ſummer.—With us it flowers in june and july; and was cultivated by Mr. Miller in 1739 [z]. Theſe two ſpecies were in the ſecond volume of Mr. Miller's Dictionary publiſhed in 1739. He had nineteen ſpecies there, beſides ſeven ſpecies of Valerianella: many of which are omitted in the later editions of the Dictionary.

Villars has a ſpecies, which he names rotundifolia, but ſuſpects that it may be a variety of this. He remarks that the montana is of a ſize between the tripteris and this; that it is greener than the firſt; but leſs green than the ſecond; that the leaves are all petioled, and that there are three or four pairs on the ſtem; that the petioles of the root-leaves are ſhorter, and that it does not form tufts like the rotundifolia, that the flowers alſo are more widely ſeparated, and the ſtem-leaves terminated by a lengthened point.

The rotundifolia is the leaſt of the three, and its flowers approach a little to thoſe of the elongata; but the leaves differ too much for it to be a variety of that: it has rarely any deep diviſions in them, or even earlets at the baſe of the ſtem-leaves, any more than in the montana; whilſt the tripteris has them ſometimes entire. Theſe three ſpecies are very nearly allied, and the varieties of montana and tripteris are diſtinguiſhed with difficulty, whereas the rotundifolia is eaſily known by its large tufts, numerous green leaves, and low ſtems.

10. Root perennial, black, oblique, with long fibres, ſmelling very ſtrong, aromatic, cauleſcent at top and ſcaly with the remains of the deciduous leaves. It is often in tufts with an upright ſtem, four or five inches high. All the leaves are quite entire and obtuſe; the root-leaves ſubovate, and attenuated into the petiole at the baſe; ſtem-leaves two, oppoſite, linear and ſeſſile, about the middle of the ſtem, but there are ſometimes none. Stem ſlender, ſimple, terminated by a few ſmall whitiſh flowers in a corymb. Seeds downy [a].

It is a very humble plant, the ſtalks trailing upon the ground among the moſs, and putting out roots at their joints, which ſwell into knobs or tubers. The flower-ſtalks riſe three or four inches high, and have two or three pairs of ſmall ovate leaves. The flowers are ſmall, of a pale fleſh-colour, in a looſe ſeſſile corymb. It flowers in june.

Mr. Miller had it from Dr. Allione, who gathered it on the alps near Turin: [that author ſays that it is ſtronger than the officinal ſpecies. It is found alſo in Switzerland, Auſtria and Carniola; and cultivated by Mr. Miller in 1739.

11. Roots perennial, and tuberous, by which it is eaſily diſtinguiſhed; there is a variety which has them longer; the plant is larger, and the leaves more cut and of a cinereous green; the other is greener, ſmaller, leſs cut, and the roots in form of an olive [b].

[s] Withering. [t] Woodville. [u] Deſfontaines. [w] Jacquin obs.
[x] Hort. kew. [y] Jacqu. vind. [z] Hort. kew. [a] Jacquin.
[b] Villars.

Accord-

According to Linneus, the ſtem-leaves have two pinnas on each ſide; whereas the preceding has two linear obtuſe ſtem-leaves, and the flowers in whorls. —This is native of the ſouth of Europe, and was cultivated in 1739 by Mr. Miller. It flowers in may and june [b].

12. Root perennial, blackiſh, with numerous and long fibres, covered with the remains of leaves, having the ſmell and taſte of officinal Valerian, but much more unpleaſant and acrid, and leaving a bitterneſs on the tongue. The whole plant is ſhining, and about half a foot high. Root-leaves ſubovate, cut with few teeth, ſometimes quite entire, blunt, three-nerved, thickiſh, almoſt inſipid, attenuated into the petiole. Stem-leaves one pair, below the middle, linear or oval-linear, obtuſe, quite entire or ſometimes having a few teeth, almoſt an inch long, with ſometimes a common peduncle from each axil. Stem ſimple, roundiſh, ſubdivided at top. The common peduncles are not more elongated in the flowering plant than in other ſpecies. Flowers white. Seeds downy [c].

According to Monſ. Villars, the nerved pointed leaves, and higher ſtems terminated by long racemes of flowers, ſufficiently diſtinguiſh this ſpecies from the celtica.

Native of the mountains of Stiria, Auſtria, Sileſia, Dauphiné and Piedmont.

13. Root perennial, with fewer fibrils, dirty white, having little taſte or ſmell. It is a ſhining upright plant, with a ſimple ſtem half a foot or a ſpan in height. Root-leaves ovate, quite entire or ſometimes ſlightly toothed, blunt, on long petioles, attenuated at the baſe, thickiſh. Stem-leaves two or three pairs, ſeſſile, embracing, reſembling the root-leaves, but deeply cut or gaſh-haſtate. Raceme terminating, erect, long; with the pedicels oppoſite, dichotomous, ſhortiſh. Or as Jacquin deſcribes it, all the common peduncles at diſtances oppoſite, ſix on each ſide, corymbed, divided at top into two or three others, many times ſhorter than the primary common peduncle, forming, not a corymb or cyme, but a long pyramid, which riſing from the upper leaves takes up half the height of the plant. Bractes linear. Corolla ſmall, duſky, regularly five-cleft [d].

Scopoli ſays it differs from montana by its radical gem, panicled ſtalk, and leaves under the firſt racemes moſtly trifid:—from tripteris, by its leaves toothed all round; the ſtem-leaves ovate, the root-leaves always longer than the petiole.

Native of the mountains of Lower Auſtria; flowering in july.]

14. Root perennial, fibrous, from which come out many heart-ſhaped leaves, on petioles more than a foot in length; they are four inches over each way, bluntly ſerrate, ſmooth, and of a bright green on their upper ſurface, but pale and a little hairy underneath. The ſtalks riſe three feet high, are hollow, channelled, and ſend out oppoſite branches towards the top. Stem-leaves oppoſite, ſhaped like the lower ones, but a little pointed; and frequently at the top there are ternate leaves ſtanding upon ſhort foot-ſtalks. The ſtem and branches are terminated by umbels of pale fleſh-coloured flowers, having very ſhort ſpurs. Seeds downy. It flowers in june; and the ſeeds ripen in auguſt. Native of the Pyrenees. [Cultivated in 1692, by Charles Dubois, Eſq.[e]

15. Panicles axillary. Down feathered. Native of Spain [f].

16. Found about Montpelier.

17. Root perennial. Plant ſmall, ſcarcely bigger than a Daiſy, even when cultivated. Root-leaves obovate, petioled, quite entire: ſtem-leaves lanceolate, ſeſſile. Corymb terminating, made up of oppoſite peduncles. Involucre ſix-leaved, linear, three-flowered [g].

Ray firſt obſerved it on mount Saleve near Geneva. It was found about the ſame time by Barrelier in Italy. Arduini and Allione have ſince found it in Italy, and Wulfen in Carinthia and the Tyrol.

18. Root fibrous. The whole ſtem, leaves, and panicle, denſely hirſute. Stem ſimple, upright, a foot high. Root-leaves petioled, aggregate, ovate, ear-lyrate, a hand long: two lobes in the middle of the petiole, alternate, linear, entire, a line in length, often wanting; two other eared lobes at the top of the petiole, oppoſite, ovate, toothed, half an inch long; terminating lobe very large ovate, unequally gaſh-ſerrate, nerved, an inch wide, two inches long: ſtem-leaves ſeſſile, oppoſite, ovate, acute, gaſhed or ſubly-rate, toothed, half an inch long. Petiole compreſſed, widening gradually into the leaf. Flowers axillary and terminating, panicled. Panicle trichotomous, compound. Bractes linear. Corolla ſubrotate, yellow. Anthers ovate, twin. Style ſhorter than the ſtamens. Stigma cup-ſhaped. It differs from ſibirica by its eared leaves, and the hairineſs of the whole plant. Native of Japan, in Jedo, Nagaſaki, &c. flowering in ſeptember and october [h].

19. Root perennial. Stem aſcending, roundiſh, ſtriated, ſmooth. Leaves oppoſite, unequally pinnate with nine or eleven leaflets, which are oppoſite, decurrent, linear-lanceolate, bluntiſh, quite entire except that the terminating leaflet is ſometimes toothed a little, the lower ones ſmaller, ſmooth. Stipules none except a few ſmall ciliate intrafoliaceous hairs. Spike terminating, erect, compound, brachiate, many-flowered: compoſed of many ſpikelets, which are oppoſite with a pair of leaflets at the baſe which are ciliate at bottom, acute, in whorls, the terminating one a little bigger than the reſt: whorls many, from ſix to ten-flowered, decuſſated, ſupported by numerous, ovate, acute, ſubcarinated, ſmooth bractes. Calyx only a ſcarcely viſible rim to the germ. Corolla white, ſcarcely gibbous at the baſe, with an equal border, ſhorter than the tube; ſegments ſubovate, obtuſe, three nerved. Filaments a little longer than the corolla: anthers roundiſh, incumbent. Germ oblong, ſmooth: ſtyle ſhorter by half than the ſtamens, ſubclavate, pale: ſtigma ſmall, bluntiſh. Seed oval, ſeeming to have no down. This ſpecies may be diſtinguiſhed by its peculiar inflorescence, approaching to that of the ſpiked Mints. Found in watery places at Buenos Ayres in America by Commerſon [i].

20. Root annual. Native of Siberia.

21. Root perennial. Native of Siberia. Willdenow has diſtinguiſhed this ſpecies from the preceding at the perſuaſion of Pallas. Mr. Miller has thus deſcribed his ſibirica.] Root biennial. Leaves pinnatifid: lobes of the lower ones oblong, oval, ending in roundiſh points. Stems a foot high. Stem-leaves oppoſite, ſeſſile, ſmooth, of a pale yelloviſh colour; they have four or five pairs of lobes terminated by a broad one, which is cut into three or five points. The upper part of the ſtem has two pairs of branches; the lower pair near three inches long, the upper one not half that length: theſe and the principal ſtem are terminated by bright-yellow flowers, collected in a ſort of umbel. They appear in july; and the ſeeds ripen in autumn. [Cultivated in 1759, by Mr. Miller [k].

22. Root perennial, tufted. Stems a foot high, upright, round, ſmooth. Leaves groſsly toothed eſpecially towards the baſe, ſucculent: the root-leaves on long petioles, oval, obtuſe; the ſtem-leaves ſmaller, ſubſeſſile, oppoſite, obovate. Stipules none. Flowers in a terminating, trichotomous, many-flowered cyme. Bractes at each branch oppoſite, lanceolate, acute, ſomewhat membranaceous. Partial peduncles once dichotomous, with one ſeſſile flower at the diviſions; then racemed, ſimple, from three to five-flowered: flowers ſeſſile, bracteolate, upright and directed one way. Corolla purple: border almoſt regular; ſegments obtuſe, concave. Filaments a little longer than the corolla: anthers ſubcordate. Germ ovate-oblong, curved, ſmooth: ſtyle club-ſhaped, of the ſame length with the ſtamens: ſtigma ſimple, obtuſe. Seed ſcarcely ſtriated, crowned with ſmall teeth. Found by Commerſon in the Straits of Magellan [l].]

23. Root annual. Stems pretty thick, channelled,

[b] Hort. kew. [c] Jacqu. vind. [d] Linn. ſpec. & Jacqu. vind. [e] Hort. kew. [f] Loefling. [g] Linn. mant. [h] Thunberg. [i] Smith. [k] Hort. kew. [l] Smith.

of

of a purpliſh colour, eight or nine inches high. At each joint is a pair of ſmooth leaves, of a lucid green, an inch and half long, and an inch broad. From each ſide of the ſtem ſpring ſlender branches; but the upper part divides into two ſpreading branches like the others. The joints are ſwelling and theſe branches divide again by pairs: theſe are terminated by cluſters of red flowers, ſhaped like thoſe of the red Valerian, (n. i.) but larger: there are two embracing leaves cloſe under the bunches. When the flowers are paſt, the fruit ſtretches out in ſhape of a cornucopia.

[Stem hollow, ſtriated, ſmooth, procumbent, dichotomous, with the peduncles very much thickened. Leaves very ſmooth, ſomewhat fleſhy: the lower ones ovate-oblong, obtuſe, decurrent; the upper ones ſeſſile, ovate. Flowers aggregate, terminating, ſeſſile. Bractes awl-ſhaped. Calyx margined, when the fruit is ripe pitcher-ſhaped. Corolla the ſame ſize as in V. rubra, and ſubbilabiate: ſegments unequal, obtuſe: tube gibbous at the baſe, but not ſpurred. Stigmas three, very ſmall. Seed oblong, cloſed and crowned by the calyx[m].

According to Gærtner, who has adopted Adanſon's name of Fedia, for theſe ſpecies which have no feed-down; the fruit is a capſule nearly of a parallelopiped form, compreſſed, a little fungoſe, crowned with the halved three-toothed calyx, ſlightly concave on one ſide, flattiſh on the other, having a raiſed line running along the middle on each ſide: the ſpurious cells very narrow, and almoſt obliterated. Seed ovate-acuminate, compreſſed, without any albumen: embryo inverted, yellow.

Native of Spain, Italy, Sicily, Armenia, Barbary. Cultivated by Gerarde in 1596. It flowers here from may to auguſt[n].

24. Root annual. Stem dichotomous. Leaves lanceolate, ſeſſile, bluntly toothed. Flowers from the diviſions, ſolitary, ſeſſile. Fruit linear three-toothed at the tip; the outer tooth larger and recurved. Corolla regular, white. Stigma trifid. The upper flowers are digeſted into dichotomous, coadunate, obtuſe ſpikes, with the bractes and peduncles thickened; as if it were produced from V. Locuſta as a mother, and V. Cornucopiæ as a father[o].

Native of Italy, the ſouth of France and Barbary, in ſhady places.

25. Root ſmall, annual, fibrous, pale brown. Stem dichotomous, ſomewhat ſpreading, from four inches to a ſpan, and even a foot or more in height, (in gardens;) round, grooved, or angular, tender, often tinged with purple on one ſide. Leaves glaucous, pale, obovate-lanceolate or rather linear-tongue-ſhaped. Bottom-leaves many, uſually entire but ſometimes very ſlightly toothed near the baſe, ſomewhat ſpreading, rather ſucculent, ſmooth, veiny, and a little wrinkled, from three quarters of an inch to two inches in length. Stem-leaves oppoſite at each ſubdiviſion, ſeſſile, remote, uſually more toothed than the bottom leaves: both theſe and the ſtem are ciliate or fringed at the edges with fine white hairs. The flowers are very ſmall, of a pale blueiſh colour, and collected into a cloſe little corymb, protected by an involucre[p]. There is one ſeed to each flower. Gærtner calls it a capſule, which he deſcribes as ſubglobular, crowned with the calyx, which is obliquely truncate and unequally three-toothed, on one ſide twin by a groove along the middle, on the other ſide marked with three filiform ſtreaks, three-celled, valveleſs; two of the cells inflated and barren, the third contains the ſeed, which is ovate-acuminate, compreſſed, tranſverſely wrinkled, of a pale yellow or browniſh colour.

Native of Europe and Barbary, in corn fields, on banks, and under hedges: flowering in april and may.

Early in the ſpring, and even during the greateſt part of a mild winter, this little plant will furniſh a tolerable material for ſalads. Dr. Withering ſays, the tender leaves are little inferior to young lettuce; but Mr. Miller obſerves] that having a ſtrong taſte which is not agreeable to many palates, it is not ſo much in uſe as it was formerly.

[Gerarde, who ſays it may be called from the Dutch *White Pot-herb*, informs us, that ſince it hath grown in uſe among the French and Dutch ſtrangers in England, it hath been ſown in gardens as a ſalad herb. The French call it *Salade de Prætre*, from its being generally eaten in lent. Being common in corn fields, and appearing about the time when lambs are dropped, it has obtained in Engliſh the names of *Corn Salad*, and *Lamb's Lettuce*[q].

β. There is a variety of this, which is ſmaller and has jagged leaves. Ray gives it as a different ſpecies. Several others which Linneus conſidered as varieties, are here given from Willdenow as diſtinct ſpecies.

26. This differs from the preceding in having the ſtem higher and more divaricating, the panicle dichotomous repeatedly, with a flower ſeſſile at each diviſion, and in the ſtructure of the fruit, which is ovate, gibbous and poliſhed on one ſide, navelled on the other, with very unequal teeth at top. It varies with the leaves toothed a little. Native of Germany, France, Italy, and England, among corn[r]. Found in Cornwall by Mr. E. Forſter, jun. in 1799[s].]

27. Stems ſix or eight inches high. Leaves much narrower than in the *olitoria*, ending in acute points and ſerrate. Flowers like thoſe of the common ſort, but having a ſwollen bladdery calyx incloſing the ſeed. [This has ſix briſtle-ſhaped teeth, bent in; and the involucrets are five-leaved and three-flowered[t]. Native of Crete or Candia, and of Barbary.]

28. Bottom leaves three or four inches long, round-pointed, and deeply notched[u] on their edges. Stem near a foot high, ſending out branches by pairs from the joints below. Flowers in globular heads, of an herbaceous white colour.

[Capſule, according to Gærtner, coriaceous, villoſe, inverſely pyramidal, three-cornered, ſcored with a deep groove, crowned by the calyx, which unfolds into a membranaceous circle variouſly and unequally toothed: ſpurious cells narrow; the fertile one twice as wide, and compreſſed. Seed ovate-acuminate, ſmall; without any albumen: embryo inverted, whitiſh. Native of the South of France, Italy, Portugal, and Barbary. This and the preceding were cultivated by Mr. Miller in 1739.

29. Root-leaves ſucculent, narrow, little gaſhed, ſpreading on the ground. Stem half a foot high, ſolid, brachiate at top: having a pair of leaves at each joint, embracing the ſtem, and having three or four deep gaſhes. Flowers in terminating cluſters, ſmall, purpliſh-white. Seeds having a cartilaginous crown with ſix rays. Native of Portugal on the borders of fields[x].

30. Native of North America.

31. This is a ſmall plant, ſcarcely three inches high; found about Montpelier[y].

Theſe from n. 23. are annual, as are alſo the third and twentieth ſpecies; the reſt are perennial.

Linneus has conſidered all the ſpecies from n. 25. to the end as varieties of one only: they are not changed by culture, and when raiſed from ſeed preſerve their ſeveral appearances. The Fediæ with a three-celled fruit, not downy, deſerve to make a ſeparate genus, in the opinion of ſome.

Moſt of the ſpecies have three ſtamens: but n n. 1, 2, 3, have one ſtamen; n. 23. has two ſtamens; and n n. 17, 18, 20, 21. have four.

The uſual colour of the Corolla is either white or red. White in n n. 7 to 13, 17, 19, 24, 28. Red in n n. 1 to 4, 6, 14, 22, 23. Some of the Whites are tinged with red; and ſome of the Reds are only partially ſo, or very pale. N n. 18, 20, 21 are yellow: and 25, 26, 27 have a blueiſh tinge.]

PROPAGATION AND CULTURE.

1, 2. Part the roots in autumn; or ſow the ſeeds ſoon after they are ripe, in a ſhady border; where they will ſometimes come up the ſame autumn, eſpecially if the ſeaſon prove moiſt, otherwiſe they will not appear till the following ſpring. When the plants are fit to remove, tranſplant them into beds, at about nine

[m] Desfontaines. [n] Hort. kew. [o] Lin. ſpec. [p] Fl. ruſt. Curtis, Smith.

[q] Fl. ruſt. Curtis. [r] Willdenow. [s] Smith brit. [t] Linn. ſyſt. [u] Moriſon. [x] Linn. ſpec.

inches or a foot aſunder: water them, and keep them clean; and in autumn tranſplant them where they are to remain.

Theſe plants grow large, and therefore are not proper for ſmall gardens. When the ſeeds light on joints of old walls or buildings, the plants will thrive as well as in the ground, and will continue much longer; the ſeeds therefore may be ſcattered on grottos and rock-work, where the plants will flower from may till the froſt ſtops them, and make a good appearance.

3. This will increaſe by its downy ſeeds without care.

6. Part the roots in ſpring or autumn, and plant them upon a dry, freſh, undunged ſoil, in which, though the roots will not make near ſo great progreſs as in a rich moiſt ſoil, yet they will be much preferable to them for uſe. The roots ſhould be taken up when the leaves decay in autumn, and preſerved dry until uſed. But the roots which grow wild upon dry chalky ſoils are much preferable to thoſe which are cultivated in gardens; which is the caſe with all the aromatic plants.

7. Cultivate the garden Valerian in the ſame way. The plants ſhould be ſet about two feet aſunder in the beds, for they ſpread and multiply very faſt. If the ſeaſon be dry, they muſt be watered until they have taken root.

8 to 13. The Alpine ſorts are difficult to preſerve in gardens; naturally growing on rocks covered with moſs, where the ſnow continues ſix or ſeven months; they require therefore a cold ſituation and ſtony ſoil.

14. This delights in ſhade and a moiſt ſoil. Sow the ſeeds on a ſhady border ſoon after they are ripe, and when the plants come up, treat them as directed for the firſt ſort.

20, 21. Sow the ſeeds where the plants are to remain, either in autumn, ſoon after they are ripe, or in the ſpring. When the plants come up, thin them where they are too cloſe, and keep them clean from weeds.

25. When this is cultivated as a ſalad herb, ſow the ſeeds in autumn, on the ſpot where they are to remain. If they are ſown at the end of Auguſt, the firſt rains will bring up the plants; they ſhould be hoed, to thin them where they are too cloſe, and to deſtroy the weeds. Early in the ſpring the plants will be fit for uſe; and the younger they are when uſed, the leſs ſtrong will be their taſte. The ſeeds will lie in the ground many years, when they happen to be buried deep; and upon being turned up to the air, the plants will come up as thick as if the ſeeds had been newly ſown.

23, 24, 26, &c. Sow the ſeeds in autumn, where the plants are to remain. When they come up thin them and keep them clean. The plants which riſe in autumn, will live through the winter, and come early to flower in the following ſummer, ſo as to produce good ſeeds; whereas thoſe which riſe in the ſpring, do not ripen their ſeeds unleſs the ſeaſon prove warm.

[VALERIANA. See *Eranthemum*, *Eupatorium*, *Polemonium*, *Selago*, *Stilbe*.

VALERIANELLA. See *Boerhaavia*, *Hebenſtreitia*, *Hedyotis*, *Hydrocotyle*, *Linnæa*, *Phyllis*, *Valeriana*.

VALERIAN, GREEK. See *Polemonium*.

VALERIANOIDES. See *Arctopus*, *Eranthemum*, *Gnidia*, *Hebenſtreitia*, *Verbena*.

VALLARIS. See *Pergularia*.

VALLIA-CAPO-MOLIGO. See *Capſicum*.

VALLIA-MANGA-NARI. See *Verbeſina*.

VALLI-ONAPU. See *Impatiens*.

VALLI-PANNA. See *Ophioglоſſum*.

VALLISNERIA. (*So named by Micheli, in honor of Antonio Vallisneri, Profeſſor of Medicine at Padua, Archiater to the Emperor Charles* VI. *Fellow of the Royal Society of London, and many foreign Societies. Born* 1661. *Died* 1730. *Author of* Opere fiſico-mediche: *publiſhed by his Son at Venice* 1733, *in three volumes fol.*)

Lin. gen. n. 1097. *Reich. n.* 1199. *Schreb. n.* 1491. *Micb. gen. t.* 10. *Juſſ.* 67. Vallisneroides. *Micb.* 10.

Claſſ. 22. 2. Dioecia Diandria.

Nat. Order of *Palmæ* §. *Hydrocharides* Juſſ.

GENERIC CHARACTER.

* *Male.*

CAL. *Common Spathe* two-parted: *ſegments* oblong, bifid, reflexed.

Common Spadix compreſſed, covered all over with flowers, digeſted into a ſpike.

COR. One-petalled, three-parted. *Tube* none; *ſegments* obovate, ſpreading very much and bent back.

STAM. *Filaments* two, upright, length of the corolla.

Anthers ſimple.

* *Female.*

CAL. *Spathe* one-flowered, cylindrical, long: with the mouth bifid, erect.

Perianth three-parted, ſpreading, ſuperior: *ſegments* ovate.

COR. *Petals* three linear, very narrow, truncate, ſhorter than the calyx.

Nectary a ſpreading cuſp placed under each of the ſtigmas.

PIST. *Germ* cylindrical, inferior, long. *Style* ſcarcely any. *Stigma* three-parted: *ſegments* ſemibifid, oval, convex, longer than the calyx, ſpreading, pubeſcent above.

PER. *Capſule* cylindrical, long, one-celled.

SEEDS numerous, ovate, faſtened to the ſide of the capſule.

ESSENTIAL CHARACTER.

MALE. *Spathe* two-parted. *Spadix* covered with floſcules. *Cor.* three-parted.

FEM. *Spathe* bifid, one-flowered. *Cal.* three-parted, ſuperior. *Stigma* three-parted. *Capſ.* one-celled, many-ſeeded.

SPECIES.

1. Vallisneria ſpiralis. *Two-ſtamened Vallisneria.*
Lin. ſpec. 1441. *ſyſt.* 878. *Reich.* 4. 221. *fl. lapp. n.* 371. *hort. cliff.* 454. *Gunn. norv. n.* 1083. *Hall. helv. n.* 1309. *Dalib. par.* 296. *Villars dauph.* 2. 23.
V. paluſtris, algæ folio, italica, foliis in ſummitate denticulatis, flore purpuraſcente. *Mich. gen.* 12. *t.* 10. *f.* 1. (Fem.)
Potamogeton, algæ folio, piſanum. *Bocc. muſ.* 1. 29.
Vallisneroides paluſtre, algæ folio, italicum, fol. ſummitate tenuiſſime denticulatis, flor. albis vix conſpicuis. *Mich. gen.* 13. *t.* 10. *f.* 2.
Flowers two-ſtamened.

2. Vallisneria octandra. *Eight-ſtamened Vallisneria. Roxb. corom.* 2. 34. *t.* 165.
Flowers eight-ſtamened.

DESCRIPTIONS, &c.

1. This is an aquatic plant, with long, thin, almoſt tranſparent leaves, with parallel nerves and plaits dividing it tranſverſely, very finely ſerrate at the end and floating on the water. The male flower is very ſmall and white, and is borne on a very ſhort ſcape at the bottom of the water: when it is mature it breaks looſe, and floats on the ſurface. The female flower, which is larger and purple, grows on a ſpiral ſcape, which contracts or unfolds according to the depth of the water, ſo that the flower when it opens is always at the ſurface; and when flowering time is paſt, the ſcape contracts and the fructification is completed at the bottom of the water.

The œconomy of this ſingular plant is a remarkable confirmation of Linneus's doctrine of the ſexes in vegetables. Micheli, who did not admit this doctrine, and conſidered the male plant not only as a diſtinct ſpecies but as a different genus from the female, remarks that it is wonderful in theſe flowers, and a ſingular inſtance, that before they open, they are ſeparated from the plant, and being raiſed to the ſurface, open ſuddenly with a kind of elaſtic force, and the ſegments of the petals are bent downwards; in this ſtate they ſwim at large upon the ſurface, and during ſummer and autumn are in ſuch quantities in ſome places as to whiten the whole ſurface of the water.

With reſpect to the female plant, Micheli, who firſt obſerved, deſcribed and figured both, ſays that

it is in ſuch quantities in the great ditches about Piſa, that the roots in ſome parts occupy the whole bottom, and the leaves cover the ſurface in ſuch a manner as to impede the paſſage of the barges along them.

Linnæus found it abundant in the rivulets of Finmarck, but did not obſerve it to flower either there or at Upſal. Gunner alſo ſays it is every where in Finmarck and Norland. La Chenal found it in Switzerland, but it is not ſaid where. It grows in the Rhone near Orange[r].

2. Root annual, fibrous. Leaves radical, linear, tapering to a fine point, ſmooth, from nine to twelve inches long, and half an inch or leſs broad—In the Male, peduncle or rather ſcape axillary, ſtraight, a little compreſſed, length of the leaves or more, ſo as to raiſe the flowers above the ſurface of the water. Spathe one-leafed, ſubcylindric, ſomewhat diaphanous, open at the top for the unexpanded flowers to paſs through. Flowers numerous in ſucceſſion, white, pretty large, pedicelled. The pedicels lengthen, when the flowers are ready to expand, ſo as to elevate them juſt above the mouth of the ſpathe. Perianth three-leaved; leaflets lanceolate. Corolla three-petalled: petals linear, recurved, more than twice the length of the calyx. Filaments eight, of unequal lengths, erect, ſhorter than the petals: anthers linear. Germ abortive, three-ſided: ſtyles three.—Female flower: ſcape ſhorter and thicker. Spathe as in the male, one-flowered. Flowers white, elevated above the germ, and above the mouth of the ſpathe, by a very long receptacle, ſtyle or pedicel, which makes up for the ſhortneſs of the ſcape, and brings the flower nearly up to the top of the leaves. Perianth three-parted. Corolla as in the male, only the petals are filiform. Germ cylindric, obſoletely three-ſided, ſeſſile in the bottom of the ſpathe, ending in the above-mentioned flower-elevating receptacle. Style three-cleft to near the baſe: diviſions filiform, white.

Native of the Eaſt Indies, in ſtagnant ſhallow ſweet water[s].

The œconomy of this ſpecies is not ſo curious as in the European; but the end of impregnation is anſwered equally well.

VALLISNEROIDES. See *Vallisneria*.

VALSA. See *Spharia*.

VANDELLIA. *(So named by Browne, in honour of Dominico Vandelli, profeſſor of natural hiſtory at Liſbon.)*
Lin. gen. Reich. n. 838. *Schreb. n.* 1040. *Juſſ.* 122. Matourea *Aubl. t.* 259. *Juſſ.* 119.
Claſſ. 14. 2. Didynamia Angioſpermia.
Nat. Order of *Perſonatæ. Scrophulariæ* Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* one-leafed, tubulous, four-parted: *parts* ſubovate, equal, the uppermoſt ſubbifid: permanent.
COR. one-petalled, ringent: *tube* length of the calyx: *border* ſmall; upper lip ovate, entire, lower dilated, two-lobed.
STAM. *Filaments* four; two outer from the diſk of the lower lip, bowed upwards; two from the throat, higher. *Anthers* ovate, connected by pairs.
PIST. *Germ* oblong. *Style* filiform, length of the ſtamens. *Stigmas* two, ovate, membranaceous, reflexed.
PER. *Capſule* oblong, one-celled.
SEEDS numerous.

ESSENTIAL CHARACTER.

Cal. four-parted. *Cor.* ringent. *Filam.* the two outer from the diſk of the lip of the corolla. *Anthers* connected by pairs. *Capſ.* one-celled, many-ſeeded.

SPECIES.

1. Vandellia diffuſa.
Lin. ſyſt. 573. *Reich.* 3. 182. *Willd.* 3. 343. *mant.* 89. *Vahl ecl.* 2. 47.
Leaves roundiſh ſubſeſſile.
2. Vandellia pratenſis.
Lin. ſpec. ed. Willd. 3. 343. *Vahl ecl.* 2. 48.
Matourea pratenſis. *Aubl. guian.* 2. 642. *t.* 259.
Tupeicava. *Piſ. braſ.* 246.
Leaves petioled oblong acute crenate.

DESCRIPTION, &c.

1. Stem herbaceous, four-cornered, brachiate. Leaves ovate, ſeſſile, crenate, bluntiſh. Flowers axillary, oppoſite, ſolitary. Habit of Veronica ſerpyllifolia[a].

Stem filiform, pubeſcent. Leaves on ſhort petioles, oppoſite, ſcarcely half an inch long, ſmooth above, the younger ones have a few hairs underneath, ſerrate, veinleſs. Peduncles one-flowered, alternate, ſhort[b].

Native of the iſlands of Montferrat and Santa Cruz.

2. Root annual. Stem herbaceous, erect, four-cornered with the corners acute, brachiate. Branches of the ſame ſtructure. Leaves oppoſite, half an inch long, hoary-green, a little bent back at the edge, the lower ones crenate, the upper ones often quite entire. Petioles very ſhort. Flowers axillary, ſeſſile, ſmall. Bractes three at the baſe of the calyx, ſeſſile, perſiſtent: two lateral, roundiſh, more produced on one ſide, nearly erect, equal, concave on the lower ſurface; the third ſuperior, twice as large as the others, flat, preſſed to the corolla. Calyx deeply four-cleft: ſegments linear, acute, ciliate, two oppoſite to the larger bracte, wider than the others. Upper lip of the corolla depreſſed to the palate, then aſcending and gaping, emarginate, crenulate, veined: lower lip larger, trifid, the middle ſegment narrower; palate convex, cloſing the throat. Stamens within the throat of the corolla, two outer very ſmall, two inner bigger, ending in two pellucid cohering bodies reſembling anthers, with which they form a bow. Anthers two, oval, adhering below to the bodies juſt mentioned, and one-celled. Germ ovate. Style a little ſhorter than the ſtamens, permanent. Stigma ſemiorbicular, aſcending obliquely towards the anthers. Capſule ovate, two-valved, opening from the top to the baſe, each externally ſemibifid. Seeds very ſmall, ſubglobular; faſtened to a proper receptacle, which is of a quadrangular-pyramidal form. Found in America from the iſland of Trinidad to Braſil; very frequent by way ſides[c].

VANGUERIA. *(From the vernacular name.)*
Juſſ. gen. 206. *Vahl ſymb.* 3. 36.
Claſſ. 5. 1. Pentandria Monogynia.
Nat. Order of *Aggregatæ. Rubiaceæ* Juſſ.

GENERIC CHARACTER.

CAL. very ſmall, five-toothed, ſpreading.
COR. ſmall, campanulate-globular, five-cleft, hairy at the throat.
STAM. five, with oblong anthers ſcarcely ſtanding out.
PIST. one, with a bilamellate ſtigma.
PER. *Berry* inferior, pome-ſhaped, umbilicate, not crowned, five-celled.
Seeds four or five like almonds.

ESSENTIAL CHARACTER.

Cal. five-toothed. *Cor.* tube globular, with a hairy throat. *Stigma* bilamellate. *Berry* inferior, four or five-ſeeded.

SPECIES.

1. Vangueria edulis.
Lin. ſpec. ed. Willd. 1. 976. *Vahl ſymb.* 3. 36.
Vavanga edulis. *Vahl act. ſoc. hiſt. nat. hafn.* 2. 1. 208. *t.* 7.—chinenſis *von Rohr, ib.* p. 207.
Vanguier, Voa-vanguier de Madagaſcar. *Juſſ. gen.* 206.

DESCRIPTION, &c.

A tree with round ſmooth branches. Leaves petioled, oppoſite, ovate, attenuated to both ends, ſmooth, quite entire. Stipules interpetiolary, connate, acuminate. Peduncles axillary, three or four times dichotomouſly branched. Flowers pedicelled. Fruit eſculent[d]. Willdenow remarks, that it reſembles Callicarpa in habit. In the ſyſtem it comes after Chiococca. According to Juſſieu, it is a ſmall tree, with the flowers corymb-cymed and axillary. He takes his character from Commerſon's deſcription and figure.

Suppoſed to be a native of China. Cultivated in the botanic garden at Santa Cruz. More probably from Madagaſcar.

VANILLA. See *Epidendrum*.
VAN RHEEDIA. See *Rheedia*.
VANTANEA. See *Lemneſcia*.

[r] Micheli, Linnæus, Haller, Villars. [s] Roxburgh.
[a] Linn. mant. [b] Vahl. [c] Idem. [d] Idem.

VARINGA. See *Ficus*.

VARNISH TREE. See *Rhus*.

VARRONIA. *(So named by Browne, from Marcus Terentius Varro, the moſt learned of the Romans, author of a treatiſe* de Re Ruſtica, &c. *He died in the 27th year of the Chriſtian Æra.*

Lin. gen. n. 258. *Reich. n.* 279. *Schreb. n.* 353. *Brown. t.* 13. *f.* 2. *Jacqu. amer.* 40.

Claſs. 5. 1. Pentandria Monogynia.

Nat. Order of *Aſperifoliæ. Borragineæ* Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* one-leafed, tubular, five-toothed; with recurved teeth: permanent.

COR. one-petalled, tubular, cylindric: border five-parted, ſpreading.

STAM. *Filaments* five, awl-ſhaped, length of the corolla. *Anthers* incumbent, oblong.

PIST. *Germ* ovate. *Style* filiform, length of the corolla. *Stigmas* four, briſtle-ſhaped.

PER. *Drupe* ovate, one-celled, incloſed by the calyx, free.

SEED. *Nut* four-celled, roundiſh.

ESSENTIAL CHARACTER.

Cor. five-cleft. *Drupe* with a four-celled nut.

SPECIES.

1. Varronia lineata.
   Lin. ſpec. 275. *Reich.* 1. 533. *Willd.* 1. 1079. *amoen.* 5. 394. *Swartz obſ.* 87. *Brown. jam.* 172. *t.* 13. *f.* 2. *Pluk. phyt. t.* 328. *f.* 5.
   V. humilis. *Jacqu. amer.* 41. 5.
   Lantana corymboſa. *Lin. ſpec. ed.* 1. 628.
   Leaves lanceolate marked with lines, peduncles lateral growing to the petiole, ſpikes globular.
2. Varronia bullata.
   Lin. ſpec. 276. *ſyſt.* 231. *Reich.* 1. 534. *Willd.* 1. 1079. *amoen.* 5. 394. *Swartz obſ.* 88.
   Leaves ovate veined and wrinkled, ſpikes globoſe.
3. Varronia mirabiloides.
   Lin. ſpec. ed. Willd. 1. 1080. *Swartz prodr.* 48. *deſcr.* 1. 465. V. bullata. *Jacqu. amer.* 41. *t.* 33. *pict.* 26. *t.* 43.
   Leaves ovate wrinkled ſerrate, flowers racemed directed one way, corolla ſalver-ſhaped.
4. Varronia martinicenſis.
   Lin. ſpec. 1671. *ſyſt.* 231. *Reich.* 1. 534. *Willd.* 1. 1080. *Jacqu. amer.* 41. *t.* 32. *pict.* 26. *t.* 42.
   Leaves ovate acuminate, ſpikes oblong.
5. Varronia globoſa. *Globular-ſpiked Varronia.*
   Lin. ſpec. 276. *ſyſt.* 231. *Reich.* 1. 534. *Willd.* 1. 1080. *Jacqu. amer.* 41. *pict.* 26.
   Leaves lanceolate-oblong, ſtem dichotomous, peduncles axillary elongated naked, ſpikes globular.
6. Varronia curaſſavica. *Long-ſpiked Varronia.*
   Lin. ſpec. 276. *ſyſt.* 231. *Reich.* 1. 534. *Willd.* 1. 1080. *Jacqu. amer.* 40. *pict.* 25. *Swartz obſ.* 88. *Brown. jam.* 172. 2.
   Lantana bullata. *Lin. ſpec. ed.* 1. 627.
   Periclymenum rectum, ſalviæ folio rugoſo majore oblongo bullato, flore albo, fructu longiore. *Sloan. jam.* 2. 81. *Raii dendr.* 31.
   Leaves lanceolate, ſpikes oblong.
7. Varronia anguſtifolia. *Narrow-leaved Varronia.*
   Lin. ſpec. ed. Willd. 1. 1081. *Weſt St. Cruc.* 202.
   Leaves linear rugged ſomewhat toothed, ſpikes linear-oblong.
8. Varronia alba. *White-fruited Varronia.*
   Lin. ſpec. 276. *ſyſt.* 231. *Reich.* 1. 534. *Willd.* 1. 1081. *Jacqu. amer.* 41. *pict.* 26. *Comm. hort.* 1. 155. *t.* 80. (Meſpilus.)
   Leaves cordate, flowers cymed.
9. Varronia monoſperma. *One-ſeeded Varronia.*
   Lin. ſpec. ed. Willd. 1. 1081. *Jacqu. hort. Schoenbr.* 1. 18. *t.* 39.
   Leaves ovate rugged quite entire at the baſe, ſpikes cymed.

DESCRIPTIONS, *&c.*

1. Leaves lanceolate, attenuated to both ends. Peduncles lateral, elongated, filiform, faſtened to the petiole at the baſe [c].

[c] Linn. ſpec.

It is a ſhrub four feet in height, and branched ſo like the fifth ſort, that it ſeems as if it were a variety of it growing on rocks. But according to Browne the nuts are two-celled. In this the fruit has two ſeeds [d].

Browne ſays, it ſeldom riſes above three or four feet in height, and is furniſhed with a number of ſlender, crooked, intermixed branches.

Native of the Weſt Indies. Common in the lower woody lands of Jamaica [e].

2. This is a ſhrub a fathom in height, warted; with round rough-haired branches. Leaves petioled alternate, ſcattered, acuminate, doubly ſerrate, rugged. Flowers cluſtered in little roundiſh balls. Peduncles terminating and axillary, ſhorter than the leaves, rugged. Corollas ſmall, white. Calyx bell-ſhaped. Corolla larger than the calyx; the five parts are obtuſe, crenate, erect. Anthers whitiſh, biſid at the baſe. Germ ſuperior. Drupe ſcarlet, one-ſeeded. The reſt as in the character. Native of Jamaica, in dry coppices near the ſea: flowering in ſpring [f].

3. Stem from two to three feet high, fruteſcent, branched, erect; rough-haired. Branches nearly upright, ſtiff, hairy with the hairs preſſed cloſe. Leaves petioled acuminate, wider at the baſe, nerved, rough-haired. Racemes terminating, ſhort, often ſubdivided, compoſed of many ſeſſile flowers, all directed one way. Calyx half-five-cleft: ſegments acuminate, erect. Corolla ſalver-ſhaped: tube three or four times as long as the calyx, round, erect; border wheel-ſhaped, five-rayed, five-cornered. Filaments inſerted into the tube near the border, very ſhort. Anthers above the throat, marked with lines, blue. Germ oblong. Style length of the tube, four-cleft at the tip, permanent. Stigmas ſimple, yellow. Drupe roundiſh, ſmall, ſurrounded at the baſe by the calyx, red. Nut roundiſh, with a ſingle kernel. Native of St. Domingo, where the French call it *Dent de Chien blanc.* It flowers there in december and january [g].

Jacquin ſays it is the moſt elegant ſhrub of the genus, and often attains the height of twelve feet; that the leaves are two inches long; that the common peduncles terminate in roundiſh ſpiked heads, ſimple or compound; that the flowers in ſize and form reſemble thoſe of Marvel of Peru, (whence the trivial name;) that they are white, handſome, but void of ſmell; that the ſegments of the calyx end in long briſtles; and that the drupe is red, the ſize of a pea, filled with ſweet glutinous pulp.

4. This ſhrub is the height of a man; the leaves three inches long. The ſpikes are an inch or two in length [h]. Swartz ſays, it is certainly not different from the curaſſavica, (n. 6.) which often varies with narrower and wider leaves, more or leſs pubeſcent; and with larger or ſmaller ſpikes [i].

Native of Martinico, on the borders of woods.

5. This ſhrub agrees with the preceding: but differs in having the ſpikes conſtantly globular, the ſegments of the corollas emarginate, and the ſtigma blunt and four-fold [k].—Linnæus remarks, that there is a naked peduncle from the forks; and that the teeth of the calyx are linear, long, and recurved.

According to Swartz, it ſeems to be a variety of *V. bullata*, under which name there is a ſpecimen of *V. globoſa* in Linneus's herbarium [l].

Native of the Weſt Indies, on the coaſt.

6. Stem ſhrubby, a fathom in height, upright; branches and branchlets, rugged, ferruginous. Leaves petioled, ovate-lanceolate, rounded at the baſe, having a blunt point at the end, ſubſerrate, nerved, wrinkled, rugged above, tomentoſe beneath. Spikes terminating, upright, an inch long. Peduncle ſhort, (on the branchlets,) thick. Flowers cluſtered, ſeſſile, bigginſh, white. Calyx inferior, bell-ſhaped, ſomewhat ventricoſe, ſlightly five-cornered. Corolla longer than the calyx. Filaments from the middle of the tube, hirſute at the baſe: anthers ovate. Style longer than the corolla, cloven to the middle, and the two ſegments cloven, thickiſh at the tip. Drupe roundiſh, placed on the calyx, and half covered by it, ſcarlet, one-ſeeded [m].

[d] Jacquin. [e] Browne. [f] Swartz obſ. [g] Swartz deſcr. [h] Jacquin. [i] Obſ. 89. [k] Jacquin. [l] Obſ. 88. [m] Swartz obſ.

According to Jacquin, it attains fifteen feet in height. The ſpikes are cloſe, two or three inches long, on a pedunele of two inches. Flowers ſmall, void of ſcent. The ſubovate ſegments of the inflated calyx end in briſtle-ſhaped teeth of the ſame length with themſelves. Tube of the corolla as long as the calyx: border ſhort and emarginate. Filaments a little ſhorter than the corolla. Style alſo ſhort, with a headed ſimple ſtigma. Drupe ſmall, red [7].

Common in the lower woody lands of Jamaica, where it is generally found climbing or leaning on the neighbouring ſhrubs [8]: flowering in ſummer and autumn. It grows alſo in Curaçao.—Introduced about 1778, by John Hope, M. D. [9]

7. Leaves lanceolate-linear, blunt, rolled back at the edge, rugged above, tomentoſe beneath. Native of the iſland of Santa Cruz [1].

8. This is a tree, often thirty feet in height, with a large head, and a trunk half a foot in diameter; but when planted in hedges becomes ſhrubby. Leaves ovate or roundiſh-ovate, ſubcordate at the baſe, four or five inches long. Cymes ample, not unfrequently half a foot in diameter, having numerous whitiſh flowers, without ſcent. Calyx at firſt entire, but when the corolla expands, ſeparating horizontally into an upper valve which withers, and into a lower which is permanent, and has the margin very ſlightly five-toothed. Border of the corolla bell-ſhaped. Styles bifid, and the ſegments bifid terminated by obtuſe ſtigmas. Drupe ſomewhat oblong, half an inch in length, whitiſh, ſubpellucid: pulp whitiſh, ſweet, inſipid, glutinous. Nut oblong, ſtriated, black. Native of Carthagena and Curaçao, where the nut is eaten [2].

9. Leaves ovate or ovate-lanceolate. Spikes roundiſh. Nut one celled. Native of the Caracas [3].

Loureiro has a ſpecies, which he names V. ſinenſis. He deſcribes it as a middle-ſized tree with ſpreading branches: the leaves ovate-lanceolate, quite entire, ſhining, oppoſite and alternate, ſubpetioled. Flowers white, on many-flowered peduncles, lateral and terminating. Calyx ſubcampanulate, ſhort. Corolla campanulate, with a ſhort thick tube, and the ſegments of the border ovate, ſpreading, equal. Filaments inſerted into the mouth of the tube, nearly equal to the corolla. Drupe ſmall, ſmooth, red, acid, eatable. Nut four-celled. Native of China. The pulp of the fruit is in frequent uſe among the Chineſe, as aſtringent, exſiccating, and cephalic.

VASCULIFERA. See *Nigrina*.

VATERIA. *(So named by Linneus, from Abrah. Vater, profeſſor of medicine and botany at Witteberg. Author of* Hortus Wittebergenſis, 1721 and 1724, &c. *Born* 1684, *died* 1751. *He was ſon of Chriſtian Vater, who was alſo profeſſor of medicine at the ſame place.)*

Lin. gen. n. 666. *Reich. n.* 722. *Schreb. n.* 906. *Juſſ.* 258.

Claſſ. 13. 1. Polyandria Monogynia.

Nat. Order of *Gutiferæ* Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* five-cleft, acute, ſmall, permanent.

COR. *Petals* five, ovate, ſpreading.

STAM. *Filaments* numerous, ſhorter than the corolla. *Anthers* ſimple.

PIST. *Germ* roundiſh. *Style* ſimple, ſhort. *Stigmas* capitate.

PER. *Capſule* turbinate, coriaceous, placed on the reflexed calyx, marked with three ſutures, one-celled, three-valved.

SEED one, ovate.

ESSENTIAL CHARACTER.

CAL. five-cleft. *Cor.* five-petalled. *Capſ.* three-valved, one-celled, three-ſeeded.

SPECIES.

1. Vateria indica.

Lin. ſpec. 734. *Reich.* 2. 587. *ſ. zeyl. n.* 204. Pænoc. *Rheed. mal.* 4. 33. *t.* 15.

Native of the Eaſt Indies.

[7] Jacquin. [8] Browne. [9] Hort. kew. [1] Jacquin. [2] Idem. [3] Wildenow.

VATICA. *(Perhaps from* Vaticinium; *if it be in uſe among the Chineſe for the purpoſes of divination.)*

Lin. gen. Reich. n. 649. *Schreb. n.* 812. *mant.* 152. *Juſſ.* 259. *Smith ic. ined. t.* 36.

Claſſ. 11. 1. Dodecandria Monogynia.

Nat. Order of *Gutiferæ* Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* one-leafed, five-parted, obtuſe at the baſe, erect: *ſegments* lanceolate, ſhorter than the corolla.

COR. *Petals* five, ſeſſile, elliptic, large.

STAM. *Filaments* none. *Anthers* fifteen, ſeſſile, very ſhort, four-celled: the two outer cells terminated by a ſpine interpoſed between them; the two inner ſhorter by half, without any ſpine.

PIST. *Germ* conical, five-cornered. *Style* cylindrical, five-ſtriated. *Stigma* obtuſe.

PER. *Capſule* three-celled.

SEED one in each cell.

ESSENTIAL CHARACTER.

Cal. five-cleft. *Pet.* five. *Anthers* fifteen, ſeſſile, four-celled.

SPECIES.

1. Vatica chinenſis.

Lin. ſyſt. 443. *Reich.* 2. 416. *Willd.* 2. 847. *mant.* 242. *Smith ic. ined.* 2. *t.* 36.

DESCRIPTION, *&c.*

This is a tree having the ſame appearance with Vateria indica, and nearly allied to it, but differing in the anthers and perhaps in the fruit. Branchlets indiſtinctly angular, hoary with meal, leafy, many-flowered. Leaves alternate, ovate-oblong, bluntly acuminate, quite entire, ſmooth, with the veins ſtanding out on both ſides and alternate, and the veinlets netted and anaſtomoſing. Petioles an inch long, angular, ſtriated, hoary, below the point of junction with the leaf a little thickened and much wrinkled. Stipules none. Panicles axillary, ſeſſile, compound, many-flowered. Bractes none. Peduncles alternate, branched, angular, hoary with meal, as are the calyx and corolla before they unfold. Pedicels ſhort, thickened at the top, erect, one-flowered. Segments of the calyx ovate-lanceolate, acute, erect, only one third of the length of the corolla. Petals obovate, ſmooth within, half-hoary without, in ſome flowers, incumbent towards the left, in others towards the right, which is very ſingular. Anthers three, ſeſſile on the claw of each petal, ſmall, ovate, ſmooth. Germ ſuperior, blunt, hoary. Style five-cornered, contorted. Stigma ſubtrilobate.

Native of China. A very rare plant, and as yet very obſcurely known [4].

VELAGA. See *Lagerſtroemia*.

VELEZIA. *(So named by Linneus, from Chriſtoval Velezius, examiner, firſt phyſician, and demonſtrator of botany, in the College of Apothecaries at Madrid. Loefling ſaw there his Flora of the plants about Madrid in manuſcript.)*

Lin. gen. n. 447. *Reich. n.* 350. *Schreb. n.* 448. *Gærtn. fruct. t.* 129. *Juſſ.* 302.

Claſſ. 5. 2. Pentandria Digynia.

Nat. Order of Caryophylleæ. *Caryophylleæ* Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* one-leafed, filiform, five-cornered, permanent: mouth five-toothed, acuminate, erect, very ſmall.

COR. *Petals* five, very ſhort, emarginate-two-toothed: *claws* filiform, length of the calyx.

STAM. *Filaments* five, often ſix, capillary, ſcarcely the length of the calyx. *Anthers* cordate.

PIST. *Germ* cylindric, ſhort, terminated by the receptacle of the ſtyles. *Styles* two, filiform, length of the ſtamens. *Stigmas* ſimple.

PER. *Capſule* cylindric, covered, one-celled.

SEEDS numerous, in a ſingle row.

OBS. *There are often ſix ſtamens, but the natural number is five, as later obſervations have proved.*

[4] Smith.

ESSENTIAL

ESSENTIAL CHARACTER.

CAL. filiform, five-toothed. *Cor.* five-petalled, ſmall. *Capſ.* one-celled. *Seeds* numerous, in a ſingle row.

SPECIES.

1. Velezia rigida.
Lin. ſpec. 474. *ſyſt.* 266. *Reich.* 1. 635. *Willd.* 1. 1329. *Gærtn. fruct.* 2. 226. *Villars dauph.* 3. 658. *Ger. prov.* 412. *Gouan hort.* 185. *botan.* 232. *Allion. pedem. n.* 1563. *Deſfont. atlant.* 1. 221. *Lamarck illuſtr. t.* 186. *Sauv. monſp.* 145. (Silene.)
Knawel minus, foliis caryophylleis. *Buxb. cent.* 2. 41. *t.* 47.
Lychnis ſylveſtris minima, exiguo flore. *Baub. pin.* 206. *prodr.* 103.
L. minima rigida Cherleri. *Bauh. hiſt.* 3. 352. *Raii hiſt.* 997. *Garid.* 298. *Magnol hot.* 171. *hort.* 126.
L. corniculata minor. *Barr. rar.* 665. *t.* 1017. 1018. *Bocc. muſ.* 2. 50. *t.* 43.
Paronychia orientalis humifuſa, Serpylli folio. *Tournef. cor.* 38.

DESCRIPTION, *&c.*

Root annual. Stem very much branched. Calyxes ſeſſile, cylindric, very narrow. Border of the petals very ſmall, marked at the baſe with a purple creſcent, as in the natural order of Caryophylleæ, to which this belongs[a].

Stem upright, jointed, round, pubeſcent, three or four inches high. Branches ſlender, often divaricating. Leaves oppoſite, awl-ſhaped, ſtriated, pubeſcent, ſheathing at the baſe. Flowers axillary, ſolitary, or ſometimes but ſeldom two or three together, along the ſtem and branches, on ſhort pedicels. Calyx ſlender, pubeſcent, cylindric, very ſlightly ſtriated; the teeth briſtle-ſhaped, erect. Corolla ſmall, a little longer than the calyx; border roſe-coloured, ſlightly emarginate. Stamens five or ſix, ſometimes ſeven, the length of the petals[a].

Capſule very long, clothed with the permanent calyx, opening into four parts at the top. Receptacle briſtle-ſhaped, central, free, almoſt the length of the capſule, covered with the ſubalternate ſeeds, incumbent downwards. Seeds as many as twelve, ſmall oblong, produced at top into a ſhort point, convex on one ſide, on the other concave from the margins bent back into a belly, and gaping with a wide longitudinal cleft, in other parts even, blackiſh or dark brown, inverted. —It differs from Dianthus chiefly in the definite ſituation of the ſeeds, the leſs number of ſtamens, and the abſence of ſcales at the baſe of the calyx[a].

Native of the South of Europe; and of Barbary, near Maſcar. Cherler firſt obſerved it in the ſouth of France, and Ray found it near Florence.

It was introduced in 1785, by Caſimir Gomez Ortega, M.D. and flowers in july[b].]

VELLA (*of Galen. Derivation unknown.*)
Lin. gen. n. 797. *Reich. n.* 861. *Schreb. n.* 1073. *Gærtn. t.* 141. *Juſſ.* 241.
Claſſ. 15. 1. Tetradynamia Siliculoſa.
Nat. Order of *Siliquoſa* or *Cruciformes*. *Cruciferæ* Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* four-leaved, erect, cylindric: *leaflets* linear, obtuſe, deciduous.
COR. four-petalled, cruciform. *Petals* obovate, ſpreading: *claws* length of the calyx.
STAM. *Filaments* ſix, length of the calyx; of theſe two oppoſite a little ſhorter. *Anthers* ſimple.
PIST. *Germ* ovate. *Style* conic. *Stigma* ſimple.
PER. *Silicle* globoſe, entire, two-celled, with a partition twice as large as the ſilicle, ovate beyond it and erect.
SEEDS few, roundiſh.
OBS. Vella Pſeudo-Cytiſus *has the four larger filaments caſtrated and coadunate by pairs.*

ESSENTIAL CHARACTER.

Silicle with a partition twice as large as the valves, ovate on the outſide.

[a] Linn. ſyſt. [a] Deſfont. and Villars. [a] Gærtner. [b] Hort. kew.

SPECIES.

1. Vella annua. *Annual Vella, or Creſs-Rocket.*
Lin. ſpec. 895. *ſyſt.* 584. *Reich.* 3. 210. *Willd.* 3. 422. *hort. cliff.* 329. *upſ.* 186. *Gærtn. fruct.* 2. 286. *Hudſ. angl.* 278. *Wither.* 564. *Smith* 675. *Knipb. cent.* 10. *n.* 93. *Trew. ic.* 10. *t.* 8. *Deſfont. atlant.* 2. 64.
Naſturtium ſylveſtre, erucæ affine. *Bauh. pin.* 105. *Raii hiſt.* 826. *ſyn.* 304. *Petiv. brit. t.* 50. *f.* 5. *Mor. hiſt. ſ.* 3. *t.* 19. *f.* 8.
N. ſylveſtre valentinum. *Cluſ. hiſt.* 2. 130. *Bauh. hiſt.* 2. 920. *Park. theat.* 831. *Dalech. hiſt.* 657.
Eruca Naſturtio cognata tenuifolia. *Ger. emac.* 247.
Leaves pinnatifid, ſilicles pendulous.
2. Vella Pſeudo-Cytiſus. *Shrubby Vella.*
Lin. ſpec. 895. *Reich.* 3. 210. *Willd.* 3. 422. *Cavan. ic. hiſp.* 1. 32. *t.* 42.
Pſeudo-Cytiſus flore leucoii luteo. *Bauh. pin.* 390.
Cytiſi facie Alyſſon fruticans quorundam. *Lob. ic.* 2. 49. *Bauh. hiſt.* 1. 374.
Leaves entire obovate ciliate, ſilicles erect.

DESCRIPTIONS, *&c.*

[1. Root annual, ſmall, fibrous. Cotyledons obcordate, ſmooth. Stem branched, leafy, hiſpid with briſtles bent down. Leaves alternate, bipinnatifid, ſomewhat hiſpid. Spikes terminating, many-flowered. Flowers pedicelled. Calyx tubular, cloſed with the leaflets converging longitudinally, ſhining, purple. Petals obovate, entire, whitiſh or very pale yellow with deep purple veins, and very ſlender claws. Silicle bent down, elliptic, hiſpid, with the partition ſtanding out, ſmooth, ſpreading. Seeds on each ſide three or four, roundiſh[c].

Gærtner deſcribes the Silicle as ſubglobular, hard, hiſpid with ſoft briſtles, two-celled, two-valved: valves cruſtaceous, with three raiſed ſtreaks on the outſide, from which the briſtles ſpring; within poliſhed and ſhining: partition parallel to the valves, very thin and diaphanous within the ſilicle, on the outſide of it produced into an ovate opaque coriaceous ſcrew-ſhaped lamina. Seeds three or four in each cell, ſubglobular, angular, of a dark ferruginous colour and mucilaginous.

Firſt obſerved in the kingdom of Valentia in Spain, by Cluſius. Mr. Lawſon found it on Saliſbury plain, not far from Stonehenge[d]. It flowers in june.

2. Stems ſhrubby, two feet high, ſomewhat rugged, very much branched. Leaves alternate, rugged, thickiſh, with two ſhorter leaves frequently coming out at the axils, ſo that the leaves appear to be ternate, as in Cytiſus ſeſſilifolius. Flowers in ſpikes terminating the ſtem and branches. Calyx-leaves cloſely converging. Petals yellow, orbicular, variegated with paler veins; claws filiform, ſlightly channelled within, a little longer than the calyx. Anthers yellow, oblong, all fertile; the longer pair of filaments connate at bottom, the ſhorter free or diſtinct. Between the germ and the ſhorter filaments a harder gland. Silicle erect, obovate, gibbous on one ſide at the baſe; valves hard, ſtriated longitudinally; partition parallel to the valves, and twice as long as they are, erect, ovate, compreſſed beyond the ſilicle. Seeds ovate, one in each cell, and one of them frequently abortive. Near Aranjuez in Spain[e]: where it was firſt obſerved by Minuart[f], and after by Cavanilles. It flowers and fruits there in may.

Cavanilles denies that the connate pair of filaments is caſtrated.

Mr. Miller cultivated it in 1759: and it flowers here in april and may[g].]

PROPAGATION AND CULTURE.

1. If the ſeeds be permitted to ſcatter, the plants will come up and thrive very well: or if they be ſown in autumn, they will ſucceed much better than when ſown in the ſpring, for theſe will frequently lie in the ground till the autumn; whereas thoſe which are ſown in autumn come up ſoon after, or early in the ſpring, and will more certainly produce ripe ſeeds. Theſe plants ſhould not be tranſplanted; the ſeeds therefore

[c] Smith. [d] Ray. [e] Cavanilles. [f] Linn. ſpec. [g] Hort. kew.

 ſhould

should be sown where they are to remain, and require only to be kept clean and thinned.

2. This is increased by seeds like the former; and will continue two or three years.

[VELLENDA-MARAUN. See *Croton.*

VELTHEIMIA. See *Aletris capensis*; under which name it is figured in Curtis's magazine, *t.* 501.—In Jacquin's *hort. Schoenbr.* 1. *t.* 78. it is figured under the name of Veltheimia viridifolia; and that name is adopted by Willdenow, *spec.* 2. 181. Gleditsch, in the Berlin Transactions for 1771, first constructed this genus.

VELUTTA-MANDARU. See *Bauhinia acuminata.*

VELUTTA-MODELA-MUCU. See *Polygonum barbatum.*

VENTILAGO. *(From* ventus; *on account of its exposure to the winds, from its mountainous situation.)*

Gærtn. fruct. t. 49. *Roxb. corom. t.* 76. *Willd. spec. n.* 407.

Class. 5. 1. Pentandria Monogynia.

GENERIC CHARACTER.

CAL. one-leafed, tubular, indistinctly ten-striated within the margin, which is quite entire and toothless.

COR. scales protecting the stamens.

STAM. *Filaments* five, inserted into the calyx.

PIST. one.

PER. *Capsule* superior, globular, surrounded near the middle with the remaining nectary, and terminating in a long linear, membranous wing; one-celled, not opening of itself.

SEED solitary, round.

ESSENTIAL CHARACTER.

Cal. tubular. *Cor.* scales protecting the stamens which are inserted into the calyx. *Samara* winged at the top and one-seeded.

SPECIES.

1. Ventilago maderaspatana.

Lin. spec. ed. Willd. 1. 1106. *Gærtn. fruct.* 1. 223. *Roxb. corom.* 1. 55. *t.* 76.

Funis viminalis. *Rumph. amb.* 5. 3. *t.* 2.

DESCRIPTION, *&c.*

This is a large climbing shrub. Leaves alternate, on short petioles, two-faced, ovate, most slightly serrate, smooth, three or four inches long. Panicle terminating. Flowers very numerous, small, of a dirty greenish colour, smelling very strong and offensive, not unlike that of Sterculia foetida. Calyx, corolla, nectary, stamens and pistil as in Rhamnus Jujuba. Capsule the size of a pea[1]: smooth, fibrose-coriaceous. Seed of a red rusty colour[1]. This shrub is generally dioecious; and is a native of forests and other uncultivated places among the mountains in the East Indies; flowering during the cold season.

The natives of the mountains apply the bark in a green state to many useful purposes as cordage[1].

VENUS'S COMB. See *Scandix.*

VENUS'S FLY-TRAP. See *Dionæa.*

VENUS'S LOOKING-GLASS. See *Campanula.*

VENUS'S NAVEL-WORT. See *Cynoglossum linifolium.*

VERATRUM. *(of Pliny. Derivation unknown.)*

Lin. gen. n. 1144. *Reich. n.* 1249. *Schreb. n.* 1564. *Tournef. t.* 145. *Juss.* 47. *Gærtn. t.* 18.

Class. 23. 1. Polygamia Monoecia.

Nat. Order of *Coronariæ. Juncі* Juss.

GENERIC CHARACTER.

* *Hermaphrodite.*

CAL. none, unless the corolla be considered as such.

COR. *Petals* six, oblong, lanceolate, thinner at the edge, serrate, permanent.

STAM. *Filaments* six, awl-shaped, pressing the germs, more spreading at the tips, shorter by half than the corolla. *Anthers* quadrangular.

PIST. *Germs* three, erect, oblong, ending in scarcely apparent *Styles. Stigmas* simple, patulous.

PER. *Capsules* three, oblong, erect, compressed, one-celled, one-valved, gaping inwards.

SEEDS many, oblong, blunter at one end, compressed, membranaceous, fastened in a double row.

* *Male flower* on the same plant, below the hermaphrodite.

CAL. COR. STAM. as in the Hermaphrodite.

PIST. an indistinct, vain *Rudiment.*

[1] Roxburgh. [2] Gærtner. [3] Roxburgh.

ESSENTIAL CHARACTER.

Cal. none. *Cor.* six-petalled. *Stam.* six.

HERM. *Pist.* three. *Caps.* many-seeded.

MALE. Rudiment of a Pistil.

SPECIES.

1. Veratrum album. *White-flowered Veratrum,* or *White Hellebore.*

Lin. spec. 1479. *Syst.* 902. *Reich.* 4. 296. *mat. med.* 220. *Woodv. med. bot.* 273. *t.* 100. *Gærtn. fruct.* 1. 71. *Gunn. nerv. n.* 315. *t.* 1. *Hall. helv. n.* 1204. *Scop. carn. n.* 1233. *Jacqu. austr.* 4. 18. *t.* 335. *Villars dauph.* 2. 279. *Ger. prov.* 142. *Allion. pedem. n.* 1907. *Pallas it.* 1. 49. *Gmel. sib.* 1. 75. *Ludw. ed. t.* 137, 138. *Mill. illustr. Mill. fig. t.* 271.

V. flore subviridi. *Tournef. inst.* 273.

Helleborus albus. *Camer. epit.* 939. *Besl. eyst. aest.* 8. *t.* 9. *f.* 1. *Ger.* 356. 1. *emac.* 440. 1. *Bauh. hist.* 3. 633. *Raii hist.* 168.

H. albus vulgaris. *Park. theat.* 216. *n.* 1. 217. *f.* 1.

H. albus flore subviridi. *Bauh. pin.* 186. *Mor. hist.* 3. 485. *s.* 12. *t.* 4. *f.* 1. *ord.* 2.

H. albus exalbido flore. *Clus. hist.* 1. 274.

Helleborum f. Veratrum album. *Dod. pempt.* 383. *Blackw. t.* 74.

Elleborum album. *Matth.* 1219.

Raceme superdecompound, corollas erect.

[2. Veratrum viride. *Green-flowered Veratrum.*

Ait. kew. 3. 422.

Raceme superdecompound, corollas bell-shaped with the claws thickened at the side within.]

3. Veratrum nigrum. *Dark-flowered Veratrum.*

Lin. spec. 1479. *Syst.* 902. *Reich.* 4. 297. *Scop. carn. n.* 1234. *Jacqu. austr.* 4. 18. *t.* 336. *Gmel. sib.* 1. 76. *Knipb. cent.* 4. *n.* 91.

V. flore atrorubente. *Tournef. inst.* 273.

Helleborus albus flore atrorubente. *Bauh. pin.* 186. *Mor. hist.* 3. 485. *s.* 12. *t.* 4. *f.* 2. *ord.* 3.

H. alb. praecox atrorub. flore. *Park. theat.* 216. *n.* 2. 217. *f.* 2. *Raii hist.* 168.

H. alb. praecox. *Ger.* 356. *f.* 2. *emac.* 440. *f.* 2.

Raceme compound, corollas spreading very much.

4. Veratrum luteum. *Yellow-flowered Veratrum.*

Lin. spec. 1479. *Reich.* 4. 297.

V. caule simplicissimo. *Gron. virg.* 158.

Reseda foliis lanceolatis, caule simplicissimo. *Gron. virg.* 59.

Raceme quite simple, leaves sessile.

DESCRIPTIONS, *&c.*

1. Root perennial, composed of many thick fibres gathered into a head. Leaves oblong-ovate, ten inches long, and five broad in the middle, rounded at the end, and having many longitudinal plaits like those of Gentian. Stems three or four feet high, branching out on every side almost their whole length: under each of these branches is placed a narrow plaited leaf, and these diminish in size as they are near the top of the stem. The branches and principal stem are terminated by spikes of flowers set very close together, of a greenish white or herbaceous colour. They appear in July.

[The three capsules are superior, united at the base, but distinct above, end in a short filiform style, and open by the inner future. Seeds ten or twelve, ovate-oblong, narrower upwards, bracted, surrounded by a wide membranaceous margin, somewhat concave, variously wrinkled, of a bay colour: they are fastened in a double and in an erect position to the edges of the opening future[1].

Native of Greece, Italy, Switzerland, Austria, the south of France and Russia.—Cultivated by Gerarde in 1596[2].

It appears that not only the roots of White Hellebore, but that every part of the plant is extremely acrid and poisonous. The leaves and seeds have proved deleterious to different animals.

Veratrum has been given internally in mania, epilepsy, &c. notwithstanding its virulence; but the diseases in which its efficacy seems least equivocal, are those of the skin, as scabies and different prurient eruptions, herpes, morbus pediculosus, lepra, scro-

[1] Gærtner. [2] Hort. kew.

phula

phula, &c. in many of these it has been successfully employed both internally and externally.

As a powerful stimulant, and irritating medicine, its use has been resorted to only in desperate cases; and then it is first to be tried in very small doses, in a diluted state, and to be gradually increased, according to the effects. Greding, who employed it in a great number of maniacal cases, gave the bark of the root collected in spring, in powder, beginning with one grain, and gradually increasing the dose. He also sometimes used the extract, prepared after Stoerck's manner [n].

2. Native of North America. Cultivated in 1763. by Peter Collinson, Esq. It flowers in july and august [o].]

3. This has a perennial root like the first sort. The leaves are longer and thinner; they are plaited in like manner, but are of a yellowish green colour, and appear sooner in the spring; the stalks also rise higher. It has fewer leaves, and does not branch out into so many spikes. The flowers are of a dark red colour, with the petals spread open flat; and they appear almost a month sooner than those of album.

[It is very nearly allied to the first, but differs in place of growth, colour, villose peduncles, spreading corolla, and compound raceme not subdivided into a panicle [p].]

This species seems not to be so strong and acrid as the first; for when both sorts are placed near each other, snails will entirely devour the leaves of this, when they will scarcely touch those of the other.

[Native of Austria and Siberia. Cultivated in 1596, by Gerarde [q].]

4. Root tuberous and large. Leaves oblong, shaped like those of Plantain, having several longitudinal furrows, or plaits; they are four or five inches long, and two broad in the middle, and spread themselves on the ground. Between these comes out a single stem, near a foot high, having a very few small leaves or sheaths placed on it alternately. The flowers are produced at the top, in a single thick close spike; they are small, and of a yellowish white colour. They appear in june, but are rarely succeeded by seeds here.

[Root bulbous. Radical leaves many, broad-lanceolate, nerved, firm, smooth. Stem a foot high, quite simple. Stem-leaves few, placed unequally, narrow, lanceolate, sessile but not sheathing as in the others, small. Raceme at first ovate, then the length of the stem, dense, composed of small yellow flowers [r].

Native of North America. Cultivated by Mr. Miller in 1759 [s].]

PROPAGATION AND CULTURE.

Sow the seeds as soon as ripe, either in a bed or box filled with fresh light earth, and keep the ground constantly clean from weeds. In the spring the plants will appear; if the season then prove dry, refresh them now and then with water, and carefully clear them from weeds. The autumn following, when their leaves decay, prepare a bed of fresh light earth, take up the young plants carefully, without breaking their roots, and plant them about six inches square; let them remain until they are strong enough to flower, when they should be transplanted into the borders of the pleasure-garden: but as these plants seldom flower in less than four years from seeds, this method of propagating them is not much practised in England.

When these plants are once obtained, they may be increased by parting their roots in autumn, when their leaves decay; but they should not be parted too small, for that will prevent their flowering in the following summer. Plant them in a light, fresh, rich soil; and do not remove them oftener than once in three or four years. They are pretty ornaments, when planted in the middle of open borders of the pleasure-garden: if they be planted near fences which harbour snails, they will eat the leaves, especially of the third sort, and deface the plants very much.

[VERATRUM AMERICANUM. See *Helonias*.

——— NIGRUM *Clus.* See *Helleborus*.

VERBASCI FOLIO. See *Buddlea*.

VERBASCULUM. See *Primula*.]

VERBASCUM. (*of Pliny, who deduces it from Verbena. According to others it is q.* Barbascum, *from the leaves being bearded as it were. Hence in Italian it is* Barbasso; *and the first species is called* Tapsus barbatus *by some old authors.*)

Lin. gen. n. 245. *Reich. n.* 262. *Schreb. n.* 331. *Tournef. t.* 61. *Juss.* 124. *Gærtn. t.* 55. Blattaria. *Tournef.*

Class. 5. 1. Pentandria Monogynia.

Nat. Order of *Luridæ*. *Solaneæ* Juss.

GENERIC CHARACTER.

CAL. *Perianth* one-leafed, five-parted, small, permanent: *segments* erect, acute.

COR. one-petalled, wheel-shaped, a little unequal: *tube* cylindric, very short: *border* spreading, five-parted: *segments* ovate, obtuse.

STAM. *Filaments* five, awl-shaped, shorter than the corolla. *Anthers* roundish, compressed, erect.

PIST. *Germ* roundish. *Style* filiform, length of the stamens, inclined. *Stigma* thickish, obtuse.

PER. *Capsule* roundish, two-celled, two-valved, opening at top. *Receptacles* half ovate, fastened to the partition.

SEEDS numerous, angular.

OBS. *In most of the species the filaments are inclined and unequal, and clothed at bottom with coloured villose hairs.*

ESSENTIAL CHARACTER.

COR. wheel-shaped, a little unequal. *Caps.* two-celled, two-valved.

SPECIES.

1. Verbascum Thapsus. *Great Mullein.*
Lin. spec. 252. *fyst.* 219. *Reich.* 1. 492. *Willd.* 1. 1001. *vir. cliff.* 13. *hort. cliff.* 55. *fl. suec. n.* 195. *mat. med.* 63. *Woodv. med. bot.* 342. *t.* 125. *Hudf. angl.* 89. *Wither. arr. ed.* 3. 248. *Smith brit.* 249. *engl. bot. t.* 549. *Relh. cant. ed.* 2. *n.* 196. *Sibth. oxon. n.* 239. *Fl. dan. t.* 631. *Hall. helv. n.* 581. *Hoffm. germ.* 76. *Roth. germ.* 1. 93. 2. 238. *Pollich pal. n.* 220. *Leers herborn. n.* 149. *Neck. gallob.* 121. *Scop. carn. n.* 247. *Krock. sileſ. n.* 333. *Villars dauph.* 2. 489. *Allion. pedem. n.* 378. *Gmel. ſib.* 4. 91. *Blackw. t.* 3. & 502. *Knipb. cent.* 9. *n.* 99. *Ludw. elt. t.* 124. *Knorr. del.* 2. *t.* V. *Plenck. ic. t.* 109.

V. mas latifolium luteum. *Bauh. pin.* 239. *Mor. hiſt.* 2. 485. *ſ.* 5. *t.* 9. *f.* 1. Raii *hiſt.* 1094. *ſyn.* 287.

V. latius. *Dod. pempt.* 153. *Sabb. hort. rom.* 2. *t.* 53.

V. vulgare, flore luteo magno, folio maximo. *Bauh. hiſt.* 3. 871.

V. album vulg. ſ. Tapsus barbatus communis. *Park. theat.* 60.

Tapsus barbatus. *Ger.* 629. 1. *emac.* 773.

Leaves decurrent tomentoſe on both ſides, ſtem ſimple.

[2. Verbascum Thapsoides. *Baſtard Mullein.*
Lin. ſpec. 1669. *ſyſt.* 219. *Reich.* 1. 492. *Willd.* 1. 1001. *Allion. pedem. n.* 379.

V. anguſtifolium ramoſum, flore aureo, folio craſſiore. *Bauh. hiſt.* 3. 860. Raii *hiſt.* 1095.

V. album mas, flore luteo. *Dalech. hiſt.* 1301.

V. anguſtius. *Dod. pempt.* 143.

V. foliis viridibus craſſioribus. *Mor. hiſt.* 2. 436.

Leaves decurrent, ſtem branched.]

3. Verbascum Boerhaavii. *Annual Mullein.*
Lin. ſyſt. 219. *Reich.* 1. 493. *Willd.* 1. 1002. *mant.* 45. *Mill. ſig.* 182. *t.* 273. *Boerh. lugdb.* 1. 228.

V. luteum. *Mill. dict. n.* 4.

V. montanum tomentoſum. *Till. piſ. t.* 50?

Leaves ſublyrate, flowers ſeſſile.

[4. Verbascum hæmorrhoidale. *Madeira Mullein.*
Ait. kew. 1. 236. *Willd. ſpec.* 1. 1002.

Leaves ovate-oblong attenuated at the baſe tomentoſe indiſtinctly crenulate, racemes ſpike-form elongated, bundles of flowers without bracteæ.]

5. Verbascum

[n] Woodville. [o] Hort. kew. [p] Linn. ſpec. [q] Hort. kew. [r] Linn. ſpec. [s] Hort. kew.

5. Verbaſcum phlomoides. *Woolly Mullein.*
Lin. ſpec. 253. *Reich.* 1. 493 *Willd.* 1. 1002. *Hall. helv. n.* 582. *Hoffm. germ.* 76. *Roth. germ.* 1. 93. 2. 239. *Krock. ſilef. n.* 335. *Moench. haſſ. n.* 170. *t.* 4. *Villars dauph.* 2. 491. *Allion. pedem. n.* 380. *Knipb. cent.* 6. *n.* 99.
V. grandiflorum. *Mill. dict. n.* 5.
V. femina, flore luteo magno. *Bauh. pin.* 239.
V. montanum tomentoſum & incanum, folio ſubrotundo, caule non alato, ſtaminibus purpureis. *Till. piſ.* 171.
Leaves ovate tomentoſe on both ſides, the lower ones petioled.

6. Verbaſcum Lychnitis. *White Mullein.*
Lin. ſpec. 253. β. *Reich.* 1. 495. 5. β. *Willd.* 1. 1003. 6. β. *fl. ſuec. n.* 196. *Hudſ. angl.* 90. *Wither. arr. ed.* 3. 249. *var.* 2. *Smith brit.* 250. *engl. bot. t.* 58. *Relh. cant. ed.* 2. *n.* 197. *Fl. dan. t.* 586. *Villars dauph.* 2. 490. *Pollich pal. n.* 221. *Hall. helv. n.* 583. β.
V. album. *Mill. dict. n.* 3? *Moench. meth.* 447.
V. album 2. *Tabern.* 864.
V. flore albo parvo. *Bauh. hiſt.* 3. 873. 2. *Raii hiſt.* 1095. *ſyn.* 287.
V. lychnitis flore albo parvo. *Bauh. pin.* 240.
V. candidum femina. *Fuchſ. hiſt.* 847.
V. Lychnite Matthioli. *Ger.* 632. 3. *emac.* 775. 3.
Leaves wedge-oblong denudated above, ſtem angular panicled.

7. Verbaſcum pulverulentum. *Yellow hoary Mullein.*
Villars dauph. 2. 490. *Curt. cat. Sailſb. prodr.* 104. *Smith brit.* 251. *engl. bot. t.* 487.
V. Lychnitis. *Lin. ſpec.* 253. *ſyſt.* 219. *Reich.* 1. 495. *Willd.* 1. 1003. *Holl. helv. n.* 583. 2. *Hoffm. germ.* 76. *Roth. germ.* 1. 93. 2. 239. *Scop. carn. n.* 248. *Moench. meth.* 446. *Mill. dict. n.* 2.—*Hudſ. angl.* 90. 3. β. *Withet.* 249. *var.* 1.
V. pulv. flore luteo parvo. *Baub. hiſt.* 3. 872. *Raii hiſt.* 1094. *ſyn.* 287. *Tournef. inſt.* 147.
V. mas, anguſtioribus foliis, floribus pallidis. *Baub. pin.* 239.
V. luteum. *Tabern.* 565.
Leaves ovate-oblong ſubſerrate mealy on both ſides, ſtem round panicled.

8. Verbaſcum ferrugineum. *Ruſty Mullein. Ait. kew.* 1. 237. *Willd. ſpec.* 1004.
Leaves ſubvillioſe wrinkled, ſtem-leaves ſubſeſſile equally crenate, root-leaves oblong cordate doubly crenate.

9. Verbaſcum nigrum. *Dark Mullein.*
Lin. ſpec. 253. *Reich.* 1. 494. *Willd.* 1. 1004. *fl. ſuec. n.* 197. *vir. cliff.* 13. *hort. cliff.* 54. *mat. med.* 63. *Hudſ. angl.* 90. *Withet. arr. ed.* 3. 250. *Smith brit.* 251. *engl. bot. t.* 59. *Relh. cant. ed.* 2. *n.* 198. *Sibth. oxon. n.* 240. *Hall. helv. n.* 584. *Hoffm. germ.* 77. *Roth. germ.* 1. 94. 2. 240. *Pollich pal. n.* 222. *Leers herborn. n.* 151. *Krock. ſilef. n.* 336. *Scop. carn. n.* 249. *Villars dauph.* 2. 492. *Allion. pedem. n.* 382. *Plenck ic. t.* 110.
V. nigrum, flore ex luteo purpuraſcente. *Baub. pin.* 240. *Mor. hiſt. ſ.* 5. *t.* 9. *f.* 5. *ord.* 2.
V. nigrum flore parvo apicibus purpureis. *Baub. hiſt.* 3. 873. 3.
V. nigrum. *Ger.* 631. 2. *emac.* 775. 2. *Dod. pempt.* 144. 1. *Lob. ic.* 562. *Trag.* 218.
V. ſylveſtre. *Fuchſ. hiſt.* 849.
V. 3. *Matth.* 1145. *valgr.* 1. 560. *Camer. epit.* 880. *Dalech. hiſt.* 1299.
Leaves oblong-cordate petioled waved crenate ſubpubeſcent.

10. Verbaſcum virgatum. *Large flowered Mullein. Withet. arr. ed.* 3. 250. *Sym. ſyn.* 56. *Smith brit.* 252. *engl. bot. t.* 550.
Blattaria flore amplo. *Bauh. hiſt.* 3. 859. *Lob. ic.* 564. *Raii hiſt.* 1096.
Leaves oblong-lanceolate toothed ſeſſile, root-leaves ſubly rate pubeſcent, ſtem branched, flowers aggregate ſubſeſſile.

11. Verbaſcum phœniceum. *Purple Mullein.*

Lin. ſpec. 254. *ſyſt.* 219. *Reich.* 1. 495. *Willd.* 1. 1004. *hort. cliff.* 55. *Hoffm. germ.* 77. *Roth. germ.* 1. 94. 2. 241. *Scop. carn. n.* 250. *Jacqu. auſtr.* 2. 15. *t.* 125. *Krock. ſilef. n.* 337. *Allion. pedem. n.* 384. *Pallas it.* 1. 183. *Gærtn. fruct.* 1. 262.
Blattaria perennis, flore violaceo. *Mor. hiſt.* 2. 497.
B. purpurea. *Bauh. pin.* 241.
B. flore purpureo. *Ger.* 633. 2. *emac.* 776. 2. *Park. theat.* 65. 6. *Mor. hiſt. ſ.* 5. *t.* 9. *f.* 1. *ord.* 3.
B. flore cæruleo vel purpureo. *Bauh. hiſt.* 3. 875. *Raii hiſt.* 1096.
Leaves ovate naked crenate radical, ſtem almoſt naked racemed.

12. Verbaſcum Blattaria. *Moth Mullein.*
Lin. ſpec. 254. *Reich.* 1. 495. *Willd.* 1. 1005. *hort. cliff.* 15. *upſ.* 46. *Hudſ. angl.* 91. *Withet. arr. ed.* 3. 251. *Smith brit.* 253. *engl. bot. t.* 393. *Hall. helv. n.* 585. *Hoffm. germ.* 77. *Roth. germ.* 1. 94. 2. 241. *Pollich pal. n.* 223. *Krock. ſilef. n.* 338. *Scop. carn. n.* 251. *Guett. ſtamp.* 2. 309. *Sauv. monſp.* 276. *Ger. prov.* 314. 5. *Villars dauph.* 2. 492. *Allion. pedem. n.* 385. *Pallas it.* 1. 200.
Blattaria lutea, folio longo laciniato. *Bauh. pin.* 240. *Tournef. inſt.* 147. *Garid.* 63.
Blattaria. *Matth.* 1151. *Dalech. hiſt.* 1305. *Dod. pempt.* 145. 1. *Lob. obſ.* 384. 2.
B. lutea. *Bauh. hiſt.* 3. 874. 1. *Raii hiſt.* 1096. *ſyn.* 288.
B. Plinii. *Ger.* 633. 1. *emac.* 776. 1. *Lob. ic.* 564.
β. Blattaria alba. *Bauh. pin.* 241.
Verbaſcum glabrum. *Mill. dict. n.* 8. *fig.* 1. 67.
Leaves embracing oblong ſmooth ſerrate, peduncles one-flowered ſolitary.
[13. Verbaſcum gallicum. *French Mullein.*
Lin. ſpec. ed. Willd. 1. 1005.
V. Chaixi. *Villars dauph.* 2. 491. *t.* 13.
Leaves ſubvilloſe cordate petioled toothed, root-leaves pinnatifid at the baſe.]

14. Verbaſcum ſinuatum. *Scollop-leaved Mullein.*
Lin. ſpec. 254. *Reich.* 1. 496. *Willd.* 1. 1006. *Sauv. monſp.* 276. *Ger. prov.* 313. *Villars dauph.* 2. 493. *Allion. pedem. n.* 383. *Desfont. atlant.* 1. 186.
V. nigrum, foliis papaveris corniculati. *Bauh. pin.* 240. *Camer. hiſt.* 1. 403. *Tournef. inſt.* 147. *Mor. hiſt. ſ.* 5. *t.* 9. *f.* 6.
V. criſpum & ſinuatum. *Bauh. hiſt.* 3. 872. *Raii hiſt.* 1094.
V. aliud. *Matth. valgr.* 1148. *Camer. epit.* 882.
V. laciniatum. *Dalech. hiſt.* 1302. *Park. theat.* 61. 7.
V. intubaceum. *Tabern. ic.* 565.
Root-leaves pinnatifid-repand tomentoſe, ſtem-leaves embracing almoſt naked, firſt branch-leaves oppoſite.

[15. Verbaſcum pinnatifidum.
Lin. ſpec. ed. Willd. 1. 1006. *Vahl ſymb.* 2. 39.
V. græcum fruticoſum, folio ſinuato candidiſſimo. *Tournef. cor.* 8. *itin.* 1. 335. *ic.* 2. 19. *ed. Lugd?*
Leaves linear-lanceolate pinnatifid, ſegments obtuſe toothed, flowers ſeſſile glomerate.

16. Verbaſcum Barnadeſii.
Lin. ſpec. ed. Willd. 1. 1006. *Vahl ſymb* 2. 39.
Stem almoſt naked, leaves lanceolate tooth-ſinuate ſmooth, peduncles one-flowered.

17. Verbaſcum Olbeckii.
Lin. ſpec. 255. *Reich.* 1. 496. *Willd.* 1. 1006. *Oſb. it.* 2.—1. 68. *ed. angl.*
Blattaria orientalis, bugulæ folio, flore maximo viſcoſo lituris luteis in ſemicirculum ſtriato. *Tournef. cor.* 8. *it.* 2. 83. *ic. Buxb. cent.* 5. 17. *t.* 52.
Leaves gaſhed naked, ſtem leafy, calyxes woolly, peduncles two-flowered.

18. Verbaſcum ſpinoſum.
Lin. ſpec. 255. *Reich.* 1. 496. *Willd.* 1. 1007. *amœn.* 4. 307. *Vahl ſymb.* 2. 39.
V. creticum ſpinoſum fruteſcens. *Tournef. cor.* 8.
V. ſpinoſum creticum. *Lob. illuſtr.* 113.
Leucoium creticum ſpinoſum incanum luteum. *Bauh. pin.* 201.

L. ſpinoſum.

L. ſpinoſum. *Alp. exot.* 37. *t.* 36.—creticum. *Ger. emac.* 459.

Glaſtivida 1. cretica. *Pon. ital.* 114.

Blattaria cretica ſpinoſa. *Park. theat.* 66. 10. *Raii hiſt.* 1097.

Stem leafy ſpiny frutescent.]

19. Verbaſcum Myconi. *Borage-leaved Mullein.* *Lin. ſpec.* 255. *ſyſt.* 220. *Reich.* 1. 496. *Willd.* 1. 1007. *Mill. fig.* 1. 277. *Trew ehret.* 26. *t.* 57. *Curt. magaz. t.* 236.

Cortuſa foliis ovatis ſeſſilibus. *Lin. hort. cliff.* 50.

Sanicula alpina, foliis boraginis, villoſa. *Bauh. pin.* 243.

Auricula urſi Myconi. *Dalech. hiſt.* 837. *Bauh. hiſt.* 2. 869. *Raii hiſt.* 1084. 10.

Auricula urſi flore cæruleo folio Boraginis. *Park. parad.* 236. *n.* 10. *t.* 237. *f.* 3.

Leaves woolly radical, ſcape naked.

DESCRIPTIONS, *&c.*

1. [Root biennial, ſpindle-ſhaped. Stem erect, ſimple, ſtiff, and ſtraight, from three to five feet high, leafy, woolly, angular, winged. Leaves alternate, decurrent, oblong, nearly entire, very thickly clothed on both ſides with white branched intricate villoſe hairs. Spike terminating, erect, cylindrical, many-flowered. Flowers ſeſſile, cloſely ſet, bright yellow, ſometimes but rarely white. Filaments yellow, hairy: anthers red. Stigma club-ſhaped [a].

Leers remarks, that the two lower filaments are longer than the others, and naked; the three upper white-villoſe.

Native of Europe and Siberia, on banks in hedges and on waſte ground, eſpecially on a gravelly or calcareous ſoil, flowering in july and auguſt.

The leaves and whole herb are mucilaginous, and recommended as emollients both internally and externally. A pint of Cow's milk with a handful of the leaves either of this or the pulverulentum, boiled in it to half a pint, ſweetened with ſugar, ſtrained and taken at bed-time, is a pleaſant emollient and nutritious medicine for allaying a cough, and more particularly for taking off the pain and irritation of the piles. It is often applied externally in this diſorder: and is uſed as an injection in teneſmus with advantage. In diarrhœas of an old ſtanding a decoction of it is uſeful to eaſe the pains of the inteſtines: two ounces of the leaves are boiled in a quart of water, and four ounces are given every three hours. In pulmonary complaints of cattle it is found to be of great uſe, and hence its name of Cow's Lung-wort. It is well known to the country cow-leeches under the name of Murrain-graſs, which is a corruption of Mullein. The French call it Bouillon blanc, and uſe an infuſion of the flowers in coughs, ſuppoſing them to poſſeſs anodyne and pectoral virtues. It does not ſeem to have much of the narcotic powers for which moſt of its natural order are diſtinguiſhed. The ſeeds, however, are ſaid to ſtupify fiſh ſo much that they may be taken with the hand [b].

In the Eaſt Indies the natives have a ſuperſtitious notion of the efficacy of this plant in protecting them from the viſitation of evil ſpirits.

It has many names in Engliſh. Gerarde enumerates Mullein or rather Woolen, Hig-taper, Torches, long Woort and Bullockes Longwoort and Hares bearde. Dr. Withering adds, Ladies Foxglove. It is probable that Gerarde's correction of Mullein to Woollen is right, eſpecially ſince it is called in Dutch Wullkraut. Is the French *Molene* borrowed from our Mullein? Higtaper is altered to High Taper in all modern books, ſuppoſing it to be ſo named from its high tapering ſtem: but in the north it is Hag-taper. Might not this be from its ſuppoſed efficacy in ſorcery?

The Verbaſcums ſeem apt to produce varieties, eſpecially mules. Mr. Robſon communicated to Dr. Withering a hybrid or mule plant, produced under his own eye, from this ſpecies impregnated by the nigrum, in 1790. Hence he calls it Thapſo-nigrum. It flowered five years ſucceſſively, but produced no perfect ſeed. It is difficult to ſay to which of its parents it is moſt nearly allied. In V. Thapſus the leaves are decurrent; in nigrum they are petioled: in this mule the lower leaves are petioled, and the upper decurrent. V. Thapſus has three of its ſtamens hairy, and two ſmooth; nigrum has all the ſtamens hairy: the mule has all its ſtamens hairy, but two of them only on one ſide [c].

Murray (prodr. 47.) mentions a variety of this under the name of Verbaſcum bicolle, or n. 582 of Haller, which he deſcribes as having the lower leaves petioled, and the upper ſeſſile and decurrent, as in the other mule. The ſtigma is ſhortly two-necked [d].

2. This is ſuppoſed by Linneus to be a mule plant, produced from V. Lychnitis as the mother, and V. Thapſus as the father. It appeared in the botanic garden at Upſal in 1761, in the ſame bed with its parents, and was barren. It agrees with the mother in its branched ſtem, flowers, and purple hairineſs of the filaments, though leſs ſo than in V. Lychnitis. It agrees with the father in ſize, in the leaves being decurrent but not totally, and leſs white than in V. Thapſus, and in the calyxes, which are however more pedunculed, though leſs ſo than in V. Lychnitis; of which it is rather a variety than a diſtinct ſpecies. The younger Linneus obſerved it. But it was long ſince remarked by *Agerius*, who ſent it to John Bauhin, and from him ſubſequent authors have taken it [e]. Willdenow conſiders it as a diſtinct ſpecies. See Verbaſcum Lychnitis.

3. Root annual. Leaves ſeſſile but not decurrent, ſpatulate, narrower at the baſe, ſinuate but ſcarcely lyrate, almoſt naked above, ſomewhat tomentoſe beneath. Spike like that of the firſt ſpecies, with the flowers ſeſſile, not crowded very much together, but ſeveral to each bracte and bigger. Corollas yellow, with the ſtamens and piſtils purple [f].]

Lower leaves ovate, about a foot long, and ſix inches broad in the middle, ending in round blunt points, on thick footſtalks, their upper ſide green, but their under ſide downy and of a hoary-white colour, with ſome ſtrong longitudinal veins. Stem from three to four feet high. Stem-leaves oblong, of the ſame texture with thoſe below, but ſeſſile, longer, and ending in points. Flowers in a looſe terminating ſpike, with one very narrow leaf under each. Corolla of a brimſtone colour and larger than thoſe of the common Mullein. The flowers have an agreeable ſcent at a little diſtance; but if ſmelt to long, or too near, it becomes leſs pleaſant. They appear in june and july, and the ſeeds ripen in the autumn, when the plant decays, being biennial. The ſeeds were given to Mr. Miller by Boerhaave, who informed him that he had received them from Vienna [g].

[Native of the South of Europe. Cultivated in 1758 by Mr. Miller.

4. Native of the iſland of Madeira; where it was found by Mr. Francis Maſſon, and introduced in 1777. It flowers from june to auguſt, and is biennial [h].

5. Root biennial. Stem erect, ſpiked, very tomentoſe. Leaves ovate, not at all cordate, crenate; the lower ones on a petiole which is flat above; the upper ones ſeſſile, half embracing but not decurrent. Raceme ſpike-ſhaped, with ſcattered lanceolate bractes; within each of which are four flowers, the middle ones blowing firſt, then the loweſt, and laſtly the two lateral ones. Capſules oblong. Native of Italy [i], Germany, and the ſouth of France.—Cultivated in 1739 by Mr. Miller. It flowers in june and july [k].

6. Root biennial. Stem erect, ſeldom more than three feet high, ſtiff and ſtraight, angular, woolly, leafy, terminating in a panicle very much branched. Leaves elliptic-oblong, ſomewhat wedge-ſhaped, crenate, cloſely woolly beneath, but nearly ſmooth on the upper ſide, netted-veined; the radical ones attenuated at the baſe; the ſtem-leaves ovate, ſeſſile but not decurrent. Branches of the panicle racemed, many-flowered. Flowers pediceled, in bundles, cream-coloured with yellow filaments and ſaffron-coloured anthers [l].

This ſpecies is remarkable for its ſtraight wand-like

[a] Smith. [b] Woodville, Engl. bot. Withering. [c] Robſon in Withering. [d] Reichard and Haller. [e] Linn. ſpec. app. [f] Lin. mant. [g] Mill. fig. [h] Hort. kew. [i] Linn. ſpec. [k] Hort. kew. [l] Smith brit.

angular,

angular ſtem; its leaves very white beneath, but green with a ſlight hoarineſs above, and its cream-coloured flowers, which are produced in great numbers in a compound cluſtered terminating raceme.

Our Engliſh ſpecimens of White Mullein agree preciſely with that in the herbarium of Linneus, which we learn, from certain marks and numbers, to be what he intended in the firſt edition of Species Plantarum for Verb. Lychnitis; though even in that work he ſeems to reckon our hoary yellow Mullein as the original ſpecies, making the white a variety [a].

Native of Europe. With us found chiefly in Kent, and there plentifully. In lanes about Dartford very common. Dr. Stokes found it at Kinver in Staffordſhire, near the Rock Houſes.

Dr. Smith conſiders V. Thapſoides as a variety of this ſpecies, and adopts it on the authority of Linneus, and Hudſon who ſays it grows in Kent.

The album of Miller cannot be this ſpecies. He ſays it grows naturally in Italy and Spain, and is ſix or ſeven feet high.

7. Root biennial. The whole herb is covered with a mealy down which eaſily rubs off, and when ſeen in a microſcope is found to conſiſt of numerous ſtarry entangled tufts. Stem upright, three or four feet high, round, leafy, terminating in a pyramidal branched panicle, compoſed of many flowers. All the leaves ſeſſile, mealy on both ſides, ſlightly ſerrate or crenate: root-leaves elliptic-oblong, often above a foot in length; ſtem-leaves ovate, acuminate, almoſt embracing. It has the inflorescence of the preceding ſpecies, only more branched. The corolla is larger, and of a bright yellow. The filaments are bearded with pale or white hairs; and the anthers are vermilion [b].

Native of Europe. Common in many parts of Norfolk and Suffolk, as about Norwich and Bury; in waſte ground, hedges and the borders of fields: flowering in july, at which time it forms a golden pyramid a yard high, of many hundreds of flowers, and is one of the moſt magnificent of Britiſh herbaceous plants. Ray found it at Wollerton near Nottingham.

A ſingular inſtance of irritability in this and ſome other ſpecies of Verbaſcum has been pointed out by Mr. Correa. In ſtill warm weather, if two or three ſmart blows be given to the ſtem with a ſtick, all the corollas which are then open, though not immediatly looſened, fall off in a few minutes, ſeparating one after another from their baſe, and the calyx cloſes round the germ, ſeeming as it were to puſh the bloſſom off.

Dr. Smith has obſerved a mule plant produced from this ſpecies impregnated with the pollen of Verb. nigrum; having the habit of the former, and purple-haired filaments like the latter; with the leaves more neatly crenate than in this ſpecies, the root-leaves petioled, the ſtem and petioles purple. It is frequent at Helleſdon near Norwich [c].]

8. Root perennial. Bottom leaves ovate-oblong, indiſtinctly crenate, (doubly crenate, *Ait. kew.*) dark green above, pale green beneath, ſtanding upon pretty long footſtalks. The ſtalk riſes three or four feet high, branching out on each ſide, and has a few ſharp-pointed ſmall leaves on the lower part, ſitting cloſe to the ſtalk. The flowers are diſpoſed in a long looſe ſpike on the upper part of the ſtalk; they come out upon ſhort ſlender pedicels, three or four from the lower joints; above theſe there are two at each joint, and at the top they are ſingle; they are of a ruſty iron colour, and larger than thoſe of the common ſort. They appear in july and auguſt, but do not produce ſeeds here. It is common in gardens, where it is known by the name of Iron-coloured Moth Mullein. [Mr. James Sutherland cultivated it in 1683. It is a native of the South of Europe [d].

9. Root perennial. Stem ſtiff and ſtraight, angular, ſtriated, purpliſh, ſometimes pubeſcent, little branched. Root-leaves cordate, on long petioles; ſtem-leaves cordate-lanceolate, petioled; uppermoſt almoſt ſeſſile; all waved-crenate or ſubſerrate, netted-veined, dark green, naked or ſometimes hoary beneath, eſpecially the upper ones. Spike terminating, for the moſt part ſimple or ſolitary, many-flowered, but not very compact: longer and more ſimple than in moſt of the other ſpecies. Flowers in bundles, (about ſeven in a ſet,) pedicelled [e]. The beauty of its golden-coloured corolla is much enriched by the tints of purpliſh brown at the mouth of the tube, the purple-haired filaments, and the ſaffron-coloured anthers [f].

Native of Europe in a calcareous or gravelly ſoil; flowering about midſummer, and laſting till ſeptember. Plentiful in Kent, and in the hedges of retired graſſy lanes ſo frequent in Norfolk and Suffolk [g]. In the calcareous parts of Cambridgeſhire, and the ſandy parts of Bedfordſhire. Nettlebed, Henley and Stoken-church in Oxfordſhire. Between Birmingham and Walſall. About Hampſtead, near Richmond bridge, at Strand on the Green, and about Hareſield in Middleſex. Crayford, Shooter's hill, Charlton, Blackheath, Lewiſham, Woolwich warren, Bromley, Weſt Wickham, Plumſtead, Bexley, Weſterham, Orpington, Dartford and Oſpringe in Kent. Dupper's hill near Croydon, about Eſher and Godalmin in Surrey. Tillington in Suſſex.

It is pity that Linneus adopted its common name of nigrum or black as a trivial, becauſe it tends to miſlead, for it has nothing black about it, the leaves being only dark-coloured in compariſon with the other ſpecies, Thapſus, Lychnitis and pulverulentum; the nap on all which may be uſed for tinder, or to make wicks for lamps, whence the name of *Lychnitis* to the ſixth ſpecies.

This varies ſometimes with white flowers; and Gmelin mentions a lower variety with a funnel-form herbaceous flower, that is proliferous [h].

10. Root biennial, thick, branched, whiniſh, *bitter*. Whole plant much larger and ſtronger than Blattaria, clothed generally all over, and the lower leaves conſtantly, with ſhort prominent, often forked, glandular hairs. Stem erect, five or ſix feet high, branched from the bottom, leafy, round, but ſomewhat angular or winged from the leaves running down it. Radical leaves reſembling thoſe of the Primroſe, lanceolate-oblong, wrinkled, unequally tooth-crenate, pinnatifid-gaſhed at the baſe, above ſhining a little and having ſcattered hairs beneath veined and woolly: ſtem-leaves oblong-lanceolate, toothed and gaſhed, ſubſeſſile; the upper ones heart-ſhaped, long-pointed, toothed, ſeſſile, and even in ſome degree embracing. Flowers axillary, in bundles or cluſters, on ſhort woolly ſtalks, and ſome of them ſeſſile, very large, yellow, purple about the centre, ſoon falling off. Filaments yellow, bearded in the middle with purple. Segments of the calyx ovate, larger and broader than in V. Blattaria. The woollineſs of the ſtem and branches varies in degree, and weak plants have ſometimes ſolitary flowers, but always on much ſhorter thicker ſtalks than the Blattaria.

Firſt found by Mr. Waldron Hill of Worceſter in a field on the ſouth ſide of a lane leading from Gregory's mill to the turnpike road from Worceſter to Omberſley, oppoſite to the lane leading to Beverey. It was cultivated for three years without any perceptible alteration, according to Dr. Stokes [i].

In Engliſh Botany it is added, from the information of the Rev. Mr. Baker, that it was firſt obſerved growing plentifully in a field near Wrexham, by Mrs. Nath, who planted it in her garden near Beverey, whence probably its ſeeds got into the neighbouring turnpike road to Omberſley, and thence into the lane leading to Gregory's mill. This is omitted in Dr. Smith's poſterior publication of his Flora.

Dr. Stokes firſt clearly aſcertained this ſpecies, which in many reſpects is cloſely allied to V. Blattaria, but does not ſeem to be a variety of it, or a mule; for that does not grow where this is found, and it may be copiouſly propagated by ſeed. It flowers in auguſt and ſeptember [k].

11. Root biennial. Radical leaves ovate, ſubſeſſile, naked, even, wrinkled, ſcarcely crenate. Stem erect, ſimple, two feet high. Branches from the loweſt axils,

[a] Engl. bot. [b] Smith brit. [c] Engl. bot. [d] Hort. kew.

[e] Smith brit. [f] Wither and engl. bot. [g] Engl. bot.
[h] Fl. ſib. 4. 91. n. 46. t. 47. Reichard ſyſt.
[i] Stoken in With. Smith brit. and engl. bot. [k] Engl. bot.

erect, ſimple, length of the ſtem, all angular, ſubpubeſcent with hairs clammy at the tip. Stem leaves cordate, ſeſſile, ſmooth, wrinkled and veined. Raceme of all terminating, ſimple, a foot long. Peduncles ſimple, ſolitary, one-flowered. Lower leaflets of the calyx commonly ſmaller than the others. Corolla deep purple. Filaments purple, bearded; in the three upper ones the beard is white. Anthers kidney form, compreſſed, blackiſh, with fulvous pollen. Piſtil purple, bent down [1]. Capſule ovate-acuminate, with a longitudinal ſtreak on each ſide, of a ſtiff coriaceous ſubſtance, the valves when ripe cloven to the middle: partition doubled, formed from the edges of the valves bent in. Receptacle ovate-globular, ſpungy, placed in the axis of the fruit, deciduous when ripe. Seeds many, ovate-globular, ſomewhat angular, excavated, brown [2].

Native of the South of Europe, and of Germany. Cultivated in 1597, by Gerarde. It flowers from may to july [3].

12. Root annual fuſiform. Stem about three feet high, erect, branched, leafy, angular, ſmooth. Leaves obovate-oblong, doubly-ſerrate, ſmooth, embracing: root-leaves ſubly rate. Racemes terminating, glandular-hairy, ſtiff, many-flowered. Flowers peduncled, ſolitary, yellow ſtreaked more or leſs with purple, having each a ſingle ovate bracte at the baſe of the peduncle. Stamens clothed with purple hairs [4]. Germ globoſe. Capſule rather oblong. The upper part of the ſtem, as well as the germ, calyx, bractes, and upper leaves, clothed with ſhort hairs tipped with a minute globe [5].

Native of the South of Europe, Germany, Switzerland and England, in clayey and gravelly ſoils. In Devonſhire, Dorſetſhire and Cornwall not uncommon, as about Plymouth and Aſhburton. Near Rocheſter, by the river Medway. Between Deptford and Greenwich. In a lane between Mitcham common and Carſhalton. In gardens it is frequently cultivated, and is very ornamental; flowering from july to november, or even later, if the weather be mild.

The Hon. Mrs. F. Howard gathered a ſpecimen near Lynn in Norfolk, which is either a variety of this with a large purpliſh flower, or the phœniceum [6].]

β. Leaves of white Moth Mullein oblong, ſmooth, dark green. Stem three or four feet high, ſending out two or three ſide branches. Stem-leaves oblong, ſmooth, embracing. The flowers come out ſingly from the ſide of the ſtem, upon peduncles an inch long, Corolla white within, with a little bluſh of red on the outſide. Capſule round. Native of the South of France and Italy.

[13. Root biennial. Stem about two feet high, divided at the upper part into ſeveral branches ſpreading out at right angles. Leaves notched all round, cordate, obtuſe, lyrate at the baſe, and more pubeſcent than in *V. nigrum*. Flowers middle-ſized, yellow with purple-haired filaments. Native of Dauphiné. *It* ſeems to have been confounded with the nigrum, from which it differs principally in the leaves, the diſpoſition of the branches, and their pubeſcence [7].

14. Root biennial. Radical leaves repand, or obtuſely ſinuate-pinnatifid: ſtem-leaves oblong, waved, decurrent a little at the baſe on each ſide: branch leaves ovate or cordate, a little decurrent: the firſt of theſe are oppoſite, the reſt alternate [8].

Leaves tomentoſe; thoſe next the root elongated, waved, ſinuate-repand; thoſe on the ſtem ſeſſile, a little decurrent. Stem low, erect, tomentoſe. Branches numerous, ſlender, wand-like, erect, tomentoſe. Flowers ſeſſile, glomerate, in an interrupted ſpike. Corolla ſmall, yellow. Bractes cordate, acuminate, reflected [9].

Native of the South of France, Italy and Barbary. Mr. Miller ſays Italy and Greece, and alſo the rocks of Gibraltar.—He cultivated it in 1731. It flowers in july and auguſt [10].

Deſfontaines has another ſpecies, which he names Verbaſcum cordatum. The leaves are thick, tomentoſe, hoary: the lower cordate, crenulate, obtuſe, petioled; ſtem-leaves half-embracing, acute, quite entire. Stem ſimple, or little branched, tomentoſe, erect, the thickneſs of a finger. He found it in Barbary about Tlemſen.

15. Stem erect, a foot high, tomentoſe at the baſe, becoming ſmooth by age, round, branched at bottom. Lower and ſtem-leaves petioled, two inches long, thickiſh, ſmooth above, tomentoſe beneath; ſegments unequal, oblong, obtuſe, having frequently a ſingle blunt tooth or two: leaves under the branches ſeſſile, gaſh-toothed. Flowers ſeſſile on the branches, alternate, remote, three or four together: floral leaves lanceolate, entire, longer than the calyxes. Calyx very tomentoſe hoary.

It differs from *V. ſinuatum* in having the leaves deeply divided and petioled. It ſeems doubtful whether it be different from Tournefort's plant referred to above. This was found in the iſlands of the Archipelago by Forſkahl.

16. Stem a foot high, ſmooth, quite ſimple, with a leaf or two at bottom. Radical leaves numerous, ſcarcely three inches long, petioled, lanceolate, toothſinuate or ſubpinnatifid, leſs deeply divided at the baſe, acute: ſegments lanceolate, toothed, the larger ſinuſes toothletted: ſtem-leaves entire. Peduncles from the bottom to the very top, ſolitary, remote, an inch long, one-flowered, floral-leaf cordate, ſmall, cuſped, at the baſe of each flower. Segments of the calyx unequal, three oblong, two roundiſh, larger, all ſlightly toothletted. Corolla yellow. Native of Spain, on hills towards Ortaleza; where it was found by Barnades.

V. Othecki differs in having a leafy ſtem, the ſtem-leaves oblong, petioled, gaſh-toothed; the peduncles and calyxes woolly.—*V. ſinuatum* is diſtinguiſhed by having the radical leaves very blunt, and tomentoſe, the flowers ſeſſile and aggregate [11].

17. Stems ſpreading on the ground on all ſides, undivided, triangular, nerveſe. Leaves oval, cut into irregular ſegments: the upper ones ſmaller, almoſt ſeſſile; the lower petioled. Peduncles woolly, moſt of them bifid, from the bottom of the leaves. Calyx deeply five-cleft, woolly, with lanceolate ſegments. Filaments very ſhort reſting on a ſcale which covers the germ. Anthers oblong, erect, longer than the filaments. Germ almoſt round: ſtyle longer than the filaments: ſtigma entire and pointed. The whole plant had the ſmell of muſk. Native of Spain; where it was found by Othecki [12]. Introduced in 1775, by Monſ. Thouin. It flowers in july and auguſt. Biennial [13].

18. This is a ſhrub, half a foot high, ſtiff, and very much branched: branches alternate, round, tomentoſe, hoary: the lower ones becoming naked by age. Leaves ſeſſile, alternate, lanceolate, tomentoſe, attenuated at the baſe, obtuſe, with two blunt ſegments on each ſide at bottom: a bundle of flowers in the axils: leaflets wedge-ſhaped, entire. Raceme terminating, flexuoſe, branched at bottom, rigid. Peduncle ending in a ſpine. Pedicels rigid ſometimes one-flowered; (often inſtead of a pedicel a very ſpreading ſpine) alternate or oppoſite; under each a minute ovate bracte. Segments of the calyx ovate. Corolla ſmall, tomentoſe on the outſide. Capſule the ſize of a Coriander ſeed, ſmooth [14]. Native of Candia or Crete.]

19. Root perennial, compoſed of ſlender fibres. The leaves which ſpread flat on the ground, are of a thick fleſhy ſubſtance, of an ovate ſhape, indented on their edges, woolly, and of a dark green colour; they are ſeſſile or ſubſeſſile, embrace the crown of the root, and lie over each other; they continue in verdure all the year, but in winter change to a much darker green. From among theſe leaves ariſe ſeveral ſcapes or naked ſlender ſtalks, about four inches high, which divide into three or four pedicels at the top, hairy and of a brown-purpliſh colour, each ſuſtaining one large flower, of a fine blue, ſo deeply divided as to appear to be five-petalled; the ſegments are oval, obtuſe, and ſpread open flat, like the Auricula. Calyx funnel-ſhaped, cut into five obtuſe ſegments. Filaments thick, erect. Anthers flat, clinging to the ſtyle, as in Viola and Meadia. Capſule oblong-ovate.

[No one would have gueſſed from the habit of this

[1] Linn. ſyſt. [2] Gaertner. [3] Hort. kew. [4] Smith brit. [5] Engl. bot. [6] Idem. [7] Villars. [8] Linn. ſpec. [9] Deſfontaines. [10] Hort. kew.

[11] Vahl. [12] Othecki's voyage. [13] Hort. kew. [14] Vahl.

plant

plant that it belonged to the Verbaſcums, moſt of which are tall and ſhowy, with leafy ſtems and long ſpikes of flowers generally yellow; whereas this is of very humble growth, its naked flowering ſtem even in gardens ſeldom exceeding ſix inches in height: its flowers are large in proportion to the ſize of the plant, of a bluiſh purple colour, and highly ornamental: they make their appearance in may, and continue ſucceſſively in bloſſom for ſeveral months. Hence this is a deſirable plant to cultivate, eſpecially for decorating rock-work.

It grows ſpontaneouſly on the Pyrenees: in its wild ſtate it is lower than in our gardens, with a more woolly foliage enriched with various tints [a]. It was cultivated by Mr. Miller in 1731 [b]. Mr. Curtis thinks that Parkinſon probably had it long before; but though he has figured and deſcribed it well in his Garden of pleaſant flowers, he does not give the leaſt hint that he poſſeſſed the growing plant. He places it with the Auriculas or Bear's-ears, rather in compliance with others, than from his own judgement.

Cluſius, in his ſecond appendix to his Hiſtory of plants informs us, that Venerius ſent it in the year 1600, from the Pyrenees, to John ab Hogelande, and Chriſtian Porret, at Bourdeaux.]

PROPAGATION AND CULTURE.

Moſt of the ſorts are biennial, and may be increaſed by ſowing their ſeeds in auguſt, on a bed of light earth, in an open ſituation, where the plants will ſometimes come up the ſucceeding month, and will endure the winter's cold very well, provided they have a dry ſoil. In february tranſplant them where they are to remain, not nearer than two feet aſunder. In june following they will flower and their ſeeds will be ripe in auguſt or ſeptember. But as the ſeeds frequently lie in the ground a whole year, the ground ſhould not be diſturbed. Theſe plants, as they require little care, may be allowed a place in the borders of large gardens, for the variety of their hoary leaves, and the ſweetneſs of the flowers, which have a ſcent ſomewhat like Violets. If the ſeeds be permitted to ſcatter, they will come up without care. The fourteenth ſeldom produces good ſeeds in England.

Ferrugineum (n. 8.) and phœniceum (n. 11.) have perennial roots, and not producing good ſeeds here, are increaſed by offſets, which ſhould be taken off in autumn, time enough to get good root before winter; otherwiſe they will not flower the following ſummer. Theſe plants thrive beſt in a ſandy loam, and ſhould be planted in an eaſt border, where they have only the morning ſun, for they do not thrive well when they are much expoſed to the ſun.

19. This alſo is perennial, and is uſually propagated by offſets, which come out from the ſide of the old plant; theſe ſhould be taken off in autumn, and planted in ſmall pots filled with light ſandy earth: they muſt always have a ſhady ſituation, for they will not thrive when they are expoſed to the ſun.

[It is very hardy, but requires a north aſpect in the ſummer, and to be carefully watered in dry weather. It will grow in almoſt any ſoil [c].

VERBASCUM. See *Buchnera*, *Buddlea*, *Celſia*, *Phlomis*, *Primula*.]

VERBENA. (*of Pliny. q.* Herbena. *Being the favourite herb uſed in the ſacred rites of the heathen. Or, according to Pliny, from* verro; *being uſed to ſweep and cleanſe Jupiter's table or altar for ſacrificing. Others derive it from* viriditas: *others again ſay it is q.* Veneris vena. *Such is the uncertainty of derivation.* In Greek it is Ἱερόβοτανον, *the ſacred herb, becauſe bunches of it were ſuſpended in luſtrations. Any herb uſed in the ſacred rites was called by theſe names.*)

Lin. gen. n. 32. *Reich. n.* 35. *Schreb. n.* 43. *Gærtn. t.* 66. *Tournef. t.* 94. *Vaill. Juſſ.* 109. Sherardia *Vaill.* Blairia *Houſt. act. angl. Gærtn. t.* 56.

Claſſ. 2. 1. Diandria Monogynia. ſ. Didynamia Gymnoſpermia.

Nat. Order of *Perſonatæ*. *Vitices* Juſſ.

[a] Curtis. [b] Hort. kew. [c] Curtis.

GENERIC CHARACTER.

CAL. *Perianth* one-leafed, angular, tubular, linear, five-toothed, the fifth toothlet truncate, permanent.

COR. one-petalled, unequal: *tube* cylindrical, ſtraight for the length of the calyx, then widening and curved in: *border* ſpreading, half-five-cleft: *ſegments* rounded, almoſt equal.

STAM. *Filaments* two or four, briſtle-ſhaped, very ſhort, lying within the tube of the corolla; two of them ſhorter (when there are four.) *Anthers* curved in, as many as there are filaments.

PIST. *Germ* four-cornered. *Style* ſimple, filiform, length of the tube. *Stigma* obtuſe.

PER. very ſlender, and ſcarcely manifeſt, or almoſt none. *Calyx* containing the ſeeds.

SEEDS two or four, oblong.

OBS. Sherardia Vaill. *contains the ſeeds and two anthers within a narrow calyx.*

V. lappulacea *bears echinated ſeeds and two anthers within an inflated calyx.*

Verbena Vaill. *produces obtuſe ſeeds and four anthers.*

ESSENTIAL CHARACTER.

Cor. funnel-ſhaped, almoſt equal, curved. *Cal.* one of the teeth truncate. *Seeds* two or four, naked or very thinly arilled. *Stam.* two or four.

SPECIES.

* *Two-ſtamened, two-ſeeded.*

1. Verbena orubica. *Betony-leaved Vervain.*
Lin. ſpec. 27. *Reich.* 1. 52. *Willd.* 1. 115. *hort. cliff.* 10. *Pluk. phyt. t.* 228. *f.* 4. & *t.* 327. *f.* 7.
Sherardia urticæ folio ſubtus incano, floribus violaceis, *Ehret. pict. t.* 5. *f.* 1.
Two-ſtamened, ſpikes very long leafy.

2. Verbena indica. *Indian Vervain.*
Lin. ſpec. 27. *ſyſt.* 66. *Reich.* 1. 52. *Willd.* 1. 115. *Jacqu. obſ.* 4. 7. *t.* 86.
Two-ſtamened, ſpikes very long fleſhy naked, leaves lanceolate-ovate obliquely-toothed, ſtem even.

[3. Verbena jamaicenſis. *Jamaica Vervain.*
Lin. ſpec. 27. *ſyſt.* 66. *Reich.* 1. 52. *Willd.* 1. 115. *hort. cliff.* 10. *Jacqu. obſ.* 4. 6. *t.* 85. *Brown. jam.* 116. *n.* 2. *Sloan. jam.* 1. 171. *t.* 107. *f.* 1.
Valerianoides. *Boerh. lugdb.* 2. 270.
Two-ſtamened, ſpikes very long fleſhy naked, leaves ſpatulate-ovate ſerrate, ſtem rough-haired.

4. Verbena mutabilis. *Changeable Vervain.*
Lin. ſpec. ed. Willd. 1. 115. *Jacqu. collect.* 2. 334. *icon. rar.*
Two-ſtamened, ſpikes very long fleſhy naked, leaves ovate produced at the baſe toothed rugged tomentoſe beneath, ſtem ſhrubby.

5. Verbena ariſtata. *Awn-bracted Vervain.*
Vahl ecl. 2. 2.
Two-ſtamened, leaves oblong ſerrate, ſpikes elongated, bracteas ovate acuminate longer than the ſeed, ſtem ſhrubby.

6. Verbena priſmatica. *Priſm-calyxed Vervain.*
Lin. ſpec. 27. *Reich.* 1. 53. *Willd.* 1. 116. *Jacqu. collect.* 2. 301. *icon. rar. Brown. jam.* 115. *n.* 1. *Sloan. jam.* 1. 172. *t.* 107. *f.* 2. *Pluk. phyt. t.* 70. *f.* 1.
Two-ſtamened, ſpikes looſe, calyxes alternate priſmatic truncate atomed, leaves ovate obtuſe.]

7. Verbena mexicana. *Mexican Vervain.*
Lin. ſpec. 28. *Reich.* 1. 53. *Willd.* 1. 116.
V. mex. trachelii folio, fructu aparines. *Dill. elth.* 407. *t.* 302. *f.* 389.
Blairia mexicana. *Gærtn. fruct.* 1. 265.
Two-ſtamened, ſpikes looſe, calyxes of the fruit reflexed rounded-twin-bifid.

8. Verbena ſtœchadifolia.
Lin. ſpec. 27. *Reich.* 1. 53. *Willd.* 1. 116. *Brown. jam.* 116. *n.* 4. *t.* 3. *f.* 2. *Pluk. ſpec.* 6. *ic.* 162. *f.* 1. (Lavandula.)
Sherardia nodiflora ſtœchadis ſerratifolii folio. *Vaill. ſex.* 49.
Two-ſtamened, ſpikes ovate, leaves lanceolate ſerrate-plaited, ſtem ſhrubby.

** *Four-*

9. Verbena globiflora. *Globe-flowered Vervain.*
Lin. ſpec. ed. Willd. 1. 116. *L'Herit. ſtirp.* 1. 23. *t.* 12.
Nepeta maxima, flore albo, ſpica habitiore. *Sloan. jam.* 1. 173. *t.* 108. *f.* 1.
Four-ſtamened, ſpikes in globular heads, leaves lanceolate crenate wrinkled rugged, ſtem ſhrubby.
10. Verbena javanica. *Java Vervain.*
Lin. ſpec. ed. Willd. 1. 117. *Burm. ind.* 12. *t.* 6. *f.* 2.
Blairia javanica. *Gærtn. fruct.* 1. 265.
Four-ſtamened, ſpikes cylindrical, leaves rhomb-ovate crenate, ſtem erect.]
11. Verbena nodiflora. *Creeping Vervain.*
Lin. ſpec. 28. *ſyſt.* 66. *Reich.* 1. 54. *Willd.* 1. 117. *hort. cliff.* 11. *fl. zeyl. n.* 399. *Burm. ind.* 1. 6. *f.* 1. *Brown. jam.* 116. *n.* 3. *Gron. virg.* 7. *Swartz obſ.* 17. *Forſt. prodr. n.* 17. *Deſcont. atlant.* 1. 15.
V. nodiflora. *Baub. pin.* 269. *prodr.* 125. *Matth.* 742. *Dodart ic. Imperati* 673. *ic. Baub. hiſt.* 3. 444. *Raii hiſt.* 536. *Mor. hiſt. ſ.* 11. *t.* 25. *f.* 8.
V. nodiſl. cap. obl. *l.* V. nodiſl. Imperati, *Barr. ic.* 855.
V. repens nodiflora. *Park. theat.* 675.
Blairia nodiflora. *Gærtn. fruct.* 1. 266.
Zapania nodiflora. *Lamarck illuſtr. n.* 248. *t.* 17. *f.* 2.
Four-ſtamened, ſpikes conical-headed, leaves wedge-ſhaped, toothed, ſtem creeping.
12. Verbena bonarienſis. *Cluſter-flowered Vervain.*
Lin. ſpec. 28. *Reich.* 1. 54. *Willd.* 1. 117. *hort. cliff.* 11. *ſyſt.* 8. *Gærtn. fruct.* 1. 315. *Knipb. orig. cent.* 2. *n.* 98. *Dill. elth.* 406. *t.* 300. *f.* 387.
Four-ſtamened, ſpikes in bundles, leaves lanceolate embracing.
13. Verbena haſtata. *Halberd-leaved Vervain.*
Lin. ſpec. 29. *Reich.* 1. 54. *Willd.* 1. 118. *hort. upſ.* 8. *Herm. parad.* 242. *ic.*
Four-ſtamened, ſpikes long acuminate, leaves haſtate.
[14. Verbena triphylla. *Three-leaved Vervain.*
Lin. ſpec. ed. Willd. 1. 118. *L'Herit. ſtirp.* 1. 21. *t.* 11. *Curt. magaz. t.* 367.
Aloyſia citrodora. *Ortega et Pal. diſſ.*
Four-ſtamened flowers panicled, leaves in threes, ſtem ſhrubby.
15. Verbena lappulacea. *Burry Vervain.*
Lin. ſpec. 28. *ſyſt.* 66. *Reich.* 1. 53. *Willd.* 1. 118. *Jacqu. obſ.* 1. 37. *t.* 24. *amer. pict.* 10. *t.* 9. *Swartz obſ.* 16. *Brown. jam.* 116. *n.* 5. *Sloan. jam.* 1. 174. *t.* 110. *f.* 1. (Sed v. ala.)
Burleria *Leeſl it.* 194. *n.* 69.
Blairia *Houſt. Amm. herb.* 277.
Four-ſtamened, fruiting calyxes roundiſh inflated, ſeeds echinate.
16. Verbena Forſkaelii, *Arabian Vervain.*
Lin. ſpec. ed. Willd. 1. 118. *Vahl ſymb.* 3. 6.
Phryma *Forſk. cat. Arab.* 115.
Four-ſtamened, fruiting calyxes roundiſh beak-acuminate reflexed, ſeeds rounded, wrinkled.]
17. Verbena caroliña. *Carolina Vervain.*
Lin. ſpec. 29. *ſyſt.* 66. *Reich.* 1. 54. *Willd.* 1. 119. *Dill. elth.* 407. *t.* 301. *f.* 388. *Raii ſuppl. app.* 249. *n.* 10.
Four-ſtamened, ſpikes filiform, leaves undivided lanceolate ſerrate bluntiſh ſubſeſſile.
18. Verbena urticifolia. *Nettle-leaved Vervain.*
Lin. ſpec. 29. *ſyſt.* 66. *Reich.* 1. 55. *Willd.* 1. 119. *hort. cliff.* 11. *upſ* 9. *Gron. virg.* 7. *Sabb. hort. rom.* 3. *t.* 55. *Knipb. orig. cent.* 11. *Mor. hiſt.* 3. 418. *ſ.* 11. *t.* 25. *f.* 3.
V. peregrina. *Ded. pempt.* 125.
V. urticæ folio canadenſis. *Hort. par. & Mor. prælud. Raii hiſt.* 536.
Four-ſtamened, ſpikes filiform panicled, leaves undivided ovate ſerrate acute petioled.
[19. Verbena ſcabra. *Rugged-leaved Vervain. Vahl ecl.* 2. 2.
Four-ſtamened, ſpikes filiform, fruiting calyxes patulous ovate, leaves ovate very rugged ſerrate, upper-moſt alternate.
20. Verbena Aubletia. *Cut-leaved Roſe Vervain.*
Lin. ſyſt. 66. *Willd.* 1. 119. *ſuppl.* 86. *Ait. kew.* 1. 33. *Jacqu. hort.* 2. 82. *t.* 176. *Retz. obſ. holm.* 1773. 144. *t.* 5. *Medicus ad. palat.* 3. *phyſ.* 194. *t.* 7. *Curt. magaz. t.* 308.
Obletia. *Journ. de Rozier, introd.* 1. 367. *t.* 2.
Buchnera canadenſis. *Lin. mant.* 88. *ſyſt. ed.* 13. 478.
Four-ſtamened, ſpikes looſe ſolitary, leaves trifid gaſhed.]
21. Verbena ſpuria. *Canadine Vervain.*
Lin. ſpec. 29. *Reich.* 1. 55. *Willd.* 1. 119. *hort. upſ.* 8.
V. humilior, foliis inciſis. *Clayt. virg.* 8.
V. urticæ folio canadenſis; foliis inciſis, flore majore. *Hort. reg. par.*
Four-ſtamened, ſpikes filiform, leaves multifid-laciniate, ſtems numerous.
22. Verbena officinalis. *Common Vervain.*
Lin. ſpec. 29. *ſyſt.* 67. *Reich.* 1. 55. *Willd.* 1. 120. *hort. cliff.* 11. *fl. ſuec. n.* 30. *mat. med.* 38. *Woodv. ſuppl. t.* 218. *Hudſ. angl.* 249. *Wither. arr. ed.* 3. 520. *Smith brit.* 609. *engl. bot. t.* 767. *Curt. lond.* 1. *t.* 41. *Relh. cant. ed.* 2. *n.* 476. *Sibth. oxon. n.* 515. *Abbot, beſſ. n.* 423. *Fl. dan. t.* 628. *Holl. holv. n.* 219. *Heſſm. germ.* 9. *t.* 2. *Roth. germ.* 1. 254. *Pollich pal. n.* 26. *Krock. ſileſ. n.* 40. *Neck. gallob.* 15. *Scop. carn. n.* 749. *Crantz auſtr.* 328. *Sauv. monſp.* 279. *Villars dauph.* 2. 362. *Allion. pedem. n.* 1602. *Deſcont. atlant.* 1. 16. *Thunb. jap.* 22. *Lour. cochinch.* 27. *ed. Willd.* 33. *Ludw. eſſ. t.* 149. *Knipb. orig. cent.* 4. *n.* 92. *Sabb. hort. rom.* 3. *t.* 56. *Bulliard herb. t.* 215. *Lamark illuſtr. n.* 236. *t.* 17. *f.* 1. *Plenk ic. t.* 171. *Blackw. t.* 411. *Reynault hot. ic.*
V. communis cœrulea flore. *Bauh. pin.* 269. *Tournef. inſt.* 200. *Dodart ic. Mor. hiſt. ſ.* 11. *t.* 25. *f.* 1.
Verbena. *Riv. pent. t.* 56.
V. vulgaris. *Baub. hiſt.* 3. 443. *Cluſ. hiſt.* 2. 45. 2. *Raii hiſt.* 535. *ſyn.* 236.
V. communis. *Ger.* 580. 1. *emac.* 718. 1.
V. maſcula. *Brunf.* 1. 119.
V. mas ſ. recta & vulgaris. *Park. theat.* 675. 1.
Verbenaca. *Matth.* 1052. *Camer. epit.* 797. *Trag.* 210.
V. recta. *Dod. pempt.* 150. 1.
3. V. luſitanica latifolia procerior. *Tournef. inſt.* 200. *Miller.*
Four-ſtamened, ſpikes filiform panicled, leaves multifid-laciniate, ſtem ſubſolitary.
23. Verbena ſupina. *Trailing Vervain.*
Lin. ſpec. 29. *ſyſt.* 67. *Reich.* 1. 55. *Willd.* 1. 120. *Deſcont. atlant.* 1. 17. *Knipb. cent.* 12. *n.* 99. *Cluſ. hiſt.* 2. 46. *Dod. pempt.* 150. 2. *Bauh. hiſt.* 3. 444. *Raii hiſt* 536.
V. ſupina ſ. fœmina. *Park. theat.* 675. 2.
V. ſacra. *Ger.* 580. 2. *emac.* 718. 2.
V. tenuifolia. *Baub. pin.* 269. *Tournef. inſt.* 200. *Mor. hiſt. ſ.* 11. *t.* 25. *f.* 7.
Four-ſtamened, ſpikes filiform ſolitary, leaves bipinnatifid.

DESCRIPTIONS, *&c.*

1. This ariſes with a ſhrubby ſtalk near three feet high, divided into three or four branches. Leaves oblong-ovate, placed by pairs, deeply ſerrate, deep green above, but hoary beneath; their foot-ſtalks are ſhort, and have leafy borders running from the baſe of the leaves. The flowers grow in thick terminating ſpikes about a foot in length; they are large, of a fine blue colour, and have ſmall acute-pointed leaves intermixed with them. They come out in June and July, and when the ſeaſon proves warm, the ſeeds ripen in autumn. It is biennial, and a native of South America. The ſeeds were ſent to Mr. Philip Miller by Mr. Robert Millar, from Panama.

2. [This is an annual plant, very much reſembling the jamaicenſis, but eaſily diſtinguiſhed from it by the ſtem and branches being ſmooth, except the baſe of the leaves and the part of the branches between the leaves, which are ciliate. The leaves alſo are much narrower, being truly lanceolate and drawn to a point at both ends. The ſpike is the ſame, but the colour of the corolla is purple [b].

Linneus diſtinguiſhes this from the next ſpecies, by the ſtem being green, and the leaves being waved, and not at all ciliate. Whereas in that the ſtem is purple and the leaves ſerrate, and ciliate at the baſe.

[b] Jacquin.

Native of Ceylon. Flowers in auguſt, and was cultivated by Mr. Miller in 1732[1]. But Mr. Miller's indica ſeems to be the jamaicenſis; for he ſays it is a native of moſt of the iſlands in the Weſt Indies, and quotes Sloane's name. What he calls jamaicenſis (n. 12.) he ſays is a perennial plant, with ſhorter ſpikes, and ſmall white flowers, and that it was ſaid to come from Senegal in Africa. Here is ſome unaccountable blunder; but it cannot be the jamaicenſis of Linneus.

3. Stem three or four feet high, very much branched and diffuſed, and being ſuffrutеſcent at the baſe it ſeems to be more than annual. Stem and branches rough with hairs. Leaves oppoſite, ovate, obtuſe or acute, ſerrate, gradually and for a conſiderable length attenuated at the baſe. From the axil between two oppoſite branches comes forth a fleſhy ſpike, a foot long, unequally cylindrical, ſtiff and green; the flowers blow in ſucceſſion, beginning at the bottom, very few together, violet-coloured, with the throat and long ſlender incurved tube white: Anthers ſulphur-coloured. After the corolla is fallen, the ſtyle ſtands out of the ſpike*.

After each flower follows in a greeniſh-brown calyx or huſk, one ſeed or rather huſk, ſomething like wheat in ſhape and colour, only ſmaller, and eaſily diviſible into two, both being cloſe covered with the ſame membrane: they are in a cavity on the ſide of the ſpike, and are covered with three ſharp, browniſh, membranous leaves.

Native of Jamaica, Barbadoes, and other iſlands of the Weſt Indies.

It is much uſed in clyſters for the belly-ach, and by ſome in poultices, with onions, for the dropſy. A decoction of it with or without Lime-roots, drank very warm, is counted a powerful ſudorific, and good in the dropſy. It is much in repute among the Indians and Negroes, for the cure of moſt diſeaſes[2]. Jacquin remarks that the plant has an herbaceous taſte, ſomewhat like the green pod of the kidney-bean, with a ſlight pungency on the tongue.

Cultivated in 1714, by the Dutcheſs of Beaufort. Biennial*.

4. This is an upright branchy ſhrub with a ſomewhat ſquare trunk of about ſix feet high; the younger branches are ſharply tetragonal, greener, and more villoſe: the leaves are oppoſite, ſhortſtalked, ovate, ſharp, ſerrated, wrinkled, roughiſh and villoſe above, tomentoſe beneath: their length is about five inches: the ſpike is terminal, fleſhy, cylindric, ſomewhat villoſe, leafleſs, and at length about a foot and half long: the flowers are at firſt extremely deep ſcarlet, and afterwards roſe or fleſh-coloured: the bractes are longer than the calyxes, green, villoſe, and upright, with the two exterior teeth longer than the reſt and ſetaceous. Native of South America*.

5. This is a ſhrub, with four-cornered branches, of a ſomewhat aſh-coloured purple colour. Leaves oppoſite, on ſhort petioles, an inch and half long, attenuated to both ends, acute at the tip, equally ſerrate, quite entire at the baſe, having minute villoſe hairs ſcattered over them, nerved above, nerved and veined beneath; nerves hoary. Spikes terminating, often half a foot long, imbricate. Bractes ovate, ſubciliate, acuminate, drawn out into an awn almoſt as long as the bracte. Rachis hollowed out alternately. Calyx ſhorter than the bracte: flowering calyx ſpreading a little and curved outwards; fruiting concealed within the cavity of the rachis, angular, the ſide oppoſite to the cavity of the rachis convex, the other flat and margined. Style twice as long as the calyx: ſtigma ſlightly bifid. Seeds two.—It differs from V. mutabilis in having the leaves gradually narrowing into the petiole, not ſuddenly acuminate; the bractes ovate, ending in an awn, not lanceolate and acute; the calyxes ſhorter than the bracte. Found in South America by von Rohr*.

6. This is a ſhrub growing in the Caribbee iſlands: the ſtem and branches are round, ſmooth, and armed with ſtraight, ſcattered, black ſpines: the leaves are bipinnate, often of four pair, ſometimes of five or three; with an uncertain number of pinnules, twelve, more or leſs: they are linear-oblong, ſharpiſh, ſmooth, ſubſeſſile, and ſmall: the racemes are lax, terminal, and axillary; about half a foot long; with the proper foot-ſtalks about two inches long, ſpreading, and at the tips collecting the flowers, which are of a pale yellow, into a roundiſh head: they are ſeſſile, and of a fragrant ſmell.

Native of Jamaica. Annual[3].]

7. This has a ſhrubby ſtalk, which riſes five or ſix feet high, and divides into ſeveral branches. Leaves ſeſſile, oblong, ſerrate, ending in acute points, two inches long, one inch broad near the baſe, of a ſight green colour on both ſides. The branches are terminated by ſlender looſe ſpikes of ſmall pale flowers, the calyxes of which afterwards become ſwelled and almoſt globular; they are reflexed, and ſet with ſtinging hairs.

[Stem four-cornered, rugged at the edges. Branches oppoſite, dichotomous at top. Racemes at the forks long. Leaves cordate, oblong, rugged, on very ſhort petioles*.

The leaves, ſtem, and eſpecially the ſeeds are ſo hiſpid as to adhere obſtinately to the fingers and clothes. Flowers pale purple. Spikes moſtly three together, from a long ſpan to a foot or even two feet in length, unbranched. Seeds two, incloſed in a hiſpid calyx, reſembling the fruit of Galium Aparine. At firſt they are erect and quadrangular, but afterwards become round, and hang down, ſo that many of the ſeeds fall out. Native of Mexico. It flowered in the Eltham garden in 1726, in ſeptember; but in the following years in july and auguſt[1].

Gærtner deſcribes the two ſeeds as bony, united into an ovate globule, on one ſide convex and tubercled, on the other ſmooth, flattiſh or ſlightly concave, pale; they are faſtened to the bottom of the calyx, which covers them, and ſerves for a pericarp.]

It flowers late, but in good years the ſeeds ripen in England.

8. This riſes with a ſhrubby branching ſtalk five or ſix feet high. Leaves oppoſite on ſhort foot-ſtalks, lanceolate, two inches long, and half an inch broad, ſerrate; the teeth of the jags coming from the point of a fold or plait. Flowers on long naked ſtalks from the axils, blue, and collected in oval heads. They appear late in autumn, and unleſs the ſeaſon prove warm the ſeeds rarely ripen in England; but the plants may be kept two or three years in a warm ſtove.

[Browne ſays it is biennial or triennial, and ſtretches by a ſlender woody ſtalk to the length of five or ſix feet. It has a great number of oblong ſerrate veined leaves, that have a fine down underneath.

Native of Jamaica, and the continent of America.]

Mr. Miller had the ſeed from La Vera Cruz by Dr. Houſtoun. He therefore cultivated it before 1733, in which year Dr. Houſtoun died.

[9. This is a fragrant ſhrub. Stem erect, branched, aſh-coloured, the height of a man. Branches erect, round, like the ſtem. Branchlets rugged, pithy, bay-coloured. Shoots villoſe, rugged, from four-cornered round, green at top. Leaves oppoſite, ſeldom three together, ſpreading, ſharp at both ends, crenate or bluntly ſerrate, except at the baſe, where they are entire, attenuated into the petiole, marked with lines above, and with erect, alternate, prominent nerves beneath, very much veined, wrinkled, villoſe, rugged, reclining, permanent, fragrant. Petioles ſhorter than the leaf, round on one ſide, grooved or flat on the other, villoſe, edged with the decurrent leaf. Heads terminating, axillary, pedunculed, roundiſh, bracted, imbricate. Peduncles erect, ſingle or two from each axil, ſcarcely longer than half the leaf, villoſe, rugged. Flowers ſeſſile, one to each bracte, very cloſe, compreſſed, white. Bractes imbricate, ovate, acute, hirſute, longer than the calyxes, permanent. Calyx two-parted, compreſſed, very ſmall: ſegments roundiſh, one ſometimes two-toothed, concave, erect, hirſute; becoming two roundiſh concave membranaceous villoſe arils, each clothing one of the ſeeds, which are hemiſpherical, preſſed cloſe, flat on one ſide, gibbous and ſmooth on the other. The perianth becomes a bipartile or two-leaved aril not only in this, but in mexicana and nodiflora.

[1] Hort. kew. [2] Jacquin. [3] Sloane. [4] Jacquin. [5] Vahl. [6] Hort. kew. [7] Jacquin. [8] Linn. ſpec. [9] Dill. elth.

This ſpecies differs from V. ſtoechadiſolia in having flat lanceolate leaves, whereas in that they are linear and plaited:—from V. triphylla in having the flowers in heads, not panicled, the leaves oppoſite, not in whorls:—from V. nodiflora, in having a ſhrubby ſtem. Native of South America, probably about Buenos Ayres. Cultivated many years back in the Paris garden, where it is in flower or fruit the whole year [a].

10. Spikes ſubcylindrical, thicker at the baſe. Calyx, when ripe, two-valved. Seeds united into a globe, plano-convex, ſmooth, whitiſh [a]. Native of Java.

11. Roots ſimple, fibiform. Stems herbaceous, creeping, aſcending, from three inches to a foot in length, ſubdivided, roundiſh, marked with lines, ſmooth. Leaves oppoſite and decuſſated, on ſhort petioles, cuneate-obovate, ſerrate-toothed, nerved, thickiſh, ſmooth on both ſides, having pores underneath. Peduncles ſolitary, terminating, erect, angular. Spike terminating, roundiſh, compoſed of ſmall whitiſh or roſe-coloured flowers, ſeparated by bractes, which are ſeſſile, imbricate, ſquare, acuminate, concave, coloured. Calyx compreſſed a little, two-toothed: teeth erect, keeled, ciliate at the back. Tube of the corolla longer than the calyx, but ſcarcely curved in: border ſlightly five-cleft; the upper ſegment emarginate, almoſt upright, ſhorter; the anterior ones equal, ſpreading; the middle one three-notched. Anthers twin, yellow. Germ two-grooved: ſtyle ſhort, thick: ſtigma ſubcapitate, green. Seeds two, roundiſh, flattiſh on one ſide, covered by a membrane forming a ſort of thin capſule [c]. Native of the four continents: found near Naples, and in the iſland of Sicily; in the Eaſt Indies and the iſland of Ceylon; in Barbary near Caſca; in America in the province of Virginia, and ſome of the Weſt India iſlands; and in the iſle of Tanna in the South ſeas. Mr. Miller had the ſeeds from Jamaica by Dr. Houſtoun; he therefore cultivated it before 1733.]

12. This has four-cornered ſtalks which riſe to the height of five or ſix feet, ſending out ſide branches by pairs. Leaves three inches long, and about three quarters of an inch broad, of a pale green colour, and ſerrate. Spikes terminating, cluſtered, the longeſt about two inches, the others about half as long. Flowers blue, appearing late in ſummer, and not often ſucceeded by good ſeeds in England.

[Seeds four, oblong, on one ſide a little convex, ſtriated, ferruginous, on the other ſomewhat angular, whitiſh, rugged with minute calloſe dots, ſurrounded by a prominent rim [a].

Native of Buenos Ayres. Firſt raiſed in the Eltham garden from ſeeds taken from dried ſpecimens ſent from thence. The flowers are ſmall, ſlightly curved in, tinged with purple [b].]

13. This ſends up many four-cornered furrowed ſtalks from the root, which riſe five or ſix feet high. Leaves oppoſite, oblong, about three inches long, and an inch broad near the baſe, ending in acute points, deeply ſerrate on ſlender petioles. From the ſame joints come out ſhort branches, ſet with ſmaller leaves of the ſame form. The ſtalks are terminated by ſpikes of blue flowers, in cluſters, which appear in auguſt; and if the autumn prove favourable, the ſeeds will ripen about the middle of October. Native of Canada. Mr. Miller ſays it grows naturally in moſt parts of North America.—[It was cultivated by him in 1731 [a].

14. This is a very ſweet-ſmelling under-ſhrub. Stem upright, branched, round, aſh-coloured, a fathom in height. Branches three or four in a whorl, ſpreading very much, rugged. Branchlets ſix-cornered, bay-coloured. Leaves generally three together, ſometimes four, ſpreading, linear-lanceolate, ſharp at both ends, entire, ſcarcely apparently muricate on the upper ſurface and eſpecially at the edges, rugged, nerved; the nerve channelled above, prominent beneath; nervelets ſpreading, parallel, ſimple; of a bright green colour, and very pleaſant ſmell like that of the lemon. In younger plants the leaves are lanceolate, looſely toothed or ſerrate. Petioles very ſhort, round on one ſide, channelled on the other. Flowers in an erect terminating panicle, compoſed of ſpikes, ſtriated, villoſe, bracted, with a few leaves intermixed at bottom. Spikes whorled by threes, ſpreading; the lower ones axillary; the upper ones ſometimes vertically double. Each flower is erect, ſeſſile, very pale violet, ſweet. Bractes ovate, acuminate, concave, under the flowers; and there are other ſmaller ones under the ſpikes. Calyx four-toothed, villoſe, duſky: ſegments acute, erect. Tube of the corolla pubeſcent, hairy within, violet, length of the calyx: border four-parted, ſpreading, nearly equal; ſegments roundiſh, obtuſe, ſomewhat waved: the upper one ſimple, entire or biſid, the lower three-parted, wider but ſcarcely longer. Anthers ovate, acute, two-celled, the lower within the throat, the upper within the tube. Germ ſuperior, twin obovate, two-grooved, villoſe, duſky: ſtyle ſhorter than the ſtamens: ſtigma thickiſh, ſubbilobate. Pericarp none; but the calyx contains the ſeeds at its bottom, and is two-valved and ſplits from back to front. Seeds two joined, but ſeparating like the calyx, oblong, flat, and hoary on one ſide, rounded and pubeſcent on the other.—It is known by its ſhrubby ſtem, leaves in whorls, flowers in panicles, its four ſtamens and two ſeeds, and the ſmell of the whole plant like lemon.

Native of South America. Found in Chili by Dombey, and by Commerſon at Buenos Ayres; whence it was introduced into the Spaniſh gardens, where it flowers in the open air. Ortega and Palau, profeſſors of botany at Madrid firſt deſcribed this plant, and named it Aloyſia in memory of Louis Prince of the Aſturias [c]. It was introduced here in 1784, by Profeſſor John Sibthorp, who obtained it at Paris, on his return from Greece.

Monſ. L'Heritier has ſubdivided the tetrandrous Vervains from the ſeed. This and globiflora, ſtoechadiſolia, and nodiflora have two ſeeds: bonarienſis, haſtata, carolina, urticifolia, officinalis, ſupina and Aubletia have four ſeeds.

15. Stem herbaceous, a foot high, erect, ſomewhat branched, brittle, quadrangular, more contracted at the baſe of the petioles, ſtriated, pubeſcent. Leaves oppoſite and decuſſated, ovate, acute, ſerrate, nerved, hiſpid, on four-cornered pubeſcent petioles. Racemes long, looſe, compoſed of ſcattered flowers, directed one way, of a very pale blue colour, on ſhort pedicels, having minute bractes under them. Calyx equal, hiſpid. Corolla almoſt equal: tube twice as long as the calyx; ſegments of the border acute, three ſuperior a little diſtinct, two inferior. Germ ovate: ſtyle ſhort: ſtigma globular. Capſule four-cornered, ſpiny at the corners, ovate at the baſe, bipartile, four-celled, covered with the inflated calyx. Seeds four, oblong [a].

The obtuſe ſtigma is reflected. Each of the ſeeds is two-celled, and contains two kernels [b].

In the Weſt Indies it is reputed a fine vulnerary and ſubaſtringent, and is commonly applied to bleeding wounds in men or cattle by the inhabitants of the country in Jamaica; where it is thought to be ſo powerful a ſyptic or aſtringent, as to ſtop the haemorrhage even when ſome of the more conſiderable arteries are cut; and it may be eſteemed an excellent application in all manner of ſores, where the habit is relaxed [c]. Native of the Weſt Indies, in ſtony waſte places. Different enough, according to Loefling, Houſtoun, &c. to form a diſtinct genus.

16. Stem herbaceous, erect, four-cornered, ſmooth. Leaves petioled, thoſe on the ſtem ovate, thoſe on the branchlets oblong; all rugged, ſomewhat ſtrigoſe, obtuſely ſerrate, acute. Racemes terminating, quite ſimple, a foot long. Flowering calyxes ſpreading very much, villoſe, attenuated to both ends, ſhortly pedicelled; having a briſtle-ſhaped bracte, the length of the pedicel: fruiting calyxes reflexed, roundiſh, terminated by a neck, villoſe. Seeds two, cohering, rounded, compreſſed, very much wrinkled, having two or three ſmall teeth on the outer ſides.

Very nearly allied to the preceding, but more robuſt, the ſtem ſtiffer, the leaves more rugged above, the ſerratures of the leaves deeper, the ſeeds not oblong and echinate, but roundiſh and toothed, convex on the outer ſide, and bent in at the tips. In the calyx it ap-

[a] L'Heritier. [b] Gaertner. [c] Swartz. [d] Gaertner.
[e] Dill. elth. [f] Hort. kew. [a] L'Heritier. [b] Swartz. [c] Jacquin. [d] Browne.

proaches

proaches to the mexicana, but the ſeeds are not hiſpid. Native of Arabia Felix [s].]

17. Root perennial. Lower leaves heart-ſhaped and rough, five inches long, and three inches and a half broad near the baſe, ending in acute points; they are of a dark green colour and ſerrate. The ſtalks riſe ſix feet high, are four-cornered, branch towards the top, and are terminated by ſlender ſpikes of white flowers, formed into panicles.

[According to Dillenius, the ſtem is only a foot and half or two feet high, obtuſely quadrangular; the lower leaves reſemble thoſe of Baulm, all are rough to the touch, though they are not very hairy, except on the lower part; the flowers are ſmall, pale ſlightly tinged with purple, divided into five ſegments which are nearly equal; the ſeeds are oblong, ſmooth, black when ripe. Native of Carolina.] Mr. Miller ſays, the ſeeds were ſent him from Philadelphia, by Dr. Benſel, and he does not quote the Hortus Elthamenſis.

18. Stems four-cornered about three feet high. Leaves three inches long, and an inch broad in the middle, ending in acute points, ſerrate, and placed by pairs. Panicles terminating, long, ſlender, compoſed of ſmall white flowers ranged looſely, appearing in july, and ſucceeded by ſeeds which ripen in autumn. Native of moſt parts of North America. [Cultivated by Mr. Miller in 1731 [b]. He ſays it is biennial; but it is marked in Linneus and the Kew Catalogue as perennial.

19. Stem herbaceous, erect, four-cornered, villoſe. Leaves petioled, the lower oppoſite, the upper alternate, an inch and half long, diminiſhing gradually upwards, ovate, groſsly and equally ſerrate, acute, the upper ſurface rugged with minute raiſed dots, marked with lines along the nerves, beneath leſs rugged, villoſe along the nerves. Spikes from the uppermoſt axils, ſolitary; the terminating one elongated, with three branches at the baſe that are much ſhorter, filiform. Flowers alternate or oppoſite, copious, ſmall, approximating. At the baſe of the calyx a briſtle-ſhaped bracte. Fruiting calyx ſcarcely bigger than a muſtard ſeed, angular. Seeds four, ſmooth, linear-three-ſided, ſlightly wrinkled at the back. Allied to Verbena urticifolia. Native of South America, where it was found by von Rohr [t].

20. Root annual, (or rather biennial.) Stem a foot high, (or ſeldom more than two feet in our gardens,) erect, four-cornered, ſomewhat hiſpid, dichotomous, brachiate. Branches from each axil. Leaves oppoſite, petioled, ſubcordate, ſublobate, gaſh-ſerrate, wrinkled, ſomewhat rugged. Stipules none. Spikes terminating, ſolitary, oblong, peduncled: flowers in bundles. Braćtes linear, the length of the calyx, to each. Calyx five-cornered: teeth acute, the two upper ones ſhorter. Tube of the corolla filiform, twice as long as the calyx: throat gibbous downwards, cloſed by hairs: border flat, almoſt equal; ſegments oblong, emarginate, obtuſe, blood-red. Two ſtamens in the throat, two within the tube. Stigma thickiſh, bifid; the lower ſegment acute. Seeds four, cloſe, ſhorter than the calyx. Linneus had firſt made it a Buchnera; but it differs from that genus, in having four, diſtinct, naked ſeeds. Native of America [u].—Introduced in 1774, by Monſ. Richard. It flowers in june and july [v]. The extreme brilliancy of its colour renders it a very ornamental greenhouſe plant [w].]

21. Root biennial. Bottom leaves ſix inches long, deeply jagged, and ſerrate, rough, and of a deep-green colour. Stalks two feet high, having a pair of ſmaller leaves of the ſame ſhape at each joint. The upper part branches out into numerous foot-ſtalks, forming panicles of blue flowers; appearing in july and auguſt. If the ſeaſon prove favourable, the ſeeds will ripen in autumn. Native of North America.] Cultivated by Mr. Miller in 1759.

22. Root perennial, branching, woody. From each of its ſummits riſes a ſingle ſtem, curved at the baſe, then erect, from one to two feet high, ſquare, leafy, rough with little prickles, panicled at the top with ſeveral oppoſite ſlender ſpikes of flowers. Leaves oppoſite, deeply cut and jagged; the uppermoſt three-cleft or ſimple. Spikes terminating in pairs, forming a panicle. Flowers many, ſmall, ſeſſile, each accompanied by a little bracte. Calyx rough. Corolla very pale lilac; its tube incloſing the four ſhort curved ſtamens. Seed when young enfolded in one common ſkin, which is almoſt obliterated as they ripen, and then each appears marked with excavated dots at its upper part [x].

Native of Europe, Barbary, China, Cochinchina and Japan. With us, by road ſides, in dry ſunny paſtures and waſte places about villages.] Mr. Miller remarks, that although Vervain is very common, yet it is never found above a quarter of a mile from a houſe, which has occaſioned its being called Simpler's Joy. It is indeed pretty general near the entrances into towns and villages, but it is by no means confined to ſuch ſituations, and Dr. Withering obſerves, that it is very plentiful at the foot of St. Vincent's rocks, all along the courſe of the river. It begins to flower in july, and continues through the autumn.

Among the ancients, the Verbena was held ſacred, and was employed in making leagues, by ambaſſadors, in ſacrificial rites, and in incantations; hence it was ſuſpended about the neck as an amulet, and was thought to be good againſt ſerpents and venomous bites, and was recommended as a ſovereign medicine for a variety of diſeaſes [y].

Though Vervain is deſtitute of odour, and manifeſts to the taſte but a ſlight degree of bitterneſs, and aſtringency, yet even in modern times it has been accounted a ſovereign remedy in a multitude of diſorders. Schroder recommends it in upwards of thirty complaints. Bruiſed and appended to the neck, it was uſed in inveterate head-achs, and Foreſtus relates a remarkable inſtance of its ſervice in this reſpect. In ſtill later times we are told that the moſt ſevere and obſtinate head achs have been cured by applying it as a cataplaſm. It has however fallen into diſuſe in Britain, nor has Mr. Morley's pamphlet, written profeſſedly to recommend its uſe in ſcrophulous cafes, had any effect in reſtoring its medical character. He directed the root to be tied with a yard of white ſattin ribband round the neck, and to remain there till the patient recovered. But he had recourſe alſo to infuſions and ointments prepared from the leaves of the plant; and occaſionally called in the aid of the moſt active medicines of the Materia Medica [z].

This ſpecies having four ſtamens, two of which are longer than the two others, our Engliſh authors have placed it in the claſs Didynamia. And the majority of the ſpecies having four ſtamens, they would all ſeem more naturally to appear in that claſs, among other plants to which they are cloſely allied [a].]

β. The Portugal variety, noticed by Tournefort, is taller, the leaves are broader, and the flowers larger. Mr. Miller himſelf does not think it ſpecifically different from the common ſort.

23. Root biennial, (others ſay annual.) Stalks near two feet high, branching out greatly. Leaves ſeſſile. Flowers diſpoſed in long looſe ſpikes ſingly at the end of the branches; they are of a light blue colour, and larger than thoſe of the common ſort. It flowers in july and auguſt, and the ſeeds ripen in autumn.

[Stem roundiſh, compreſſed a little, and ſomewhat pubeſcent. Flowers blueiſh [b].

It is allied to the common ſort, but is much ſmaller; and differs in having the ſtems proſtrate and villoſe; the leaves ſmall and pinnatifid-laciniate; the flowers more cloſely cluſtered and only half the ſize. Deſfontaines obſerved a variety in the Paris Garden that was erect and almoſt ſmooth [c].

Native of Spain, Portugal and Algiers.—It appears from Parkinſon, that it was cultivated here in 1640 [d].

Mr. Miller has ſome other ſpecies from America, all diandrous or belonging to the firſt ſection.]

[s] Vahl. [t] Hort. kew. [u] Vahl. [v] Hort. kew. [w] Curtis. [x] Linn. ſuppl.

[y] Engl. bot. [z] Plinv. l. 25. c. 9. Virg. georg. 4. 131. and Martyn's note. Woodville. [a] Woodville, Curtis. [b] Engl. bot. Curtis. [c] Linn. ſyſt. [d] Deſfontaines. [e] Hort. kew.

24. Verbena americana. *Panama Vervain. Mill. dict. n.* 10.

Sherardia americana, verbenæ folio subrotundo crasso, floribus cæruleis, spica longissima & crassissima. *Miller.*

Two-stamened, spikes fleshy almost naked, leaves ovate obtuse indistinctly crenate petioled.

Annual. Stalks about a foot high. Leaves on long foot-stalks, and from the same joints branches sustaining three or four small leaves of the same shape; they are of a light green colour. The stalks are terminated by thick fleshy spikes of blue flowers, which appear late in autumn, so that unless the season prove warm, the seeds will not ripen in England. They were sent him from Panama, where it grows in moist places.

25. Verbena senegalensis. *Senegal Vervain.*

V. jamaicensis. *Mill. dict. n.* 12.

Two-stamened, spikes shorter, leaves ovate serrate hoary underneath.

Perennial. Stalk branching, near two feet high. Leaves in pairs, two inches and a half long, and almost two inches broad, deep green above but hoary underneath, on pretty long foot-stalks. Flowers in fleshy spikes at the end of the branches; these spikes are shorter and not so thick as those of the former sorts. The flowers are small and white, and make no great appearance: they appear in june and july, and the seeds ripen in autumn, but the plants may be preserved two or three years in a warm stove. The seeds were sent from Paris, and were said to come from Senegal in Africa. It cannot be the same with jamaicensis, n. 3.

26. Verbena fruticosa. *Shrubby Vervain. Mill. dict. n.* 14.

Sherardia nodiflora fruticosa, foliis subrotundis serratis, *Houstoun MSS.*

Two-stamened. spikes round, leaves ovate serrate, stem shrubby branched.

Stem three or four feet high. Leaves opposite, of a light green colour, about an inch and half long, and near an inch broad. Flowers pale blue, collected into oval heads, standing upon long naked axillary peduncles. They come out late in autumn, and are not followed by seeds in England. Found at Campeachy by Dr. Houstoun, who sent the seeds to England.

27. Verbena angustifolia. *Narrow-leaved Vervain. Mill. dict. n.* 15.

Sherardia spicata, folio angusto serrato, flore cæruleo. *Houst. MSS.*

Two-stamened, spikes fleshy almost naked, leaves linear-lanceolate indistinctly serrate.

Annual. Stalk branching, a foot and half high. Leaves pale-green, three inches and a half long, and half an inch broad, ending in acute points. The branches are terminated by fleshy spikes of blue flowers, appearing in august, and in warm seasons producing seeds. Found at La Vera Cruz by Dr. Houstoun, who sent the seeds.

28. Verbena rugosa. *Wrinkled-leaved Vervain. Mill. dict. n* 18.

Sherardia arborescens nodiflora foliis serratis & rugosis, flore purpureo. *Houst. MSS.*

Two-stamened, spikes ovate, leaves roundish serrate and wrinkled, stem shrubby branched.

This has a strong woody stalk, ten or twelve feet high, covered with a light-brown bark, and sending out many woody branches on every side. Leaves of a light green colour, on short foot stalks. Flowers small, pale blue, collected into ovate heads, and standing on naked axillary peduncles. They seldom appear in this country, and do not produce seeds here. It was discovered by Dr. Houstoun growing naturally at Campeachy, whence he sent the seeds to England.

PROPAGATION AND CULTURE.

1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13. 19. 24. 25. 26. 27. 28. These being natives of hot climates, (chiefly South America and the West Indian islands,) require care and protection. The seeds should be sown upon a hot-bed early in the spring, and when the plants are fit to remove, they should be each transplanted into a separate small pot, and plunged into a fresh hot-bed, to bring them forward, shading them in the day time with mats until they have taken new root, and then treating them as other tender plants from the same countries.

The annual sorts must be kept in the stove or a good glass case; when they are become too tall to remain longer under the frames; for if they are placed abroad in the open air, they will not ripen their seeds here, unless the summer be very warm: and where there is a conveniency of having a bark-bed in a glass-case, for plunging some of these tender annual plants, they will thrive much better, and come to greater perfection than those which are placed on shelves.

The perennial sorts may be kept in such a glass case till autumn, allowing them a large share of air in warm weather, to prevent their drawing up weak, as they increase in size; but this must be done with caution. If they be put into pots too large, they will not thrive.

Such of these as do not produce seeds here, may be increased by cuttings during the summer months, and may thus be preserved many years in a good stove.

13. 17. May be propagated by seeds sown in autumn, or by parting their roots at the same season. They are hardy enough to thrive in the open air, and love a soft loamy soil not too dry.

[14. This elegant shrub, so delightful for its fragrance, may easily be increased by cuttings, and requires only the protection of a good greenhouse or glass case. Mr. Curtis suggests, that in some parts of our island, especially near the sea, it would in all probability succeed very well in the open border. Monf. L'Heritier informs us, that it bears the open air very well in Spain, and that it may be increased by seeds and suckers as well as cuttings.]

18. 21. 23. Sow the seeds in autumn: keep them clean from weeds, and thin the plants when they are too close. Or if the seeds be permitted to scatter, the plants will come up the following spring.

[20. In favourable seasons this ripens its seeds readily, and by them it is usually propagated, being a biennial. It is preserved in the green-house *.

VERBENA. See *Achyranthes, Illecebrum, Phryma.*

——— curassavica. See *Ghinia.*

——— mas. See *Eryngium.*

VERBENACA. See *Phryma* and *Salvia.*

VERBENÆ AFFINIS. See *Petiveria.*]

VERBESINA. (*Corrupted or distorted from* Forbesina, *which I suppose is from* φορβη, *food, from* φερω, *to feed or nourish.*)

Lin. gen. n. 975. *Reich. n.* 1058. *Schreb. n.* 1317. *Gærtn. t.* 171. *Juss.* 188. Synedrella. *Gærtn. t.* 171.

Class. 19. 2. Syngenesia Polygamia Superflua.

Nat. Order of *Compositæ Oppositifoliæ. Corymbiferæ.* Juss.

GENERIC CHARACTER.

CAL. *Common* concave: *leaflets* oblong, channelled-concave, erect, commonly equal, in a double row.

COR. *Compound* radiate. *Corollets* hermaphrodite, many, in the disk: *females* about five in the ray. *Proper* of the hermaphrodite funnel-form, five-toothed, erect.

Female ligulate, trifid and wide or simple and very narrow.

STAM. in the Hermaphrodites: *Filaments* five, capillary, very short. *Authers* cylindrical, tubular.

PIST. of the Hermaphrodite: *Germ* somewhat oblong. *Style* filiform, length of the stamens *Stigmas* two, reflexed.

In the Females: *Germ* somewhat oblong. *Style* filiform, length of the hermaphrodite. *Stigmas* two, reflexed.

PER. none. *Calyx* unchanged.

SEEDS in the Hermaphrodites solitary, thickish, angular. *Pappus* of two awl-shaped unequal awns.

In the Females very like the others.

REC. chaffy.

ESSENTIAL CHARACTER.

Cal. in a double row. *Florets* of the ray about five. *Pappus* awned. *Recept*, chaffy.

* Curtis.

SPECIES.

1. Verbesina alata. *Wing-ſtalked Verbeſina.*
Lin. ſpec. 1270. *Reich.* 3. 876. *hort. cliff.* 411. *upſ.* 262. *Gertn. fruct.* 2. 457. *Swartz obſ.* 313. *Brown. jam.* 319. 1. *Kniph. cent.* 4. *n.* 93. *Herm. par. t.* 125. *Comm. hort.* 1. 5. *t.* 3. *Sloan. jam.* 1. 261. *Pluk. phyt. t.* 84. *f.* 3. *Volk. norib. t.* 106. (Chryſanthemum).
Cannabis indica, foliis integris, alato caule. *Magn. hort.* 40. *ic.*
Leaves alternate decurrent winged obtuſe.

[2. Verbesina chinenſis. *Chineſe Verbeſina.*
Lin. ſpec. 1270. *Reich.* 3. 876.
Leaves alternate petioled ovate-lanceolate ſerrate.

3. Verbesina virginica. *Virginian Verbeſina.*
Lin. ſpec. 1270. *Reich.* 3. 876. *Gron. virg.* 138.
Leaves alternate lanceolate petioled, flowers corymbed.

4. Verbesina pinnatifida. *Pinnatifid-leaved Verbeſina.*
Swartz prodr. 114.
Bidens frutescens, ſphondylii foliis & facie. *Plum. ſpec.* 10. *ic.* 41. *t.* 51.
Leaves alternate pinnatifid.

5. Verbesina dichotoma. *Forked Verbeſina.*
Lin. ſyſt. 779. *Murr, in. comm. gott.* 1779 *p.* 15. *t.* 4.
Leaves oppoſite ovate tomentoſe petioled, ſtem dichotomous at top, the outmoſt internode compreſſed.

6. Verbesina biflora. *Two-flowered Verbeſina.*
Lin. ſpec. 1272. *ſyſt.* 779 *Reich.* 3. 877.
Eclipta. *Rumph. amb.* 6. 43. *t.* 13. *f.* 1.
Valliamanga-nari. *Rheed. mal.* 10. *t.* 79.
Leaves oppoſite oblong-ovate triple-nerved acuminate ſerrate, peduncles double two-flowered.

7. Verbesina calendulacea.
Lin. ſpec. 1272. *ſyſt.* 779. *Reich.* 3. 877. *ſt. zeyl. n.* 311. *Leur. cochinch.* 506. *ed. Willd.* 619. *Burm. zeyl.* 52 *t.* 22. *f.* 1. (Caltha.)
Pee-Cajoni. *Rheed. mal.* 10. 83. *t.* 42.
Leaves oppoſite lanceolate bluntiſh, peduncles long one-flowered, calyxes ſimple.]

8. Verbesina nodiflora. *Seſſile-flowered Verbeſina.*
Lin. ſpec. 1271. *Reich.* 3. 877. *amoen.* 4. 290. *Swartz obſ.* 312. *Brown. jam.* 319. 3. *Sloan. jam.* 1. 262. *t.* 154. (Chryſanthemum.)
Synedrella nodiflora. *Gærtn. fruct.* 2. 456.
Bidens nodiflora folio Tetrahit. *Dill. elth.* 53. *t.* 45. *f.* 53.
Leaves oppoſite ovate ſerrate, calyxes oblong ſeſſile, cauline lateral.

9. Verbesina fruticoſa. *Shrubby Verbeſina.*
Lin. ſpec. 1271. *Reich.* 3. 878. *hort. cliff.* 391. (Bidens.)
Bidens frutescens, ilicis folio, flore luteo. *Plum. ſpec.* 10. *ic.* 52.
Leaves oppoſite ovate ſerrate petioled, ſtem ſhrubby.

[10. Verbesina gigantea. *Tree Verbeſina.*
Lin. ſyſt. 799. *Ait. kew.* 3. 245. *Jacqu. collect.* 1. 53. *icon. rar.*
Leaves alternate deeply pinnatifid, ſtem ſhrubby.]

11. Verbesina mutica.
Lin. ſyſt. Reich. 3. 878. *Swartz obſ.* 314. *t.* 8. *f.* 1.
Anthemis americana. *Lin. ſpec. ed.* 1. 895. *ſyſt.* 777.
Bidens apiifolia. *Lin. amoen.* 5. 405.
Buphthalmum. *Lin. hort. cliff.* 414.
Chryſanthemum. *Sloan. jam.* 1. 263. *t.* 155. *f.* 1. *Raii ſuppl.* 315. *Plum. ſpec.* 10. *ic.* 86. *f.* 2.
Leaves trifid-laciniate ſerrate, ſtem creeping.

[12. Verbesina Boſvallea.
Lin. ſyſt. 780. *ſuppl.* 379.
Leaves multifid-capillary, ſtems proſtrate, florets ſix, female one.

DESCRIPTIONS, &c.

1. This is a herbaceous plant, with an upright ſtem about two feet high, ſubdivided, round, winged, rough-haired. Branches alternate, erect, axillary. Leaves oblong, acuminate, angular-toothed, nerved, ſomewhat rugged, rough-haired. The ſtem has four wings formed by the leaves running down it; hence its trivial name. Peduncles elongated, terminating, pubeſcent, with flowers in ſingle heads, of a deep orange colour. Common calyx ſubimbricate: the outer ſcales longer, obtuſe, linear; inner ſhorter, membranaceous. In the hermaphrodite florets the ſtyle is cloven at the tip, and the ſtigmas are thicker and compreſſed. The female florets in the ray are numerous, ovate, and emarginate; the germ ovate, margined; the ſtyle cloven; and the ſtigmas reflexed. All the ſeeds are obovate, wedge-ſhaped, with white membranaceous wings; pappus two-awned; one awn longer than the other, hooked. Chaffs of the receptacle linear, acute, membranaceous, compreſſed [a].

Gærtner remarks, that the leaflets of the calyx are ſcarcely to be diſtinguiſhed from the chaffs of the receptacle, which is oblong, nearly awl-ſhaped; that the petal of the radial florets are ſhorter than the diameter of the diſk; that the chaffs are oblong, concave, pubeſcent on the outſide; that the ſeeds are obovate, compreſſed, brown with a pale rim; that the awns of the pappus or ſeed-crown are briſtle-ſhaped, the longer incurved, the ſhorter ſtraight: and that this genus is Spilanthus with the addition of a ray.

This is a perennial plant, though Mr. Miller ſays it is annual.

Native of South America, and the iſlands; common in Jamaica, Curaſſao, Surinam, &c.—Cultivated in 1714, by the Dutcheſs of Beaufort. It flowers moſt part of the ſummer [b].

Linnæus remarks, that it differs very much in habit and ſtructure from the other ſpecies, and perhaps might form a diſtinct genus.

2. This is a ſhrub, with a ſingle, round, ſubtomentoſe ſtem and undivided branches from the upper axils of the leaves; which are ſomewhat tomentoſe, bluntiſh, petioled. Flowers terminating, ſolitary, peduncled. Calyx hemiſpherical, imbricate, tomentoſe. Corolla yellow: florets of the ray lanceolate, entire, many; of the diſk abundant, ſeparated by chaffs. Seeds crowned with a rim and four ſmooth briſtles. Found in China by Osbeck [c]. By the Chineſe called Kaling-ſa [d].

3. Native of Virginia.

4. Native of Jamaica [e].

Cavanilles, in his Icones plantarum in Hiſpania, p. 67. *n.* 109. *t.* 100. has a different ſpecies under this name which he ſays came from Mexico, and flowered in the Royal garden at Madrid, in december, january and february.

He characterizes it by having oppoſite, pinnatifid leaves, running down the ſtem, and the flowers in corymbs.

The ſtem is a fathom high, round, ſomewhat tomentoſe, putting forth oppoſite branches. Leaves ſomewhat rugged, narrowed at the baſe, each border decurrent and forming a curled wing, ſo that the ſtem is four-winged: the ſegments of the leaves are ſerrate. The flowers are numerous, forming corymbs at the top of the ſtem and branches. Calyx obovate, imbricate; ſcales ovate-acute, brown at the tip, the inner ones longer. Corolla yellow: females in the ray about fourteen, linear, trifid, with the middle toothlet ſhorter. Germ in all ſmall, turbinate: ſtigmas revolute, yellow. Receptacle flat: chaffs the length of the florets, keeled, oblong, with a ſharp point. Seeds ovate, emarginate and crowned with two fine awns; the central ones girt longitudinally with two wings, thoſe of the ray with three.

Cavanilles remarks, that by theſe winged ſeeds this plant approximates to Buphthalmum, and that the habit, receptacle, flowers, and ſeed-crown direct that it ſhould be placed at the end of the Verbeſinas.

5. Stem upright, about three feet high, rough with horizontal hairs, and about the thickneſs of a ſwan's quill towards the root: it is of a purple colour marked with green ſpots: branches oppoſite and decuſſating, dividing at their upper part, and ſpotted with green and purple: leaves ovate, of about a palm's length, obtuſely and unequally ſerrated at ſome diſtance from the baſe and continuing ſo to the tip: they are ſharp-pointed, of a pale green, tomentoſe, three-nerved, and veiny, horizontal or ſlightly depending: the foot-ſtalks

[a] Swartz. [b] Hort. kew. [c] Linn. ſpec. [d] Osbeck. [e] Swartz. [f] Murray.

are

are four times ſhorter than the leaves and ſtem-claſping: flowers ſolitary, or very rarely two, ſpringing from the divarications of the branches: corolla white, rather larger than the calyx: floſcules in the diſk numerous, funnel-ſhaped, five-toothed, with the cylinder of anthers violet-coloured.

6. Stature of Sigeſbeckia. Leaves petioled, acutely ſerrate, ſomewhat rugged. Branches oppoſite. Terminating peduncle ſhorter than the leaves, two-flowered: axillary peduncles two on each ſide, two-flowered with another leaflet oppoſite to the pedicel. Flowers yellow. Seeds gibbous, three-ſided, awnleſs. Allied to Lavenia [c]; and perhaps not properly of this genus.

Native of the Eaſt Indies.

7. Seeds almoſt awnleſs, crowned only with a very ſhort four-toothed margin. Calyx five-toothed [d].

Herb ſeemingly procumbent. Leaves ſubſeſſile or ending in the petioles, rugged, three-nerved, the nerves ſpringing within the baſe, quite entire or having only one or two ſerratures at the ſides. Peduncle axillary, naked, very long. Common calyx ſingle, compoſed of ten lanceolate blunt iſh erect leaflets, the five outer wider and ſomewhat longer, all permanent. Corollets of the ray ten, cloven at the tip. Germ oblong, widiſh, crowned with a permanent bell-ſhaped calycle, a cloven ſtyle, and revolute ſtigmas [e].

Stem herbaceous, annual, a foot high, nearly erect, ſmooth, whitiſh. Leaves quite entire, ſmooth. Flowers yellow, terminating, ſolitary, on a very long peduncle. Calyx hemiſpherical, ſingle. Ray ten-flowered. Seeds with a ſhort, awned crown. Receptacle convex; with chaffs as long as the tube of the florets [c].

Native of the Eaſt Indies, and China near Canton.

8. Root annual. Stem herbaceous, branched, a foot high, round, even. Leaves ſeſſile, mottly terminating, cuneate-ovate, acuminate, nerved, hiſpid. Flowers ſeſſile in the axils of the terminating leaves, two or three together. Calyx ſingle, of four ſcales, two of which are longer, lanceolate, hairy. Hermaphrodite florets five. Female florets four or five, ſhort, blunt, emarginate. Seeds of the diſk black, with two long awns; of the ray wider, toothletted at the edge, and membranaceous, awnleſs at the tip [b].

Gærtner, who ſeparates this from the Verbeſinas, deſcribes the ſeeds as difform: two exterior larger, ovate, flat, ſmooth, of a livid bay colour, girt with a membranaceous toothed white rim; many interior, wedge-oblong, compreſſed, rugged with indiſtinct dots or tubercles, without any rim. Both have a two-awned crown: in the outer ſeeds, the awns are ſomewhat membranaceous, flexile, innocuous; in the inner awl-ſhaped, pungent, diverging, nearly equal to the ſeed in length. Receptacle narrow, flat, within the interior calyx.

According to Gærtner, this plant cannot be aſſociated with the Verbeſinas, becauſe the receptacle is manifeſtly naked, the ray two-flowered exterior, and the ſeeds clearly difform. The calyx alſo is double; the outer two-leaved, the leaflets ovate acute oppoſite equal, containing each a ſingle female floret; the inner eight-leaved in a ſingle row. The petal of the outer female florets entire or ſlightly emarginate.]

Miller ſays it is more than three feet high, the leaves near two inches long, and an inch broad; the flowers yellow, appearing in July, and ſucceeded by others till the froſt ſtops them.

[Native of the Weſt Indies. Cultivated in 1732 by James Sherard, M.D [f].]

9. This riſes with a ſhrubby ſtalk ſeven or eight feet high. Leaves deeply ſerrate and cut ſomewhat like thoſe of the Ilex or Evergreen Oak. The flowers are yellow, produced from the ſide of the ſtalks, and appear in July. Native of the Weſt Indies.

[Linnæus remarks, that the ſeeds are wide, as in Coreopſis.—Cultivated by Mr. Miller, in 1768.

10. Stem fifteen feet high, and the thickneſs of a thumb at the lower part, ſmooth, green, and viſcid: it is filled without interruption, by a white inodorous pith as in a ruſh: it is ſimple, or at leaſt but very ſlightly divided at top; and the whole ſtem is aphyllous, the leaves occupying only the upper part and branchlets: they are alternate, foot-ſtalked, and the largeſt are about a foot and a half long; they are viloſe and pinnatifid, with diſtant oblong lobes: from the boſoms of the upper leaves ſpring round whitiſh-viloſe pedunclesy, bearing at their tips the flowers, which are ſlightly foot-ſtalked, and cloſely heaped together, forming a kind of panicle: the corollets are white and the anthers black [a]. Native of the Weſt Indies. Cultivated by Mr. Miller in 1758 [f].

11. Root annual. Stem herbaceous, procumbent and creeping, branched, ſtriated, ſmooth. Branchlets alternate. Leaves alternate: the upper ones three-parted; leaflets wedge-ſhaped, toothed, blunt; the lower ones entire or ſubtrifid, toothed, ovate, blunt, ſmooth, glaucous beneath. Petioles recurrent, embracing, the length of the leaves, ſmooth. Peduncles terminating, one-flowered. Flowers ſmall, yellow. Common calyx double or calycled: outer of five linear ſcales; inner alſo of five, which are larger, membranaceous, whitiſh. The four or five middle florets of the diſk are five-toothed; the reſt, nearer to the ray, ſmaller and four-toothed. Germ compreſſed: ſtyle cloven: ſtigmas ſlender, reflexed. Female corollets of the ray two-toothed, ſpreading: ſtigma bifid. Fruiting calyx more ſpreading. Inner ſeeds of the diſk oblong, compreſſed, with a membranaceous ſerrate margin; outer round, ſtriated, obtuſe, toothed, having a point in the middle. Seeds of the female florets compreſſed, minute; but commonly wanting. Seed-crown none. Chaffs linear: but none in the middle.

Native of the Weſt Indies, in moiſt paſtures.

The genus of this plant is difficult to determine: for having no ſeed-crown it is not properly a ſpecies either of Verbeſina or Bidens, and ſhould rather be referred to Anthemis, but the habit is different [e]. Mr. Miller cultivated it in 1768.

Loureiro has a ſpecies, which he names Verbeſina ſpicata, and ſays that it agrees with the mutica in having no ſeed-crown, but that in the calyx and corolla it agrees perfectly with this genus, whereas the mutica does not.

He characterizes it as having palmate-gaſhed leaves which are ſerrate, and the flowers in terminating ſpikes: and deſcribes the ſtem as herbaceous but perennial, four feet high, nearly upright, ſometimes creeping, branched, ſtriated, of a duſky red colour: the lower leaves palmate-gaſhed, the upper ovate-lanceolate, all ſerrate, beneath tomentoſe, duſky green, odorous, juicy, alternate, on long red petioles. Flowers very white and ſmall, in linear heaped long erect terminating ſpikes: leaflets of the calyx awl-ſhaped, erect, in a double row: florets of the diſk ſhort and many; of the ray about five, verging to one ſide, the petal not longer than the calyx. Receptacle with very few chaffs. Seeds turbinate, bluntly four-cornered, ſhort without any crown.

Native of China and Cochinchina, and cultivated in thoſe countries, where it is brought to the table with other ſalad-herbs.

12. Stems proſtrate, half a foot long, ſomewhat branched, herbaceous. Leaves alternate, petioled, reſembling thoſe of Abrotanum, naked. Flowers ſubſolitary, on ſhort peduncles. Calyx oblong, cylindrical, containing five or ſix florets, leaflets as many, elliptic, awnleſs, fcarioſe at the edge. Corollas four-cleft, except one female, which is ligulate and ſeparate from the others: chaff lanceolate, ſmooth, ſhining. Seeds oblong, compreſſed, two-awned. It is an eſculent plant, with the ſmell and taſte of Fennel. Native of the Eaſt Indies, where it was found by Koenig [a].]

PROPAGATION AND CULTURE.

Sow the ſeeds upon a moderate hot-bed in the ſpring, and when the plants are fit to remove, tranſplant them on to a freſh hot-bed to bring them forward; ſhading them till they have taken new root, and then treating them in the ſame way as other tender annual plants, taking care not to draw them up too weak. In june take them up with balls of earth, and plant them in a warm border, where they may be ſhaded

[a] Linn. ſpec. [b] Idem. [c] Linn. zeyl. [d] Loureiro. [e] Swartz. [f] Hort. kew.

[a] Jacquin. [b] Hort. kew. [c] Swartz. [d] Linn. ſuppl.

and watered till they have again taken new root, after which they will require little care. Theſe will produce good ſeeds in autumn; but ſeveral of them may be kept through the winter in a ſtove.

[VERBENA. See *Bidens, Coreopſis, Eclipta, Lavenia, Phaethuſa, Spilanthus.*

VERMICULARIS. See *Sedum album.*

VERMICULATA. See *Scleranthus.*

VERNIX. See *Rhus.*

VERNONIA. (*Is it ſo named from William Vernon, fellow of St. Peter's College in Cambridge, who with Dr. David Kreig, a Saxon phyſician, collected many new plants in Maryland, inſerted in the ſupplement to Ray's hiſtory? He was alſo ſkilful and aſſiduous in the purſuit of Engliſh plants, eſpecially of the claſs Cryptogamia.*)

Lin. gen. Schreb. n. 1262. Serratula. *Dill. elth. t.* 261.—264.

ESSENTIAL CHARACTER.

Cal. ovate, imbricate with ovate-lanceolate, acuminate, coloured ſcales. *Down* capillary, coloured, ſeſſile, longer than the calyx, ſurrounded at the baſe by a very ſhort chaffy many-briſtled crown. *Recept.* naked.

SPECIES.

The ſpecies which Schreber has ſeparated under this title, have been already deſcribed under Serratula. See S. noveboracenſis, præalta and glauca.]

VERONICA. (*Derivation uncertain. Linnæus ſays it is changed or corrupted from* Vetonica, *from the Vettones, a people of Spain: but that confounds it with Betonica. Hoffman ſays it is quaſi* φαεινικη, *becauſe it bears the bell, as we ſay, among other plants. If this derivation be admitted, the penultima muſt be long. Lemery derives it from* ver, *the ſpring. There is a Ruſſian female Saint of this name.*)

Lin. gen. n. 25. *Reich. n.* 26. *Schreb. n.* 32. *Tournef. t.* 60. *Juſſ.* 99. *Gærtn. t.* 54.

Claſſ. 2. 1. Diandria Monogynia.

Nat. Order of *Perſonatæ. Pediculares* Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* four-parted, permanent: *ſegments* lanceolate, acute.

COR. one-petalled, wheel-ſhaped: *tube* length almoſt of the calyx: *border* four-parted, flat, with ovate ſegments; the loweſt narrower, the ſegment oppoſite to this wider.

STAM. *Filaments* two, narrower at bottom, aſcending. *Anthers* oblong.

PIST. *Germ* compreſſed. *Style* filiform, length of the ſtamens, declined. *Stigma* ſimple.

PER. *Capſule* obcordate, compreſſed at the top, two-celled, four-valved.

SEEDS numerous, roundiſh.

Obs. *Tube of the corolla different in the ſeveral ſpecies, but in moſt very ſhort, in the ſpiked ones long.*

Calyx five-cleft in V. ſibirica, Teucrium, proſtrata, peſtinata, auſtriaca, multifida, latifolia. Capſule of V. pinnata oval. Fruit of V. montana orbicular, emarginate at top and bottom. Capſule of V. bilobo compreſſed, two-parted with diverging ſemiorbicular lobes.

ESSENTIAL CHARACTER.

Cor. four-cleft, wheel-ſhaped, with the loweſt ſegment narrower. *Capſ.* ſuperior two-celled.

SPECIES.

* *Spiked.*

[1. Veronica ſibirica. *Siberian Speedwell.*
Lin. ſpec. 12. *ſyſt.* 58. *Reich.* 1. 24. *Willd.* 1. 54. *Gmel. ſib.* 3. 217.
V. ſpicata altiſſima, foliis verticillatim diſpoſitis. *Amm. ruth.* 20. *t.* 4.
Spikes terminating, leaves ſeven in whorls, ſtem ſomewhat rough-haired.]

2. Veronica virginica. *Virginian Speedwell.*
Lin. ſpec. 13. *Reich.* 1. 24. *Willd.* 1. 54. *hort. cliff.* 7. *Gron. virg.* 4. *Cold. noveb.* 3. *Thunb. jap.* 20. *Knipb. orig. cent.* 10. *n.* 97. *Pluk. phyt. t.* 70. *f.* 2.
Veronicaſtrum *Heiſt. Fabric. helmſt.* 205.

Spikes terminating, leaves in fours or fives.

3. Veronica ſpuria. *Baſtard Speedwell.*
Lin. ſpec. 13. *Reich.* 1. 24. *Willd.* 1. 55. *hort. upſ.* 7. *Hoffm. germ.* 4. *Roth. germ.* 1. 2. 2. 5. *Pollich pal. n.* 6. *Krock. ſileſ. n.* 10. *Crantz auſtr.* 335. *Gmel. it.* 1. 169. *t.* 39. *Berg. phyt. t.* 219.
V. ſpicata anguſtifolia. *Baub. pin.* 246. *Mor. hiſt. ſ.* 3. *t.* 22. *f.* 3.
V. mas ſurrecta elatior. *Barr. ic.* 891.
Spikes terminating, leaves lanceolate equally ſerrate.

4. Veronica maritima. *Sea Speedwell.*
Lin. ſpec. 13. *ſyſt.* 58. *Reich.* 1. 24. *Willd.* 1. 55. *ſi. ſuec. n.* 8. *lapp. n.* 4. *vir. cliff.* 2. *hort. cliff.* 7. *Fl. dan. t.* 374. *Hoffm. germ.* 4. *Roth. germ.* 1. 5. 2. 6. *Krock. ſileſ. n.* 11. *Gmel. ſib.* 3. 218. *Amm. ruth. n.* 34 *and* 35. *Knorr del. hort.* 2. *t.* V. 2. *Knipb. orig. cent.* 4. *n.* 94.
V. glabra. *Ehrh. herb.* 11.
V. ſpicata cærulea. *Mor. hiſt. ſ.* 3. *t.* 22. *f.* 1.
Lyſimachia ſpicata cærulea. *Baub. pin.* 246.
Pſeudo-Lyſimachium cæruleum. *Dod. pempt.* 86.

β. Veronica nitida. *Ehrh. herb.* 21.
Spikes terminating, leaves ſubcordate-lanceolate unequally ſerrate.

5. Veronica longifolia. *Long-leaved Speedwell.*
Lin. ſpec. 13. *Reich.* 1. 25. *Willd.* 1. 56. *hort. upſ.* 7. *ſi. ſuec. n.* 9. *Hoffm. germ.* 4. *Roth. germ.* 1. 5. 2. 7. *Crantz auſtr.* 334. *Georgi it.* 1. 95. *Sabb. hort. rom.* 2. 48.
V. elatior. *Ehrh. herb.* 51.
V. ſpicata latifolia. *Baub. pin.* 264. *Ger. emac.* 628. 7. *Raii hiſt.* 845. *Mor. hiſt. ſ.* 3. *t.* 22. *f.* 2.
—*major. Park. theat.* 550. 3.
V. 1. erectior latifolia. *Cluſ. hiſt.* 1. 346.

β. V. ſpicata longifolia altera. *Amm. ruth.* 26.

γ. V. ſpic. urticæ folio. *Amm. ruth.* 26.
Spikes terminating, leaves lanceolate acuminate ſerrate ending in the petiole.

6. Veronica incana. *Hoary Speedwell.*
Lin. ſpec. 14. *Reich.* 1. 25. *Willd.* 1. 56. *hort. upſ.* 7. *Gmel. ſib.* 3. 220. *n.* 35. *Knipb. orig. cent.* 7. *n.* 98.
V. bellidis folio major. *Amm. ruth.* 23.
V. ſpicata lanuginoſa et incana, floribus cæruleis. *Amm. ruth.* 30.
Spikes terminating, leaves oppoſite crenate obtuſe, ſtem erect tomentoſe.

7. Veronica ſpicata. *Spiked Speedwell.*
Lin. ſpec. 14. *ſyſt.* 58. *Reich.* 1. 25. *Willd.* 1. 56. *hort. cliff.* 8. *fl. ſuec. n.* 10. *Huds. angl.* 3. *Wither. arr. ed.* 3. 12. *Smith brit.* 15. *engl. bot. t.* 2. *Relh. cant. ed.* 2. *n.* 3. *Fl. dan. t.* 52. *Holl. belv. n.* 542. *Hoffm. germ.* 4. *Roth. germ.* 1. 5. 2. 7. *Pollich pal n.* 7. *Krock. ſileſ. n.* 13. *Villars dauph.* 2. 8. *Allion. pedem. n.* 263. *Knipb. orig. cent.* 4. *n.* 96. *Gmel. ſib.* 3. 221. *Berg. phyt. t.* 221.
V. ſpicata minor. *Baub. pin.* 247. *Vaill. par. t.* 33. *f.* 4. *Mor. hiſt. ſ.* 3. *t.* 22. *f.* 4.
V. ſpicata recta minor. *Baub. hiſt.* 3. 274. *Raii hiſt.* 846. *ſyn.* 279.
V. recta minima. *Ger. emac.* 627. 4. *Lob. obſ.* 250. 3. *Dalech. hiſt.* 1319.
V. ſpic. foliis Veronica officinarum. *Dillen. in eph. nat. cur. cent.* 5. *&* 6. *obſ.* 38. *t.* 11.
Spike terminating, leaves oppoſite bluntiſh crenate-ſerrulate quite entire at the tip, ſtem aſcending quite ſimple.

8. Veronica hybrida. *Welſh Speedwell.*
Lin. ſpec. 14. *ſyſt.* 58. *Reich.* 1. 26. *Willd.* 1. 57. *mant.* 316. *fl. ſuec. n.* 11. *Wither. arr. ed.* 3. 12. *Smith brit.* 16.
V. ſpicata β. *Huds. angl.* 3.
V. ſpicata Cambrobritannica, Bugulæ ſubhirſuto folio. *Raii ſyn.* 278. *t.* 11.
Spikes terminating, leaves oppoſite elliptic obtuſe unequally crenate-ſerrate, ſtem nearly upright.

[9. Veronica pinnata. *Winged-leaved Speedwell.*
Lin. ſyſt. 58. *Reich.* 1. 26. *Willd.* 1. 57. *mant.* 24. *Ait. kew.* 1. 19. *Laxmann in act. petrop.* 1770. 553. *t.* 29. *f.* 1.

Spike

Spike terminating, leaves linear pinnatifid ſubſeſcicled, ſegments ſiliform divaricating.

10. Veronica laciniata. *Jagged-leaved Speedwell.*
Lin. ſpec. ed. Willd. 1. 58. *Ait. kew.* 1. 19.
V. ſpuria. *Jungh. it. cent.* 1. *f.* 2.
Raceme ſubſpiked terminating, leaves pinnatifid laciniate.

11. Veronica inciſa. *Cut-leaved Speedwell.*
Lin. ſpec. ed. Willd. 1. 58. *Ait. kew.* 1. 19.
Spikes terminating, leaves lanceolate gaſh-pinnatifid ſmooth.

12. Veronica Catarractæ.
Lin. ſpec. ed. Willd. 1. 58. *Forſt. prodr. n.* 9.
Racemes terminating flexuoſe, ſtem ſubfruticoſe, leaves lanceolate ſerrate.

13. Veronica elliptica. *Elliptic-leaved Speedwell.*
Lin. ſpec. ed. Willd. 1. 58. *Forſt. prodr. n.* 10.
Racemes lateral, ſtem ſhrubby, leaves elliptic quite entire.

14. Veronica macrocarpa. *Long-fruited Speedwell.*
Lin. ſpec. ed. Willd. 1. 58. *Vahl ſymb.* 3. 4.
Racemes ſubterminating erect, leaves lanceolate quite entire ſmooth flat, ſtem ſhrubby.

15. Veronica ſalicifolia. *Willow-leaved Speedwell.*
Lin. ſpec. ed. Willd. 1. 58. *Vahl ſymb.* 3. 4. *Forſt. prodr. n.* 11.
Racemes lateral nodding, leaves lanceolate quite entire, ſtem ſhrubby.

16. Veronica parviflora. *Small-flowered Speedwell.*
Lin. ſpec. ed. Willd. 1. 58. *Vahl ſymb.* 3. 4.
Racemes ſubterminating, leaves linear-lanceolate quite entire ſmooth mucronate, ſtem ſhrubby.]

17. Veronica officinalis. *Common Speedwell.*
Lin. ſpec. 14. *fl. ſuec.* 58. *Reich.* 1. 26. *Willd.* 1. 59. *hort. cliff.* 8. *fl. lapp. n.* 5. *ſuec. n.* 12. *mat. med.* 37. *Woodv. med. bot. t.* 219. *Gærtn. fruct.* 1. 257. *Hudſ. angl.* 4. *Wither. arr. ed.* 3. 13. *Smith brit.* 16. *engl. bot. t.* 765. *Curt. lond.* 3. *t.* 1. *Relh. cant. ed.* 2. *n.* 10. *Sibth. oxon. n.* 7. *Abbot bedf. n.* 5. *Fl. dan. t.* 248. *Gunn. norv. n.* 46. *Hall. helv. n.* 540. *Huſſm. germ.* 4. *Roth. germ.* 1. 5. 2. 9. *Pollich pal. n.* 8. *Krock. ſileſ. n.* 16. *Scop. carn. n.* 21. *Crantz auſtr.* 336. *Neck. gallob.* 13. *Villars dauph.* 2. 10. *Allion. pedem. n.* 264. *Riv. mon. t.* 93. *Ludw. ect. t.* 100. *Knorr del. hort.* 2. *t.* V. 1. *Kniph. orig. cent.* 4. *n.* 95. *Berg. phyt. t.* 85. *Plenck ic. t.* 12.
V. mas ſupina & vulgatiſſima. *Bauh. pin.* 246. *Camer. epit.* 461. *Raii hiſt.* 851. *ſyn.* 281. *Mor. hiſt. ſ.* 3. *t.* 22. *f.* 7. *Tournef. inſt.* 143.
V. mas. *Fuchſ. hiſt.* 166. *Matth.* 693. *Blackw. t.* 143.
V. vera & major. *Ger.* 502. 1. *emac.* 626. 1.
V. mas vulgaris ſupina. *Park. theat.* 550. 2.
V. vulgatior folio rotundiore. *Bauh. hiſt.* 3. 282. 1.
Spikes lateral peduncled, leaves oppoſite rugged, ſtem procumbent.

[18. Veronica Allionii. *Shining-leaved Speedwell.*
Linn. ſpec. ed. Willd. 1. 59. *Smith in tranſ. Linn. ſoc.* 1. 190. *Villars dauph.* 2. 8. *Ger. prov.* 332. *n.* 2. *Pluk. phyt. t.* 233. *f.* 1.
V. pyrenaica. *Allion. pedem. n.* 265. *t.* 46. *f.* 3. *ſpec.* 1. 21. *t.* 4. *f.* 3.
V. officinalis β. *Linn. ſpec.* 14. *fl. ſuec.* 58. *Reich.* 27.
Spikes lateral peduncled, leaves oppoſite roundiſh ſhining rigid, ſtem ſmooth creeping.

19. Veronica decuſſata. *Croſs-leaved Speedwell.*
Ait. kew. 1. 20. *Lin. ſpec. ed. Willd.* 1. 60. *arb. berol.* 400. *Moench. Weiſſenſt.* 137. *Smith ſpicil.* 23. *t.* 25. *Curt. magaz. t.* 242.
Hebe magellanica. *Gmel. ſyſt.* 27. *Juſſ. gen.* 105.
Racemes axillary few-flowered, leaves elliptic perennial quite entire, ſtem ſhrubby.
** *Corymb-racemed.*

20. Veronica aphylla. *Naked-ſtalked Speedwell.*
Lin. ſpec. 14. *Reich.* 1. 27. *Willd.* 1. 60. *Hall. helv. n.* 541. *Scop. carn. n.* 8. *Jacqu. vind.* 2. *Crantz auſtr.* 336. *Villars dauph.* 2. 10. *Allion. pedem. n.* 266.
V. alpina pumila, caule aphyllo. *Bocc. muſ.* 2. 17. *t.* 1. & 9.
V. parva ſaxatilis, cauliculis nudis. *Pluk. phyt. t.* 114. *f.* 3. *Segu. veron.* 241. *t.* 3. *f.* 2. *Raii ſyll.* 261. *hiſt.* 846.
Chamædrys alpina minima hirſuta. *Bauh. pin.* 243. Teucrium minimum. *Cluſ. hiſt.* 1. 350.
β. Veronica kamtſchatica. *Lin. ſuppl.* 83. *Smith in Lin. tranſ.* 1. 190.
Corymb terminating, ſcape naked.

21. Veronica bellidioides. *Daiſy-leaved Speedwell.*
Lin. ſpec. 15. *ſyſt.* 59. *Reich.* 1. 27. *Willd.* 1. 60. *mant.* 316. *Krock. ſileſ. n.* 17. *t.* 2. *Hall. helv. n.* 543. *t.* 15. *f.* 1. *Villars dauph.* 2. 10. *Allion. pedem. n.* 267.
V. alpina Bellidis folio hirſuta. *Bauh. pin.* 247. *prodr.* 116. *Raii hiſt.* 847. *Tournef. inſt.* 144.
V. minima Bellidis folio. *Park. theat.* 551. *n.* 6.
Corymb terminating, ſtem aſcending two-leaved, leaves obtuſe crenate, calyxes hirſute.

22. Veronica gentianoides. *Gentian-leaved Speedwell.*
Lin. ſpec. ed. Willd. 1. 61. *Vahl ſymb.* 1. 1. *Smith in Lin. tranſ.* 1. 194.
V. orientalis erecta gentianellæ folio. *Tournef. cor.* 7.
V. erecta Blattariæ facie. *Buxb. cent.* 1. 23. *t.* 35.
Corymb terminating, ſtem aſcending, leaves lanceolate cartilaginous at the edge, the lower connate, ſheathing.

23. Veronica Ponæ. *Pona's Speedwell.*
Lin. ſpec. ed. Willd. 1. 61. *Gouan illuſtr.* 1. *t.* 1. *f.* 1.
V. petræa ſempervirens. *Pon. bald.* 336. *Tournef. inſt.* 144. *Segu. veron.* 1. 235. *Pluk. phyt. t.* 233. *f.* 3.
V. non ramoſa pyrenaica. *Pluk. phyt. t.* 233. *f.* 2 ?
β. Veronica pumila. *Allion. pedem. n.* 270. *t.* 22. *f.* 5. *ſpec.* 19. *t.* 3. *f.* 3.
Raceme terminating, ſtem quite ſimple, leaves cordate-ovate toothed ſeſſile.

24. Veronica fruticulosa. *Fleſh-coloured Shrubby Speedwell.*
Lin. ſpec. 15. *ſyſt.* 59. *Reich.* 1. 28. *Willd.* 1. 61. *mant.* 316. *Smith brit.* 18. *engl. bot. t.* 1028. *Hall. helv. n.* 545. *t.* 16. *f.* 1. *Comm. nor.* 1734. *p.* 243. *Allion. pedem. n.* 268.
V. fruticoſa. *Jacqu. collect.* 4. 229. *t.* 5.
V. fruteſcens. *Scop. carn. n.* 20. *Villars dauph.* 2. 11.
V. alpina fruteſcens. *Bauh. pin.* 247. *Scheuch. it.* 1. 51.
Corymb terminating many-flowered ſpiked, leaves elliptic lanceolate, ſtems erect, capſule ovate four-valved.]

25. Veronica ſaxatilis. *Blue Rock Speedwell.*
Lin. ſyſt. 59. *Willd.* 1. 62. *ſuppl.* 83. *Smith brit.* 17. *engl. bot. t.* 1027. *Wither. arr. ed.* 3. 14. *n.* 9. *Jacqu. collect.* 3. 25. *Bauh. hiſt.* 3. 284.
Veronica. *Hall. helv. n.* 545. β.
V. fruticuloſa. *Fl. dan. t.* 342. *Gunn. norv. n.* 829. *Jacqu. enum. obſ.* 1. *p.* 200. *Hudſ. angl.* 4 ? *Mill. dict. n.* 13.
V. tertia fruticans. *Cluſ. hiſt.* 347.
V. alpina fruteſcens. *Mor. hiſt. ſ.* 3. *t.* 22. *f.* 5.
V. alpina con foglia di Serpillo. *Pon. bald.* 181.
V. fruticans ſerpillifolia. *Ger. emac.* 628.
β. Veronica Nummularia. *Gouan. illuſtr.* 1. *t.* 1. *f.* 2.
γ. Veronica pygmæa. *Schrank. Saliſb. n.* 11. *t.* 1. *f.* 1.
Corymb terminating few-flowered, leaves elliptic, ſtems diffuſed, capſule ovate four-valved.

[26. Veronica alpina. *Alpine Speedwell.*
Lin. ſpec. 15. *ſyſt.* 59. *Reich.* 1. 28. *fl. lapp. n.* 7. *t.* 9. *f.* 4. *ſuec. n.* 15. *Lin. tranſ.* 1. 191. & 2. 287. *Smith brit.* 18. *engl. bot. t.* 484. *Wither. arr. ed.* 3. 14. *Fl. dan. t.* 16. *Gunn. norv. n.* 45. *Hall. helv. n.* 544. *t.* 15. *f.* 2. *Scop. carn. n.* 13. *Villars dauph.* 2. 12. *Allion. pedem. n.* 269. *Pallas it.* 3. 33. *Schrank. Saliſb. n.* 9.
Teucrium Etſcherianum. *Cluſ. pann.* 616. *Crantz auſtr.* 337.
Corymb terminating ſubſpiked, leaves ovate ſmooth ſubſerrate, calyx ciliate, ſtem aſcending ſimple.

27. Veronica integrifolia. *Entire-leaved Speedwell.*
Lin. ſpec. ed. Willd. 1. 63. *Schrank. Saliſb. n.* 10.
V. alpina. *Krock. ſileſ. n.* 28. *t.* 3.
Corymb terminating, leaves oppoſite elliptic obtuſe quite entire, calyxes hairy.

28. Veronica ſerpyllifolia. *Smooth Speedwell* or *Paul's Betony.*

Lin. ſpec. 15. *ſyſt.* 59. *Reich.* 1. 29. *Willd.* 1. 64. *fl. ſuec. n.* 16. *lapp. n.* 6. *hort. cliff.* 9. *Huſſ. angl.* 4. *Wither. arr. ed.* 3. 14. *Smith brit.* 19. *engl. bot. t.* 1075. *Curt. lond.* 1. *t.* 3. *Lightf. ſcot.* 73. *Relh. cant. ed.* 2. *n.* 11. *Sibth. oxon. n.* 8. *Abbot bedf. n.* 6. *Fl. dan. t.* 840. *Hall. helv. n.* 546. *Hoffm. germ.* 5. *Roth. germ.* 1. 6. 2. 9. *Pollich pal. n.* 9. *Krock. ſileſ. n.* 18. *t.* 4. *Neck. galloh.* 7. *Scop. carn. n.* 10. *Crantz auſtr.* 342. *n.* 10. *Jacqu. vind.* 3. *Villars dauph.* 2. 13. *Allion. pedem. n.* 271. *Gmel. ſib.* 3. 223. *n.* 39. *Deſont. atlant.* 1. 10. *Gron. virg.* 54. *Cold. nevth.* 1. *Berg. phyt.* 1. 215.

V. pratenſis. *Dod. pempt.* 41. 1.—minor. *Park. theat.* 551. *n.* 5. *Raii hiſt.* 848. *ſyn.* 279.

V. minor. *Ger. emac.* 627. 2.

V. prat. ſerpyllif. *Baub. pin.* 247. *Tournef. inſt.* 144.

V. fœmina quibuſdam, aliis Betonica Paulli, ſerpyllifolia. *Baub. hiſt.* 3. 285. 1.

V. minima repens. *Rivin. mon. t.* 99. *f.* 1.

β. V. humiſuſa. *Dickſ. in Lin. tranſ.* 2. 288. *Wither.* 15. *Sym. ſyn.* 4. *Smith brit.* 19.

V. alpina. *Lightf. ſcot.* 72. & 1138.

Raceme terminating ſubſpiked, leaves ovate ſubcrenate three-nerved ſmooth, capſule obcordate ſhorter than the ſtyle.

29. Veronica tenella.

Lin. ſpec. ed. Willd. 1. 64. *Allion. pedem. n.* 272. *t.* 22. *f.* 1. *Vahl ſymb.* 3. 5.

V. nummulariæ folio pyrenaica. *Tournef. inſt.* 145.

V. pratenſis nummulariæ folio, flore cæruleo. *Pluk. phyt. t.* 233. *f.* 4.

V. prat. numm. folio. *Dill. giſſ.* 67.

Leaves oblong crenate, ſtems creeping, calyxes villoſe.]

30. Veronica Becabunga. *Broad-leaved Brooklime* or *Water Speedwell.*

Lin. ſpec. 16. *ſyſt.* 59. *Reich.* 1. 30. *Willd.* 1. 64. *fl. ſuec. n.* 14. *hort. cliff.* 8. *mat. med.* 38. *Woodv. med. bot.* 20. *t.* 7. *Huſſ. angl.* 5. *Wither. arr. ed.* 3. 15. *Smith brit.* 20. *engl. bot. t.* 655. *Curt. lond.* 2. *t.* 3. *Lightf. ſcot.* 73. *Relh. cant. ed.* 2. *n.* 12. *Sibth. oxon. n.* 9. *Abbot bedf. n.* 7. *Fl. dan. t.* 511. *Gunn. norv. n.* 59. *Hall. helv. n.* 534. *Hoffm. germ.* 5. *Roth. germ.* 1. 6. 2. 10. *Pollich pal. n.* 10. *Krock. ſileſ. n.* 19. *Leers herborn. n.* 9. *Scop. carn. n.* 11. *Jacqu. vind.* 3. *Neck. galleb.* 11. *Crantz auſtr.* 341. *Villars dauph.* 2. 13. *Allion. pedem. n.* 273. *Gmel. ſib.* 3. 224. *Deſont. atlant.* 1. 11. *Gron. virg.* 4. *Ludw. edit. t.* 30. *Knipb. orig. cent.* 9. *n.* 100. *Sabb. hort. rom.* 2. *t.* 50. *Berg. phyt.* 1. *t.* 211. *Plenck. ic. t.* 14.

V. aquatica rotundifolia, Becabunga dicta minor. *Raii ſyn.* 280.

V. aquat. major & minor folio ſubrotundo. *Tourn. inſt.* 145. *Mor. hiſt. ſ.* 3. *t.* 24. *f.* 24.

Beccabunga. *Riv. mon. t.* 100. *f.* 1.

Anagallis ſ. Becabunga. *Ger.* 496. *emac.* 620. 1.

A. aquatica. *Dod. pempt.* 593. 1. *Lob. obſ.* 248. 3. *ic.* 466. *Blackw. t.* 48.

A. aquat. vulgaris, ſ. Becabunga. *Park. theat.* 1236. 1.

A. aquat. major & minor folio ſubrotundo. *Baub. pin.* 252. *Raii hiſt.* 852.

A. aquat. flore cæruleo, folio rotundiore, major & minor. *Bauh. hiſt.* 790, 791.

Sium. *Fuchſ. hiſt.* 725.

Sion non odoratum. *Trag. hiſt.* 188.

Berula ſ. Anagallis aquatica. *Tabern. ic.* 719.

Racemes lateral, leaves elliptic flat, ſtem creeping.

[31. Veronica Anagallis. *Long-leaved Brooklime* or *Water Speedwell.*

Lin. ſpec. 16. *Reich.* 1. 30. *Willd.* 1. 65. *fl. ſuec. n.* 13. *Huſſ. angl.* 5. *Wither. arr. ed.* 3. 15. *Smith brit.* 20. *engl. bot. t.* 781. *Curt. lond.* 5. *t.* 2. *Lightf. ſcot.* 73. *Relh. cant. ed.* 2. *n.* 13. *Sibth. oxon. n.* 10. *Abbot bedf. n.* 8. *Fl. dan. t.* 903. *Hall. helv. n.* 533. *Hoffm. germ.* 5. *Roth. germ.* 1. 6. 2. 11. *Pollich pal. n.* 11. *Krock. ſileſ. n.* 20. *Neck. galleb.* 10. *Scop. carn. n.* 12. *Crantz auſtr.* 342. *Villars dauph.* 2. 14. *Allion. pedem. n.* 274. *Gmel. ſib.* 3. 224. *Thunb. jap.* 20. *Deſont. atlant.* 1. 11. *Gron. virg.* 4. *Berg. phyt.* 1. 209.

V. aquatica longifolia media. *Raii ſyn.* 280. *Petiv. brit. t.* 51. *f.* 12.

V. aquat. major & minor, folio oblongo. *Tournef. inſt.* 145. *Mor. hiſt. ſ.* 3. *t.* 24. *f.* 25.

Beccabunga minor. *Riv. mon. t.* 100. *f.* 2.

Anagallis aquatica major. *Ger.* 496. 3. *emac.* 620. 2.

A. aquat. major & minor, folio oblongo. *Baub. pin.* 252. *Raii hiſt.* 852. 3.

A. aquat. folio oblongo crenato. *Park. theat.* 1237. 3.

A. aquat. flore cæruleo, folio oblongo, major. *Baub. hiſt.* 3. 791. 1.

Berula major. *Tabern. ic.* 719. *hiſt.* 1094.

β. With a ſingle raceme, and lanceolate crenate leaves. *Willd. prodr. n.* 31.

γ. V. tenerrima. *Schmidt bohem.* 1. *n.* 23.

Racemes lateral oppoſite, leaves lanceolate ſerrate, ſtem erect.

32. Veronica ſcutellata. *Narrow-leaved Brooklime* or *Water Speedwell.*

Lin. ſpec. 16. *ſyſt.* 59. *Reich.* 1. 30. *Willd.* 1. 65. *fl. lapp. n.* 9. *ſuec. n.* 17. *hort. cliff.* 10. *Huſſ. angl.* 5. *Wither. arr. ed.* 3. 16. *Smith brit.* 21. *engl. bot. t.* 782. *Curt. lond.* 5. *t.* 3. 333. *Lightf. ſcot.* 74. *Relh. cant. ed.* 2. *n.* 14. *Sibth. oxon. n.* 11. *Abbot bedf. n.* 9. *Fl. dan. t.* 209. *Hall. helv. n.* 532. *Hoffm. germ.* 5. *Roth. germ.* 1. 6. 2. 12. *Pollich pal. n.* 12. *Leers herborn. n.* 11. *Krock. ſileſ. n.* 21. *Neck. galleb.* 12. *Scop. carn. n.* 22. *Crantz auſtr.* 343. *Jacqu. vind.* 3. *Villars dauph.* 2. 14. *Allion. pedem. n.* 275. *Deſont. atlant.* 1. 12. *Knipb. orig. cent.* 10. *n.* 95. *Berg. phyt.* 1. 207.

V. aquatica anguſtifolia minor. *Raii ſyn.* 280.

V. aquat. anguſtiore folio. *Tournef. inſt.* 145.

V. aquat. anguſtifolia. *Mor. hiſt. ſ.* 3. *t.* 24. *f.* 27.

V. paluſtris anguſtifolia. *Riv. mon. t.* 96. *f.* 1.

Anagallis aquat. anguſtif. *Baub. hiſt.* 3. 791. 2. *Raii hiſt.* 852. 5.—ſcutellata. *Baub. pin.* 252.—ſ. quarta Lobelii. *Park. theat.* 1237. 6.

A. aquat. quarta Lob. *ic.* 467. *Ger. emac.* 621. 4.

Racemes lateral alternate, pedicels divaricating, leaves linear toothletted.

33. Veronica Teucrium. *Hungarian Speedwell.*

Lin. ſpec. 16. *ſyſt.* 59. *Reich.* 1. 31. *Willd.* 1. 66. *Hall. helv. n.* 537. *Hoffm. germ.* 5. *Roth. germ.* 1. 7. 2. 13. *Pollich pal. n.* 13. *Leers herborn. n.* 12. *Villars dauph.* 2. 14. *Krock. ſileſ. n.* 23. *Allion. pedem. n.* 276.

V. montana. *Riv. mon. t.* 95.

V. ſpuria anguſtifolia. *Baub. hiſt.* 3. 285.

V. ſupina facie Teucrii pratenſis. *Tournef. inſt.* 144.

Chamædrys vulgaris mas. *Fuchſ. hiſt.* 871.

C. ſpuria major altera ſ. fruteſcens. *Baub. pin.* 248.

C. ſpuria major fruteſcens. *Park. theat.* 106. 8.

C. falſa maxima, an Teucrium 1. f. majus pannonicum Clufio. *Baub. hiſt. Raii hiſt.* 849.

Teucrii IV. tertia ſpecies. *Cluſ. hiſt.* 1. 349.

Teucrium majus pannonicum. *Ger. emac.* 659. 3.

Racemes lateral very long, leaves ovate wrinkled toothed blunciſh, ſtems procumbent.

34. Veronica piloſa. *Hairy Speedwell.*

Lin. ſpec. app. 1663. *ſyſt.* 59. *Reich.* 1. 31. *Willd.* 1. 66.

Chamædrys ſpuria minor latifolia. *Baub. pin.* 249.

Chamædryos falſa ſpecies; Teucrium 2. *f.* 5. Cluſii. *Baub. hiſt.* 3. 286.

Racemes axillary, leaves ovate obtuſe plaited deeply toothed, ſtem proſtrate hairy in two rows.

35. Veronica proſtrata. *Trailing Speedwell.*

Lin. ſpec. 17. *ſyſt.* 59. *Reich.* 1. 32. *Willd.* 1. 67. *Hall. helv. n.* 538. *Pollich pal. n.* 15. *Villars dauph.* 2. 15. *Krock. ſileſ. n.* 25.

V. anguſtifolia minor. *Riv. mon. t.* 95. *Mor. hiſt. ſ.* 3. *t.* 23. *f.* 16.

Chamædrys incana ſpuria minor anguſtifolia. *Baub. pin.* 249. *prodr.* 117. *Bauh. hiſt.* 3. 237.
Racemes lateral, leaves oblong-ovate ſerrate, ſtems proſtrate.

36. Veronica pectinata. *Comb-leaved Speedwell.*
Lin. ſyſt. 59. *Reich.* 1. 32. *Willd.* 1. 68. *mant.* 24.

V. conſtantinopolitana incana, chamædryos folio. *Tournef. cor.* 7. *Buxb. cent.* 1. 25. *t.* 39.
Racemes lateral leafed, leaves oblong peſtinate-ſerrate, ſtems proſtrate.

37. Veronica montana. *Mountain Speedwell.*
Lin. ſpec. 17. *ſyſt.* 59. *Reich.* 1. 32. *Willd.* 1. 68. *mant.* 316. *ſuppl.* 83. *amoen.* 4. 263. *Huſſ. angl.* 6. *Wither. arr. ed.* 3. 16. *Smith brit.* 21. *engl. bot. t.* 766. *Lightf. ſcot.* 74. *Relh. cant. ed.* 2. *n.* 15. *Sibthorp oxon. n.* 13. *Abbot beſf. n.* 11. *Curt. lond.* 4. *t.* 2. 220. *Hall. helv. n.* 539. *Hoffm. germ.* 5. *t.* 1. *Roth. germ.* 1. 7. 2. 15. *Pollich pal. n.* 14. *Schreb. ſpicil.* 10. *Leers herborn. n.* 13. *Jacqu. auſtr.* 2. 6. *t.* 109. *Kreck. ſileſ. n.* 22. *Villars dauph.* 2. 16.

V. ſubbiſcutata. *Crantz auſtr.* 343.

V. procumbens. *Riv. mon. t.* 93.

V. ſupina Teucrii folio. *Tournef. inſt.* 145.

V. chamædryoides, foliis pediculis oblongis inſidentibus. *Raii ſyn.* 281. *Petiv. brit. t.* 51. *f* 4.

V. procumbens biſcutata hederæ folio. *Mor. hiſt. ſ.* 3. *t.* 23. *f.* 15.

Chamædrys ſpuriæ affinis rotundifolia ſcutellata. *Baub. pin.* 249.

C. ſpuria foliis pediculis oblongis inſidentibus. *Raii hiſt.* 850.

Alyſſum Dioſcoridis montanum. *Col. ecphr.* 1. 286. *t.* 288. *Park. theat.* 589. 3. *Merr. pin.*
Racemes lateral elongated filiform few-flowered, leaves ovate petioled ſerrate, ſtem hairy all round.

38. Veronica Chamædrys. *Germander Speedwell.*
Lin. ſpec. 17. *ſyſt.* 60. *Reich.* 1. 33. *Willd.* 1. 69. *fl. ſuec. n.* 18. *lapp.* 8. *hort. cliff.* 8. *mant.* 317. *Huſſ. angl.* 6. *Wither. arr. ed.* 3. 16. *Smith brit.* 22. *engl. bot. t.* 623. *Curt. lond.* 1. *t.* 2. *Lightf. ſcot.* 74. *Relh. cant. ed.* 2. *n.* 16. *Sibth. oxon. n.* 12. *Abbot beſf. n.* 10. *Fl. dan. t.* 448. *Gunn. norv. n.* 47. *Hall. helv. n.* 536. *Hoffm. germ.* 6. *Roth. germ.* 1. 7. 2. 16. *Pollich pal. n.* 16. *Leers herborn. n.* 14. *Kreck. ſileſ. n.* 24. *Neck. gallob.* 9. *Villars dauph.* 2. 15. *Allion. pedem. n.* 279. *Thunb. jap.* 20. *Knipb. cent.* 11. *Berg. phyt.* 1. *t.* 83. *Fl. ruſſ. t.* 66.

V. pratenſis latifolia. *Riv. mon. t.* 94.

V. Chamædrys ſylveſtris dicta. *Raii ſyn.* 281.

V. minor foliis imis rotundioribus. *Mor. hiſt.* 2. 220. *ſ.* 3. *t.* 23. *f.* 12. *Tournef. inſt.* 144.

Chamædrys. *Brunf. herb.* 1. 125.

C. ſylveſtris. *Ger.* 530. 4. *emac.* 657. 3. *Raii hiſt.* 850.

C. ſpuria ſylveſtris. *Park. theat.* 107. *n.* 11.

C. ſpuria latifolia. *Baub. hiſt.* 3. 286. 1.

C. ſpuria minor rotundifolia. *Baub. pin.* 249.

C. quorundum ſilveſtris. *Cluſ. hiſt.* 1. 352. 1.

Hieroboane mas. *Dalech. hiſt.* 1337.
Racemes lateral, leaves ovate ſeſſile wrinkled goſh-ſerrate, ſtem hairy in two rows.]

39. Veronica orientalis. *Oriental Speedwell.*
Ait. kew. 1. 23. *Lin. ſpec. ed. Willd.* 1. 69.

V. heterophylla. *Saliſb. it.* 1. 7. *t.* 4.

V. auſtriaca β. *Lin. ſpec.* 17.

V. montana folio vario. *Buxb. cent.* 1. 4. *t.* 38.
Racemes lateral, leaves pinnatifid ſmooth acute attenuated at the baſe, calyxes unequal, pedicels capillary longer than the bracte.

[40. Veronica multifida. *Multifid-leaved Speedwell.*
Lin. ſpec. 17. *ſyſt.* 60. *Reich.* 1. 34. *Willd.* 1. 69. *Smith in Lin. tranſ.* 1. 191. *Georg. it.* 1. 195. *Gmel. ſib.* 3. 222. *Amm. ruth.* 25. *n.* 33.
Racemes lateral, leaves many-parted, ſegments pinnatifid, lobes decurrent, peduncles ſhort, calyx very ſmooth, ſtem villoſe.]

41. Veronica auſtriaca. *Auſtrian Speedwell.*
Lin. ſpec. 17. *ſyſt.* 60. *Reich.* 1. 34. *Willd.* 1. 70. *Jacqu. vind.* 3.

V. multifida. *Ait. kew.* 1. 23.

Veronica auſtriaca & multifida. *Jacqu. auſtr.* 4. 15. *t.* 329.

V. pratenſis var. a. *Crantz auſtr.* 344.

Chamædrys auſtriaca, foliis tenuiſſime laciniata. *Baub. pin.* 248. 9. *prodr.* 117. 2. *Mor. hiſt. ſ.* 3. *t.* 23. *f.* 17.

C. ſpuria tenuiſſime laciniata. *Baub. hiſt.* 3. 287. *Raii hiſt.* 849.
Racemes lateral, leaves ſomewhat hairy linear pinnatifid, the loweſt ſegment longer divaricating, calyxes ſomewhat hairy, peduncles longer than the bracte.

[42. Veronica taurica. *Tauric Speedwell.*
Lin. ſpec. ed. Willd. 1. 70.

V. roſea. *Deſcont. atlant.* 1. 13.
Racemes lateral, leaves ſomewhat hairy linear undivided and pinnatifid toothleſted, peduncles longer than the bracte, calyx four-cleft ſmooth.

43. Veronica urticæfolia. *Nettle-leaved Speedwell.*
Lin. ſyſt. 60. *Willd.* 1. 70. *ſuppl.* 83. *Ait. kew.* 1. 24. *Jacqu. auſtr.* 1. 37. *t.* 59. *Hall. helv. n.* 535.

V. pratenſis omnium maxima. *Buxb. cent.* 1. 23. *t.* 34.

V. maxima latifolia. f. Quercus folio. *Mor. hiſt.* 2. 322. *ſ.* 3. *t.* 23. *f.* 18.

Chamædrys falſa maxima. *Baub. hiſt.* 3. 286. *Raii hiſt.* 849.

C. ſpuria major latifolia. *Baub. pin.* 248.
Racemes lateral, leaves cordate ſeſſile ſoarply ſerrate acuminate, ſtem ſtiff, calyx-leaves four.]

44. Veronica latifolia. *Broad-leaved Speedwell.*
Lin. ſpec. 18. *ſyſt.* 60. *Reich.* 1. 34. *Willd.* 1. 71. *hort. cliff.* 9. *Reyg. godan.* 2. 28. *Villars dauph.* 2. 16. *Kreck. ſileſ. n.* 29. *Allion. pedem. n.* 278 *Scop. carn. n.* 13. *Retz. obſ.* 1. 9. *n.* 5. & 6. 19. *n.* 9.

V. maxima. *Mill. dict. n.* 11.

V. Pſeudo-chamædrys. *Jacqu. auſtr.* 1. 37. *t.* 60.
Racemes lateral, leaves cordate ſeſſile wrinkled bluntly ſerrate, ſtem ſtiff, calyx-leaves five.

[45. Veronica paniculata. *Panicled Speedwell.*
Lin. ſpec. 18. *ſyſt.* 60. *Reich.* 1. 35. *Willd.* 1. 71. *Pallas it.* 1. 196. *Lepech. it.* 1. 206.

V. dentata. *Schmidt bohem.* 1. 31.

V. anguſtifolia, floribus paniculatis. *Amm. ruth.* 32.
Racemes lateral very long, leaves lanceolate tern ſerrate, ſtem aſcending.
*** *Peduncles one-flowered.*

46. Veronica biloba. *Two-lobed Speedwell.*
Smith in Lin. tranſ. 1. 193. *Willd. ſpec.* 1. 72. *Reich.* 1. 35. *Vahl ſymb.* 1. 1. *Lin. mant.* 172.

V. arvenſis annua, chamædryos folio. *Buxb. cent.* 1. 24. *t.* 36.

V. orientalis, ocymi folio, flore minimo. *Tournef. cor.* 7.
Flowers ſolitary, leaves cordate-lanceolate toothed, calyx-leaves equal ovate acuminate three-nerved.

47. Veronica agreſtis. *Procumbent Speedwell.*
Lin. ſpec. 18. *ſyſt.* 60. *Reich.* 1. 35. *Willd.* 1. 73. *fl. ſuec. n.* 20. *hort. cliff.* 9. *Huſſ. angl.* 7. *Wither. arr. ed.* 3. 17. *Smith brit.* 23. *engl. bot. t.* 783. *Curt. lond.* 1. *t.* 1. *Relh. cant. ed.* 2. *n.* 17. *Sibth. oxon. n.* 14. *Abbot beſf. n.* 12. *Fl. dan. t.* 449. *Hall. helv. n.* 549. *Hoffm. germ.* 6. *Roth. germ.* 1. 8. 2. 17. *Pollich pal. n.* 17. *Kreck. ſileſ. n.* 31. *Neck. gallob.* 7. *Scop. carn. n.* 23. *Crantz auſtr.* 349. *n.* 16. *Villars dauph.* 2. 17. *Allion. pedem. n.* 284. *Berg. phyt.* 1. *t.* 9. *Deſfont. atlant.* 1. 13.

V. folio chamædryos. *Riv. mon. t.* 99. *f.* 2.

V. chamædryfolia floſculis oblongis pediculis inſidentibus. *Mor. hiſt. ſ.* 3. *t.* 24. *f.* 22. *Tournef. inſt.* 145.

V. floribus ſingularibus, in oblongis pediculis, chamædryfolia. *Raii ſyn.* 279.

Alſinæ chamædryfolia, floſc. pedic. obl. inſid. *Baub. pin.* 250.

A. media. *Fuchſ. hiſt.* 22.

A. ſol. Triffagium. *Tabern. hiſt.* 1089. *Ger. emac.* 616. 1. *Park. theat.* 764. 4. *Raii hiſt.* 847.

A. ſerrato folio glabro. *Baub. hiſt.* 3. 367. 1.

A. ſpuria altera. *Dod. pempt.* 31. 2.
Flowers ſolitary, leaves ovate goſh-ſerrate ſhorter than the peduncle, ſtems procumbent, ſeeds cupped.

48. Veronica

48. Veronica arvenſis. *Wall Speedwell* or *Speedwell Chickweed.*
Lin. ſpec. 18. *ſyſt.* 60. *Reich.* 1. 36. *Willd.* 1. 73. *fl. ſuec. n.* 19. *hort. cliff.* 9. *Hudſ. angl.* 6. *Wither. arr. ed.* 3. 12. *Smith brit.* 24. *engl. bot. t.* 734. *Curt. lond.* 2. *t.* 2. 133. *Lightf. ſcot.* 75. *Relh. cant. ed.* 2. *n.* 18. *Sibth. oxon. n.* 15. *Abbot beſſ. n.* 13. *Fl. dan. t.* 515. *Hall. helv. n.* 548. *Hoffm. germ.* 6. *Roth. germ.* 1. 8. 2. 19. *Pollich pal. n.* 18. *Neck. gallob.* 6. *Krock. ſileſ. n.* 32. *t.* 5. *Scop. carn. n.* 18. *Crantz auſtr.* 350. *Villars dauph.* 2. 350. *Allion. pedem. n.* 285. *Deſfont. atlant.* 1. 14. *Tbunb. jap.* 20. *Gron. virg.* 4. *Berg. phyt.* 1. 213.
V. floſculis ſingularibus, cauliculis adhærentibus. *Raii ſyn.* 279.
V. floſc. cauliculis adhærentibus. *Tournef. inſt.* 145.
Alſine Veronicæ foliis, floſculis cauliculis adhærentibus. *Bauh. pin.* 250.
A. foliis Veronicæ. *Ger.* 489. 8. *emac.* 613. 7. *Raii hiſt.* 847.
A. fol. ſubrotundis Veronicæ. *Park. theat.* 762. 4.
A. ſerrato folio hirſutiore, &c. *Bauh. hiſt.* 3. 367.
Alyſſum. *Column. phyteb. t.* 28.
Elatine polyſchides. *Dalech. hiſt.* 1239.
Flowers ſolitary, leaves ovate gaſh-ſerrate, floral leaves lanceolate longer than the peduncle, ſtem erect.

49. Veronica hederifolia. *Ivy-leaved Speedwell* or *Small Henbit.*
Lin. ſpec. 19. *ſyſt.* 60. *Reich.* 1. 36. *Willd.* 1. 73. *fl. ſuec. n.* 21. *hort. cliff.* 9. *Hudſ. angl.* 7. *Wither. arr. ed.* 3. 17. *Smith brit.* 24. *engl. bot. t.* 784. *Curt. lond.* 2. 1. 110. *Lightf. ſcot* 76. *Relh. cant. ed.* 2. *n.* 19. *Sibth. oxon. n.* 16. *Abbot beſſ. n.* 14. *Fl. dan. t.* 428. *Hall. helv. n.* 550. *Roth. germ.* 1. 8. 2. 20. *Pollich pal. n.* 19. *Krock. ſileſ. n.* 33. *Neck. gallob.* 8. *Scop. carn. n.* 24. *Crantz auſtr.* 350. *n.* 18. *Villars dauph.* 2. 17. *Allion. pedem. n.* 286. *Deſfont. atlant.* 1. 14. *Berg. phyt.* 1. 11.
V. floſculis ſingularibus, Hederulæ folio, Morſus gallinæ minor dicta. *Raii ſyn.* 280.
V. folio hederæ. *Riv. mon. t.* 99. *f.* 3.
V. cymbalariæ folio verna. *Tournef. inſt.* 145.
V. hederulæ folio. *Bauh. pin.* 250. *Tabern. hiſt.* 1080. *Mor. hiſt. ſ.* 3. *t.* 24. *f.* 20.
Alſine hederacea. *Ger.* 493. 3. *emac.* 616. 3. *Raii hiſt.* 848.
A. hederulæ folio minor. *Park. theat.* 762. 3.
Alſines genus Fuchſio folio hederulæ hirſuto. *Bauh. hiſt.* 3. 368. 2.
Alſines quartum genus. *Fuchſ. hiſt.* 13.
Alſine ſpuria prior. ſ. Morſus gallinæ. *Dod. pempt.* 31.
β. Veronica chia, cymbalariæ folio, verna, flore albo, umbilico viteſcente. *Tournef. cor.* 7. *Buxb. cent.* 1. 25. *t.* 39. *f.* 1.
V. cymbalariifolia. *Gmel. tub.* 6.
Flowers ſolitary, leaves cordate flat five-lobed, calycine ſegments cordate, ſeeds cupped.

50. Veronica filiformis. *Long peduncled Speedwell.*
Smith in Lin. tranſ. 1. 195. *Willd. ſpec.* 1. 74.
V. orientalis, foliis hederæ terreſtris magno flore. *Tournef. cor.* 7. *Buxb. cent.* 1. 25. *t.* 40. *f.* 1.
Flowers ſolitary, leaves cordate crenate, ſhorter than the peduncle, calyx-leaves lanceolate.

51. Veronica triphyllos. *Trifid-leaved Speedwell,* or *upright Chickweed.*
Lin. ſpec. 19. *ſyſt.* 60. *Reich.* 1. 37. *Willd.* 1. 74. *fl. ſuec. n.* 20. *hort. cliff.* 9. *Hudſ. angl.* 7. *Wither. arr. ed.* 3. 17. *Smith brit.* 25. *engl. bot. t.* 26. *Curt. lond.* 6. *t.* 2. 68. *Fl. dan. t.* 627. *Hall. helv. n.* 551. *Hoffm. germ.* 7. *Roth. germ.* 1. 9. 2. 21. *Pollich pal. n.* 20. *Krock. ſileſ. n.* 34. *Neck. gallob.* 6. *Scop. carn. n.* 25. *Crantz auſtr.* 351. *Villars dauph.* 2. 18. *Allion. pedem. n.* 287. *Knipb. orig. cent.* 11. *n.* 99. *Berg. phyt.* 1. 217.
V. floſculis ſingularibus, foliis laciniatis, erecta. *Raii ſyn.* 280.
V. triphyllos cærulea. *Mor. hiſt. ſ.* 3. *t.* 24. *f.* 23.
V. folio rutæ. *Riv. mon. t.* 96.
V. verna, trindo vel quinquefidofolio. *Tournef. inſt.* 145.
Alſine recta. *Ger. emac.* 612.—triphyllos ſ. laciniata. *Park. theat.* 1260. 6.
A. triphyllos cærulea. *Bauh. pin.* 250.
A. parva erecta folio alſines hederaceo. *Lob. ic.* 464.
A. folio profunde ſecto flore purpureo ſeu violaceo. *Bauh. hiſt.* 3. 368. 1.
Flowers ſolitary, upper leaves digitate, peduncles longer than the calyx, ſeeds flatted.

52. Veronica verna. *Vernal Speedwell.*
Lin. ſpec. 19. *ſyſt.* 60. *Reich.* 1. 37. *Willd.* 1. 75. *fl. ſuec. n.* 23. *Hudſ. angl.* 8. *Wither. arr. ed.* 3. 13. *Smith brit.* 26. *engl. bot. t.* 25. *Roſe elem. app.* 444. *t.* 2. *f.* 1. *Dickſ. ſicc.* 10. 1. *Fl. dan. t.* 252. *Hall. helv. n.* 552. *Hoffm. germ.* 7. *Roth. germ.* 1. 9. 2. 22. *Pollich pal. n.* 21. *Krock. ſileſ. n.* 35. *Villars dauph.* 2. 18. *Allion. pedem. n.* 281. *Dill. gieſſ. app.* 38.
V. Dillenii. *Crantz auſtr.* 332.
β. Veronica ſucculenta. *Allion. pedem. n.* 283. *t.* 22. *f.* 4.
Flowers ſolitary ſubſeſſile, leaves finger-parted, peduncles ſhorter than the calyx, ſtem ſtiff and ſtraight.

53. Veronica digitata. *Finger-leaved Speedwell.*
Lin. ſpec. ed. Willd. 1. 75. *Vahl ſymb.* 1. 2.
V. ſucculenta. *Schmidt bohem.* 1. *n.* 43.
Flowers ſolitary ſeſſile, all the leaves finger-parted, ſtem ſtiff and ſtraight.

54. Veronica acinifolia. *Thyme-leaved Speedwell.*
Lin. ſpec. 19. *Reich.* 1. 38. *Willd.* 1. 75. *Hoffm. germ.* 7. *Roth. germ.* 1. 9. 2. 29. *Pollich pal. n.* 22. *Leers herborn. n.* 20. *Hall. helv. n.* 547. *Dill. gieſſ. app.* 39. *Allion. pedem. n.* 288.
V. præcox. *Schmidt bohem.* 1. *n.* 44.
V. minima, Clinopodii minoris folio glabro, romana. *Boc. muſ.* 2. 29. *t.* 102. *Raii ſuppl.* 423. *Vaill. par.* 201. *t.* 33. *f.* 3.
β. Veronica romana. *Allion. pedem. n.* 289. *t.* 85. *f.* 2. *Schmidt bohem.* 1. *n.* 45. *Villars dauph.* 2. 19. *Scop. carn. n.* 17.
Flowers peduncled ſolitary, leaves ovate ſmooth crenate, ſtem erect ſomewhat hairy.

55. Veronica peregrina. *Knotgraſs-leaved Speedwell.*
Lin. ſpec. 20. *ſyſt.* 60. *Reich.* 1. 38. *Willd.* 1. 76. *fl. ſuec. n.* 24. *Fl. dan. t.* 407. *Hoffm. germ.* 7. *Roth. germ.* 1. 9. 2. 29. *Krock. ſileſ. n.* 36. *Villars dauph.* 2. 19. *Smith in Linn. tranſ.* 1. 192.
V. terreſtris annua, folio polygoni, flore albo. *Mor. hiſt.* 2. 322. *ſ.* 3. *t.* 24. *f.* 19.
β. V. romana. *Lin. ſpec.* 19. *ſyſt.* 60. *Reich.* 1. 38. *mant.* 317. *Smith in Linn. tranſ.* 1. 192.
Flowers ſolitary ſeſſile, leaves oblong blunt-iſh toothed and entire, ſtem erect.

56. Veronica Bellardi. *Linear-leaved Speedwell.*
Lin. ſpec. ed. Willd. 1. 76. *Allion. pedem. n.* 282. *t.* 85. *f.* 1.
Flowers ſolitary peduncled, leaves linear quite entire rough-haired longer than the flower, ſtem quite ſimple erect.

57. Veronica marilandica. *North American Speedwell.*
Lin. ſpec. 20. *ſyſt.* 61. *Reich.* 1. 38. *Willd.* 1. 76. *Murr. in comm. gott.* 1782. *p.* 11. *t.* 3. *Gron. virg.* 4.
Flowers ſolitary ſeſſile, leaves linear, ſtems diffuſed.

DESCRIPTIONS, &c.

1. Root perennial. Stem four feet high, rough-haired. Leaves ſix or ſeven in whorls, twice as wide as thoſe of V. virginica. Peduncles terminating ſolitary; the lateral ones with two oppoſite oval leaflets. Calyxes five-cleft. Corollets blue, with an oblong tube, and ſmall acute border. Stamens and piſtil twice as long as the Corolla *.

Gmelin ſays, that the leaves vary from five to nine in a whorl, but that ſix is the moſt common number; and that the fruit is like that of Salicaria.

Native of Siberia. Introduced in 1779, by Chevalier Thunberg. It flowers in july and auguſt *.]

2. Stems erect, four or five feet high, having four or five lanceolate leaves in whorls at each joint, ſerrate and ending in acute points. The ſtems are terminated by long ſlender ſpikes of white flowers, which appear

* Lin. ſpec. and ſyſt. * Hort. kew.

late in july. [It varies with bluſh-coloured flowers. Native of Virginia (and Japan.) Cultivated in 1714, by the Dutcheſs of Beaufort [a].]

3. Root perennial, ſending out many offſets. Lower leaves two inches long, and half an inch broad, pale green and hairy. Stems a foot high, with very narrow lanceolate leaves, placed oppoſite, and having a few ſlight ſerratures on their edges. Stems terminated by long ſpikes of blue flowers, which appear in june and july. There is a variety of this alſo with a fleſh-coloured flower.

[Native of Siberia and Germany. Cultivated by Mr. Miller in 1731 [b].]

4. Stalks not ſo long as thoſe of the preceding. Leaves by fours and threes round the ſtalk, on longer foot-ſtalks; they are broader at the baſe, run out into long acute points, are unequally ſerrate, and of a bright green colour. The flowers are of a bright blue, and appear in july.

[It varies, like the preceding and following ſpecies, with leaves oppoſite, in threes or in fours; alſo with blue, bluiſh, fleſh-coloured and white flowers.

Roth deſcribes the calyx as unequal, with two of the leaflets linear and longer, the two others ſhorter, wider and bifid. Willdenow remarked them to be always undivided; he doubts therefore whether Roth's plant be the ſame with this [c].

Native of the ſea coaſts of Europe. Cultivated, as we learn from Lobel, (adv. 145.) in 1570, by Mr. Hugh Morgan [d].

Ehrhart has a variety with broader leaves [e].]

5. Lower leaves two inches long, and an inch broad in the middle, drawing to a point at each end, ſerrate, and of a lucid green colour. Stems a foot and a half high, with leaves of the ſame ſhape but ſmaller, and placed oppoſite; they are terminated by long ſpikes of blue flowers which appear in june.

[Native of Germany, Auſtria, and Ruſſia. Cultivated in 1731, by Mr. Miller [f].]

6. Stems very white and woolly, about a foot high. Leaves oblong, hoary, two inches and a half long, three quarters of an inch broad, ſeſſile. Flowers deep blue in terminating ſpikes, and from the upper axils. They appear in june and july.

[Native of Ruſſia, (Mr. Miller ſays Ukrain Tartary.) Cultivated by him in 1759 [g]. According to Gmelin, it varies with white flowers.

7. Root perennial. Stems a ſpan high, aſcending, ſimple, round, leafy, ſomewhat woody, pubeſcent. Leaves moſtly blunt, but ſometimes ſharpiſh, hairy. Spike erect, many-flowered. Corolla deep blue, with the oriſice of the tube bearded [h].

Dr. Withering remarks, that the leaves are narrower in proportion to their length, and more pointed than in the hybrida; that the ſtamens are much longer than the corolla; and that the anthers, as well as that, are blue.

In gardens it becomes much more luxuriant.] There the ſtalks riſe a foot and half high, but never branch; the lower leaves are an inch and half long, and three quarters of an inch broad. Mr. Miller aſſerts that the upper ones are alternate.

[It varies with linear almoſt entire leaves: with fleſh-coloured and white flowers: and according to Haller, with ſeveral ſpikes, which is V. major anguſtifolia of Cluſ. pann. 617. 619. and Bauh. hiſt. 3. 284.

Native of Europe and Siberia; in dry calcareous paſtures; flowering from july to ſeptember. With us not common, but where it is found, it is abundant. Ray obſerved it in ſeveral cloſes adjoining to Newmarket heath beyond Botteſham, and in a cloſe near the beacon. Mr. Relhan—among the furze near Hare Park, about Horſeheath hall, and on the walls of St. John's College, Cambridge. Mr. Woodward—on Cavenham heath, near Bury, in Suffolk; and near Penny bridge, Lancaſhire. Dr. Withering—about Penzance in Cornwall. Its bright blue flowers agreeably enliven the barren places where it generally grows.

The figure in Flora Danica is ſo incorrect, that it is difficult to decide whether this, or one of the ſpecies nearly allied to it was intended [i].

8. The difference between this and the preceding is not eaſily defined, and yet they ſeem to be diſtinct, though ſome have thought otherwiſe. It is twice as large, with rougher ſtem and leaves; the latter are more ſtrongly ſerrate or notched, of a much broader elliptical form, and of a more graſſy green. The winged foot-ſtalk is common to both. The ſtem of this generally produces three ſpikes, when luxuriant. It always grows erect. The root is creeping and perennial. The flowers appear in july and auguſt [k].

Willdenow remarks, that the leaves are ovate, acuminate, bluntiſh, attenuated at the baſe into the petiole, pubeſcent but yet green. He refers the V. mas recta latifolia ſpica cærulea of Barr. ic. 682. to this ſpecies; but informs us that all the German authors have taken a variety of the ſpicata for the hybrida.

Mr. Lhwyd firſt found it in Ray's time on the ſide of a hill in Montgomeryſhire called Craig Wreidhin. Mr. Bingley has ſince gathered it near Cartmel Wells, Lancaſhire, on Humphrey head, a ſteep rock jutting into the ſea, where Mr. Crow and Mr. Woodward obſerved it eighteen years before. Dr. Withering ſays that Mr. Hall ſaw it growing plentifully there. On comparing my wild ſpecimen of this plant from Wales, with that of the ſpicata from Newmarket heath, I find it to be ſtouter but not ſo tall; the radical leaves are truly elliptic and extremely blunt, certainly not acuminate, only the upper ſtem-leaves are acute. The petioles of the radical leaves can ſcarcely be called winged in either ſpecies. My Welſh ſpecimen has the ſtems rather aſcending than erect, and there is no ſign of more than one ſpike at the end of each ſtem, of which there are two fertile and two barren on my ſpecimen.

Mr. Miller's deſcription is from a very luxuriant garden plant.

9. Root perennial. Stems diffuſed erect. Leaves oppoſite, ſomewhat crowded, having commonly three linear elongated teeth on each ſide, and ſmooth. Raceme the length of the ſtem. Calyxes equal. Flowers blue. Style capillary, permanent. Capſules oval. Native of Siberia, where it was found by Laxmann [l]. Introduced in 1776, by Chevalier Murray. It flowers in july [m].

It varies with filiform aggregate leaves [n].

10. Native of Siberia. Introduced in 1780, by William Pitcairn, M.D. It flowers in june and july [o].

11. This differs from the preceding, in having the ſpikes never ſolitary but aggregate, the flowers bigger, the leaves an inch long, lanceolate wedge-ſhaped at the baſe, with lanceolate ſegments [p].

Native of Siberia. Introduced in 1779, by Meſſ. Kennedy and Lee. It flowers in july and auguſt [q].

12. 13. Natives of New Zealand [r].

14. Stem ſhrubby. Branches round, ſmooth, jointed, covered with a brown bark. Leaves ſeſſile, four inches long, even, without veins or nerves, flat at the edge, attenuated outwards. Racemes from the uppermoſt axils, oppoſite, length of the leaves: pedicels alternate, copious, ſomewhat villoſe. Bractæ linear, minute, obtuſe, ſubciliate. Calyx-leaves ſmall, lanceolate, acuminate. Tube of the corolla twice as long as the calyx: ſegments of the border oblong, obtuſe. Capſules ovate, acute, three times as long as the calyx. The leaves are wider at the baſe than in the ſpecies next following. Native of New Zealand.

15. Branches round, ſmooth, covered with a brown bark, jointed, marked with rings after the leaves are fallen, the thickneſs of a gooſe quill. Leaves oppoſite, four or five inches long, ſeſſile, attenuated to both ends, ſomewhat waved, ſmooth and very even, veinleſs. Racemes axillary, oppoſite, longer than the leaf. Peduncles round, very ſmooth, an inch and half long. Pedicels capillary, very abundant, ſeveral from the ſame point; when fruiting bent back. Bractæ at the baſe of the pedicels, awl-ſhaped. Calyx four-leaved: leaves ſhorter than the corolla, equal, awl-ſhaped. Tube of the corolla twice as long as the calyx: ſegments of the border lanceolate, acute. Capſule oblong, acute, twice as long as the calyx [s]. Native of New Zealand [t].

[a] Idem. [b] Idem. [c] Willdenow. [d] Hort. kew. [e] Willdenow. [f] Holt. kew. [g] Idem. [h] Smith brit. [i] Engl. bot. [k] Idem. [l] Lin. mant. and ſyſt. [m] Hort. kew. [n] Willdenow. [o] Hort. kew. [p] Willdenow. [q] Hort. kew. [r] Vahl. [s] Forſter. [t] Forſter.

16. Branches round, ſmooth. Leaves ſeſſile, approximating, an inch long, rigid, even, mucronate with a plaited tip. Racemes from the uppermoſt axils, oppoſite, an inch and half long. Peduncle round ſhort. Pedicels oppoſite, ſhort. Bracte minute at the baſe of each. Calyx four-leaved: leaves oblong, obtuſe, ſmooth, ſubciliate. Segments of the corolla obtuſe. Style longer than the corolla. Capſules oval, twice as long as the calyx. Native of New Zealand [m].

17. Root perennial, fibrous. Stems widely diffuſed, from three to ſeven inches or a foot in length, round, hirſute, ſtiffiſh, creeping. Leaves hirſute with ſhort ſpreading hairs, that appear when magnified, finely jointed, and rugged, ſerrate, about an inch in length, the lower ones narrowed at the baſe, the upper ones oblong or oval, obtuſe, ſeſſile or nearly ſo, the lower ones ſomewhat ſmaller and petioled. Spikes axillary, ſolitary, on long peduncles, many-flowered, hairy; ſome ſo nearly terminating, that at firſt view they ſeem to be ſo, but upon more accurate examination we find one or more pairs of leaves beyond them. Under each flower is a linear bracte, obtuſe, downy, longer than the pedicel, but ſcarcely the length of the calyx, and upright. Calyx deeply divided into four ſegments, beſet with rough glandular hairs; ſegments ovate-lanceolate and nearly equal. Corolla tube half as long as the calyx, white, border pale purple or faint violet, with deeper veins or ſtreaks; the ſegments ovate, obtuſe, three larger and nearly equal, the fourth half the width of the others. Anthers blueiſh with a white pollen. Germ ſomewhat ovate, obtuſe, flattened, clammy, grooved on each ſide, ſurrounded at its baſe by a gland. Style a little thickened towards the top, violet. Stigma truncate [n].

Capſule ſmall, a little longer than the calyx, obcordate, with a groove on each ſide, compreſſed, ſomewhat villoſe, opening at top tranſverſely: partition very narrow, contrary to the valves. Seeds ſix or eight in each cell, elliptic, compreſſed, ſmooth, yellow or pale brown [o].

Native of Europe, on dry ſandy paſtures, and heaths. In England not uncommon; flowering from may or june to auguſt or later. It varies in the colour of the flowers, pale blue, pale red, and white; but what is much more remarkable, it has been found abroad with double flowers.

The leaves have a weak not diſagreeable ſmell, which is diſſipated in drying; they give it over in diſtillation with water, but without yielding any ſeparable oil. They are bitteriſh and roughiſh to the taſte. An extract made from them by rectified ſpirit is moderately bitter and aſtringent.

It has been much recommended, eſpecially in Germany and Sweden, as a ſubſtitute for Tea, than which it is more aſtringent and leſs grateful. As a medicine it has had a conſiderable ſhare of fame, particularly in diſorders of the lungs, as coughs, aſthmas, conſumptions, &c. in which it was ſaid not only to prove expectorant, but to heal internal ulcers. If we may judge of its utility by its ſenſible qualities, it is only to be recognized as an aſtringent; and even as ſuch it is entirely diſregarded in England by medical practitioners [p]. Mr. Miller ſays, it is one of the vulnerary herbs which are imported from Switzerland. It is very common in that country, and Haller ſpeaks well of its effects. In France it is ſtill called Thé de l'Europe.—"We do call theſe plants in Engliſh, ſays Gerarde, Paul's Betonie or Speedwell: in Welſh it is called Fluellen, and the Welſh people attribute great virtues to the ſame."

18. Root perennial, creeping. Stem round, ſmooth, procumbent, creeping very far. Leaves roundiſh or obovate, firm, rigid, totally different in ſubſtance from thoſe of the officinalis, ſmooth, ſhining, crenate, paler on the under ſide. Spikes oval, denſe, on long footſtalks Flowers very numerous, violet-coloured, of a different figure from thoſe of V. officinalis [q].

Villars ſays it is eaſy to know this ſpecies by its creeping hard woody ſtems, which run on the ſurface in the moiſt turf of the Alps. Its blue flowers form tufted ſpikes thickly ſet an inch in length. The diviſions of the corolla are often rolled obliquely.

It is plentiful on the Alps of Switzerland, France and Italy: alſo on the Pyrenees. Dr. Smith ſays that he has frequently compared it, in its native ſoil, with the common V. officinalis growing in the ſame place; and that it is moſt certainly a diſtinct ſpecies. He has never ſeen the variety with hairy leaves and ſtem mentioned by Villars, under the name of V. Tournefortii.

19. This is a buſhy ſhrub about two feet high. Stem upright, round, very much branched. Branchlets alternate, ſpreading, round or indiſtinctly quadrangular, cloſely leaſed on every ſide, having a pubeſcent line on each ſide running down from the oppoſitions of the leaves; which ſpread very much, are ſcarce an inch long, acute, coriaceous, ſmooth and even, one-nerved, paler underneath, evergreen, border cartilaginous, on very ſhort concave ſmooth petioles, gibbous at the baſe on the outſide. The regular growth of theſe leaves, decuſſated or croſſwiſe, diſtinguiſhes this ſpecies immediately. Racemes ſingle, ſhort, few-flowered, towards the end of the branches, not terminating, but juſt below the top. Pedicels alternate, ſhort, quadrangular, one-flowered. Bractes ſolitary, lanceolate, obtuſe, keeled, ſubciliate. Calyx deeply four-parted; ſegments ovate, acute. Corolla milk-white, with the diviſions nearly equal, ſpreading, and the orifice beardleſs. Filaments ſhorter than the corolla, divaricating, white. Anthers cordate, purple. Germ ovate-oblong, ſmooth, ſcored with a line on each ſide, and having four nectareous glands at the baſe. Style awl-ſhaped, declined, length of the ſtamens. Stigma acute [r].

Dr. Smith remarks, that the flowers having no ſcent, and little beauty, this ſhrub would not be worth cultivating, were it not for the amenity, abundance and ſingularity of the perennial leaves. Mr. Curtis on the other hand ſays it is entitled to our admiration, on account of the moſt delicious fragrance of the bloſſoms, ſimilar to that of the Olea fragrans. He obſerves that the corolla is ſometimes divided into five ſegments; and there being a greater equality in theſe than is uſually found in the corolla of this genus; the ſeed-veſſel alſo differing in its form, being longer, more oval, and ſcarcely emarginate, he is induced to think that this plant has more affinity with Olea, one ſpecies of which it reſembles in fragrance.

Juſſieu and Gmelin have ranged it in a new genus named Hebe. But Dr. Smith aſſerts that it differs in no reſpect from Veronica, except in its arborescent habit, and in having the fruit compreſſed the contrary way to what it is in the other ſpecies. The flower correſponds in almoſt all reſpects.

Native of Falkland Iſlands, whence John Fothergill, M.D. received it in 1776 [s]. It flowers about the middle of june, and continues during the ſummer.

20. Stem not longer than a finger, very ſlender, ſomewhat villoſe, leafleſs, few-flowered. Leaves at the baſe four or five, ovate, ſoft, ſubcrenate. Corolla tinged inelegantly with blue. Seeds in each cell as far as ten, yellow, compreſſed, rounded [t].

Villars remarks that it varies conſiderably; commonly appearing as a ſingle tuft of villoſe rounded leaves; but ſometimes with ſeveral ſtems creeping to right and left, forming tufts here and there, and bearing only two or three flowers on each.

Haller deſcribes it in this latter ſtate, and ſays that there are not more than ſeven flowers in a raceme; and that the leaves are roundiſh, crenate, not hard, and hirſute with longiſh hairs.—Theſe hairs are characteriſtic of the ſpecies, being jointed like a Conferva.

Native of the Alps of the ſouthern part of Europe, and the north of Aſia.—Introduced in 1775, by the Doctors Pitcairn and Fothergill. It flowers in may.

β. Is only a variety of this, differing in the greater ſize of all its parts. The circumſtances of the hairs being articulated like a Conferva, and the leaves being ſerrate, are common to both [u].

21. Leaves obtuſe, crenate, commonly three pairs on the ſtem. Calyx-leaves very hirſute, glandular-viſcid at the tip [x].

The leaves are like thoſe of the Daiſy, whence its

[m] Vahl. [n] Curtis, Withering, Smith. [o] Gærtner. [p] Woodville. [q] Smith in Linn. tranſ.

[r] Smith ſpicil. [s] Hort. kew. [t] Scopoli. [u] Smith in Linn. tranſ. [x] Linn. mant.

trivial name. Stem ſtraight, four or ſix inches high, villoſe, hard, having leaves at its baſe, two or three pairs, beſides others ſmaller, terminated by a cloſe ſpike of ſmall reddiſh dark flowers. Capſules villoſe, elongated [r].

Native of the Alps of Switzerland, eſpecially about Aigle, Piedmont, Dauphiné, Sileſia, and the Pyrenees. —Introduced in 1775, by the Doctors Pitcairn and Fothergill. It flowers in june and july [s].

22. Root perennial. Radical leaves oppoſite, lanceolate, acute, irregularly crenate, marked with three nerves, perfectly ſmooth, pale, and ſomewhat cartilaginous in the margin, very much reſembling thoſe of Gentiana acaulis, whence the trivial name. Thoſe on the ſtem are ſtrikingly different, obtuſe and hairy. Stem aſcending, ſmooth below, hairy in the upper part. Corymb ſomewhat ſpiked, conſiſting of many flowers. Foot-ſtalks hairy. Calyx hairy, quadrifid, equal. Corolla large, beautiful, of a deep blue. Anthers heart-ſhaped, large.

Gathered by Tournefort in Cappadocia. By Buxbaum in Armenia. Dr. John Sibthorp alſo found it in his tour to the eaſt [t].

23. Root perennial. Stems ſeveral, quite ſimple, a hand high or a little more, hiſpid with cloſe-preſſed hairs, round or bluntly four-cornered. Lower leaves orbicular, ſeſſile, crenate; the middle ſtem-leaves a little longer, acuminate, and more acutely crenate; the two or three uppermoſt alternate, half-embracing. Raceme looſe, terminating, containing about fifteen flowers, with a very ſmall ligulate bractæ to each [u]. Native of the Pyrenees and Monte Baldo.

β. V. pumila of Allione ſeems to differ only in ſize. Native of the Piedmont alps.

24. In ſtrong woody roots, and ſtems branching and intricate at their baſe, this agrees with the ſaxatilis, but the flowering-branches are perfectly upright, ſix inches or more in height, each bearing a ſpike rather than a corymb, compoſed of a conſiderable number of fleſh-coloured flowers, (never blue,) on pedicels ſcarcely exceeding the bractæ in length. The leaves alſo are rather paler, much more numerous, oblong, a little downy on their edges and veins: they are ſometimes quite entire, ſometimes crenate or ſerrate. The calyx and capſule agree much with thoſe of V. ſaxatilis, and the pedicels are lengthened out as the fruit ripens, but never in ſo great a degree as in that ſpecies.

In both theſe Speedwells the flowering branches are merely annual, though the ſtem below is woody and truly perennial, ſo that the latter ought rather to be eſteemed the naked crown of the root.

Native of the mountains of Switzerland, Auſtria, Piedmont, Dauphiné, and of the Pyrenees. Firſt found in Cruachan Argyleſhire in Scotland, by the Rev. Dr. Walker, and communicated to Dr. Smith in 1782. Alſo on Ben Lawers with the ſaxatilis, by Mr. Brown; both flowering at the ſame ſeaſon.

25. The roots run deep into fiſſures of rocks, and the woody branching entangled ſtems form ſmall tufts, whence the ſimple leafy round downy flowering-branches, three or four inches long, ſpread in every direction. Leaves oppoſite, ſmall, elliptic or oblong, blunt, always entire at their baſe and extremity, but often ſerrate in ſome degree about their middle: they are a little thick or fleſhy, ſmooth, of a dull darkiſh green, turning black when dry. From three to ſix large handſome dark-blue flowers grow in a ſhort terminating corymb, the pedicels of which are twice or thrice as long as their correſponding bractæ. Calyx in four nearly equal blunt downy ſegments. Orifice of the corolla elegantly tinged with red. Capſule longer than the calyx, ovate, downy, ſplitting as it ripens into four lanceolate valves, ſo that the fruit differs much from the heart-ſhaped form of our common ſpecies [x].

It differs from the preceding in having broader leaves, more diffuſed ſtems, larger flowers of a blue colour; but eſpecially by its peduncles being longer and fewer, in a corymb, never in a ſpike [y].

Native of Switzerland, Auſtria, Denmark, Norway and Scotland. Found on Ben Lawers by Mr. G. Donn, Mr. J. Mackay, and Mr. Dickſon.

This beautiful little plant has long been known in the more curious Engliſh gardens by the name of V. fruticuloſa, with which many botaniſts, (even Linnæus, Haller, and Jacquin originally,) have confounded it [z]. It was cultivated by Mr. Miller in 1748 [a], under the name of fruticuloſa.

According to Willdenow V. Nummularia of Gouan; and V. pygmæa of Schrank, are varieties of this ſpecies.

26. Root perennial, of long ſimple fibres. Stems branched and procumbent at the baſe, whence they throw out roots, then obliquely upright, three or four inches high, leafy, round, ſimple, ſmooth or hairy. Leaves oppoſite, on ſhort petioles, rather obtuſe, often entire but generally with a few diſperſed notches, dark green, thin, poliſhed. Flowers ſmall in a ſhort denſe blunt ſpike or corymb, afterwards lengthened out into a raceme; the lowermoſt peduncles longer. Calyx in four rather unequal bluntiſh hairy and ciliate ſegments. All the hairs are finely jointed. Corolla bright blue, with a white tube. Capſule elliptic, compreſſed, emarginate, hairy, tipped with the ſhort permanent ſtyle [b].

Native of the mountains of Europe. Diſcovered by Mr. Dickſon in the highlands of Scotland, about Garway-moor, and on Ben Nevis in 1786, and not before in this iſland. Mr. J. Mackay has ſince found it on the mountains of Badenock. It flowers in july and auguſt. What has been taken for it before, was either a large variety of V. ſerpyllifolia, or V. fruticuloſa.

Mr. Dickſon ſuppoſed the V. alpina of Lightfoot to be a new ſpecies, which he named humifuſa, but Dr. Smith makes it a variety of the ſerpyllifolia; conſequently the deſcription in the Flora Scotica, compiled from Linnæus's Flora Lapponica, is there miſapplied, and belongs to the ſpecies here before us [c].

27. Willdenow has diſtinguiſhed this from the preceding by his dried ſpecimens, it appearing to differ from that in its habit. All the leaves are oppoſite, quite entire, more rigid and very blunt. Schmidt (in fl. bohem. 1. n. 16.) confounds it with the preceding, but it differs from it in having the leaves blunt and quite entire, and the calyxes very hairy. The leaves in both are ciliate at the edge, and the hairs are jointed like a Conferva [d].

Krocker deſcribes the lower leaves on very ſhort petioles, the upper ones ſeſſile and ſmaller, all ovate, quite entire or indiſtinctly toothed, by no means ſmooth but truly villoſe. Corymb very ſhort, of five or ſix flowers on very ſhort pedicels, with a green lanceolate very narrow bractæ to each. Calyx hairy. Corolla ſmall, blue or white. Capſule obtuſe, leſs compreſſed, villoſe, large in proportion to the plant, roundiſh, cordate. Native of the Palatinate, Bohemia and Sileſia.

28. Roots perennial, fibrous; and the proſtrate ſtems throw out numerous radicles by which the plant is much increaſed. The flowering-branches are moſtly erect, bearing a few pairs of oppoſite, roundiſh, ſlightly crenate, three-ribbed leaves, on ſhortiſh foot-ſtalks. Each branch terminates in a lax ſpike or raceme of ſmall pale blue, ſometimes fleſh-coloured flowers, accompanied by elliptical ſeſſile bractæ. Segments of the calyx equal, obovate, blunt, ſcarcely pubeſcent. Corolla, however pale, always marked with dark-blue ſtreaks. Capſule obcordate, deeply divided, about as long as the ſtyle. In wet places the whole herb is very ſmooth and ſhining, rather fleſhy; when it occurs in very dry ſpots, it becomes all over downy: indeed the peduncles and bractæ are frequently liable to this alteration.

Native of Europe, Siberia, Barbary and North America. Common with us in paſtures which are rather moiſt; ſometimes in the ſhady parts of cultivated grounds, flowering in the early part of ſummer [e].

Mr. Curtis informs us that he has counted ſixty ſeeds in one capſule; they are of a yellowiſh brown colour, and nearly of an ovate form.

β. From a compariſon of ſpecimens of Mr. Dickſon's V. humifuſa, found in the mountainous rills of Scotland,

[r] Villars. [s] Hort. kew. [t] Smith in Linn. tranſ. [u] Gouan illuſtr. [x] Engl. bot. [y] Smith brit.

[z] Engl. bot. [a] Hort. kew. [b] Smith brit. and engl. bot. [c] Smith in Linn. tranſ. and engl. bot. [d] Willd. ſpec. [e] Engl. bot.

Scotland, Dr. Smith has ventured to make it a variety of this ſpecies, which is liable to many variations with reſpect to the poſition of its ſtems and form of its leaves. —The ſtem of the humifuſa is proſtrate, and the raceme ſhorter[1]: having few flowers crowded together on ſhort pedicels, of a pleaſant blue. Lower leaves petioled, oppoſite, often by threes or fours: upper ones moſtly ſeſſile and alternate[m].

29. This ſeems to differ little from the preceding except in having the upper part of the ſtem and the calyxes villoſe; but it is entirely different from Gouan's V. nummularifolia, which ſeems to be a variety of V. fruticuloſa[n].—It is given above as a variety of ſaxatilis.

Native of the Piedmont Alps, and the Pyrenees.

30. Roots perennial, of long ſimple fibres. Stems procumbent or floating, taking root from their joints, branched, round, leafy, ſmooth and ſhining, as is every other part of the herb. Leaves on ſhort petioles, blunt, ſlightly ſerrate, of a bright green, ſomewhat fleſhy. Cluſters axillary, oppoſite, erect, longer than the leaves, compoſed of numerous blue flowers, in perfection about june or july. Bractes linear-lanceolate, ſhorter than the pedicels. Segments of the calyx ovate, acute, ſhorter than the corolla. Capſule cloven, almoſt twin[o].

Withering remarks that there are glands at the ſerratures of the leaves; and that the germ ſits on a thick yelloviſh-green glandular ſubſtance.

Native of Europe, Siberia and Barbary. Common in ditches and limpid brooks, moſt commonly the companion of Water Creſſes; with which it is gathered for medical purpoſes, and both together with Scurvy-graſs enter into that naufeous compoſition called Spring-juices, ſuppoſed to be a powerful antiſcorbutic[p].

The leaves are mild and ſucculent, and may be eaten with water-creſſes as a ſalad in the ſpring[q]. They have a bitteriſh ſubaſtringent taſte, but manifeſt little or no acrimony, nor any peculiar odour. To derive any advantage from it the juice muſt be uſed in large quantities, or the freſh plants eaten as food[r].

31. Root perennial, creeping. The whole herb much agreeing in habit with the preceding, except that the ſtem is erect, and leaves lanceolate, acute, and longer than in that ſpecies. The cluſters are alſo longer, ſharper, compoſed of more numerous (thirty to forty or more) and ſmaller flowers. Every part of the plant is ſmooth. Corolla of a pale dull blue, occaſionally fleſh-coloured, with darker veins. Capſules ſmall, roundiſh, ſlightly notched. Seeds very ſmall and numerous.

No notice is taken of this plant in a medical or œconomical view. Its qualities are probably akin to thoſe of the broad-leaved Brooklime, to which it is nearly allied in botanical characters, though unqueſtionably a diſtinct ſpecies.

Native of the four quarters of the world: moſt parts of Europe, Siberia, Barbary and North America. Very common in our ditches, and muddy watery places, flowering in july, and like other aquatics which are tenacious of life or eaſily propagated, it is often found out of the water on the neighbouring banks, merely diminiſhed in luxuriance[s]. It is ſingular that Linneus and Curtis conſider this as annual.

32. Root ſlender perennial, throwing out creeping runners, and a few weak, ſpreading, ſimple ſtems, ſix or eight inches long, clothed with oppoſite linear or linear-lanceolate leaves, which are generally but ſlightly toothed, ſometimes ſerrate, and ſometimes entire. The racemes or cluſters are always alternate, ſingle, lax, divaricating, varying in length, and conſiſting of a few pale fleſh-coloured or whitiſh purple-veined, rather elegant flowers, the ſlender pedicels of which are bent backwards after the corolla fades, and then the ripening capſules, which are brown, and larger than in V. Anagallis, become conſpicuous, and have given riſe to the name ſcutellata, as reſembling ſmall ſhields. They are deeply emarginate.

Though for the moſt part ſmooth, yet it has been found in a downy ſtate on St. Faith Newton bogs near Norwich, and in other places[t].

[1] Smith brit. and engl. bot. [m] Dickſon in Wither. [n] Vahl. [o] Engl. bot. [p] Idem. [q] Withering. [r] Woodville. [s] Engl. bot. [t] Idem.

Native of many parts of Europe, and Barbary, in bogs and on the edges of ponds on heaths and moors; flowering from june to ſeptember. It is not uncommon with us in ſuch ſituations, eſpecially where the ſoil is ſandy, though much leſs ſo than the other Brooklimes. Cambridgeſhire, on the Hill of health, Barnwell, by the road to Hiſton, Teverſham moor, pits near Gamlingay bogs; Fenlake, Stevington and Ampthill, Bedfordſhire; Peat-bogs on Bullington Green, and Otmore in Oxfordſhire. Boggy meadows near Bungay. Broadmore near Hales Owen. Ditches about Tamworth. On Poole and Canford heaths, in Purbeck, &c. Dorſetſhire; obſerved by the late Dr. Pulteney, who informs that this elegant ſpecies was firſt noticed in England by How, phyt. brit. 7. On Streatham common, in Surrey, where I obſerved it many years, the plant is ſmooth, and the flowers white. Near London, it is alſo found on Hampſtead heath. Bogs on Harefield common, by Mr. Blackſtone.

33. Racemes denſe, ſtrict, ſubſpiked. Leaves very bluntly ſerrate. The calyxes ſeem to be five-cleft. There is a variety with a double flower[u].

Dr. Smith ſays it ſeems to belong to V. latifolia, but there being no original ſpecimen of it in the Linnean herbarium, he cannot determine the matter with abſolute certainty[x]. Willdenow informs us, that he has always ſeen the latifolia or a larger variety of the proſtrata under this name, and that it muſt therefore remain a dubious plant.

34. This alſo is conjectured by Dr. Smith to belong to the latifolia, and as he informs us, that Linneus eraſed his long deſcription of it from his copy of the Species Plantarum, I have omitted it.

Willdenow ſays that he has a ſpecimen from Bohemia, which is certainly diſtinct from all the other ſpecies. It reſembles the proſtrata in its habit and the form of the corolla, but is different, in having the leaves deeply toothed at the baſe and more ovate, and the ſtem hairy in two rows: it differs from V. Chamædrys in having ſmaller leaves deeply toothed at the baſe, the ſtem proſtrate, the calyxes unequal, the ſegments of the corolla acute and converging.—The ſtem is proſtrate, round, bifariouſly pubeſcent; leaves ovate, the lower petioled, the upper ſeſſile and obtuſe, hairy, bluntly toothed, the lower teeth elongated; racemes axillary in the upper part of the ſtem as in V. proſtrata; bractes lanceolate, quite entire, hairy, longer than the peduncle; peduncles ſhort; calyx four-cleft, with the two outer ſegments bigger. Native of Auſtria and Bohemia.

35. Root perennial. Stems hardiſh, hoary, ſomewhat tomentoſe. Leaves obtuſe, ſubpetioled except the upper ones, from the axils of which proceed long racemes. Calyxes five-cleft, unequal. Flowers bright violet, crowded[y]. Native of Germany, Italy and Switzerland, on hills.—Introduced in 1774, by Chevalier Murray. It flowers in may and june[z].

36. Root perennial. Stems proſtrate, ſuffruticoſe at the baſe, pubeſcent. Leaves like thoſe of Chamædrys; elliptic, oblong, very deeply and equally ſerrate, ſo as to reſemble the teeth of a comb, ſubpetioled, oppoſite, pubeſcent. Flower-ſtalk lateral, a hand in length, having five or ſix ſimilar leaves on it, but alternate and ſeſſile: it is terminated by a corymb elongated into a raceme[a]. Calyx five-cleft[b]. Native of the neighbourhood of Conſtantinople.

37. Root fibrous, perennial. Stems decumbent, weak, hairy all over, leafy. Leaves petioled, ovate, gaſh-ſerrate, thin, ſhining, ſomewhat hairy. Racemes axillary, alternate, lax, few-flowered. Flowers pale blue painted with purple. Capſule orbicular-twin, compreſſed, acutely margined, ciliate[c].

The hairineſs of the ſtem being general, and not confined to two longitudinal lines, is a ſufficient diſtinction of this from V. Chamædrys: to this we may add, that the leaves are petioled, thinner and more ſhining; that the corolla is much ſmaller and leſs beautiful; and that the capſule is thrice as big, more compreſſed and

[u] Linn. ſpec. and ſyſt. [x] Linn. tranſ. 1. 191. [y] Linn. ſpec. and ſyſt. [z] Hort. kew. [a] Linn. mant. [b] Linn. ſyſt. [c] Smith brit.

dilated,

dilated, and formed as it were of two orbicular portions joined together inſtead of being heart-ſhaped [a].

Dr. Withering remarks that beſides the leaves being petioled, they are reddiſh underneath, heart-ſhaped but blunt, the ſtem and leaf-ſtalks hairy, the flowers ſmaller purpliſh-ſtreaked.

Mr. Relhan adds, that the capſules not only differ in ſize and form from thoſe of the Chamædrys, but are acutely margined and ciliate, and that the flowers are fewer in the racemes. And Dr. Abbot—that the root is greatly creeping, the leaves deeply notched, the fruit-ſtalks diſtinct and very long, the flowers paler and fewer than in V. Chamædrys.

Native of Germany, Auſtria, Switzerland, France, Italy and Britain. With us it is not ſo rare as it was formerly ſuppoſed, in ſhady and moiſtiſh woods, particularly on a chalky ſoil: flowering in may and june. It is ſtill found growing copiouſly in Charlton wood, where Sherard firſt diſcovered it. Dr. Goodenough gathered it near Virginia water. In Cambridgeſhire it is ſeen in ſeveral places, as the woody part of the Devil's ditch, on Newmarket heath, in Hall wood, about Linton, and in Gamlingay park. In Bedfordſhire at Everſholt. In Shotover plantations, Stokenchurch and Nettlebed woods. Near Worceſter. At Shortwood, Pucklechurch, Gloucesterſhire. By the river ſide under Hod hill, Dorſetſhire. About Kirkſtal Abbey near Leeds, and in other parts of Yorkſhire common. In the woods at Dunglaſs, near the river, Scotland.

38. Root perennial, fibrous, a little creeping. Stems ſpreading, but ſlightly raiſed from the ground, ſimple, round, hard, waving, leafy, branched, marked longitudinally, as Linnæus well remarks, with a line of long white hairs, very thick ſet together, on each ſide. Leaves oppoſite, ſpreading, deeply and acutely ſerrate, ſtrongly veined, moſt hairy about the margin, the lower ſmaller than the upper ones. Racemes axillary, generally oppoſite, ſimple, upright, long, riſing above the top of the ſtem, their common pedicels hairy in every direction. Flowers as many as twenty in a raceme, on ſlender pedicels, with a lanceolate bracte at the baſe of each; they are large, the corolla bright blue elegantly veined of a deeper blue, pale and ſomewhat fleſh-coloured on the outſide; the orifice is white, as are alſo the baſe and the point of the filaments, the pollen, and the baſe of the ſtyle. The ſtamens are ſpreading, and the ſtyle is ſpontaneouſly directed firſt to one and then to the other. Stigma reddiſh. Germ woolly, flattiſh, and ſurrounded by a nectariferous gland at the baſe. Capſule exactly obcordate, ſmall, a little ſhorter than the calyx, light brown, ſlightly hairy at the edge. Seeds flat, of a yelloviſh-brown colour [b].

Native of Europe and Japan. Few of our wild flowers can vie in elegance and brilliancy with this; and many plants with far leſs beauty are cultivated in our gardens. In may and june every hedge-bottom and graſſy bank is adorned with it. At night, or under the influence of moiſture, the corolla cloſes, but in dry bright weather appears fully expanded, and though each flower is ſhort-lived, there is a copious ſucceſſion [c].

Mr. Curtis remarks, that when growing wild, the leaves are uſually ſeſſile; but when cultivated, theſe become larger, and have footſtalks of a moderate length; thus approaching to V. montana, which it much reſembles. At the end of ſummer a white hairy knob is frequent on this plant; it is the neſt of ſome inſect.

This pretty plant is neither very uſeful nor injurious to the huſbandman. The leaves, according to Dr. Withering, are a better ſubſtitute for tea than thoſe of V. officinalis, being more grateful and leſs aſtringent [d].]

39. This has ſlender branching declining ſtalks, with narrow leaves on them, which are acutely cut on their edges, and are regular on both ſides like the lobes of pinnatifid leaves; they are of a pale green colour, and ſmooth. The flowers are diſpoſed in looſe ſpikes (racemes) on the top and ſides of the ſtalks; they are of a pale blue colour, and appear at the end of april. Native of the Levant.

[a] Engl. bot. and Curt. lond. [b] Engl. bot. and Fl. ruſ.
[c] Engl. bot. [d] Fl. ruſ.

[Cultivated in 1759, by Mr. Miller. It flowers in july and auguſt [a]. It was confounded by Linnæus with the auſtriaca.

40. Leaves multipartite, their laciniæ pinnatifid, with the lobes decurrent. Calyx quinqueſid, perfectly ſmooth. It appears not to turn black or brown in drying. It is only known by an original ſpecimen from Siberia, its native country, by which it appears to be totally diſtinct from V. auſtriaca, with which it is generally confounded, and all the varieties of that plant [b]. Willdenow remarks that the ſtem is covered with ſpreading whitiſh hairs.]

41. Lower leaves narrow, cut into fine ſegments. Stalks ſlender, inclining downward. Stem leaves linear, acutely notched. Flowers in long looſe axillary ſpikes (racemes;) they are of a bright blue colour, and ſtand upon pedicels, [which are the length of the bractes or nearly ſo.

The leaves are almoſt like thoſe of Coronopus. Theſe and the ſtem are covered with very minute hairs preſſed cloſe to them. Calyxes five-cleft and ſomewhat hairy. Corolla blue [c].

Native of Auſtria, Carniolia, Sileſia.—Cultivated by Mr. Miller in 1748; it flowers from june to auguſt [d].

42. The ſtem ſeems aſcending, round, ſomewhat hairy. Leaves bright green, half an inch long, crowded, linear, entire, and ſubcuneiform three toothed at the tip, and linear pinnatifid-toothed. Racemes long, axillary. Pedunckles ſeveral times longer than the bractes. Calyx four-cleft ſmooth, unequal. Corolla roſe-coloured. Native of Tauris [e].

V. roſea of Deſfontaines ſeems to agree with this ſpecies in many reſpects. Stems filiform, pubeſcent, aſcending, many from the ſame roſt. Leaves ſmooth; the lower cuneiform, toothed, obtuſe, decurrent into the petiole; the middle and upper ones pinnatifid, with the ſegments unequal, ſharpiſh, and the terminating lobe a little bigger. Racemes moſtly two or three, naked at bottom. Flowers numerous, crowded, pedicelled. Bracte linear, a little ſhorter than the pedicel. Calyx four-parted; ſegments linear-lanceolate, unequal. Corolla roſe-coloured, the ſame ſize as in V. Teucrium, with ovate obtuſe ſegments, the loweſt ſmaller, as in moſt of the ſpecies. It is allied to V. auſtriaca, but differs in having a ſhrubby ſtem, and terminating racemes [f].—In theſe two reſpects it differs from V. taurica, and alſo in the comparative length of the pedicels and bractes; in other reſpects the two deſcriptions agree. This is a native of Mount Atlas near Tlemſen.

43. Root perennial. Stem filiform, erect, even, a foot high or more. Leaves oppoſite, ſubſeſſile, ovate-lanceolate, like thoſe of Nettle very finely rough-haired. Racemes from the uppermoſt leaves, filiform, ſlender, in flowering time the length of the leaves and more, lax, on capillaceous pedicels. Calyx four-leaved. Corolla fleſh-coloured [g].

Native of Switzerland, Bithynia, Auſtria and Bavaria.—Introduced in 1776, by Joſ. Nich. de Jacquin, M. D. it flowers in june and july [h].

44. This riſes with ſimple ſtems about a foot high, ſometimes ſhooting into one or two branchlets from the upper parts; the leaves are ſeſſile, except the loweſt, which have very ſhort footſtalks: they are ovate, of a dark green, generally cordate at the baſe, unequally ſerrated and of a gloſſy ſurface: the racemes are villoſe and upright; growing to the length of half a foot: the flowers are large and elegant, the tube is whitiſh, but the border of an elegant blue with deeper ſtripes. Native of Auſtria growing in ſhrubby places and about hedges, &c. and ſometimes in meadows [i].

Gouan remarks, that it has five ovate, equal calyx-leaves [k].

Retzius informs us that he received two plants from England under the name of V. latifolia. The firſt he deſcribes as having wider leaves, hirſute, equally ſerrate, ſubſeſſile, the younger ones more manifeſtly petioled. Stem weak, hiſpid in two rows. Racemes la-

[a] Hort. kew. [b] Smith in Linn. tranſ.
[c] Linn. ſpec. ſyſt. and Willdenow. [d] Hort. kew.
[e] Willdenow. [f] Deſfontaines. [g] Linn. ſuppl.
[h] Hort. kew. [i] Jacquin. [k] Linn. ſyſt.

teral, long. Calyxes four-leaved, equal, three-nerved, ciliate, lanceolate as well as the bractes.

The ſecond has the ſtem erect, ſtiff, ſlightly tomentoſe. Leaves ſeſſile, hirſute, unequally crenate, but commonly, eſpecially whilſt the plant is in flower, ſo deeply cut, that it may fairly be called pinnatifid. Racemes lateral, but much overtopping the ſtem; and ſo denſe that they ought rather to be named ſpikes. Calyxes five-leaved: leaves unequal, lanceolate, hairy, ſcarce manifeſtly nerved; the fifth very ſmall and linear. Bractes oblong, often toothed. Corolla large blue-purple, turning red in drying.—The latter of theſe is the latifolia and the Pſeudochamædrys of Jacquin deſcribed above.

Native of Germany, Auſtria and Switzerland. Introduced in 1775, by Joſ. Nich. de Jacquin, M. D. It flowers in may and june [a].

Miller ſeems to have intended this by his V. maxima, which he deſcribes as having the ſtalks ſlender ſtiff and upright; the leaves oppoſite, heart-ſhaped, rough, indented, the lower ones ſmall, the middle ones much larger and diminiſhing again in ſize toward the top; the flowers in long bunches from the upper axils, of a bright blue and appearing in may. He attributes it to Monte Baldo in Italy.

45. Stature of the preceding, but the leaves very narrowly lanceolate, moſtly in threes. Racemes very long, with deep-blue flowers, in threes at the three upper joints. Calyxes four-cleft. Native of Tartary and Bohemia [b].

46. Root fibrous, annual. Stem three or four inches high, erect, branched, downy. Leaves on ſhort footſtalks, acute, ſerrate, ſcarcely hairy. Flowers alternate, peduncled, about the top of the ſtem and branches. Bractes lanceolate, acute, entire, ſlightly ciliate, a little longer than the peduncles. Calyx of the fruit much enlarged, of four ciliate equal ovate acute leaves, marked with three nerves, and not unlike the leaves of ſome ſpecies of Rubia or Galium: they much exceed the corolla and capſule in length. Corolla ſmall, white. Capſule obcordate, downy [c].

According to Vahl, the ſtem is quite ſimple; the leaves ovate, ſmooth, having three or four ſerratures on each ſide: floral-leaves alternate, ſeſſile, lanceolate; flowers drooping; peduncle ſhorter than the floral leaf, ſegments of the calyx ovate, acute, almoſt equal, twice as long as the fruit. It differs from V. arvenſis in having the leaves exactly ovate, acute, ſmooth, ſerrate, and the ſegments of the calyx almoſt equal, twice as long as the fruit.

Tournefort gathered this plant in the corn-fields of Cappadocia.

47. Root annual, ſmall, fibrous. Stems ſeveral, procumbent, long, leafy, round, hairy, not branched except at their baſe. Leaves on ſhort foot-ſtalks cordate-ovate, deeply ſerrate, a little rough and hairy. Flowers on ſimple axillary peduncles, exceeding their correſponding leaves in length, and finally curved downwards. Segments of the calyx four, ovate-lanceolate, obtuſe, ciliate, generally quite entire but ſometimes irregularly toothed. Corolla ſmall, bright blue, falling off on the leaſt touch. Capſule of two round ſwelling lobes, rough-haired; according to Curtis, like that of V. ſerpyllifolia, but larger and rounder. Seeds about ſix in each cell. (Linneus ſays four, Curtis ſix, Scopoli eight to ten, Withering four to eight) externally rugged, cupped or hollowed out on the other ſide, in which hollow the little ſtalk is fixed that attaches them to the ſeed-veſſel. Their whole ſtructure is curious, and totally different from that of V. arvenſis [d]; with which this ſpecies is apt to be confounded, in ſome degree from their ſimilarity, but more perhaps from the ſimilitude of their Latin, and the ambiguity of their Engliſh names. They may be thus diſtinguiſhed: the agreſtis is procumbent, the leaves are petioled, the flowers are on long peduncles, each cell of the capſule is large and round; and if the form of the ſeeds be adverted to, we ſhall ſee the reaſon of this conſtruction, for inſtead of being ſmall and flat, as in the other ſpecies, they are large, convex on one ſide, hollow on the other, and wholly different in appearance. The arvenſis is upright, the leaves are ſeſſile, and the flowers are on very ſhort peduncles. With us at leaſt it is commonly found on walls [e]; whereas the agreſtis is a moſt common weed in arable fields and gardens, where it is always to be found in ſome ſtage or other, and in flower from the beginning of ſpring to the end of autumn [f].

48. Root annual, fibrous. Whole herb generally paler than in agreſtis and hederifolia, and not ſo apt to turn black in drying. Stem about ſix inches high, (from three to nine,) upright, ſtiff and dry, round, purpliſh, hairy, generally branched at the baſe. Leaves oppoſite, hairy, ſtrongly ſerrate; the lower ones chiefly on ſhort foot-ſtalks; the upper ones, from whoſe axils the flowers are produced, are lanceolate narrow and entire, ſo as more properly to be called bractes; and hence Dr. Withering has removed this and the verna to the ſpiked ſection of this genus, to which however they are not naturally akin, nor ought they to be ſeparated from the other annual ſpecies. The flowers of V. arvenſis ſtand on ſhort pedicels, and are ſmall, pale blue, with four lanceolate, entire, glandular-hairy, rather unequal ſegments to the calyx; the two loweſt, according to Curtis, almoſt twice as large and long as the two others. Capſule obcordate, compreſſed, ciliate, pale brown; containing ſeveral, (about fourteen) ſeeds, which are elliptical, flat, with a little dimple in the middle of one ſide. The form of the ſeeds and of the calyx-leaves will be found to afford the moſt certain marks of ſpecific diſtinction, particularly of the annual ſpecies, in this genus [g].

Mr. Curtis remarks, that it varies in ſize from an inch to ſix or eight inches, that on walls the bottom leaves are frequently purple, that the capſules are much ſmaller than in agreſtis, and when ripe form a ſpike.

Dr. Smith informs us, that about Rome, the flowers of this and the preceding ſpecies, are always white [h].

Native of Europe, Barbary, Japan, and North America. With us in dry gravelly fields, waſte ſandy places, dry paſtures, and on walls; flowering in may.

49. Root annual, ſmall, fibrous. Stems proſtrate, wide ſpreading, round, thickiſh, tender, covered with ſoft hairs; they are hollow, ſurrounded by a ſtrong elaſtic thread-like fibre, as in Alſine media or Chickweed: unbranched according to Dr. Smith, but Mr. Curtis ſays—ſomewhat branched. Leaves alternate on foot-ſtalks various in length, divided into lobes from three to ſix, but five-lobed when perfect, the central lobe being much the largeſt; they are a little fleſhy, and hairy on both ſides. Peduncles longer than the leaves, ſpreading and finally bending downward. The four ſegments of the calyx are large, heart-ſhaped, acute, edged with long white hairs. Corolla pale-blue, ſhorter than the calyx; mouth villoſe within. Capſule large, ſwelling, reſembling two united globes, rather than heart-ſhaped. Seeds two large rugged concave in each cell [i]; or as Curtis deſcribes them, in form not unlike the nectary of the Ladies Slipper, pale brown, hollow within, with a navel-like appearance, externally convex, and grooved or notched.

This has the greateſt affinity to the agreſtis, in habit and place of growth, and in the peculiar formation of its ſeed-veſſels and ſeeds; in which they differ totally from the other Britiſh ſpecies: but though the capſules are nearly of the ſame ſize, yet the ſeeds are conſiderably larger, which accounts for the remarkably large ſeed-leaves which occur in this ſpecies. The leaves alſo are more thinly placed on the ſtems than in the agreſtis, and have ſeldom more than two or four notches on them; and the flowers are of a very pale blue colour [k].

Native of Europe and Barbary, in gardens and corn-fields, where the ſoil is light, in great abundance, flowering in april and may. It flouriſhes ſo through the winter, that it is known in Norfolk by the name of Winter-weed. The old names were Ivy Chickweed and Small Henbit.

[a] Hort. kew. [b] Linn. ſpec. and ſyſt. [c] Smith in Linn. tranſ. [d] Engl. bot. [e] Curtis. [f] Idem. [g] Linn. tranſ. 1. 192. [h] Smith brit. and engl. bot. Curtis, Withering. [i] Curtis.

The leaves are ſometimes more deeply cut than ordinary, and in that ſtate young botaniſts often take this plant for the triphyllos: but if the ſeeds be attended to, no miſtake can happen [a].

β. This variety as Linnæus ſuppoſed it to be, is really a diſtinct ſpecies, and has the ſegments of the calyx elliptic, obtuſe, rough-haired all over, not ciliate [b]. It was found by Tournefort in the Archipelago.

50. Root annual. Stems ſtiliform, procumbent. Leaves alternate, on ſhort footſtalks, roundiſh-cordate, having about three notches on each ſide, but not deeply cut or lobed, clothed with a few ſcattered jointed hairs, as in the preceding ſpecies. Flowers axillary, large. Peduncles ſtiliform, downy, three times as long as the leaves. Calyx leaves equal, lanceolate, ſlightly downy. Corolla twices as long as the calyx, ſpreading, blue. Capſule obcordate, reticulated.

It is like V. hederifolia in many reſpects, but is ſufficiently diſtinguiſhed by its leaves being crenate and not five-lobed, the ſegments of the calyx lanceolate not ovate, and by the very long ſtiliform peduncles.

Gathered by Tournefort in the eaſt. Buxbaum ſays it grows about hedges in Bithynia [c].

51. Root annual fibrous. Stem moſtly branched; branches divaricate-patulous, flexuous. Lower leaves entire ſcarcely lobed, upper lobe-ſtiliſe, trifid to the baſe; the central lobe largeſt and obovate, the ſide ones moſtly two-parted. Flowers on peduncles ſhorter than the leaves, erect as are alſo the fruits. Segments of the calyx obovate-oblong, obtuſe, ciliate, unequal. Corolla deep blue. Capſule orbicular, emarginate, compreſſed. Seeds numerous, obovate, flatted. The herb turns black in drying [d].

Stems viſcid on the upper part, pale green or reddiſh, drooping a little during the period of flowering. Leaves ſpreading, rather remote, alternate and oppoſite, thickiſh, hairy on both ſides, often reddiſh on the under ſide; the lowermoſt cordate-ovate, on very ſhort petioles; the upper ones ſeſſile, fingered, or divided deeply into five and three parts. Corolla ſmaller than the calyx, both deeply divided into four ſegments. Capſule large. Seeds blackiſh-brown, convex, gibbous, and wrinkled on one ſide, hollow on the other.

Its divided leaves, the deep rich blue colour of the flowers, and the largeneſs of its ſeed-veſſels obviouſly diſtinguiſh this from any other Britiſh ſpecies. Its name triphyllos is not always ſtrictly applicable, the leaves, in young plants particularly, being often divided into more than three ſegments [e].

The ſtem is ſometimes unbranched. Branches from the bottom of the ſtem or near it, and riſing to the ſame height. Root-leaves undivided, rarely found; well repreſented in John Bauhin's figure. Lower ſtem-leaves heart-ſhaped, jagged. Although theſe ſometimes reſemble thoſe of the hederifolia, the deep finger-like diviſions of the upper leaves, and the want of leaf-ſtalks, prevent all poſſibility of their being miſtaken [f]. V. triphyllos is always much larger and more diffuſe than the verna, its leaves more deeply divided, and their ſegments more or leſs obovate; neither is it quite ſo rare a plant. It flowers early, and like the verna, varies much in ſize, according to the ſhare of nouriſhment it meets with [g].

This plant, which is common to moſt parts of Europe, and chiefly found in corn-fields where the ſoil is light, is of very partial growth in this country, being found principally in the ſandy tract, which connects Norfolk and Suffolk. Thomas Willifel found it in ſeveral parts of this tract. Sir John Cullum and his brother Sir Thomas Gery Cullum have obſerved it about Bury: and Mr. Woodward both there and near Cockley Cley in Norfolk. Mr. Tofield gathered it near Roſſington in Yorkſhire; and Sir Thomas Frankland in the ſame county. It flowers in march and april, and the ſeeds ripen in june [h].

52. In habit, paleneſs of colour, never drying black, form of the ſeeds, and ſituation of the flowers, this is very nearly allied to V. arvenſis, but it is abundantly different from it in the deep diviſion of the leaves, with the central lobe obovate, obtuſe as in the preceding: the floral ones alſo three-parted. Stem ſcarcely a finger's length, weak, often branched. Segments of the calyx lanceolate, acute, nearly equal. Capſule obcordate, compreſſed [i].

Calyx much longer than the corolla, and deeply divided into four lanceolate blunt unequal ſegments. Corolla blue, with a green baſe. Floral leaves lanceolate, blunt. Peduncles very ſhort, indeed ſo ſhort as to give the aſſemblage of flowers the appearance of a ſpike [k].

Native of many parts of Europe. Firſt found in England by the late Sir John Cullum, Bart. in dry ſandy fields near Bury in Suffolk; flowering in april and may. It has been ſince found in Norfolk, at Foulden, by James Crowe, Eſq. Mr. Woodward remarks, that this little plant is ſometimes near buried in the driving ſand.

Dr. Smith ſuggeſts, that from its near reſemblance at firſt ſight, eſpecially when luxuriant, to V. arvenſis, it may perhaps have been overlooked for that plant [l].

β. V. ſucculenta of Allione is conſidered as a variety of this. He deſcribes the ſtem as ſtiliform, erect, hardiſh, the height of a finger or a ſpan. Leaves oppoſite, petioled, thickiſh, green, ſmooth, linear, toothed on each ſide; above the third or fourth pair of ſtem-leaves comes out a long thin ſpike. Floral leaves alternate, quite entire; from the axil of each a one-flowered peduncle. Fruit cordate, wider and ſhorter than the calyx, containing from ſix to eight darkiſh, compreſſed ſeeds. It differs from V. verna, to which it is very nearly allied, by its ſucculent leaves with the teeth not ſharp, and all the floral leaves quite entire.

53. Root annual. Stem herbaceous, erect, hairy at top, having two or four quite ſimple oppoſite branches at the baſe almoſt the height of the ſtem. Leaves thickiſh, all parted: the lower of two pairs, oppoſite, trifid; with the ſegments ovate, the lateral ones ſhorter, narrower: the ſtem-leaves or ſuperior floral leaves, for the ſtem bears flowers almoſt from the baſe, are alternate and hairy at their baſe: the lower ones are five-parted; the uppermoſt three parted, with linear obtuſe ſegments, a little narrower at the baſe. Flowers axillary ſeſſile, the lower more remote, the upper more crowded. Calyx four-parted, length of the capſule, with lanceolate, ciliate ſegments, two of them ſhorter. Capſule obcordate, with diverging lobes.

It differs from V. triphyllos in having ſeſſile flowers, the ſegments of the leaves linear, and the capſules obcordate; from V. verna in having all the leaves parted.

Native of the ſouth of France about Montpellier, of Spain and Bohemia [m].

54. Stem upright, round, pubeſcent, with oppoſite branches. Stem-leaves conjugate; floral leaves alternate: each pair of the former is diſtant from the next; they are almoſt orbicular, obtuſe, widely and bluntly toothed, ſlightly hairy, on ſhort petioles [n].

Native of Germany, Switzerland, Piedmont, &c. It flowers in may.

This ſeems to be the romana of Allione, Schmidt, Villars and Scopoli.

55. This reſembles the preceding, but the leaves are ſtraight and entire, and the flowers are ſeſſile; the ſtem is ſmooth [o].

Stem erect, ſimple, or ſometimes branched only from the lower axils. Leaves lanceolate-linear, ſeſſile, the upper ones alternate, the lower oppoſite, here and there bluntly toothed, the reſt quite entire, blunt. Flowers axillary, ſeſſile among the bracles. Calyx four-leaved [p].

Native of the North of Europe, Germany, Dauphiné and Italy. Gathered alſo by Commerſon at Buenos Ayres.—Cultivated in 1680, according to Moriſon. It flowers in may and june [q].

V. romana of Linnæus ought to be excluded. All its ſynonyms to the firſt edition of Species Plantarum, belong to V. acutifolia; and the ſpecimen in the Linnean herbarium, from which the ſpecific difference and deſcription

[a] Engl. bot. [b] Smith brit. [c] Curtis. [d] Woodw. in With. and Withering. [e] Engl. bot. [f] Smith's brit. [g] Smith in Linn. tranſ. [h] Curtis. Smith brit and Engl. bot. Withering. [i] Smith brit. [k] Withering. [l] Engl. bot. [m] Vahl. [n] Pollich. [o] Villars. [p] Krocker. [q] Hort. kew.

deſcription in the Mantiſſa were made, is moſt certainly nothing elſe than V. peregrina[1].

56. Stem ſimple, a finger's length, flowering from top to bottom. Leaves on ſhort petioles, alternate, blunt, ſhorter than the calyxes, quite entire except the two leaves next the root, in which a tooth or two may be diſcovered by means of a magnifying glaſs. In each axil is a ſmall flower, bright blue, on a very ſhort peduncle, leſs than the calyx. Calyx-leaves equal, linear, longer than the internodes. Fruit cordate, large in proportion to the plant, ſhorter than the calyx-leaves, but much wider. The whole plant is hirſute.

It approaches to the verna, but differs in the ſtem being ſimple and covered with flowers, the leaves linear not parted, all alternate. It differs alſo from V. peregrina in the ſtem being quite unbranched, the leaves ſhorter and the calyxes longer than the fruit.

Native of Piedmont, in paſtures[2].

57. Native of North America.]

PROPAGATION AND CULTURE.

The perennial ſorts may be increaſed by parting their roots which may be done every other year; for if they are not often divided, many of them will grow too large for the borders of ſmall gardens: yet they ſhould not be parted too ſmall, becauſe when there is not a number of ſtems ſo as to form a good bunch, the plants have but a mean appearance. Michaelmas is the beſt time to part the roots, that they may be well eſtabliſhed before winter: and when they are removed in the ſpring, they ſeldom flower ſtrong the ſame year, eſpecially if the ſeaſon prove dry. Thoſe which grow pretty tall are proper to plant in the borders of ornamental plantations; but thoſe with trailing branches are fit for banks or irregular ſhady ſlopes. They are moſtly hardy, and require only to be weeded, and tranſplanted every ſecond or third year.

The annual ſorts may be propagated by ſeeds ſown in autumn: and many of them will maintain their ground, if their ſeeds be permitted to ſcatter.

If theſe plants are placed in a ſhady border, they will thrive much better than when they are more expoſed to the ſun, and their flowers will continue much longer in beauty.

[19. V. decuſſata is a hardy greenhouſe plant, and may be placed with the Myrtles. In mild winters it will even ſtand ſecure in the open air, in a warm ſoil and ſheltered ſituation. It is uſually and readily increaſed by cuttings[3].

VERONICA. See *Antirrhinum*, *Bartſia*, *Capraria*, *Mentha*, *Pæderota*, *Scoparia*.

VERONICÆ AFFINIS. See *Knoxia* and *Rhinanthus*.

VERONICASTRUM. See *Veronica*.

VERVAIN. See *Verbena*.

VERVAIN MALLOW. See *Malva* and *Urena*.

VERUTUM. See *Cantarea*.

VESICARIA. See *Alyſſum* and *Cardioſpermum*.

VESLINGIA. See *Alizon*.

VESPERTILIO. See *Paſſiflora*.

VETCH. See *Vicia*.

——— Bitter. See *Orobus*.

——— Chichling. } See *Lathyrus*.

——— Crimſon Graſs. }

——— Hatchet. See *Coronilla*.

——— Horſe-ſhoe. See *Hippocrepis*.

——— Milk. See *Aſtragalus*.

VETCHLING. See *Lathyrus Aphaca*.]

VIBURNUM. (*From* vieve *to bind*; *ſome of the ſhrubs having twigs fit for bands.*)

Lin. gen. n. 370. *Reich. n.* 400. *Schreb. n.* 503. *Tournef. t.* 377. *Vaill. mem. acad.* 1722. *Juſſ.* 213. *Gærtn. t.* 27. Tinus *Tournef. t.* 377. *Vaill. mem. acad.* 1722. Opulus *Tournef. t.* 376. *Vaill. mem. acad.* 1722.

Claſſ. 5. 3. Pentandria Trigynia.

Nat. Order of *Dumoſæ*. *Caprifolia* Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* five-parted, ſuperior, very ſmall, permanent.

COR. one-petalled, bell-ſhaped, five-cleft: *ſegments* blunt, reflexed.

STAM. *Filaments* five, awl-ſhaped, length of the corolla: *anthers* roundiſh.

PIST. *Germ* inferior, roundiſh. *Style* none, but in its ſtead a turbinate gland. *Stigmas* three.

PER. *Berry* roundiſh, one-celled.

SEEDS bony, roundiſh.

ESSENTIAL CHARACTER.

Cal. five-parted, ſuperior. *Cor.* five-cleft. *Berry* one-ſeeded.

SPECIES.

1. Viburnum Tinus. *Lauruſtinus* or *Laureſtine.*
Lin. ſpec. 383. *Reich.* 1. 732. *Willd.* 1. 1486. *hort. upſ.* 69. *Sauv. monſp.* 136. *Allion. pedem. n.* 477. *Knipb. cent.* 1. *n.* 95. *Berg. phyt.* 1. 87. *Curt. magaz.* 38. *Aſſo. arag. n.* 273. *Deſfont. atlant.* 1. 268.
Tinus *Lin. hort. cliff.* 109.

α. *hirtum Ait. kew.* 1. 370. *Hairy Lauruſtinus.*
V. Tinus. *Mill. dict. n.* 4.
Tinus I. *Cluſ. hiſt.* 1. 49. *Tournef. inſt.* 607.
Laurus ſylveſtris Corni feminæ foliis ſubhirſutis. *Bauh. pin.* 461. *Raii hiſt.* 1690.
Laurus Tinus luſitanica cærulea bacca. *Park. theat.* 206. *f.* 1.
Leaves oval-oblong, beneath and along the edge, rough-haired.

β. *lucidum. Ait. kew.* 1. 370. *Mill. dict. n.* 5. *Shining Lauruſtinus.*
Tinus II. *Cluſ. hiſt.* 1. 49. *fig. Tournef. inſt.* 607.
Laurus ſylveſtris, foliis venoſis. *Bauh. pin.* 461. *Raii hiſt.* 1690.
Laurus Tinus alter, vel 2. Cluſii. *Park. theat.* 206. *f.* 2.
Tinus alter & ſylveſtris. *Bauh. hiſt.* 1. 428. 429.
Leaves ovate-oblong, ſmooth and ſhining on both ſides.

γ. *virgatum. Ait. kew.* 1. 370. *Common Lauruſtinus.*
Tinus III. *Cluſ. hiſt.* 1. 49. *fig. Tournef. inſt.* 607.
Laurus ſylveſtris folio minore. *Bauh. pin.* 461. *Raii hiſt.* 1690.
L. Tinus ſylveſtris alter ſ. tertius. *Park. theat.* 207. *n.* 3.
Leaves lanceolate-oblong, hairy beneath along the edge and veins.

δ. *ſtrictum. Ait. kew.* 1. 370. *Upright Lauruſtinus.*
Leaves ovate, all over rough-haired and rigid.
Leaves quite entire ovate, ramifications of the veins villoſe-glandular.

[2. Viburnum Tinoides.
Lin. ſuſt. 294. *Willd.* 1. 1486. *ſuppl.* 184.
Leaves elliptic ſmooth quite entire, branches and cymes round hirſute.

3. Viburnum villoſum. *Hoary Viburnum.*
Lin. ſpec. ed. Willd. 1. 1487. *Swartz prodr.* 54. *defcr.* 1. 564.
Leaves quite entire ovate hoary-villoſe beneath.

4. Viburnum ſcandens. *Climbing Viburnum.*
Lin. ſuſt. 294. *Willd.* 1. 1487. *ſuppl.* 184.
V. virens. *Thunb. jap.* 123. *Lin. ſuſt.* 294.
Shrubby ſcandent, leaves oblong ſerrate, cymes terminating, rays terminated by a very large flower.]

5. Viburnum nudum. *Oval-leaved Viburnum.*
Lin. ſpec. 383. *ſuſt.* 294. *Reich.* 1. 733. *Willd.* 1. 1487. *Ait. kew.* 1. 370. *Mill. fig.* 183. *t.* 274. *Du Roi barbrec.* 2. 484.
Tinus foliis ovatis in petiolos terminatis integerrimis. *Gron. virg.* 33.
Leaves oval ſomewhat wrinkled rolled back at the edge and obſcurely crenulate.

6. Viburnum prunifolium. *Plum-leaved Viburnum.*
Lin. ſpec. 383. *Reich.* 1. 733. *Willd.* 1. 1487. *Ait. kew.* 1. 371. *Gron. virg.* 33. *Waugenh. amer.* 98. *Pluk. phyt. t.* 46. *f.* 2.
V. Lentago. *Du Roi barbrec.* 2. 485. *Moench hort. weiſſenſt.* 140. *t.* 8.

7. V. canadenſe glabrum. *Vaill. mem. acad.* 1722. *p.* 200.
Leaves obovate roundiſh and oval ſmooth ſharply ſerrate, petioles margined.

[7. Viburnum dauricum.
Lin. ſpec. ed. Willd. 1. 1488. *Pallas roſs.* 2. 30.
Lonicera mongolica. *Pallas roſs.* 1. 59. *t.* 38. *Gmel. ſib.* 3. 135. *n.* 8. *t.* 25.

Leaves

[1] Smith in Linn. tranſ. [2] Allion. [3] Smith ſpicil. and Curt. magaz.

Leaves ovate ſerrate dotted-hairy, cymes dichotomous few-flowered.]

8. Viburnum dentatum. *Toothed-leaved Viburnum.*
Lin. ſpec. 384. *ſyſt.* 294. *Reich.* 1. 733. *Willd.* 1. 1488. *arb.* 403. *Jacqu. hort.* 1. 13. *t.* 36.

α. lucidum: ſhining-leaved. *Ait. kew.* 1. 372.
With leaves ſmooth on both ſides.

β. pubeſcens: downy-leaved. *Ait. kew.* 1. 372.
With acuminate leaves downy beneath.
Leaves ovate tooth-ſerrate plaited.

[9. Viburnum plicatum. *Plaited-leaved Viburnum.*
Thunb. in Lin. tranſ. Lond. 2. 332. *Willd.* 1. 1488.
V. dentatum. *Thunb. jap.* 122.
Leaves ovate obtuſe tooth-ſerrate plaited.

10. Viburnum erotum.
Thunb. jap. 124. *Lin. ſyſt.* 295. *Willd. ſpec.* 1. 1488.
Leaves ovate acuminate croſs-ſerrate ſmooth, petioles tomentoſe.]

11. Viburnum Lantana. *Wayfaring Tree.*
Lin. ſpec. 384. *ſyſt.* 294. *Reich.* 1. 733. *Willd.* 1. 1489. *var. cliff.* 45. *hort. cliff.* 107. *upſ.* 68. *Hudſ. angl.* 129. *Wither. arr. ed.* 3. 315. *Smith brit.* 334. *engl. bot. t.* 331. *Lightf. ſcot.* 170. *Relh. cant. ed.* 2. *n.* 279. *Sibth. oxon. n.* 318. *Abbot bedf. n.* 236. *Jacqu. auſtr.* 4. 21. *t.* 341. *Hall. helv. n.* 669. *Hoffm. germ.* 109. *Roth. germ.* 1. 136. 2. 364. *Pollich pal. n.* 310. *Krock. ſilef. n.* 475. *Scop. carn. n.* 369. *Sauv. monſp.* 136. *Villars dauph.* 2. 543. *Allion. pedem. n.* 475. *Du Roi barbarc.* 2. 481. *Kniph. cent.* 2. *n.* 94. *Jungius. cent.* 1. *t.* 6. *Plunck ic.* 231.
Viburnum. *Park. theat.* 1448. *Raii hiſt.* 1590. *ſyn.* 460. *Matth.* 217. *Tournef. inſt.* 607. *Dubam. arb.* 2. *t.* 103.
V. vulgo. *Bauh. pin.* 249. *Camer. epit.* 122.
Lantana. *Dod. pempt.* 781.
L. vulgo, aliis Viburnum. *Bauh. hiſt.* 1. 558.
L. ſ. Viburnum. *Ger.* 1305. *emac.* 1490.
α. europæum, *Common Wayfaring Tree.*
Ait. kew. 1. 372.
Leaves ſmaller dark green.
β. grandifolium. *Large-leaved Wayfaring Tree.*
Ait. kew. 1. 372.
Leaves larger bright green.
Leaves cordate ſerrate veined tomentoſe beneath.

[12. Viburnum tomentoſum. *Downy Viburnum.*
Thunb. jap. 123. *Lin. ſyſt.* 295. *Willd.* 1. 1489.
Leaves ovate acuminate ſerrate veined tomentoſe beneath, umbels lateral.

13. Viburnum hirtum. *Rough Viburnum.*
Thunb. jap. 124. *Lin. ſyſt.* 295. *Willd.* 1. 1489.
Leaves ovate ſerrate villoſe, petioles rough-haired.

14. Viburnum acerifolium. *Maple-leaved Viburnum.*
Lin. ſpec. 384. *Reich.* 1. 733. *Willd.* 1. 1489. *Wangenh. amer.* 99.
Opulus. *Gron. virg.* 149.
Leaves three-lobed acuminate ſharply ſerrate, petioles hairy without glands.

15. Viburnum orientale. *Oriental Viburnum.*
Lin. ſpec. ed. Willd. 1. 1490. *Pallas roſſ.* 2. 31. *t.* 58. *f.* H.
Opulus orientalis folio ampliſſimo tridentato. *Tournef. cor.* 42.
Leaves three-lobed acuminate groſsly and bluntly toothed, petioles ſmooth and without glands.]

16. Viburnum Opulus. *Water Elder.*
Lin. ſpec. 384. *ſyſt.* 294. *Reich.* 1. 734. *Willd.* 1. 1490. *fl. ſuec. n.* 264. *Gartn. fruct.* 1. 133. *Hudſ. angl.* 130. *Wither. arr. ed.* 3. 345. *Smith brit.* 335. *engl. bot. t.* 332. *Lightf. ſcot.* 170. *Relh. cant. ed.* 2. *n.* 240. *Sibth. oxon. n.* 319. *Abbot bedf. n.* 237. *Fl. dan. t.* 661. *Gunn. norv. n.* 7. *Hoffm. germ.* 109. *Roth. germ.* 1. 136. 2. 364. *Pollich pal. n.* 311. *Krock. ſilef. n.* 476. *Neck. gallob.* 155. *Scop. carn. n.* 370. *Villars dauph.* 2. 544. *Allion. pedem. n.* 476. *Du Roi barbarc.* 2. 477.

β. europæa. *Ait. kew.* 1. 372.
Opulus. *Lin. hort. cliff.* 109. *Hall. helv. n.* 668. *Duham. arb.* 1. *Ruthii* 281. *Tournef. inſt.* 607. *Raii ſyn.* 460.

Sambucus aquatica. *Bauh. hiſt.* 1. 502. *Camer. epit.* 977. *Matth.* 1269.—flore ſimplici. *Bauh. pin.* 450.
S. paluſtris. *Dod. pempt.* 846. 1.—ſ. aquatica. *Park. theat.* 209. 5.
S. aquatilis ſ. paluſtris. *Ger.* 1236. 1. *emac.* 1424. 1. *Raii hiſt.* 1586.
Twigs green opaque.

β. americana. *Ait. kew.* 1. 373.
Viburnum americanum. *Mill. dict. n.* 8.
Twigs red ſhining.

γ. roſea. *Ait. kew.* 1. 373. *Gaelder Roſe.*
All neuter flowers in a ball.
Sambucus aquatica, flore globoſo pleno. *Bauh. pin.* 456. *Duham. arb.* 3. *Knorr. del. hort.* 2. *t.* S. 6.
S. roſea. *Ger.* 1236. 2. *emac.* 1424. 2. *Raii hiſt.* 1586.
Leaves three-lobed acuminate-toothed, petioles glandular ſmooth.

[17. Viburnum dilatatum.
Thunb. jap. 124. *Lin. ſyſt.* 295. *Willd.* 1. 1490.
Leaves obovate acuminate unequally-toothed villoſe.

18. Viburnum macrophyllum. *Long-leaved Viburnum.*
Thunb. jap. 125. *Lin. ſyſt.* 295. *Willd.* 1. 1491.
Leaves obovate acuminate toothed ſmooth.

19. Viburnum cuſpidatum.
Thunb. jap. 125. *Lin. ſyſt.* 295. *Willd.* 1. 1491.
Leaves cuſpidate ſerrate villoſe.

20. Viburnum Lentago. *Pear-leaved Viburnum.*
Lin. ſpec. 384. *ſyſt.* 294. *Reich.* 1. 734. *Willd.* 1. 1491. *arb.* 402. *Wangenh. amer.* 100. *Ait. kew.* 1. 372.
Leaves broad-ovate, acuminate ſharply ſerrate, petioles margined curled.

21. Viburnum Caſſinoides. *Thick-leaved Viburnum.*
Lin. ſpec. 384. *Reich.* 1. 734. *Willd.* 1. 1491. *Ait. kew.* 1. 370.
Leaves lanceolate even rolled back at the edge indiſtinctly crenate.

22. Viburnum nitidum. *Shining-leaved Viburnum.*
Ait. kew. 1. 371. *Lin. ſpec. ed. Willd.* 1. 1492.
Leaves linear-lanceolate ſhining above indiſtinctly ſerrate or entire.]

23. Viburnum lævigatum. *Ceſſioberry Buſh.*
Ait. kew. 1. 371. *Lin. ſpec. ed. Willd.* 1. 371. *arb.* 401.
V. Caſſinoides. *Mill. dict. n.* 9. *Du Roi barbarc.* 2. 486.
Caſſine Peragua. *Lin. ſyſt.* 295. *Reich.* 1. 735. *mant.* 220. *mat. med.* 88.
Caſſine. *Lin. hort. cliff.* 72.
C. verâ perquam ſimilis arbuſcula, foliis antagoniſtis. *Pluk. mant.* 56.
Leaves lanceolate even remotely ſerrate quite entire at the baſe.

DESCRIPTIONS, &c.

1. α. The leaves of the ſmall or hairy-leaved Lauruſtinus are ſeldom more than two inches and a half long, and an inch and quarter broad; they are rounded at their baſe, but end in acute points, are veined and hairy on their under ſide, and not of ſo lucid a green colour as the next variety on their upper. The umbels (cymes) of flowers are ſmaller, and appear in autumn, continuing all the winter. The plants are much hardier.

β. The ſtalks of the Shining-leaved Lauruſtinus riſe higher, and the branches are much ſtronger. The bark is ſmoother, and turns of a purpliſh colour. The leaves are larger, of a thicker conſiſtence, and of a lucid green green colour. The umbels (cymes) are much larger, and ſo are the flowers. Theſe ſeldom appear till the ſpring, and when the winters are ſharp, the flowers are killed, and never open unleſs they are ſheltered.

There is a variety of this with variegated leaves; [both gold and ſilver ſtriped, and ſome other trifling varieties*.

The branches are warted, the younger ones four-cornered. Leaves oppoſite, ovate, on ſhort petioles, rigid, ſhining, perennial; the younger ones hirſute

* Curt. magaz.

with ſhort ferruginous villoſe hairs. Flowers in crowded cymes, with little bractes between them. Corolla white. Berries, when ripe, blue [a].

γ. Leaves narrower, hairy only on the edge and veins underneath. Fruit ſmaller.

δ. Difference given in the character.

Native of the South of Europe and of Barbary. α β in Portugal and Spain: α in the county of Nice: β about Algiers and in mount Atlas: γ in Italy, about Rome, Tivoli, and near Montpelier, obſerved by Ray. —Cultivated by Gerarde in 1596 [b].

The old authors gave it the name of Lauruſtinus, from a ſuppoſition that it was a ſmaller ſpecies of Bay; accordingly Gerarde and Parkinſon name it the wild Baye tree; but the Latin name has obtained, and this ſhrub is generally known by that of Lauruſtinus in England. Τυνος or τυνος is ſmall; and hence our Engliſh word *tine* or tiny.

The berries are very hot and inflame the fauces violently, like thoſe of Mezereon and Spurge Laurel; they purge violently according to Parkinſon. Yet Lobel aſſerts that the Starlings frequent the ſhrubs in great flocks, and devour the berries greedily [c]: which is not improbable as Blackbirds and Thruſhes do the ſame by thoſe of Mezereon.

2. This is very like the preceding, but the leaves of V. Tinus are exactly ovate, the petioles are longer, the peduncles and ſtem angular, and ſmooth. Native of South America, where it was found by Mutis [d].

3. This ſhrub is a fathom in height, with an aſh-coloured bark. Branches round, hoary. Leaves petioled, oppoſite, acute, ſmoothiſh above, but hoary-villoſe beneath. Petioles of a middling length, four-ſided, channelled, hoary: the hoarineſs conſiſting of ſtellate villoſe hairs heaped together. Cymes terminating, compound, ſix-rayed, ſubdivided by threes. Common peduncles length of the leaves, ſolitary, erect, hoary: rays or partial peduncles an inch long, angular, three-cornered; pedicels one-flowered on the third ſubdiviſion. Calyx ferruginous-villoſe. Corolla whitiſh, with roundiſh ſpreading ſegments. Filaments longer than the corolla. Germ villoſe. Berry ovate, oblique, crowned by the calyx at the ſide. Seed oblique—are there not two abortive? Native of Jamaica, on the mountains in the ſouthern part. It flowers in autumn [e].

4. Leaves narrower, oblong, acuminate both ways, on ſhort petioles. Cymes terminating the ſhorter branches, villoſe. Rays ſpreading, with the flowers turned upwards and ſmall. Each ray is terminated by a larger white flower, as in V. Opulus, with unequal petals, the outer one largeſt and obcordate [f].

Stem frutеſcent, branched. Branches and branchlets alternate, round, aſh-coloured, ſmooth, climbing. Leaves oppoſite, ovate-oblong, entire at the baſe and point, very finely ſerrate in the middle, thin, quite ſmooth, bright green, paler beneath, equal, an inch and half long. Calyx reflexed. Filaments ten. Styles three, divaricating. It differs from V. Caſſinoides in having the petioles not at all keeled, and the leaves ſerrate. Native of Japan [g].

5. This has a ſtrong ſtem, covered with a brown ſmooth bark, and riſing to the height of ten or twelve feet, ſending out woody branches on every ſide the whole length, which have a ſmooth purpliſh bark. Leaves oppoſite, five inches long and two and a half broad, ſmooth and of a lucid green above, veined and of a light green beneath, entire at the edges, (indiſtinctly notched,) and rounded at both ends; of the ſame thickneſs with thoſe of the broad-leaved Lauruſtinus. The flowers are produced in large umbels (cymes) at the end of the branches: they are in ſhape and colour like thoſe of the common Lauruſtinus, but ſmaller; and the ſtamens are much larger than the corolla. They appear in july, and are ſucceeded by roundiſh berries, which, when ripe, are black; but theſe rarely ripen in England. There ſeem to be two varieties of this ſhrub; one growing in the northern parts of Virginia and Maryland, which caſts its leaves in winter; the other in Carolina, which is an evergreen. [This apparent difference is probably owing to climate. And by Mr. Miller's confeſſion, they are ſo much alike in ſummer, as ſcarcely to be diſtinguiſhed.—Cultivated by him in 1758. It flowers in may and june [h].

The cymes in this are naked; in the preceding ſpecies they are involucred [i].]

6. This riſes with a woody ſtalk ten or twelve feet high, covered with a brown bark, and branching its whole length: the branches when young, are covered with a ſmooth purple bark. Leaves two inches long, and an inch and quarter broad, ſlightly ſerrate, and on ſhort ſlender footſtalks, oppoſite or without order. Flowers in ſmall umbels (cymes) lateral and terminating: theſe are white, and ſmaller than in the V. Lantana, appear in june, and are ſometimes ſucceeded by berries; but they do not ripen here. It grows naturally in moiſt parts of North America, where it is commonly called Black Haw. [Cultivated in 1731, as appears from the firſt folio edition of Mr. Miller's Dictionary [k].

7. A ſhrub ſmaller than Lonicera Xyloſteum, upright, with ſlender, jointed, ſtraight, oppoſite, ſpreading branches, covered with a whitiſh-gray bark. Leaves fewer, oppoſite, petioled, hoary underneath. Peduncles terminating, between the laſt pair of leaves, length of the petioles bifid, each ſuſtaining two, four or five ſeſſile flowers. Calyx none, except a rim crowning the germ, which is cylindrical and ſtriated. Corollas yellowiſh-white, equal, ſmall, bell-ſhaped, five-toothed at the edge. Stamens length of the corolla, with large twin anthers. Germ prominent within the flower with a very ſhort navel, and a truncate ſtigma. Berry globular, large, ovate-depreſſed, convex on the outſide, containing five or ſix, ſometimes ſeven ſeeds [m]. Native of Ruſſia and Siberia.

Pallas at firſt made this ſhrub a ſpecies of Lonicera, but afterwards corrected himſelf, and brought it into this genus.]

8. Stalks ſoft and pithy, branching out greatly from the bottom upward, and covered with a gray bark. Leaves three inches long, and nearly as broad, ſtrongly veined, of a light green colour, placed oppoſite upon pretty long footſtalks. Flowers in terminating corymbs, white and almoſt as long as thoſe of V. Lantana, appearing in june, but not ſucceeded by berries in England.

[This is a ſmall ſhrub, with ovate, acuminate, oppoſite, ſootſtalked leaves, ſmooth above, and very ſlightly pubeſcent beneath, ſharply ſerrated; at their firſt expanſion much plaited in the direction of the fibres, but afterwards much more plain or flat: on the younger flowering branches they are ſometimes ternate. Cymes terminal: Flowers white [n].

Native of North America. Introduced in 1736, by Peter Collinſon. There are two varieties of it, one with the leaves ſmooth on both ſides; the other with the leaves downy underneath and drawn out to a point [o].

9. Leaves more round, and the teeth more tender than in the preceding, for which Thunberg at firſt took it: they are plaited, eſpecially before they are well opened. Flowers radiate. Native of Japan, about Fammatats, in Fakona, and elſewhere; flowering in april and may [p].

10. Stem upright, ſhrubby: branches oppoſite, angular, aſh-coloured, ſmooth, from ſpreading upright. Leaves oppoſite, thin, ſmooth, pale beneath, unequal, the loweſt entire at the baſe, the uppermoſt larger, two inches long, on very ſhort petioles. Flowers in a decompound umbelled panicle terminating the branchlets, not radiate. Peduncles and pedicels angular, hairy. Bractes briſtle-ſhaped, hairy. It differs in having ovate leaves thickly toothed with ſharp teeth, and drawn out at the end into a very long point. Native of Japan.

Viburnums vary: 1. With radiate and non-radiate

[a] Desfontaines. [b] Hort. kew. [c] Ray hiſt. [d] Linn. ſuppl. [e] Swartz defcr. [f] Linn. ſuppl. [g] Thunberg.

[h] Hort. kew. [i] Linn. ſpec. [k] Hort. kew. [l] Pallas roſſ. 1. 59. [m] Jacquin. [n] Hort. kew. [o] Thunb. in Linn. tranſ. and Fl. japon.

flowers. 2. With a ſingle ſtyle and three piſtils. 3. With five and ten ſtamens [a].

11. This is a thickly-branched ſhrub or ſmall tree, having round, pliant, mealy twigs, (whence one of its Engliſh names, Pliant Mealy Tree,) with the ſame kind of tufted ſtellated pubeſcence as is found on the flower-ſtalks, backs and even upper ſurfaces of the leaves. Leaves oppoſite, as in the whole genus, ſomewhat elliptical, cordate, obtuſe, ſerrate, ſtrongly veined, turning dark red before they fall in autumn. Stipules none. Flowers in large terminating, ſolitary, many-flowered cymes. Corolla white, cloven half way down, ſpreading. Stamens inſerted between the ſegments. Anthers yellowiſh. Stigmas ſeſſile, very ſhort, obtuſe. Berries compreſſed, having a little mealy aſtringent pulp, when young red on the outſide, yellow on the other, when ripe black. Seed large, cordate, flat and furrowed [b].

Native of moſt parts of Europe, except the moſt northern countries; with us chiefly in a calcareous ſoil, in woods and hedges, flowering in may. Dr. Withering ſays that the bark of the root is uſed to make bird-lime.

It is commonly taken to be the Viburnum of Virgil, but the Poet ſays nothing by which it can be aſcertained, except that being contraſted with the tall Cypreſs, we may ſuppoſe it to be a low ſhrub. Viburna in the plural ſeems to have been taken by the ancients for any ſhrubs which were uſed for binding or tying. In the north of England, Ray ſays, it grows to a larger ſize than in the ſouth, which ſeems odd, as it is rather a ſouthern than a northern ſhrub. Mr. Miller ſays it riſes near twenty feet high, but he gives the leaves nine inches in length, which is certainly much beyond the truth.

There is a variety in North America, with much larger leaves, that are bright green.] And there is another in our nurſeries with variegated leaves; but they become plain, when the ſhrubs are removed into good ground, and grow vigorouſly.

[12. Branches round, ſmooth, tinged with red, divaricating, ſubdivided. Leaves oppoſite, ovate not cordate, nerved, downy beneath eſpecially the upper ones. Petioles, branchlets and peduncles downy. Umbels axillary at the ends of the branchlets, with radiant flowers. It differs from V. Lantana in having ovate leaves, not cordate, and lateral crowded umbels. Native of Japan, in woods between Miaco and Jedo. It is alſo cultivated; and flowers in april and may [c].

13. Stem flexuoſe-erect, round, ſmooth. Branches and branchlets alternate, round, ſmooth at the baſe, rough-haired at the top. Leaves oppoſite, reſembling thoſe of the Nettle, acute, deeply and equally ſerrate, veins rough with white decumbent hairs, an inch long. Petioles and peduncles rough with horizontal hairs. Umbels terminating, compoſed of very ſmall flowers not radiating. Stigma two-lobed. Native of Japan [d].

14. Native of Virginia. Introduced in 1736 by Peter Collinſon. It flowers in july [e].

15. So nearly allied to the preceding as to be ſcarcely diſtinct, but the leaves are groſſly toothed inſtead of being ſharply ſerrate as that is; the ſeed alſo is oval, on each ſide two-channelled and triconvex as in V. Lantana, not cordate as in the preceding [f]. Native of the Levant and Ruſſia.

16. It is a ſmall buſhy tree, ſmooth in all its parts, and very much branched: branches oppoſite, round. Leaves ſubcordate, with three great unequally ſerrate lobes, veined, paler beneath; their petioles bearing ſeveral cup-like glands towards the top, and a pair or two of erect linear appendages, ſcarcely to be called ſtipules, near the baſe. Cymes terminating, ſolitary, compoſed of many white flowers, radiant; the inner perfect, ſmall, reſembling thoſe of Elder, thoſe in the margin abortive, conſiſting merely of a large irregular flat petal without any organs of fructification. Stigmas nearly ſeſſile, cloſe together. Berries drooping, globular, crowned with five very ſmall ſcales of the calyx, red, very ſucculent. Seed flat, heart-ſhaped, the breadth of the berry, prominent on one ſide, grooved on the other, teſtaceous [g].

[a] Thunb. jap. [b] Smith brit. and engl. bot. [c] Thunberg. [d] Idem. [e] Hort kew. [f] Willdenow. [g] Smith brit. and engl. bot. Gærtner.

The neuter florets in the circumference expand firſt, and drop before the perfect florets do ſo. The cymes have five or ſeven rays [a].

Native of Europe; common with us in woods and hedges in watery places, flowering early in june; the bright-red berries ripen about ſeptember, and towards the middle of october the leaves aſſume a beautiful pink colour, affording another inſtance, in addition to the Cornel of a genus, moſtly *American, the leaves of which turn red in autumn [b].

β. The American ſhrub has the twigs of a ſhining red colour; whereas in the european they are green and opaque. Mr. Miller makes a diſtinct ſpecies of this variety. He deſcribes it as] riſing eight or ten feet high, with many ſide branches, covered with a ſmooth purple bark: the leaves cordate-ovate, ending in acute points, deeply ſerrate, having many ſtrong veins, and ſtanding upon very long ſlender foot-ſtalks. Cymes, flowers and berries as in the European ſhrub. Native of South Carolina, and ſome other parts of North America.

7. [The beautiful variety ſo common in plantations, bearing large round bunches of abortive flowers only, and grouping ſo elegantly with Lilac and Laburnum in the early part of ſummer [c],] will riſe to the height of eighteen or twenty feet, if permitted to ſtand. The ſtem becomes large; the branches grow irregular and are covered with a gray bark. The leaves are divided into three or four lobes, ſomewhat like thoſe of the Maple: they are about three inches long, and two and a half broad, jagged on their edges, and of a light green colour. The flowers come out in a large corymb, are very white, and being all neuters, are barren. From their extreme whiteneſs, and ſwelling out into a globular form, ſome country people have given this ſhrub the name of Snow-ball tree, [which ſurely is preferable to the common appellation of Guelder Roſe, and is conformable to the Schneeball of the Germans. Probably we had this ſingular variety from the Dutch, who call it Gheldersche Rooſe. Gerarde calls it "Elder Roſe and Roſe Elder, ſays it groweth in gardens, and the flowers are there doubled by art, as it is thought." It is more probable that accident originally produced the variation, and that it was improved by art.

17. Stem upright, ſomewhat angular, aſh-coloured, villoſe. Leaves nerved, villoſe on both ſides, unequally toothed and as it were gnawn, two inches long, the lower ones ſmaller. Petiole round, villoſe, half an inch long. Flowers in panicles, not radiate. Panicle axillary, ſuperdecompound, four-cleft and trichotomous, ſpreading very much. Peduncles and pedicels tomentoſe. Style ſimple, very ſhort, with an obtuſe ſtigma. Native of Japan.

18. The whole plant is ſmooth. Stem and branches round. Leaves nerved, paler beneath, a hand wide and a little more in length. Petioles three times ſhorter than the leaf. Umbel terminating, compound, with radiant flowers. Native of Japan.

19. Leaves equally and acutely ſerrate, villoſe with ſcattered hairs, almoſt a hand broad, and a little more in length. Umbel ſuperdecompound, terminating with radiant flowers. Native of Japan [d].

20. Branches bent or hanging down. Petioles waving on the edge. Leaves thick, like thoſe of V. Tinus, ſmooth, ſerrulate with very ſmall teeth. Germ terminating, awl-ſhaped, ventricoſe at the baſe. Native of North America; found in Canada by Kalm [e]. Cultivated in 1761, by Mr. James Gordon. It flowers here in july [f].

21. Loweſt leaves obovate; the next ovate; the upper ones lanceolate. Native of North America [g]. Cultivated here at the ſame time by Mr. Gordon. It flowers in june [h].

22. Native of North America. Cultivated in 1758, by Mr. Chriſtopher Gray. It flowers in may and june [i].

23. Leaves petioled, broad-lanceolate, ſharpiſh, without any raiſed veins. Petioles decurrent along

[a] Withering. [b] Engl. bot. [c] Idem. [d] Thunberg. [e] Linn. ſpec. [f] Hort. kew. [g] Linn. ſpec. [h] Hort. kew. [i] Idem.

the

the back, whence the twigs are anciptal. Corymbs short[1].]

Stem twelve or fourteen feet high, ſending out branches from the bottom to the top. Leaves about an inch long, and more than half an inch broad, of a light green colour, oppoſite on ſhort footſtalks. Peduncles axillary, very ſhort, ſupporting ſmall umbels of white flowers, which appear in july; but are rarely followed by ſeeds in England. Native of South Carolina. [Cultivated in 1724, as appears from Furber's catalogue[2].]

PROPAGATION AND CULTURE.

1. The Lauruſtinuſes are propagated by laying down their young branches, which put out roots very freely, ſo that when they are layed in autumn, they will be well rooted by that time twelve months, when they ſhould be taken from the old plants, and may either be planted where they are to remain, or into a nurſery for two years to get ſtrength. The beſt ſeaſon to tranſplant theſe is at Michaelmas, that they may get new root before winter; for as thoſe plants begin to flower early in winter, it is a plain indication of their growing at that ſeaſon, and they will more ſurely ſucceed then, than at any other time of the year: but they may be removed in the ſpring with balls of earth to their roots, provided it is done before they begin to ſhoot: they may alſo be removed at the end of july or the beginning of auguſt, if rain ſhould happen at this ſeaſon; for after they have done ſhooting, which is ſoon after midſummer, they will be in no danger, provided they are not kept too long out of the ground.

Theſe plants may alſo be increaſed by ſeeds, which ſhould be mixed with earth in autumn, ſoon after they are ripe: theſe ſhould be expoſed to the open air, and receive the rain in winter, and in the ſpring they may be ſown upon a gentle hot-bed, which will bring up the plants; they ſhould remain in the bed till autumn, and then may be tranſplanted, and treated in the ſame way as the layers. I have raiſed many of theſe plants from ſeeds, and find them hardier than thoſe raiſed by layers.

Some perſons train up the Lauruſtinus with naked ſtems to round heads; but if theſe are planted in the open air, they will be in more danger of ſuffering by ſevere froſts, than thoſe that have the branches growing rude from the bottom; for if the froſt kills the outer part of the ſhoots, the ſtems will be protected, and will ſoon put out new branches; but where the ſtems are naked, the froſt frequently kills them to the root.

[We ſcarcely recollect a plant, ſays Mr. Curtis, whoſe bloſſoms are ſo hardy as thoſe of the Lauruſtinus; they brave the inclemency of our winters, and are not deſtroyed but in very ſevere ſeaſons. The ſmoke of London is highly detrimental to its growth. It thrives beſt in ſheltered ſituations and a dry ſoil. The ſhining-leaved variety is the moſt ornamental, but at the ſame time the moſt tender.]

8. This is generally propagated here by layers, for the ſeeds do not ripen in England. The young ſhoots take root very freely. The cuttings will alſo take root, if planted in autumn. The ſeeds, when brought to England, almoſt remain in the ground a year, ſo that this is a tedious method.

11. The Wayfaring tree may be propagated either from ſeeds or layers; but the former method is ſeldom practiſed, becauſe the ſeeds rarely grow the firſt year, and the branches eaſily put out roots.

The beſt time for laying thoſe branches is in autumn, juſt as the leaves begin to fall. By the ſucceeding autumn they will be rooted, when they may be removed into a nurſery for two or three years, and then planted where they are to remain. This ſort is very hardy.

The ſtriped variety may be propagated by inarching or budding upon the plain ſort; but there is no great beauty in it.

The American variety is much ſuperior to the European.

[1] Linn. mant. [2] Hort. kew.

16. The Water Elder may be increaſed in the ſame way as the Lauruſtinus, and requires the ſame treatment; it loves a ſoft loamy ſoil, and ſhould have a ſheltered ſituation.

β. The American variety is eaſily propagated by layers or cuttings.

7. The Gueldar Roſe ſends out plenty of ſuckers, by which it is frequently increaſed; but the plants ſo raiſed being very ſubject to put out ſuckers, they are not ſo good as thoſe which come from layers or cuttings. It loves a moiſt ſoil, in which it will make much greater progreſs, and produce flowers in greater plenty than on a dry ſoil.

23. This is tender whilſt young, and requires to be ſheltered under a common frame in winter, till the plants have obtained good ſtrength; when, if they are planted againſt a warm wall, they will reſiſt the cold of our ordinary winters very well, and make good progreſs; but as they are liable to be killed by ſevere cold, it will be proper to keep a plant or two in pots, to be ſheltered in winter. This may be propagated by laying down the branches, which will take root in one year.

[The other North American ſorts (6. 14. 20. 21. 22.) are hardy enough, and may be increaſed by layers or cuttings.

VIBURNUM. See *Hydrangea* and *Lantana*.]

VICIA *(of Pliny, Virgil, &c. According to Varro, à vinciendo, becauſe it has tendrils like the vine, by which it binds other plants. But Voſſius rather thinks it is from the Greek, for the Aſiatic Greeks call it* βικιον, *according to Galen; other derivations, leſs probable, may be ſeen in Voſſius, etym.)*

Lin. gen. n. 873. *Reich. n.* 947. *Schreb. n.* 1187. *Tournef. t.* 221. *Juſſ.* 360. *Gærtn. t.* 151. Faba *Tournef. t.* 212.

Claſſ. 17. 4. Diadelphia Decandria.

Nat. Order of *Papilionaceæ* or *Leguminoſæ*.

GENERIC CHARACTER.

CAL. *Perianth* one-leafed, tubular, erect, half-five-cleft, acute: upper teeth ſhorter, converging, all of equal breadth.

COR. papilionaceous. *Banner* oval, with a broad oblong claw, at the tip emarginate with a point, bent back at the ſides, with a longitudinal compreſſed raiſed line. *Wings* two, oblong, erect, half-cordate, with an oblong claw; ſhorter than the banner. *Keel* with an oblong two-parted claw, the belly compreſſed ſemiorbicular; ſhorter than the wings.

STAM. *Filaments* diadelphous, ſingle and nine-cleft. *Anthers* erect, roundiſh, four-grooved. A nectareous gland ſprings from the receptacle between the compound ſtamen and the germ, ſhort, acuminate.

PIST. *Germ* linear, compreſſed, long. *Style* filiform, ſhorter, aſcending at an erect angle. *Stigma* obtuſe, tranſverſely bearded below the tip.

PER. *Legume* long, coriaceous, one-celled, two-valved, terminated by a point.

SEEDS ſeveral, roundiſh.

OBS. Faba Tournef. *has oval compreſſed ſeeds*. Vicia Rivin. *has roundiſh ſeeds*.

ESSENTIAL CHARACTER.

Stigma tranſverſely bearded on the lower ſide.

SPECIES.

* *With elongated pedunclet.*

[1. Vicia piſiformis. *Pale-flowered Vetch.*
Lin. ſpec. 1034. *ſuſ.* 663. *Reich.* 1. 469. *hort. cliff.* 369. *Gærtn. fruct.* 2. 326. *Hall. helv. n.* 428. *Pollich pal. n.* 682. *Krock. ſileſ. n.* 1170. *Allion. pedem. n.* 1193. *Jacqu. auſtr. t.* 33. *t.* 364. *Crantz. auſtr.* 384. *Pallas it.* 1. 192. *Knipb. cent.* 10. *n.* 99. Piſum ſylveſtre. *Cluſ. hiſt.* 2. 129. *Raii hiſt.* 894.—perenne. *Bauh. pin.* 343. *Ger.* 1046. 6. *emac.* 1220. *f.* 6.
Cracca flore ochroleuco. *Rivin. tetr. t.* 52.
Peduncles many-flowered, ſtipules many-leaved, leaflets ovate, the lower ſeſſile.
2. Vicia dumetorum. *Great Wood Vetch.*
Lin. ſpec. 1035. *Reich.* 3. 470. *fl. ſuec. n.* 649. *Hall.*

Hall. helv. n. 427. *Krock. ſileſ. n.* 1171. *Crantz. auſtr.* 385. *Sauv. monſp.* 234. *Villars dauph.* 3. 446. *Allion. pedem. n.* 1194. *Gmel. ſib.* 4. 9. *tab.* 221. *Retz. obſ.* 1. 24. *n.* 81.

V. maxima dumetorum. *Baub. pin.* 345.

V. ſylvatica max. piſo ſimilis. *Baub. hiſt.* 2. 315. Raii *hiſt.* 900. *Tournef. inſt.* 398.

Cracca ſylvatica. *Riv. tetr. t.* 50.

Peduncles many-flowered, leaflets bent back ovate mucronate, ſtipules ſomewhat toothed.]

3. Vicia ſylvatica. *Common Wood Vetch.*

Lin. ſpec. 1035. *ſyſt.* 664. *Reich.* 3. 470. *fl. lapp. n.* 270. *ſuec. n.* 650. *Hudſ. angl.* 318. *Wither. arr. ed.* 3. 635. *Smith brit.* 768. *engl. bot. t.* 79. *Hull.* 161. *Lightf. ſcot.* 393. *Relh. cant. ſuppl.* 3. 5. *ed.* 2. *n.* 591. *Sibth. oxon. n.* 623. *Abbot bedf. n.* 516. *Dickſ. hort. ſicc.* 6. 14. *Fl. dan. t.* 277. *Gunn. norv. n.* 16. *Leers herborn. n.* 565. *Krock. ſileſ. n.* 1172. *Hall. helv. n.* 426. *t.* 12. *f.* 2. *Scop. carn. n.* 898. *Sauv. monſp.* 234. *Ger. prov.* 497. *n.* 3. *Villars dauph.* 3. 447. *Allion. pedem. n.* 1195. *Gmel. ſib.* 4. 11. *Pallas it.* 1. 370. *Pluk. phyt. t.* 71. *f.* 1.

V. ſylvatica multiflora maxima. *Phyt. Brit. Raii hiſt.* 903. *ſyn.* 322.

V. bathonienſis, vel maxima ſylvatica. *Merr. pin.*

V. perennis multiflora ſpicata major. *Mor. hiſt.* 2. 61. *inter* 1. *et* 2.

Peduncles many-flowered, leaflets elliptic, ſtipules creſcent-ſhaped toothed.

4. Vicia caſſubica. *Caſſubian Vetch.*

Lin. ſpec. 1035. *ſyſt.* 664. *Krich.* 3. 470. *fl. ſuec. n.* 653. *hort. cliff.* 369. *Fl. dan. t.* 98. *Pluk. phyt. t.* 72. *f.* 2. *Retz. obſ.* 1. 24. *n.* 82.

V. Gerardi. *prov.* 497. *n.* 5. *t.* 19. *Jacqu. auſtr.* 3. 16. *t.* 229. *Allion. pedem. n.* 1197.

V. incana. *Villars dauph.* 3. 449.

V. militaris *Crantzii.* An, multiflora *Pollichii?* ac *Lyſeri?*—abſque dubio. *Krock. ſileſ. n.* 1173.

Peduncles about ſix-flowered, leaflets ten ovate acute, ſtipules entire.

5. Vicia Cracca. *Tufted Vetch.*

Lin. ſpec. 1035. *ſyſt.* 664. *Reich.* 1. 471. *hort. cliff.* 368. *fl. ſuec. n.* 652. *Hudſ. angl.* 317. *Wither. arr. ed.* 3. 636. *Smith brit.* 769. *engl. bot. t.* 1163. *Hull.* 161. *Curt. lond.* 5. *t.* 54. 310. *Lightf. ſcot.* 394. *Relh. cant. ed.* 2. *n.* 592. *Sibth. oxon. n.* 624. *Abbot bedf. n.* 517. *Fl. dan. t.* 804. *Hall. helv. n.* 424. *Pollich pal. n.* 684. *Neck. gallob.* 307. *Krock. ſileſ. n.* 1174. *Scop. carn. n.* 899. *Crantz auſtr.* 387. *Sauv. monſp.* 234. *Villars dauph.* 3. 448. *Allion. pedem. n.* 1196. *Deſfont. atlant.* 2. 162. *Knipb. cent.* 10. *n.* 98. *Fl. ruſſ. t.* 117.

V. multiflora. *Baub. pin.* 345. *Tournef. inſt.* 397. Raii *hiſt.* 903.

V. perennis multiflora cærulea ſeſquim. *Mor. hiſt. ſ.* 2. *t.* 4. *f.* 1.

V. multiflora ſ. ſpicata. *Park. theat.* 1072.

V. mult. nemorenſis perennis ſ. dumetorum. *Baub. hiſt.* 2. 314.

Cracca. *Riv. tetr. t.* 50. Raii *ſyn.* 322.

Aracus. *Tabern. ic.* 506.—ſ. Cracca minor. *Merr. pin.*

Peduncles many-flowered, flowers imbricate, leaflets lanceolate pubeſcent, ſtipules ſemiſagittate moſtly entire.

[6. Vicia onobrychoides.

Lin. ſpec. 1036. *ſyſt.* 664. *Reich.* 3. 471. *Hall. helv. n.* 425. *Sauv. monſp.* 235. *Ger. prov.* 498. *n.* 6. *Villars dauph.* 3. 449. *Allion. pedem. t.* 42. *n.* 1198. *Deſfont. atlant.* 2. 163.

V. onobrychidis flore. *Baub. pin.* 345. *prodr.* 149. Raii *hiſt.* 903.

Peduncles many-flowered, flowers diſtant, leaflets linear, ſtipules toothletted at bottom.

7. Vicia ſtipuliana. *Red-flowered Vetch.*

Lin. ſpec. 1036. *Reich.* 1. 472.

V. orientalis, flore ſuaverubente, ſiliquis breviſſimis. *Boerh. lugdb.* 2. 44?

Peduncles many-flowered, leaflets oblong, ſtipules entire, legumes villoſe ovate-oblong.]

8. Vicia biennis. *Biennial Vetch.*

Lin. ſpec. 1036. *ſyſt.* 664. *Reich.* 1. 472. *hort. upſ.* 219. *Gartn. fruct.* 2. 326. *Gmel. ſib.* 2. 10. *t.* 2.

Peduncles many-flowered, petioles grooved, having about twelve leaflets, which are lanceolate and ſmooth.

[9. Vicia altiſſima. *Tall Vetch.*

Deſfont. atlant. 2. 163.

Stipules toothed, leaflets elliptic truncate very ſmooth, flowers racemed, peduncles longer than the petiole.

10. Vicia benghalenſis.

Lin. ſpec. 1036. *ſyſt.* 664. *Reich.* 1. 472. *hort. cliff.* 368. *upſ.* 219. *Ger. prov.* 498. *n.* 7.

V. benghalenſis hirſuta & incana, ſiliquis piſi. *Herm. lugdb.* 624. *t.* 625.

Peduncles many-flowered, leaflets quite entire, ſtipules entire, legumes nearly erect.

11. Vicia atropurpurea.

Deſfont. atlant. 2. 164.

V. argentea, flore atro-ſanguineo ex inſulis ſtoechadibus. *Valil. herb.*

Leaflets linear-lanceolate, racemes many-flowered directed one way, calyxes extremely villoſe with briſtle-ſhaped teeth, legumes ovate-oblong drooping very hirſute.

12. Vicia canescens. *Hoary Vetch.*

Billardiere ſyr. 1. 17. *ic.*

Peduncles many-flowered, upper leaves ſubcirrhoſe, ſtipules ſemiſagittate entire, leaflets oval-oblong, hoary.]

** *Flowers axillary ſubſeſſile.*

13. Vicia ſativa. *Common Vetch* or *Tare.*

Lin. ſpec. 1037. *ſyſt.* 664. *Reich.* 1. 472. *hort. cliff.* 368. *upſ.* 218. *fl. ſuec. n.* 654. *Gærtn. fruct.* 2. 325. *Hudſ. angl.* 318. *Wither. arr. ed.* 3. 636. *Smith brit.* 769. *engl. bot. t.* 334. *Lightf. ſcot* 395. *Hull* 161. *Relh. cant. ed.* 2. *n.* 593. *Sibth. oxon. n.* 625. *Abbot bedf. n.* 518. *Fl. dan. t.* 522. *Leers herborn. n.* 567. *Neck. gallob.* 307. *Crantz. auſtr.* 391. *Krock. ſileſ. n.* 1175. *Allion. pedem. n.* 1200. *Deſfont. atlant.* 2. 164. *Thunb. jap.* 284. *Knipb. cent.* 1. *n.* 96. *Blackw. t.* 429. *Fl. ruſſ. t.* 116.

Vicia. *Lob. ic.* 2. 75. *Camer. epit.* 320. *Cluſ. hiſt.* 2. 235. *Dod. pempt.* 531. *Fuchſ. hiſt.* 172. *Ger. emac.* 1227. *i. Park. theat.* 1072. *i. Riv. tetr. t.* 55. Raii *hiſt.* 900.

V. vulgaris ſativa. *Baub. hiſt.* 2. 310. 2.

V. major ſativa. *Mor. hiſt. ſ.* 2. *t.* 4. *f.* 12.

β. Vicia ſylveſtris ſ. Cracca major. *Ger. emac.* 1227. 4. *Park. theat.* 1071. 1. Raii *hiſt.* 902. *ſyn.* 321.

V. ſativa. *Scop. carn. n.* 895. *Pollich pal. n.* 685. *Villars dauph.* 3. 450. *Hall. helv. n.* 430.

V. lathyroides. *Hudſ. angl.* 318. *a. Dickſ. hort. ſicc.* 4. 12.

V. anguſtifolia. *Riv. tetr. t.* 56. *Allion. pedem. n.* 1201.

V. vulgaris ſylveſtris, ſemine parvo & nigro, frugum. *Baub. hiſt.* 2. 312.

Aracus, Araca & Cracca major. *Lob. ic.* 2. 75.

7. Vicia ſylveſtris flore ruberrimo, ſiliqua longa nigra. D. Bobart. Raii *ſyn.* 321.

V. anguſtifolia. *Sibth. oxon. n.* 626. *Abbot bedf. n.* 519.

V. folio anguſtiore, flore rubro. *Dill. giſſ. app.* 47.

Legumes ſeſſile ſubbinate nearly erect, lower leaves retuſe, ſtipules toothed marked, ſeeds ſmooth and even.

[14. Vicia lathyroides. *Little Spring Vetch.*

Lin. ſpec. 1037. *ſyſt.* 664. *Reich.* 1. 473. *Wither. arr. ed.* 3. 638. *Smith brit.* 771. *engl. bot. t.* 30. *Hull.* 161. *Lightf.* 396. *Abbot bedf. n.* 521. *Fl. dan. t.* 58. *Jacqu. miſc.* 2. 299. *t.* 18. *Retz. obſ.* 1. 24. *n.* 83. *et* 6. 33. *n.* 63.

V. minima. *Riv. tetr. t.* 56.—*præcox.* Pariſienſium. *Dill. in Raii ſyn.* 321. *Tournef. inſt.* 397.

V. lath. purpureo-cæruleis floribus. *Herm. par. t.* 242.

V. pratenſis verna ſ. præcox, ſemine hexaedro. *Mor. hiſt. ſ.* 2. *t.* 3. *f.* 14.

V. montana minima, floſculo purpureo. *Amœn. acad.* 1. 167.

Ervum ſolonienſe. *Lin. ſpec.* 1040. *Hudſ. angl. ed.* 1. 279. *Dill. noſtr.*

Legumes ſeſſile ſolitary erect ſmooth, leaflets ſix, the lower ones obcordate, ſeeds cubic warty.

15. Vicia lutea. *Rough-podded Yellow Vetch.*
Lin. ſpec. 1037. *ſyſt.* 664. *Reich.* 1. 473. *Huds. angl.* 319. *Wither. arr. ed.* 3. 639. *Smith brit.* 772. *engl. bot. t.* 481. *Hull.* 161. *Pellich pal. n.* 687. *Sauv. monſp.* 235. *Villars dauph.* 3. 450. *Allion. pedem. n.* 1203. *Deſfont. atlant.* 2. 165.

V. ſylveſtris lutea, ſiliqua hirſuta. *Baub. pin.* 345. *Tournef. inſt.* 398.

V. luteo flore ſylveſtris. *Baub. hiſt.* 2. 313. *Raii hiſt.* 901.

V. flore luteo pallido, ſiliquis hirſutis, craſſis brevibus propendentibus. *Mor. hiſt.* 2. 62. *ſ.* 2. *t.* 21. *f.* 5.

Legumes ſeſſile reflexed hairy ſolitary five-ſeeded, banner of the corolla ſmooth.

16. Vicia hybrida. *Hairy-flowered Yellow Vetch.*
Lin. ſpec. 1037. *ſyſt.* 664. *Reich.* 3. 474. *Gærtn. fruct.* 2. 326. *Smith brit.* 772. *engl. bot. t.* 482. *Hull.* 162. *Jacqu. hort.* 2. 68. *t.* 146. *Allion. pedem. n.* 1204. *Deſfont. atlant.* 2. 165.

V. luteo flore ſylveſtris. *Baub. hiſt.* 2. 313. *Raii hiſt.* 901. *ſyn.* 321 ?

Legumes ſeſſile ſolitary reflexed hairy, banner villoſe, leaflets emarginate.

17. Vicia levigata. *Smooth-podded ſea Vetch.*
Smith brit. 773. *engl. bot. t.* 483. *Hull* 162.

V. hybrida. *Huds. angl.* 319. *Wither. arr. ed.* 3. 639.

Legumes ſeſſile ſolitary reflexed ſmooth, ſtem nearly upright, leaves very ſmooth.

18. Vicia peregrina. *Broad-podded Vetch.*
Lin. ſpec. 1038. *Reich.* 1. 474. *Ger. prov.* 499. *n.* 12. *Villars dauph.* 3. 451. *Allion. pedem. n.* 1206.

V. anguſtifolia—purpureo—violacea, ſiliqua lata glabra. *Magn. monſp.* 276.

V. per. anguſtiſſimis foliis, ſil. lata glabra. *Pluk. phyt. t.* 233. *f.* 6.

Legumes ſubſeſſile pendulous ſmooth four-ſeeded, leaflets linear emarginate.

19. Vicia ſepium. *Buſh Vetch.*
Lin. ſpec. 1038. *ſyſt.* 664. *Reich.* 1. 474. *mant.* 443. *hort. cliff.* 362. *fl. ſuec. n.* 651. *Huds. angl.* 320. *Wither. arr. ed.* 3. 637. *Smith brit.* 773. *Hull* 161. *Ligbtf. ſcot.* 397. *Relh. cant. ed.* 2. *n.* 594. *Sibth. oxon. n.* 627. *Abbot bedf. n.* 520. *Fl. dan. t.* 699. *Hall. helv. n.* 428. *Pollich pal. n.* 688. *Kreck. ſileſ. n.* 1177. *Neck. gallob.* 307. *Scop. carn. n.* 897. *Crantz auſtr.* 391. *Sauv. monſp.* 234. *Ger. prov.* 499. *n.* 12. *Villars dauph.* 3. 452. *Allion. pedem. n.* 1205. *Riv. tetr. t.* 57. *Kniph. cent.* 5. *n.* 100.

V. ſepium perennis. *Baub. hiſt.* 2. 313. 2. *Raii hiſt.* 901 *ſyn.* 320.

V. ſep. folio rotundiore acuto. *Baub. pin.* 345.

V. maxima dumetorum. *Ger.* 1052. 1. *emac.* 1227. 2.

Cracca major. *Tabern.* 506.

Aphace. *Fuchſ. hiſt.* 110.

β. Vicia folio ſubrotundo brevi obtuſe mucronato, pediculo brevi inſidente flore Viciæ ſepium ſ. dumetorum vulgaris. *Raii ſyn.* 321.

Legumes pedicelled moſtly four together erect ſmooth, leaflets ovate obtuſe, the outer ones ſmaller.

20. Vicia bithynica. *Rough-podded purple Vetch.*
Lin. ſpec. 1038. *ſyſt.* 664. *Reich.* 3. 475. *Huds. angl.* 320. *Wither. arr. ed.* 3. 630. *Smith brit.* 774. *Hull* 162. *Jaqu. hort.* 2. *t.* 147. *Allion. pedem. n.* 1199. *t.* 26. *f.* 2.

Lathyrus pedunculis unifloris, cirrhis tetraphyllis, ſtipulis dentatis. *Rey. lugdb.* 363.—ſtip. ſcaceis, caule ancipiti. *Amœn. acad.* 1. 166.

Cracca floribus albis, foliis circa caulem denticulatis. *Buxb. cent.* 3. 25. *t.* 45. *f.* 2.

Clymenum bithynicum, ſiliqua ſingulari, flore minore. *Boerh. lugdb.* 2. 43.

Legumes peduncled ſolitary erect rugged, leaflets two-paired elliptic-lanceolate, ſtipules toothed.

21. Vicia narbonenſis. *Broad-leaved Vetch.*
Lin. ſpec. 1038. *Reich.* 3. 475. *hort. cliff.* 369. *upſ.* 218. *Gouan. illuſtr.* 48. *Sauv. monſp.* 234. *Allion. pedem. n.* 1207. *Deſfont. atlant.* 2. 166. *Kniph. cent.* 4. *n.* 98. *Knorr. del.* 2. *t.* L. 1. *Riv. tetr. t.* 40.

V. ſupina latiſſimo folio non ſerrato. *Tournef. inſt.* 397.

Faba ſylveſtris. *Matth.* 421. *Ger.* 1036. 2. *emac.* 1209. 2. *Park. theat.* 1054. 2. *Raii hiſt.* 903. 24.—fructu rotundo atro. *Baub. pin.* 338.

Aracus fabaceus, et Faba Kairina, cui ſemina minora. *Baub. hiſt.* 2. 288.

Bona ſylveſtris. *Ded. pempt.* 516.

Legumes ſubſeſſile about three together erect, leaflets ſix ſubovate, ſtipules toothletted.]

22. Vicia Faba. *Bean.*
Lin. ſpec. 1039. *ſyſt.* 665. *Reich.* 3. 475. *hort. cliff.* 369. *upſ.* 218. *mat. med.* 172. *Thunb. jap.* 284. *Lour. cochinch.* 443. *ed. Willd.* 540.

Faba. *Mill. dict.*

α. Faba. *Baub. pin.* 338. *Raii hiſt.* 909.

F. major hortenſis. *Ger.* 1036. 1. *emac.* 1209. 1.

F. ſativa. *Park. parad.* 523. *f.* 1.

Bona ſ. Phaſelus. *Dod. pempt.* 513. *ic. Garden Bean.*

β. F. minor ſ. equina. *Baub. pin.* 338. *Raii hiſt.* 909. *Mill. dict.*

Bona ſ. Faſelus minor. *Ded. pempt.* 515.

Common Beane. *Ger. emac.* 1210.

Field or Horſe Bean.

Stem upright, petioles without tendrils.

[23. Vicia ſerratifolia.
Lin. ſyſt. 665. *Jacqu. auſtr.* 5. *app. t.* 8.

Stem upright, petioles without tendrils, leaflets ſerrate.

24. Vicia biflora.
Deſfont. atlant. 2. 166. *t.* 197.

Leaflets linear, peduncles two-flowered axillary.

25. Vicia calcarata.
Deſfont. atlant. 2. 166.

Leaflets linear-lanceolate obtuſe, ſtipules forked, peduncles one-flowered, ſhorter than the leaf, having a ſhort ſpur below the flower, legumes ſmooth drooping.

DESCRIPTIONS, &c.

1. The loweſt leaflets approximate to the ſtem, are ſeſſile, and conceal the very ſmall ſtipules. Flowers very pale yellow [1].

Root perennial. Stem upright, not ſeldom climbing to the height of a man among buſhes, angular, grooved, bright green, ſmooth, branched. Leaves compoſed of four or five pairs of leaflets, the loweſt pair inſerted into the ſtem itſelf at the baſe of the rib; the other leaflets are ſubſeſſile, almoſt two inches long, and from an inch to an inch and half in breadth, blunt, with a ſpinule, quite entire, glaucous, ſmooth. Stipules at the baſe of the rib, lanceolate, acuminate, toothletted at the baſe, pale green, ſmooth. Peduncles axillary, almoſt as long as the midrib, grooved, ſmooth, in fruiting time ſtraight, bent down, horizontal. Flowers ſmall, ſtriated. Legumes pendulous, an inch and half long, three lines and more broad, terminated in front by a beaked point, ſwelling in the middle, but flattiſh next the ſutures, ſmooth, yellowiſh-brown when ripe. Seeds three, four or five, orbicular or nearly ſo, quite ſmooth, brown, or ruſty black, with a whitiſh ſtreak on one ſide, the ſize of a pea [2].

Haller ſays that this is the largeſt of the European ſpecies of Vetch, having a ſtem ſeveral feet high, branching and full of leaves: ſtipules large, yet covered by the loweſt leaflets, which are from four to ſix or eight, very large, ſcarcely ovate, but almoſt oval, emarginate, ſmooth and nerved; thoſe next the ſtem ſo large that they ſeem to be perfoliate: tendrils branched; flowers pendulous, to thirty in a raceme: all the teeth of the calyx awned, the two upper ones ſhorter: claw of the banner wide, but the end not wide, ovate, reflexed, emarginate; wings a little ſhorter, ovate with large hooks; keel a little ſhorter, cloven, with a blunt beak curved a little. Legumes ſhort and broad, ſcarcely longer than the leaf.

Native of Germany, and Auſtria.—Cultivated in 1758 by Mr. Miller. It flowers here in july and auguſt [3].

2. This differs from the preceding in the flowers not being yellow; in the leaflets being longer, and the loweſt not adhering to the ſtem [4].

[1] Linn. ſpec. and ſyſt. [2] Pollich. [3] Hort. kew. [4] Linn. ſpec.

Stems

Stems angular, branched and high. Stipules half-mooned, toothed with a thread at the end of each tooth: Leaflets large, an inch long, oval, ſmooth, tender, deep green, ſix or eight, almoſt alternate and obtuſe, with a ſalient nerve at the end. Flowers large, ſix or eight, purpliſh blue. Legumes ſmooth, flatted, pendulous, containing five or ſix ſeeds. Root perennial [2].

Native of France, Germany, Auſtria, Switzerland, Piedmont and Siberia.—Cultivated by Mr. Miller, in 1759. It flowers in may [3].

3. Stems numerous, and ſo much branched as to choak whatever they grow near. Leaves with eight or nine pairs of leaflets, and terminated by a long and very much branched tendril. Leaflets ovate, oftener alternate than oppoſite. Stipules in pairs, ſmall, deeply divided into ſeveral awl-ſhaped ſegments. Peduncle long, large, four-cornered and ſtriated, growing erect, and bearing on its upper part numerous flowers, growing in an irregular manner, but moſtly by twos and threes with interruptions, pendulous. Teeth of the calyx awl-ſhaped, uppermoſt ſhorteſt. Corolla rather large: ſtandard and wings whitiſh beautifully ſtreaked with blue; keel pale blue [4].

The perennial root throws out many weak ſmooth grooved zigzag ſtems, climbing ſix or ſeven feet high. Leaflets exactly oval, or rather a little obtuſe, tipped with a minute briſtle, ſmooth. Flowers very ornamental. Pods lanceolate, ſmooth, pale brown [5].

Dr. Withering remarks, that the ſtandard of the corolla is without a ſharp point in the noteh, the keel not ſhorter than the wings; the ſtyle and ſtigma ſo ſlender, that one cannot certainly diſcern the beard on the under ſide at the end.

Mr. Swayne obſerves, that it is the moſt beautiful climber of this iſland, both leaves and flowers being extremely elegant. It flowers from the end of june through auguſt.

According to Dr. Abbot, the fringes of the leaf-ſcales, (by which I ſuppoſe he intends the ſtipules,) ſet this plant apart from all the others.

This Vetch was long ſuppoſed peculiar to the mountainous parts of England, Scotland and Wales, in our iſland; as in ſeveral woods and thickets in Weſtmoreland, Cumberland, Yorkſhire and Worceſterſhire; under Saliſbury-Craigs, and at Cartland-rocks, near Lanerk, &c. in Scotland. Near Caerwent, in Monmouthſhire. Yorkſhire; near Hackneſs, about Greta bridge, Malham near Settle, &c. Weſtmoreland, about Kirby Lonſdale and Kendal. Orton in Cumberland. Woods about Newton Cartmel. Urſwick woods, climbing up the trees for ſeveral yards. Derbyſhire, on hedges behind Matlock bath. Worceſterſhire on the north ſide of Bredon hill, and in the woods about Clifton-upon-Teme, in moiſt places. On Shelton bank near Salop. In a hedge going down Stoke hill from Bull-barrow, Dorſetſhire, by Dr. Pulteney. Beech wood, cloſe by the monument on Lanſdown, Bath; in Smokhall wood, Bath. About the Devizes in Wiltſhire. It has lately been found in the leſs mountainous parts of England, as in Hall wood, Wood Ditton near Newmarket by the Rev. Mr. Hemſted; Sheerhatch wood, and Everſholt in Bedfordſhire, by Dr. Abbot; Medley grove, Oxfordſhire, by Dr. Sibthorp; and Merley wood near Whiteham, Berks, by the late Mr. Iſrael Lyons. It is found in moſt parts of Europe, from Sweden and Denmark to the South of France and Italy; alſo in Siberia.]

4. Root woody, creeping. Stems trailing, three feet long, their lower part becoming more woody towards autumn but dying to the root in winter. Leaves compoſed of ten pairs of ovate acute-pointed leaflets. Flowers diſpoſed in ſhort axillary ſpikes; each containing for the moſt part, ſix pale-blue flowers, which appear in july, and are ſucceeded by ſhort ſmooth pods, like thoſe of Lentils, including three or four round ſeeds which ripen in autumn.

[Native of Denmark, Germany, Auſtria, the South of France, &c.—Cultivated in Chelſea garden, in 1711 [6].

[2] Villars. [3] Hort. kew. [4] Woodw. Muſ. [5] Smith brit. and engl. bot. [6] Hort. kew.

5. Root perennial, creeping. Stems two, three or four feet high, and even more when climbing on buſhes; quadrangular, ſlender, weak, ſtriated or grooved; ſlightly hairy, brittle and ſnapping when broken. Branches numerous, ſhort, alternate, from the axils of the upper leaves. Leaves alternate, very long, conſiſting of eight, ten or twelve pairs of leaflets, and terminated by a long branched and very curling tendril. Leaflets oftener alternate than oppoſite, more or leſs hoary on both ſides with ſilky hairs, commonly rounded at the end and terminated by a ſhort point. At the baſe of each leaf is a pair of ſmall villoſe ſemiſagittate, acute ſtipules, moſt frequently entire, but occaſionally toothed. Peduncles the length of the leaves, angular, hairy; bearing numerous, cloſely imbricate, rather drooping flowers, on one ſide of the common peduncle. The two upper teeth of the calyx extremely ſhort, the loweſt longeſt, blueiſh. Corolla has the ſtandard emarginate, reflexed, without any ſharp point in the notch, of a violet or blueiſh purple colour, ſtriped with veins of a deeper colour: wings cloſing: keel whitiſh marked on each ſide at the tip with a deep-violet ſpot. Style hairy all round. Legume half an inch long, pale brown, ſmooth, flattened on each ſide; containing four or five globular, black ſeeds, the ſize of a lentil.

Native of Europe and Barbary. Common with us in hedges and among buſhes, eſpecially in a black boggy ſoil on a gravelly bottom, about oſier-grounds. In ſuch places the denſe long ſpikes of purple flowers are moſt conſpicuous. In open paſtures and fields it is found of a much lower ſtature. It flowers from july to ſeptember; and is eaſily diſtinguiſhed by its leaves being covered with a fine ſilky down, giving them a maniſeſt whiteneſs; and the flowers being of a rich deep-purple colour, growing in long racemes and thickly crowded together: the whiteneſs however is moſt maniſeſt in ſuch plants as grow in dry expoſed ſituations.

Dr. Plot, in his hiſtory of Staffordſhire, ſays that this, and the ſylvatica or wood Vetch, advance ſtarved or weak cattle, above any thing yet known. Theſe perennial Vetches yield ſuch abundance of food, that they ſeem to deſerve the notice of agriculturiſts. But it is well obſerved in Engliſh Botany, that to gather from their native ſituations would be impracticable, ſo firmly do they cling to their neighbours; and if cultivated, they would probably choak themſelves for want of ſupport [7].]

Mr. Miller alſo ſays, that this and other perennial tares have been recommended to be ſown in fields as fodder for cattle, but as their ſtalks are ſlender and leſs ſucculent than thoſe of the common Tare or Vetch, it is doubtful whether theſe will anſwer the purpoſe of farmers to cultivate them. Their ſtalks trailing to a great length, if they have not ſupport, they will be ſubject to rot by lying upon the ground; and although their roots are perennial, yet as it is late in the ſpring before they ſhoot to a height ſufficient to cut for uſe, they do not come into uſe till there is a ſufficiency of other green food for cattle.

[6. This has the ſtature of the preceding. Leaflets commonly fourteen, very narrow, and the pairs diſtant. Peduncles axillary, three times as long as the leaves, ſtriated. Flowers ten or twelve, ſubſeſſile, very remote, three times as big as thoſe of V. Cracca, and purple. Legumes very wide [8].

Stem erect, angular, ſtriated, pubeſcent. Stipules forked, often toothed, awl-ſhaped. Leaflets ten to ſixteen, truncate, acuminate, pubeſcent; ſome increaſing from the baſe upwards, others equal. Flowers looſely diſpoſed all one way. Calyx-teeth ſharp, the three lower longer. Corolla blue, a little bigger than in V. ſativa: ſtandard elongated, obtuſe, erect, longer than the wings, with the margin bent back upwards: wings obtuſe, obverſely lanceolate, longer than the keel. Legume compreſſed, ſmooth, lanceolate, attenuated to both ends, acute, many-ſeeded. Flowers a little larger than in the European plant [9]: Native of France, Switzerland, Piedmont, and Mount Atlas.

[7] Cart. lond. Smith brit. and engl. bot. Withering, Woodw. Muſ. Fl. ruſt. [8] Linn. ſpec. and ſyſt. [9] Desfontaines.

Desfontaines has a ſpecies which he names V. polyphylla; but ſuſpects may be a variety of V. Cracca. He found it in hedges about Algiers, and refers V. orientalis multiflora incana, anguſtiſſimo folio, *Tournef. cor.* 27. to it.—Stem ſtriated, erect, ſcarcely pubeſcent. Leaflets ſixteen to twenty-two, linear-lanceolate, mucronate, villoſe; the hairs very ſhort and preſſed cloſe. Stipules two-parted, lanceolate, acute. Peduncles axillary, twice as long as the leaf, ſtriated. Flowers like thoſe of V. Cracca, but larger and paler; racemed, all directed one way, crowded, ſubſeſſile, nodding.

7. Root annual. Stem grooved. Leaflets ſix pairs, ſcarcely retuſe, terminated by a point, ſubvilloſe. Stipules lanceolate, very narrow. Flowers five or ſix on a peduncle, very ſmall and dark purple. Legumes nodding, compreſſed, containing five ſeeds. Native of the Levant[2]. Introduced in 1773, by John Earl of Bute. It flowers in june and july[2].

8. Root biennial. Plant very tall, above twelve feet high. Leaflets rolled in[3]. Legume like that of piſiformis, but narrower, and attenuated into the peduncle. Seeds globular, dirty yellow ſpotted with black[3].]

According to Mr. Miller, the ſtalks riſe only five or ſix feet high; and the leaves are compoſed of five or ſix pairs of leaflets, on footſtalks deeply furrowed. The flowers are produced in axillary ſpikes, upon long peduncles; they are of a light blue colour, appear in july; and are ſucceeded by ſhort compreſſed pods, containing three or four round ſeeds, which ripen in autumn.

Native of Siberia, and promiſes fairly to become a uſeful plant for fodder, the ſtalks growing to a great length, and being well furniſhed with leaves: they do not decay in autumn, but continue green through the winter, in defiance of the moſt ſevere froſt; ſo that in february and march, when there is often a ſcarcity of green feed for ewes and lambs, this may be of great ſervice.

[Cultivated in 1759, by Mr. Miller[2].

9. The whole plant very ſmooth. Stem ſcandent, ſtriated. Leaflets ten or twelve, on ſhort petioles, alternate. Peduncles axillary, angular. Flowers numerous, all on one ſide, pedicelled, nodding. Calyx-teeth minute, the three lower acute and longer, the two upper very ſhort. Corolla pale blue, the ſize of thoſe in V. ſepium, or ſcarcely bigger. Legume lanceolate, compreſſed, containing many ſeeds.—It is allied to the preceding, but differs in having the leaflets truncate at the top, and the ſtipules toothed. Native of Barbary, in hedges near Arzeau[4].

10. Root annual. Corollas of a very deep red colour, with the apex of the keel black[5].

Firſt found by Tournefort on the Hieres iſlands, off the coaſt of France.

11. Annual. Stem four-cornered, ſtriated, villoſe. Leaflets twelve to eighteen, villoſe, obtuſe, acuminate, ſubpedicelled. Petiole angular, hirſute, cirrhoſe at the end. Stipules large, ſemiſagittate, acute, often toothed on one ſide of the baſe. Peduncles axillary, length of the leaf. Flowers nodding. Calyx-teeth briſtle-ſhaped, twice or thrice as long as the body of the calyx. Corolla ſmooth, very dark purple at the tip, the ſize of V. ſepium. Hairs on the legume ſhort, very cloſe, tuſeſcent. Quite different from Hermann's plant, which is cultivated in the Paris garden. Hermann's figure repreſents the leaves ſharper and ſmaller, the peduncles few-flowered, and the calyxes obtuſe without the briſtle-ſhaped teeth. The plant here deſcribed grows wild in Iſles d'Hieres, was gathered there by the late Dr. John Sibthorp, who gave a ſpecimen of it to Monſ. L'Heritier, in whoſe herbarium it is, under the name of V. benghalenſis. But if it be really that ſpecies of Linneus, Hermann's name ought to be excluded. Linneus's diagnoſis however does not agree with the plant found by Sibthorp or Desfontaines, which has more numerous flowers, the ſtipules not entire but toothed, and the legumes not nearly erect but pendulous. Monſ. Desfontaines gathered it near Algiers[6].

12. The whole plant hoary with a woolly nap. Stem herbaceous, erect, a foot high and more, four-cornered, ſomewhat ſtriated. Lower leaves unequally pinnate; upper with a ſubcirrhoſe thread. Leaflets five to twenty-two or twenty-three alternate, ſome oppoſite, ſeſſile. Flowers in looſe ſpikes, all one way, blue. Calyx ſubcampanulate, gibbous above, with the two upper teeth ſhorter and converging. Wings of the corolla as long as the ſtandard: keel ſhorter. The ſingle filament connate into the ſheath towards the middle, but looſe at the baſe. Legume almoſt boat-ſhaped, compreſſed, tomentoſe. Seeds three or four, roundiſh. Native of Mount Libanus, towards the top. Annual[3].

13. Root annual. Stems various in ſize, weak and procumbent if the tendrils meet with nothing to cling to, but ſupporting one another tolerably well when ſown thick enough, angular and grooved, as are alſo the common foot-ſtalks of the leaves. The herb is more or leſs pubeſcent. Leaves terminated by a biſid or triſid tendril. Leaflets about ſix pairs, ſome oppoſite others alternate, varying much in form and breadth, moſt commonly retuſe, but ſometimes, at leaſt the upper ones elliptic-lanceolate, terminated by a point. Stipules in pairs, ſemiſagittate, more or leſs toothed, having a depreſſed mark on the outſide, which looks as if it were made with a hot iron, and varies in colour from black to brown, and even yellow. Flowers ſolitary or in pairs, ſubſeſſile, reddiſh purple of different ſhades. Calyx-teeth nearly equal. Legumes more generally horizontal than erect[1]; oblong, two inches long, compreſſed a little, ſwelling where the ſeeds lie; ſeven-celled, being divided by very thin partitions but permanent. Seeds ſix or ſeven irregularly round, turgidly lenſſhaped, brown and ruſt colour variegated, faſtened to the ſtrait future by a thread which is forked at the tip[3].

Native of Europe, Barbary and Japan, in paſtures and corn-fields. In dry ſoils it has a procumbent ſtem, ſharper leaflets, the flowers moſtly ſolitary, and the ſtipules ſpotted but obſcurely. It varies alſo in the colour of the pods, and of the ſeeds from black to brown and white[1]. The figure in Engliſh Botany from a wild ſpecimen, and that in Flora Ruſtica from a cultivated one, appear ſo different, that they would ſcarcely be recognized for the ſame ſpecies, if we had not every reaſon to ſuppoſe them both to be accurate repreſentations of individuals, and if we did not know that this plant varies much in the leaves.

β. The variety noticed above is not uncommon in hedges among buſhes and graſs, in a barren ſandy ſoil. It is the lathyroides α of Hudſon, and ſeems to be the common variety of ſativa mentioned in Withering, and which Mr. Woodward ſays may be traced through all its ſtages from its ſmalleſt ſize, up to the largeſt plants of this ſpecies. Dr. Withering deſcribes the ſtems as ſcored and undivided, the tendrils as three-cleft, the leaflets of the lower leaves heart-ſhaped, two or three pairs, thoſe of the upper four or five pairs, linear blunt at the end, the mid-rib lengthened out into a thorn-like point, corolla purple, ſeeds ten to twelve.

γ. This variety was noticed by Bobart on Shotover hill. Dr. John Sibthorp found it in the ſame place, and in Stow wood. Sir Thomas Gery Cullum obſerved it at Weymouth. Dr. Withering, in the lanes in the vallies of Dartmoor. Dr. Smith among ſhort graſs in Richmond gardens. It commonly grows in a chalky or gravelly ſoil, and is the lathyroides β of Hudſon. The flowers are ſomewhat larger, handſomer, and of a deep red colour, the legumes longer and black. Dr. Sibthorp diſtinguiſhes it as a ſpecies under the name of V. anguſtifolia, with the following ſpecific character—Legumes ſubſeſſile ſubbinate ſpreading, lower leaflets obcordate emarginate and mucronate, upper linear. Roth alſo, (fl. germ. 310.) has adopted the ſame idea.

V. ſativa is ſo called becauſe it has been long cultivated under the names of Tares and Vetches, (provincially Fitches) for the ſeeds, which are an excellent food for pigeons, and alſo for green feed of horſes, kine and ſheep, particularly for ſoiling horſes. For this

[1] Desfontains. [2] Linn. ſpec. [3] Hort. kew. [4] Lin. ſpec. and ſyſt. [5] Gaertner. [6] Hort. kew. [7] Desfontaines. [8] Lin. ſpec. [9] Desfontaines. [10] Billardiere. [11] Smith brit. and engl. bot. Woodw. Miſ. [12] Gaertner. [13] Fl. ruſt.

latter purpoſe, and as a meliorating crop, it has obtained very much within a few years paſt [n].

Tares are ſaid to produce good milk and butter, only they dry cows when they are too near maturity, and are therefore beſt for horſes in their advanced ſtate.

They are very uſeful in may, or for keep till midſummer, at which time, in a dry ſeaſon, thin ſoils are apt to burn up.

Winter tares are admirable for ſoiling beaſts, and to ſpare graſs: for if bullocks are turned to graze as ſoon as the graſs riſes in the ſpring, they keep the ground ſo bare, that if a hot ſeaſon enſues, it is burnt up, and the farmer has no reſource, but to turn them to hay a ſecond time.

By an experiment of Hutcheſon Mure, Eſq. eighty-one beaſts eat juſt half an acre of tares every day, and throve on them very well. It appeared that a beaſt of fifty ſtone weight got one ſtone a month on ſtraw in the winter; two ſtones and a half by the firſt graſs in the ſpring; three ſtones a month by graſs in ſummer; and above four ſtones a month by ſoiling in tares.

Spring tares with oats ſown early in march, and cut green for horſes in july, are good for cleaning light land, and preparing it for Wheat or Rie.

Winter Tares ſown with a little Rie in autumn for ſoiling, give time to deſtroy weeds by tillage till autumn: or they may produce a ſecond crop; turneps if it be deſigned for ſpring corn: but the land ſhould be manured for the tares if it be not very rich [o].

Nine acres of Tares ſown in drills, and five or ſix broad-caſt, fed twelve and ſometimes thirteen draught horſes, during part of the ſpring, and all the ſummer, in all about four months, except ſome few beans and bran, when they worked hard. Five milch cows alſo, and a bull, were fed with theſe tares in the farm-yard. The milk of the cows was greatly increaſed in quantity, and the horſes were healthy [p].

Spring Tares are grown in Northumberland principally for cutting as green food for horſes, to ſupply the vacancy between the firſt and ſecond cutting of red clover uſed for the ſame purpoſe [q].

Winter Tares are ſown in Kent, either to feed off with cattle and ſheep in april, or to mow for ſoiling in may. The ſpring Tares, either for ſoiling in july and auguſt, or to ſtand for a crop of ſeed.

Sowing winter and ſpring tares to fold ſheep on in the ſpring and ſummer, is reckoned among the greateſt improvements on the ſtrong ſoil of the weald of Kent, where turneps hardly ever anſwer. It is ſaid that they make an excellent tilth for wheat; but this is diſputed [r].

Many farmers in Middleſex, eſpecially near London, grow a few acres of tares, for ſoiling horſes and feeding milch cows, and the culture of them has been extended every year, from their importance having been better underſtood. Mr. Middleton, in his view of the Agriculture of that county, obſerves that they may be made the principal means of enabling the arable farmer to ſupport as much live ſtock as the grazier. For during the time they occupy the ground, they produce more green food of the beſt quality than Romney-marſh or Pevenſey-level, and the ground may be cleared of them in the month of june, in ſuch time as to admit of loamy ſands producing a crop of clean turneps in the ſame year, and of clayey loams being prepared for and ſown with wheat. They ſupport cattle, will make both ſheep and bullocks of every ſize and breed fat, ſuit every ſituation, and will flouriſh on all ſoils. They do not depend on a market, and above all, they manure the land fit for the immediate reception of turneps; whereby a ſucceſſion of green crops can be kept up, that would fat a very increaſed quantity of live ſtock, and be the means of raiſing, in ſituations the moſt diſtant from towns, an abundance of dung. A judicious combination of tares with turneps, clover and ſainfoin, may be the means of rendering poor ſheep-walks, downs and waſtes, of from ten to thirty times their preſent value to the community.

Winter tares begin to flower in may, and from that time ſtock may be advantageouſly ſupported on them, till the flowers fall off, and pods begin to form: then all that are left may be made into hay, or left for ſeed. If the land was dunged and the ſeed good, there will probably be twelve tons of green food on an acre; which will make three tons of excellent hay, provided the ſeaſon will admit it to be well cured. But in a wet or uncertain ſeaſon it is far better to uſe the whole crop green; and by ſo doing, the ſtock will be taken off the graſs land long enough to allow of its being mown for hay; and by the time the cattle have conſumed the green tares, the after-graſs will be ready to receive them.

Spring tares produce a lighter crop, and are ſubject to ſome riſk from a dry ſummer, but coming a fort-night later, they will make a ſucceſſion of green food all the ſummer.

The moſt adviſeable method of giving them to cattle, is to mow the Tares off the firſt half acre, and to carry the produce into the ſtables, cow-houſes and fold-yards, or on to poor land to be there conſumed by the ſtock. Then to hurdle off the growing Tares from ſuch cleared ground, into which put the ſtock, feeding them in racks, and removing the hurdles with the racks daily to the edge of the growing Tares; by which means the land will be manured uniformly and all the urine depoſited in the ſoil. Or they may be fed through rack-hurdles, made the ſame with the common ones, only leaving the middle rail out, and nailing upright pieces acroſs, at proper diſtances, to admit the ſheep to put their heads through. A ſwath being mown in the direction you wiſh to plough the land, a ſufficient number of theſe hurdles, allowing one to five ſheep, are ſet cloſe to it: at noon the ſhepherd mows another ſwath, throwing it to the hurdles, and the ſame at night: next morning, a ſwath being firſt mown, the hurdles are again ſet; thus mowing them once in the twenty-four hours, the Tares are eaten clean off, and the land is equally benefited.

Mr. Davis of Beddingham in Suſſex ſays, that not one tenth of his ſtock could be maintained without Tares; that they keep more ſtock than any other plant whatſoever; that hogs may be ſoiled upon them, as well as horſes, cows and ſheep, without any other food; that one acre of Tares will maintain four horſes in much better condition than five acres of graſs; and that upon eight acres he has kept twelve horſes and five cows for three months, and no other food given them [s].

Tare or Vetches vary in ſome degree in cultivation, and hence have different names among agriculturiſts—as Gore-vetch, Pebble-vetch, Winter-vetch, Rath-ripe vetch, Gout-vetch, &c. The two laſt are the ſame with the Spring-vetch, between which and the Winter-vetch, it is not agreed whether there be any real difference, grounded on the nature of the plants themſelves, or whether the difference may not be owing merely to the time of ſowing.

With a view to decide this queſtion, two experiments were made by the late Rev. Mr. Laurents of Bury.

September 30, 1783, he ſowed ſeeds both of the winter and ſpring Tare near one another in the ſame ſoil and expoſure, and covered both an inch deep with crumbled mould. The weather proving mild, the Spring Tare ſoon made its appearance, and two days after the winter Tare came up. They were both in a vigorous and thriving condition, when a froſt came on about the middle of december, and continued for ſome weeks. When a thaw took place, the ſpring tare was lying on the ground, ſlimy and putrified to the very root. The winter tare had received no damage, grew up afterwards, and was ripe before the middle of auguſt.

March 6, 1784, both ſorts were again ſown. Near a week later than the winter tare of the autumnal ſowing, the ſpring tare of the vernal ſowing arrived at perfect maturity. But the winter tare of the vernal ſowing was mildewed, nor did a ſingle pod of it ripen.

[n] Idem. [o] Young's Annals 1. 128. 2. 347. 360. 3. p. 5. 6. [p] Trauſ. arts. 8. 59. [q] Survey, p. 78. [r] Survey, p. 94. [s] Middleſex Report, 199, 201—203.

From theſe two circumſtances there appears a material difference in the conſtitution, if we may ſo call it, of the two tares in queſtion. Not to ſay any thing of a trifling difference in the colour and ſize of their ſeeds, the only viſible mark of diſtinction ſeems to be a diſparity in the firſt leaves of the upright ſtalks, which in the ſpring tare are elliptic and rounded or notched at the end, but in the winter tare linear and drawn to a point. The leaves on the branches, which afterwards iſſue below, and in time form the bulk of the plants, are the ſame in both vetches.

But whatever the difference may be, it is evident that the ſeeds of the two ſorts ought to be kept ſeparate, ſince each ſown out of its proper ſeaſon is found not to proſper. Mr. Laurents, wiſhing to compare with our winter tare, that which is cultivated in the Pays de Caux, under the name of hyvernache, ſearched almoſt every ſhop in Rouen, where it was likely to be found, in vain. The reaſon aſſigned was, that the time of ſowing it was over. So exact a proportion between the wants of the farmer, and the ſtock at market, ſtruck him as a caſe ſomewhat remarkable, the ſolution of which he conjectured to be, that after the autumnal ſowing, the remains of the hyvernache were thrown in among the other tares. This, it is to be feared, is not an uncommon practice among our ſeedſmen, not only with tares, but with other ſeeds: and may account for what Mr. Laurents obſerved in ſome fields after the froſt, that there were patches of ſomething in a ſtate of putrefaction, reſembling the dead tares in his garden.

Mr. Laurents alſo remarked, that ſome winter tares, ſelf-ſown in auguſt, were ſo forward as to ſuffer from the ſeverity of the winter, more than what he had ſown in his firſt experiment. Hence it appeared to him, that if the lower ſhoots are coming out before the winter ſets in, they are ſufficiently forward, and will ſtand ready to ſtart at the genial ſummons of returning ſpring [a].

A crop of winter tares, which I ſowed laſt month, now, (november 15th, 1804) correſpond exactly with Mr. Laurents's figure of the ſpring Tare.

We cannot aſcertain when Tares were firſt introduced, becauſe they ſeem to have been cultivated, before we have any printed or written regiſters on the ſubject of agriculture. Perhaps from the time of the Romans, who cultivated them much. They are mentioned by Fitzherberd, under the name of fitches or fytches, as being ſown with beans and peas in one crop [b]: and ſeem anciently to have been cultivated only for the ſeed, probably to feed pigeons. Little is ſaid about them by the improvers under the Commonwealth. Hartlib ſays, that in Kent ſometimes Tares were ſown in his time, which, when the cattle had eaten a little of the tops, they turned in with very good improvement for their ground [c].

Worlidge, in 1681, ſays that the Winter and Summer Fetch or Citch are much ſown in ſome places, and to a very conſiderable advantage; and that they are a good, ſtrong and nouriſhing food to cattle, either given in the ſtraw or without [d].

Ray, in 1686, informs us, that the Common Tare or Vetch, was then ſown almoſt all over Europe; that it was chiefly uſed in England, mixed with peas and oats, to feed horſes; but that it was ſometimes ſown ſeparately for ſoiling cattle, and was reputed to cauſe milch cows to yield much milk [e].

Mr. Liſle, at the beginning of the eighteenth century, has much upon the ſubject of Vetches [f].

14. Root annual. Sometimes it has no tendrils [g].

Native of Denmark and Norway, France and Britain. What Hudſon, &c. have taken for this plant, is a variety of V. ſativa.

Stems procumbent, divaricating, numerous. Theſe, with the leaves and ſtipules ſlightly hairy. Leaflets two or three pairs, oppoſite, obcordate, but towards the top of the plant ſometimes lanceolate and narrowed. Stipules ſemiſagittate, moſtly quite entire, rarely if ever ſpotted. Flowers ſubſeſſile, ſolitary, ſmall, blueiſh purple. Legumes erect, very ſmooth, containing ſeveral cubic ſeeds, rugged with minute tubercles.—It is very diſtinct from the varieties of the preceding, by its ſmooth even pods, tubercled ſeeds, ſimple tendrils commonly very ſhort and in a manner abortive, and not more leaflets than ſix [h].

The true leading characters of this ſpecies, ſays Mr. Woodward, are, the corolla being ſcarcely longer than the calyx, the ſeeds cubic, and the tendril never branched.

Root ſmall, fibrous, annual. Whole plant hairy except the pods. Stems ſeveral, a foot high or leſs, weak, trailing. Leaflets four to ſix, never more, oppoſite, the upper ones moſtly lanceolate. Tendrils never branched. Stipules half-arrow ſhaped; the upper lanceolate, narrow, pointed. Flowers ſmall, blueiſh purple. Legumes upright, ſmooth, dotted. Seeds cubic [i].

Dr. Stokes remarks, that the ſtipules are not ſpotted.

Dr. Abbot obſerves, that the root is ornamented with garnet-coloured tubercles; that the ſtipules have not the burnt ſpot; and that there are two or three pairs of leafits, without an odd one or tendrils, ending in a point.

The figures in Engliſh Botany, Flora Danica, and Kniphoffius, have no tendrils; in thoſe of Rivinus and Jacquin, the tendrils are repreſented as unbranched [k]. Moriſon's figure is a very bad one.

No Britiſh plant has been leſs underſtood than this Vicia. That it is Tournefort's plant, and conſequently Evum ſolonienſe of Linneus, which he took up from that author without having it in his own collection, appears from Tournefort's herbarium at Paris. That it is the true V. lathyroides, is certain from the Linnean herbarium.

Our plant is found on dry graſſy banks, and in fallow fields on a gravelly ſoil, flowering early in may, and ſcarcely to be met with after the month of june. It was found by Mr. James Sherard and Mr. Rand on chalky banks near Greenhithe in Kent. Mr. Pitchford found it about Norwich; Mr. Dickſon in the dry parts of Hyde Park; and Mr. Lightfoot in King's Park, Edinburgh.—There is a variety with white flowers [l].

15. Root perennial, long, divided at the top, among the looſe pebbles where it grows, into ſeveral diffuſe, angular, ſmooth, ſtriated, ſubflexouſe, leafy ſtems, often two or three feet long, but little branched. Some of the branches are always ſubterraneous, producing colourleſs condenſed *gemmæ* rather than flowers, which however form ſeeds as in *Lathyrus amphicarpos*, and ſome other vetches. Leaves compoſed of numerous, (three to five pairs,) oppoſite or alternate, (moſtly alternate, *Woodw.*) elliptic-lanceolate, (or oblong,) pointed or blunt iſh, ſometimes retuſe leaflets, which are hairy beneath, with a branched (bifid or trifid) tendril at the end of their common footſtalk. Stipules ſmall, deltoid, ſubſagittate, generally ſtained externally, more or leſs deeply, with a blackiſh-red hue; ſome of them however are green. Flowers ſolitary, almoſt ſeſſile. Calyx tubular. Corolla pale yellow, but generally more or leſs ſtreaked and ſtained with a blueiſh gray or purple; very rarely all over gray: ſtandard quite ſmooth. Legumes reflexed, broad, compreſſed, clothed with ſhort hairs ariſing from ſmall tubercles. Seeds five or ſix, roundiſh, ſmooth, in a young ſtate bitter and aſtringent.

The late Mr. Humphrey of Norwich found this plant many years ago on the beach at Orford in Suffolk, on the ſide next the river, about a mile from the haven's mouth. It has ſince been met with at Aldborough, by the Rev. Mr. Burroughes. At Weymouth by the Rev. Mr. Baker and A. B. Lambert, Eſq. in Auguſt 1795. Certainly found in a chalk-pit on the ſide of Glaſtenbury Tor-hill, by Mr. D. Turner, in 1799. In Mearnſhire, North Britain, by Profeſſor Beattie [m].

Native of ſeveral other parts of Europe, the Levant and about Algiers.

16. Root perennial. Plant generally taller and

[a] Evelyn's Annals, 2. 384. [b] Booke of Huſbandrye, ed. 1562. fol. 21. [c] Complete Huſbandman, 1659. p. 37. [d] Syſt. agr. p. 42. [e] Hiſt. p. 900. [f] Huſbandry, p. 172. [g] Retzius.

[h] Smith brit. [i] Woodward Mſſ. [k] Idem. [l] Engl. bot. [m] Smith brit. and engl. bot.

more upright than the preceding, which it otherwiſe very nearly reſembles in habit and leading characters. The flowers are generally yellow (lemon-coloured) ſtreaked a little with pale purpliſh red, not varying to gray or purple: they are eſſentially characterized by the back of their ſtandard being hairy; it is alſo red at the baſe. Another mark of this ſpecies is the ſtipules being entirely green. The leaflets vary greatly in ſhape, as in moſt of this genus, but are always more obtuſe and emarginate than thoſe of V. lutea: they are hairy, as in that ſpecies, as well as the pods; which contain five ſeeds [a].

Calyx ſhort, unequal; teeth awl-ſhaped: the whole ſlightly villoſe. Corolla pale yellow; ſtandard heart-ſhaped, entirely covered with ſhort hairs on the back, but moſt conſpicuous at the baſe; within ſmooth and veined: wings oval, entire, hooked, and terminating in a narrow claw adhering to the keel, and ſhorter than the keel, which is greeniſh.

Gathered by Mr. Sole and A. B. Lambert, Eſq. in june 1797, on Glaſtenbury Tor-hill, Somerſetſhire, as mentioned by Ray. But it could not be found there in 1799, by Mr D. Turner. What Hudſon took for it at Weymouth, is the lævigata [b].

Native of France, Piedmont and Barbary.

17. Root perennial. It has the habit of V. lutea but the ſtems are only from ſix to twelve inches long, upright, and always much leſs diffuſe. Leaves and whole plant entirely ſmooth. Leaflets elliptic-lanceolate, terminated by a little point, ſcarcely ever retuſe. Stipules green or pale brown. Flowers like thoſe of the lutea, but their calyx-teeth are generally more equal in length. The corolla is for the moſt part leſs yellow, and ſometimes quite blue, but both are extremely variable in that reſpect. The pods are even and quite ſmooth in every ſtage of their growth, of a brown colour, and contain rarely more than five ſeeds.

Gathered on the beach at Weymouth, by the Rev. Mr. Baker, in auguſt 1792. Frequently taken for the hybrida, and ſometimes for the bithynica [c].

18. Root annual. Stems ſlender and weak. Leaflets linear, truncate, four or five pairs. Stipule two-toothed, with a violet ſtain below the upper ſegment. Flowers ſolitary, large, of a duſky violet colour, with the ſtandard deeply notched. Pods pendulous, wide, flatted, marked tranſverſely on the outſide with purpliſh ſtripes, and containing four or five (ſometimes ſix or ſeven) ſeeds [d].

Native of France and Piedmont. Introduced in 1779, by Monſ. Thouin. It flowers in july [e].

19. Root perennial. Stems climbing by tendrils, two feet high, grooved, little branched. Leaves many-paired, terminated by a branching tendril. Leaflets ovate, obtuſe, ſometimes emarginate, ſomewhat hairy, the outer ones gradually ſmaller. Stipules creſcent-ſhaped, ſharply toothed. Flowers commonly in fours, on very ſhort pedicels, all directed one way, dark blue purple. Calyx hairy. Legume nearly erect, brown, dotted, ſmooth. Seeds globular, even [f].

Leaflets ovate with a projecting point, or ovate-lanceolate, oppoſite. Stipules ſemiſagittate, ſmall, acute. Flowers three or four in the axils of the upper leaves, on very ſhort pedicels. Calyx very hairy, with nearly equal ſegments. Flowers dirty purple; ſometime white [g].

According to Linneus, the leaves are doubled together, and the flowers are in racemes (three or four) ſhorter than the leaves.

Villars ſays, the ſtems are a foot and half high, and ſupport themſelves though weak. Leaflets oval, twelve or fourteen, diminiſhed in ſize. Flowers pale duſky red, inclining to carnation. Pods ſtraight, linear, oblong and rounded, a little villoſe.

Native of Europe, in woods, hedges and buſhy paſtures; flowering in may and june.

It ſhoots earlier in the ſpring than any plant eaten by cattle, vegetates late in the autumn, and continues green all winter. But it is difficult to collect the ſeeds, as the pods burſt and ſcatter them about, and moreover hardly a third part of them will vegetate, being made the nidus of an inſect. A patch ſown in drills in a garden was cut five times in the courſe of the ſecond year, and produced at the rate of twenty-four tons on an acre of green food; which when dry would weigh near four tons and a half. Though palatable to all kinds of cattle, it may be difficult to cultivate it on a large ſcale, the ſeeds being generally devoured by the larvæ of a ſpecies of Attelabus, which larvæ are the prey of a ſpecies of Ichneumon [h].

20. Root perennial, branched. Stems ſeveral, climbing by tendrils, branched, angular, grooved, ſmooth. Leaves two-paired, terminated by elongated branched tendrils: leaflets large, elliptic-lanceolate, acute, ſomewhat hairy beneath. Stipules large, ſemiſagittate; unequally toothed; teeth divaricating, acute. Flowers ſolitary, peduncled; the peduncles various in length, very ſeldom two-flowered. Teeth of the calyx ciliate. Standard of the corolla large, of a leaden purple colour: wings and keel whitiſh. Legume erect, bay-coloured, hairy and rugged. Seeds five or ſix, globular, ſmooth, black, and aſh-colour variegated [i].

Dr. Withering remarks, that the ſeeds are protuberant; the ſtandard and keel of the corolla red purple, and the wings yellowiſh.

Stems angular. Leaflets in two pairs, broad-lanceolate. Stipules much toothed. Flowers ſolitary; with a calyx the length of the peduncle. Standard of the corolla violet: wings whitiſh. Legume compreſſed, ovate-oblong, villoſe. Seeds about ſix. The bearded ſtigma, and ſtipules with a glandular pore beneath, evince this to be a Vicia [k].

Native of the county of Nice, Italy, Bavaria, and England.—Found near Doncaſter by Mr. Tofield, upon the authority of his herbarium, now in the hands of Dr. Younge of Sheffield:—in woods near Cliſton upon Teme, Worceſterſhire, by Dr. Stokes:—in the Iſle of Purbeck, by Mr. Hudſon:—in Portland Iſland, half a mile to the weſt of the ferry, on looſe ſand-banks, by Mr. Stackhouſe:—and in a field half way between Weymouth and Portland ferry, near the ſea, by A. B. Lambert, Eſq. It flowers in july and auguſt [l].

21. Root annual. Stem erect, angular, ſtriated. Leaves pubeſcent: leaflets ovate, blunt with a very ſhort point; two on the lower leaves, four or ſix on the upper ones. Stipules large, roundiſh, toothed, mucronate. Flowers ſolitary, ſeſſile or on ſhort pedicels. Calyx half-five-cleft, with lanceolate, acute ſegments. Legumes compreſſed, villoſe, acute, containing many ſeeds [m].

Linneus remarks, that the leaves are doubled together, as in V. ſepium, not rolled in, as in moſt of the ſpecies; that the peduncles are one-flowered in barren, three-flowered in fertile ſoils; and that the corolla is very dark purple [n].

Native of France and Barbary near Algiers among corn.—Cultivated in 1597, by Gerarde. It flowers in june [o].

22. Root annual. Stem upright, about two feet high, to three or four in the larger garden varieties, thick, angular. Leaves without tendrils. Leaflets about three pairs, ovate-oblong, ſomentoſe, convoluted. Flowers ſeveral together in the axils, white with a black ſilken ſpot in the middle of the wings. Legumes thick, roundiſh, ſtraight, pointed, very woolly within, containing ſeveral large ovate, flatted ſeeds. In the Kew catalogue, it is ſaid to be a native of Egypt. Linneus, from Lerche, affirms that it is found wild not far from the Caſpian ſea, on the confines of Perſia. It has been cultivated time out of mind both in fields and gardens, not only over great part of Europe, but in China, Japan, &c.

Varieties of the Garden Bean.]

1. The Mazagan Bean is the firſt and beſt ſort of early

[a] Smith brit. and engl. bot. [b] Woodw. Mſſ. [c] Smith. brit. and engl. bot. [d] Villars. [e] Hort. kew. [f] Smith brit. [g] Woodw. Mſſ.

[h] Swayne in Bath mem. 3. and Wither. arr. [i] Smith brit. [k] Linn. ſpec. [l] Smith, Withering. [m] Desfontaines. [n] Linn. ſpec. [o] Hort. kew.

early Beans at preſent known; they are brought from a ſettlement of the Portugueſe on the coaſt of Africa, juſt without the Straits of Gibraltar; the ſeeds of this ſort are ſmaller than thoſe of the Horſe Bean; and as the Portugueſe are but ſlovenly gardeners, there is commonly a great number of bad ſeeds among them. If this ſort is ſown in October, under a warm hedge, pale, or wall, and carefully earthed up when the plants are advanced, they will be fit for the table by the middle of may. The ſtems of this ſort are very ſlender, therefore if they are ſupported by ſtrings cloſe to the hedge, or pale, it will preſerve them from the morning froſts, which are ſometimes ſevere in the ſpring, and retard their growth; and by keeping them cloſe to the fence it will cauſe them to come forwarder than if this is neglected; theſe Beans bear plentifully, but they ripen nearly together, ſo that there are never more than two gatherings from the ſame plants; if the ſeeds of this ſort are ſaved two years in England, the Beans will become much larger, and not ripen ſo ſoon, which is called a degeneracy.

2. The next ſort is the early Portugal or Liſbon Bean, which appears to be the Mazagan ſort ſaved in Portugal, for it is very like thoſe which are the firſt year ſaved in England; this is the moſt common ſort uſed by the gardeners for their firſt crop, but they are not near ſo well taſted as the Mazagan; therefore when the Mazagan Bean can be procured, no perſon would plant the other.

3. The next is the ſmall Spaniſh Bean; this will come in ſoon after the Portugal ſort, and is rather a ſweeter Bean, therefore ſhould be preferred to it.

4. Then comes the broad Spaniſh, which is a little later than the other, but comes in before the common ſorts, and is a good bearer and therefore is frequently planted.

5. The Sandwich Bean comes ſoon after the Spaniſh, and is almoſt as large as the Windſor Bean; but, being hardier, is commonly ſown a month ſooner; this is a plentiful bearer, but not very delicate for the table.

6. The Toker Bean, as it is generally called, comes about the ſame time with the Sandwich, and is a great bearer; therefore is now much planted, though it is a coarſe Bean.

7, 8. The white and black Bloſſom Beans are alſo by ſome perſons much eſteemed; the Beans of the former are, when boiled, almoſt as green as Peas; and being a tolerable ſweet Bean, renders it more valuable; theſe ſorts are very apt to degenerate, if their ſeeds are not ſaved with great care.

9. The Windſor Bean is allowed to be the beſt of all the ſorts for the table; when theſe are planted on a good ſoil, and are allowed ſufficient room, their ſeeds will be very large, and in great plenty; and when they are gathered young, are the ſweeteſt and beſt taſted of all the ſorts; but theſe ſhould be carefully ſaved, by pulling out ſuch of the plants as are not perfectly right, and afterward by ſorting out all the good from the bad Beans.

This ſort of Bean is ſeldom planted before Chriſtmas, becauſe it will not bear the froſt ſo well as many of the other ſorts; ſo it is generally planted for the great crop, to come in june and july.

[Of the ſmall early varieties, there is one which is chiefly planted for curioſity: it is a dwarf, ſix or ten inches in height, with branches ſpreading like a fan, and flowers ſucceeded by ſmall pods, both in cluſters; whence it is called dwarf Fan or Cluſter Bean.

Of the middle-ſized later Beans, one now very commonly cultivated is the Long-podded Bean, a yard or more in height, a great bearer, the pods long and narrow, cloſely filled with oblong middle-ſized ſeeds. Of this there are ſeveral ſubordinate varieties, as the early, tall, Turkey, &c.

The white-bloſſomed Bean (n. 7.) is an anomaly, as to the flowers, having none of the black mark on the wings. The ſeed is ſemitranſparent, and having leſs of the peculiar bean flavour, when young, than any of the others, is by many perſons much eſteemed. It bears abundance of ſmalliſh, long, narrow pods, and the ſeeds are almoſt black when ripe.

Beſides this and the black (n. 8.) there is a red-bloſſomed Bean, with ſmalliſh pods and ſeeds, not near ſo palatable as that with white bloſſoms.

There are other varieties, but they are ſcarcely worth notice.]

Varieties of the Field Bean.

1. The common Horſe Bean. [Probably the original of all the varieties.]

2. The Tick Bean, lower in ſtature, a more plentiful bearer, and ſucceeds better on light land. [Of this there are ſeveral ſubordinate varieties; as flat Ticks or May Beans, ſmall or Eſſex Ticks, and French Ticks. Some of the garden beans are taken into field culture in Kent; as the Toker, Windſor, Long pod, Spaniſh or Liſbon, and Mazagan; beſides others cultivated only in ſmall quantities for ſupplying the London ſeedſmen.

Mr. Miller inſiſts that the Field Bean is a different ſpecies from the Garden Bean; but that is an idea deſtitute of all probability.

23. Root annual, whitiſh, branched, and, like thoſe of its congeners, furniſhed with tubercles: ſtem ſingle or double, acutely quadrangular; aſcendent at the baſe, and then upright; riſing to the height of about two feet: Stipules roundiſh unequally and very ſharply toothed: loweſt leaves binate, the remaining ones bijugate; the upper tri or quadrijugate, and generally terminated by a tripartite tendril: rib angular-ſtriate; leaflets ſubovate, obtuſe, ſharply tooth-ſerrate, pale-green, and very ſhortly foot-ſtalked: one of the laſt leaflets is often wanting, in which caſe the leaf has the appearance of a pinnated leaf terminated by an odd leaflet: the ſtem, edges, and ribs of the leaflets are furniſhed with fine hairs, ſcarcely viſible without a glaſs. The foot-ſtalks are few-flowered, and ſpring from the boſoms of the leaves. The flowers are of a moderate ſize and violet-purple. The legume is flat-compreſſed, and furniſhed on each ſide with white hairs. Native of the Euganian mountains, flowering in june [x].

24. Stem angular, ſlender, procumbent. Leaflets eight to twelve, very narrow, remote, alternate. Stipules very ſmall, ſemihaſtate, acute, ſimple or toothed. Peduncles axillary, filiform, one or two-flowered, awned. Calyx five-toothed. Corolla blue. Native of Algiers.

25, Allied to V. ſativa. Stem four-cornered, decumbent. Leaflets ten to fourteen, alternate, ſomewhat villoſe, mucronate. Stipules ſmall, acute, unſpotted. Peduncles ſolitary, twice or three times ſhorter than the leaf, one-flowered ſeldom two-flowered, having a ſhort ſpur below the flower. Calyx five-toothed ſmooth; teeth ſmall, acute. Corolla leſs almoſt by half than that of V. ſativa, more ſlender, lengthened out, pale blue. Legume compreſſed, ſmooth, containing from four to ſix ſeeds. Native of Algiers [y].]

PROPAGATION AND CULTURE.

2, 3, 4, 5. Theſe ſorts are propagated by ſeeds, which ſhould be ſown in autumn ſoon after they are ripe, for if they are kept out of the ground till ſpring, the ſeeds often fail, or at leaſt remain in the ground a year before they vegetate; they ſhould be ſown in the places where the plants are deſigned to remain, for they do not bear tranſplanting well. Theſe plants grow naturally in woods and thickets of buſhes, where their roots are ſcreened from the ſun, and their ſtalks furniſhed with ſupports by the buſhes, point out the places where the ſeeds ſhould be ſown, which ſhould be where they are ſheltered by ſhrubs. If three or four ſeeds are ſown on each patch, it will be ſufficient, for if one or two plants come up in each place it will be enough. When the plants come up, they will require no other culture but to keep them clean from weeds, and their ſtalks muſt be permitted to climb upon the neighbouring ſhrubs; for if they trail upon the ground, they will produce few flowers, and in wet ſeaſons the ſtalks will rot, ſo the plants will be rather unſightly.

[x] Jacquin. [y] Deſfontaines.

A few of theſe plants may be allowed a place in large gardens, particularly on the borders of wood-walks, or in thickets of ſhrubs; where if they are allowed to climb up the branches, they will have a good effect during their continuance in flower.

8. This ſort is propagated by ſeeds, which may be ſown in the ſpring or autumn; and when the plants come up, they will require no other culture but to keep them clean from weeds; and if they are ſupported from trailing upon the ground, they will continue in verdure all the winter, and the following ſummer they will flower and produce ripe ſeeds.

If this plant is deſigned for feed, the ſeed ſhould be ſown in rows at four feet diſtance, and ſhould be dropped thin in the rows; for as the ſtalks ſend out many branches, and extend to a great length, ſo when the plants are too cloſe, the branches will intermix, and mat ſo cloſely together, as to rot each other by excluding the air. When the plants come up, they muſt be kept clean from weeds, which, while they are young, ſhould be performed with Dutch hoes, but afterward it may be done by the hoeing plough, which will ſave expence, and with this inſtrument the plants may be earthed up in the ſame manner as Peas and Beans, which will greatly ſtrengthen their ſtalks, and make them and the leaves larger and more ſucculent, ſo increaſe the quantity of feed. If this is practiſed as often as may be found neceſſary to deſtroy the weeds in ſummer, it will prepare the ground for any crop which may afterward be put upon the land; and as this will be in no danger of ſuffering from froſt, ſo it ſhould be preſerved till the ſpring, when there is a want of green feed for ewes, at which time it may be cut as it is wanted; but a part of the plants ſhould be permitted to ſtand for ſeeds, for thoſe which are cut, if they do ſhoot again, will flower ſo late in ſummer, that unleſs the autumn proves very warm, the ſeed will not ripen; therefore it will be a better way to ſow a ſufficient quantity of ſeeds for this purpoſe in a ſeparate ſpot of ground, becauſe, when the other is cut, the ground may be ploughed for other crops; and if in mild ſeaſons there may be ſo great plenty of other green feed as not to want this, if the plants are ploughed into the ground, it will be a good dreſſing for other crops.

Vetches are generally ſown at two ſeaſons, one is in autumn, and the other early in the ſpring; but the beſt time is in auguſt, for the ſeeds which are ſown then will come up ſoon, and the plants will have time to get ſtrength before winter, ſo will be in leſs danger of ſuffering by froſt than thoſe which are ſown later, and will be fit to cut for feed much earlier in the ſpring, for it is then green feed is moſt wanted; and if they are deſigned for feed and not to be cut for fodder, thoſe early-ſown Vetches will come early into flower, and the ſeeds will be ripe early, ſo they may be cut and ſtacked in good weather; which is a great advantage, for thoſe which ripen late are often ſtacked or houſed wet, and then the ſeeds frequently ſprout in the mow, and are ſpoiled.

The uſual method of ſowing Vetches is in broad-caſt, ploughing them lightly in; in this way the common allowance of ſeeds for one acre of land is two buſhels, but there are ſome who ſow two buſhels and a half; this practice may do well enough for thoſe Vetches which are deſigned to be cut for fodder in the ſpring, but thoſe which are ſown with an intent to ſtand for ſeeds, will do much better if they are ſown in drills in the ſame way as is practiſed for Peas, and then leſs than half the quantity of ſeeds will be ſufficient; for the drills ſhould not be nearer to each other than three feet, that the hoe plough may have room to go between them, to deſtroy the weeds, and earth up the plants; for by this management they will produce a much greater crop, and ripen earlier in the ſeaſon.

Theſe drills ſhould be about the ſame depth as thoſe uſually made for Peas, and the ſeeds ſhould be ſcattered about the ſame diſtance in the drills. Theſe ſeeds ſhould be carefully covered as ſoon as they are ſown, for if they are left open the rooks will diſcover them; and when they once find the rows, if they are not carefully watched, they will entirely devour them. Indeed, theſe being ſown early in autumn, will be in leſs danger than thoſe which are ſown late, or in the ſpring, becauſe there is more food for rooks and pigeons in the open fields at this ſeaſon, and the plants will appear much ſooner above ground. The beſt time to ſow them is about the beginning of auguſt, for the rains which uſually fall about that ſeaſon, will bring them up in a ſhort time. Toward the latter end of october the plants will have obtained conſiderable ſtrength, therefore they ſhould be earthed up with the hoeing plough. This work ſhould be performed in dry weather, and in doing it care muſt be had to lay the earth up as high to the ſtems of the plants as poſſible, ſo as not to cover their tops, becauſe this will ſecure them againſt froſt. The whole ſpace of ground between the rows ſhould alſo be ſtirred, in order to deſtroy the weeds, which, if carefully performed in dry weather, will lay the land clean till march; at which time the crop ſhould be earthed a ſecond time, and the ground cleaned again between the rows, which will cauſe the plants to grow vigorous, and in a little time they will ſpread ſo as to meet, and cover the ſpaces; whereas thoſe ſown in the ſpring will not grow to half this ſize, and will be very late in flowering.

Some people ſow theſe Vetches, and when they are fully grown, plough them into the ground to manure it. Where this is deſigned, there will be no occaſion to ſow them in drills at this diſtance, nor to huſband them in the manner before directed; but in this caſe it will be the beſt method to ſow them in autumn, becauſe they will be fit to plough in much ſooner the following year, ſo that the land may be better prepared to receive the crops for which it is intended. In ſome parts of France, and in Italy, theſe Vetches are ſown for feeding of cattle while green, and are accounted very profitable; and in many parts of England they are cultivated to feed cart-horſes, &c. though upon ſuch land where Lucern will thrive, it will be much better huſbandry to cultivate that for this purpoſe.

Where theſe plants are cultivated for their ſeeds, they ſhould be cut ſoon after the pods change brown; and when they are dry, they muſt be immediately ſtacked, for if they are ſuffered to lie out in the field to receive wet, and there comes one hot day after it, the pods will moſt of them burſt, and caſt out the ſeeds. When the ſeeds are threſhed out, the haulm is eſteemed very good food for cattle, and ſome have recommended the ſeeds for horſes, and affirm they are as proper for thoſe animals as Beans; which, if true, will render them more valuable, becauſe theſe will grow on the lighteſt ſandy land where Beans will not thrive, ſo may be a good improvement to ſome counties in England, where they do not attempt to cultivate Beans.

[To inſure a ſucceſſion of Tares during the ſpring and ſummer, ſow upon the wheat ſtubble as ſoon as the wheat is off, or on land well manured, in auguſt; as ſoon as theſe are up, throw in another crop, and in like manner a third. As there will be about a month between the firſt and third ſowing, a regular ſucceſſion will be inſured for the following ſeaſon; eſpecially if another crop be ſown in the ſpring. Some mix a buſhel of black oats with every two buſhel and half of tares: others put in ſome rie with the autumnal ſowings *.

The quantity ſown an acre, is from two buſhels, or two buſhels and a peck, or two buſhels and a half, to three, or even four buſhels.

On the South downs in Suſſex, they ſubſtitute a double crop of Tares, inſtead of a fallow for wheat. They ſow forward winter Tares, which are fed off late in the ſpring with ewes and lambs: they then plough, and ſow ſummer Tares and Rape, two buſhels and a half of the firſt, and half a gallon of the ſecond; this they feed off with their lambs, in time to plough once for wheat. Thus the land in the fallow year is made to ſupport the utmoſt poſſible quantity of ſheep which its deſtination admits; the two ploughings are given at the beſt ſeaſons, in autumn for the froſt to mellow the lands, and prepare it for a ſucceſſive growth of weeds; and late in ſpring to turn them down: between the

* Reports of Suſſex and Kent. Young's Annals, 2. 347.

times of giving theſe ſtirrings, the land is covered with crops: the quantity of live ſtock ſupported yields amply in manure: and the treading which the ſoil receives, previous to the ſowing of wheat, gives an adheſion grateful to that plant *.]

Culture of Garden Beans.

22. All the early Beans are generally planted on warm borders under walls, pales, and hedges; and thoſe which are deſigned to come firſt, are uſually planted in a ſingle row pretty cloſe to the fence: and here I cannot help taking notice of a very bad cuſtom, which too generally prevails in gentlemen's kitchen-gardens, which is that of planting Beans cloſe to the garden-walls, on the beſt aſpects, immediately before the fruit-trees, which is certainly a greater prejudice to the trees, than the value of the Beans, or any other early crop; therefore this practice ſhould be everywhere diſcouraged; for it is much better to run ſome low Reed hedges acroſs the quarters of the kitchen-garden, where early Beans and Peas may be planted, in which places they may with more conveniency be covered in ſevere froſt; and to theſe hedges they may both be cloſely faſtened, as they advance in their growth; which, if practiſed againſt the walls where good fruit-trees are planted, will greatly prejudice the trees, by overſhadowing them, and the growth of theſe legumes will draw off the nouriſhment from the roots of the trees, whereby they will be greatly weakened.

But to return to the culture of the Beans. Thoſe which are planted early in October, will come up by the beginning of november; and as ſoon as they are an inch above ground, the earth ſhould be carefully drawn up with a hoe to their ſtems; and this muſt be two or three times repeated, as the Beans advance in height; which will protect their ſtems from the froſt, and encourage their ſtrength. If the winter ſhould prove ſevere, it will be very proper to cover the Beans with Peas-haulm, Fern, or ſome other light covering, which will ſecure them from the injury of froſt; but this covering muſt be conſtantly taken off in mild weather, otherwiſe they will draw up tall and weak, and come to little; and if the ſurface of the border is covered with tanner's bark, it will prevent the froſt penetrating the ground to the roots of both, and be of great ſervice to protect them from the injury which they might otherwiſe receive.

In the ſpring, when the Beans are advanced to be a foot high, they ſhould be faſtened up to the hedge with packthread or a ſmall line, ſo as to draw them as cloſe as poſſible; which will ſecure them from being injured by the morning froſts, which are often ſo ſevere in march and april, as to lay thoſe Beans flat on the ground, which are not thus guarded; at this time all ſuckers which come out from the roots ſhould be very carefully taken off; for theſe will retard the growth of the Beans, and prevent their coming early; and when the bloſſoms begin to open toward the bottom of the ſtalks, the top of the ſtems ſhould be pinched off, which will cauſe thoſe firſt pods to ſtand, and thereby bring them forward. If theſe rules are obſerved, and the ground kept clean from weeds or other plants, there will be little danger of their failing.

But leſt this firſt crop ſhould be deſtroyed by froſt, it will be abſolutely neceſſary to plant more about three weeks after the firſt, and ſo to repeat planting more every three weeks, or a month, till february; but thoſe which are planted toward the end of november, or the beginning of december, may be planted on ſloping banks, at a ſmall diſtance from the hedges; for if the weather is mild, theſe will not appear above ground before Chriſtmas; therefore will not be in ſo much danger as the firſt and ſecond planting, eſpecially if the ſurface of the ground is covered with tan to keep the froſt out of the ground as is before directed; for the firſt planting will, by that time, be a conſiderable height: the ſame directions which are before given will be ſufficient for the management of theſe; but only it muſt be obſerved, that the larger Beans ſhould be planted at a greater diſtance than the ſmall ones; as alſo, that thoſe which are firſt planted muſt be put cloſer together, to allow for ſome miſcarrying; therefore, when a ſingle row is planted, the Beans may be put two inches aſunder, and thoſe of the third and fourth planting may be allowed three inches, and when they are planted in rows acroſs a bank, the rows ſhould be two feet and a half aſunder; but the Windſor Beans ſhould have a foot more ſpace between the rows, and the Beans in the rows ſhould be planted five or ſix inches aſunder. This diſtance may, by ſome perſons, be thought too great; but from many years experience, I can affirm, that the ſame ſpace of ground will produce a greater quantity of Beans when planted at this diſtance, than if double the quantity of ſeeds are put on it. In the management of theſe later crops of Beans, the principal care ſhould be to keep them clear from weeds, and any other plants which would draw away their nouriſhment; to keep earthing them up, and, when they are in bloſſom, to pinch off their tops; which, if ſuffered to grow, will draw the nouriſhment from the lower bloſſoms, which will prevent the pods from ſetting, and ſo only the upper parts of the ſtems will be fruitful; and another thing ſhould be obſerved in planting of the ſucceeding crops, which is, to make choice of moiſt ſtrong land for the later crops; for if they are planted on dry ground, they rarely produce a crop.

Theſe after-crops ſhould be planted at about a fortnight diſtance from each other, from the middle of february to the middle of may; after which time it is generally too late to plant, unleſs the land is very ſtrong and moiſt; for in warm dry light land all the late crops of Beans are generally attacked by the black inſects, which cover all the upper part of their ſtems, and ſoon cauſe them to decay.

Where the ſeeds of theſe Beans are deſigned to be ſaved, a ſufficient number of rows ſhould be ſet apart for that purpoſe, according to the quantity deſired; theſe ſhould be managed in the ſame way as thoſe which are deſigned for the table; but none of the Beans ſhould be gathered, though there are ſome covetous perſons, who will gather all the firſt ripe for the table, and are contented to ſave the after-crop for ſeed, but theſe are never ſo large and fair as the firſt; ſo that if theſe are for ſale, they will not bring near the price as the other; therefore, what is gained to the table is loſt in the value of the ſeed; but thoſe who are deſirous to preſerve the ſeveral varieties as pure as poſſible, ſhould never ſuffer two of the varieties to grow for ſeeds in the ſame place; for by their farina mixing with each other they will not continue ſo pure, but be apt to vary; and in order to keep the early kinds perfect, thoſe which come the earlieſt ſhould be ſaved for ſeeds; but this is what few people chuſe to do, becauſe they are then the moſt valuable.

When the ſeed is ripe, the ſtalks ſhould be pulled up, and ſet upright againſt a hedge to dry, obſerving to turn them every third day, that they may dry equally; then they may be threſhed out, and cleaned for uſe, or otherwiſe ſtacked up in a barn, till there is more leiſure for threſhing them out; and afterward the ſeed ſhould be drawn over to take out all thoſe that are not fair, preſerving the beſt for uſe or ſale.

It is a very good method to change the ſeeds of all ſorts of Beans, and not to ſow and ſave the ſeeds long in the ſame ground, for they do not ſucceed ſo well; therefore, if the land is ſtrong where they are to be planted, it will be the beſt way to procure the ſeeds from a lighter ground, and ſo vice verſa; and by this method the crops will be larger, and the Beans fairer, and not ſo liable to degenerate.

Culture of Field Beans.

Having given directions for the culture of the Garden Beans, I ſhall next proceed to that of the Horſe Bean, which is cultivated in the fields: there are two or three varieties of theſe, which differ in their ſize and colour; but that which is now in the greateſt eſteem, called the Tick Bean; this does not grow ſo high as

8 the

* Young's Annals, 17. 141. ſee 6. 215. and 8. 119. and 9. 507. and 12. 303.

the other, is a more plentiful bearer, and ſucceeds better on light land than the common Horſe Bean.

The Horſe Bean delights in a ſtrong moiſt ſoil, and an open expoſure, for they never thrive well on dry warm land, or in ſmall incloſures, where they are very ſubject to blight, and are frequently attacked by a black inſect, which the farmers call the black dolphin; theſe inſects are often in ſuch quantities as to cover the ſtems of the Beans entirely, eſpecially all the upper part of them; and whenever this happens, the Beans ſeldom come to good: but in the open fields, where the ſoil is ſtrong, this rarely happens.

Theſe Beans are uſually ſown on land which is freſh broken up, becauſe they are of uſe to break and pulverize the ground, as alſo to deſtroy weeds; ſo that the land is rendered much better for corn, after a crop of Beans, than it would have been before, eſpecially if they are ſown and managed according to the new huſbandry, with a drill plough, and the horſe hoe, uſed to ſtir the ground between the rows of Beans which will prevent the growth of weeds, and pulverize the ground, whereby a much greater crop may, with more certainty, be expected, and the land will be better prepared for whatever crop it is deſigned for after.

The ſeaſon for ſowing theſe Beans is from the middle of february to the end of march, according to the nature of the ſoil; the ſtrongeſt and wet land ſhould always be laſt ſown; the uſual quantity of Beans ſown on an acre of land is about three buſhels; but this is double the quantity which need be ſown, eſpecially according to the new huſbandry; but I ſhall firſt ſet down the practice according to the old huſbandry, and then give directions for their management according to the new. The method of ſowing is after the plough, in the bottom of the furrows; but then the furrows ſhould not be more than five, or at moſt ſix inches deep. If the land is new broken up, it is uſual to plough it early in autumn, and let it lie in ridges till after Chriſtmas; then plough it in ſmall furrows, and lay the ground ſmooth; theſe two ploughings will break the ground fine enough for Beans, and the third ploughing is to ſow the Beans, when the furrows ſhould be made ſhallow, as was before mentioned.

Moſt people ſet their Beans two cloſe; for, as ſome lay the Beans in the furrows after the plough, and others lay them before the plough, and plough them in; ſo, by both methods, the Beans are ſet as cloſe as the furrows are made, which is much too near; for when they are on ſtrong good land, they generally are drawn up to a very great height, and are not ſo apt to pod as when they have more room, and are of lower growth; therefore I am convinced by many late trials, that the better way is to make the furrows two feet and a half aſunder, or more; which will cauſe them to branch out into many ſtalks, and bear in greater plenty than when they are cloſer; by this method, half the quantity of Beans will be ſufficient for an acre of land; and by the ſun and air being admitted between the rows, the Beans will ripen much earlier and more equally than in the common way.

What has been mentioned muſt be underſtood as relating to the old huſbandry; but where Beans are planted according to the new, the ground ſhould be four times ploughed before the Beans are ſet, which will break the clods, and render it much better for planting; then with a drill plough, to which a hopper is fixed for ſetting the Beans, the drills ſhould be made at three feet aſunder, and the ſpring of the hopper ſet ſo as to ſcatter the Beans at three inches diſtance in the drills. By this method leſs than one buſhel of ſeed will plant an acre of land. When the Beans are up, if the ground is ſtirred between the rows with a horſe plough, it will deſtroy all the young weeds; and when the Beans are advanced about three or four inches high, the ground ſhould be again ploughed between the rows, and the earth laid up to the Beans; and if a third ploughing, at about five or ſix weeks after, is given, the ground will be kept clean from weeds, and the Beans will ſtalk out, and produce a much greater crop than in the common way.

When the Beans are ripe, they are reaped with a hook, as is uſually practiſed for Peas; and after having lain a few days on the ground they are turned, and this muſt be repeated ſeveral times, until they are dry enough to ſtack, but the beſt method is to tie them in ſmall bundles, and ſet them upright; for then they will not be in ſo much danger to ſuffer by wet, as when they lie on the ground; and they will be more handy to carry and ſtack, than if they are looſe. The common produce is from twenty to twenty-five buſhels on an acre of land; but I have known thirty-ſix on an acre.

The Beans ſhould lie in the mow to ſweat, before they are threſhed out; for as the haulm is very large and ſucculent, ſo it is very apt to give and grow moiſt; but there is no danger of the Beans receiving damage, if they are ſtacked tolerably dry, becauſe the pods will preſerve the Beans from injury; and they will be much eaſier to threſh after they have ſweated in the mow than before; and after they have once ſweated and are dry again, they never after give.

By the new huſbandry, the produce has exceeded the old by more than ten buſhels on an acre; and if the Beans which are cultivated in the common method are obſerved, it will be found that more than half their ſtems have no Beans on them; for by ſtanding cloſe, they are drawn up very tall; ſo the tops of the ſtalks only produce, and all the lower part is naked; whereas in the new method, they bear almoſt to the ground; and as the joints of the ſtems are ſhorter, ſo the Beans grow cloſer together on the ſtalks.

In the year 1745 I made the following experiment, in planting a piece of eleven acres of Beans in Berkſhire; the gentleman's bailiff, who was wedded to the old practice of huſbandry, was very unwilling to depart from it; and having been an old ſervant in the family, his maſter was inclinable to hear all he could ſay in favour of his opinion: however, at laſt I prevailed on the gentleman to let his bailiff plant one half of the land in his way, giving him the choice which half he would have: accordingly the land was divided and planted; but the ſummer proving wet, the Beans on that part of the field he had choſen grew ſo tall and rank, that they produced no pods but on the upper part of the ſtalks; and when they were threſhed out, there was no more than twenty-two buſhels on an acre, whereas the other half produced near forty.

[Whatever the preceding crop, whether corn, or old graſs, plough but once for planting Beans, which ſhould be performed as ſoon as the Chriſtmas froſts break up. Provide poles of ſlit deal planed ten feet long, an inch thick, and two inches broad, bore holes through them at ſixteen inches aſunder, paſs packthreads through theſe holes to the length of the lands you are about to plant, and there ſhould be a pole at every fifty yards; four ſtakes at the corner of the extreme poles, faſten them to the ground, the intention is to keep the lines every where at equal diſtances and ſtraight, to facilitate horſe-hoeing. Then women take beans in their aprons, and with a dibber pointed with iron, make holes along the ſtrings with their right hand, and put the bean in with their left; while they are doing one ſet of lines, another ſhould be prepared for them. Near London they are paid three ſhillings and three ſhillings and ſix-pence a buſhel for planting; but where they are not accuſtomed to it, they do it by the day.

By the time the cold eaſterly winds come in the ſpring, they will be high enough to hand hoe, if they were early planted, and it is of conſequence on ſtrong ſoils to catch every dry ſeaſon for ſuch operations. The hoes ſhould be eight inches wide, the whole ſurface between the rows carefully cut, and every weed eradicated. This hoeing coſts near London, from five ſhillings to ſeven ſhillings and ſixpence an acre. When the beans are about ſix inches high, they ſhould be horſe-hoed with a ſhim, the cutting part ten or eleven inches wide. This tool is cheap, ſimple, and not apt to be out of order; one horſe draws it, which ſhould be led by a careful perſon, another holding the ſhim, and guiding it carefully in the centre between the rows. It cuts up all weeds effectually,

fectually, and looſens the earth two or three inches deep; in a little time after this operation the hand hoe ſhould be ſent in again to cut up what the ſhim may have paſſed, and to extract the weeds that grow too near the Beans, for that tool to take them. If the weather is dry enough, a ſecond horſe-hoeing with the ſhim ſhould follow when the Beans are nine or ten inches high, but if the weather is wet, it muſt be omitted, the hand-hoe however muſt be kept at work enough to keep the Beans perfectly free from weeds[b].

Common Ticks is the Bean generally cultivated in Kent, in which county the culture of this pulſe is ſuppoſed to be beſt underſtood. It is uſed there for fattening hogs, and as food for horſes. The Beans are uſually drilled, dropped by hand, or boxed, in furrows eighteen inches apart, from three and a half to four buſhels to the acre, in february and march. They are generally hand and horſe-hoed twice, and ſometimes three times, and laſtly hand-weeded. The crop is reaped at the end of auguſt or beginning of ſeptember. The produce is from two to ſix quarters on an acre, according to the ſtrength of the land and the management.

May Beans are a larger ſort of Ticks, and ſomewhat earlier ripe. They are ſometimes very productive, but being larger are not ſo heavy, and therefore of rather leſs value per quarter. Four buſhels, and ſometimes four and a half of this kind are dropped in by hand on an acre.

The Eſſex Ticks are much ſmaller than the Common Tick, and of a rounder ſhape. They ripen ſix or eight days later than that, and are not ſo productive, but more valuable, being heavier.

The French Ticks are ſtill ſmaller, being only as big as a moderate-ſized Pea, and nearly circular: this ripens the lateſt of any ſort, but is moſt valuable when dry, on account of its great weight. They will grow on ſome ſorts of poor land, but they are not very productive. Three buſhels of theſe ſmall ſorts are ſufficient to ſeed an acre when drilled; which is the beſt method by far of putting them in.

The Toker is the largeſt Garden Bean, and ſomewhat of an oval ſhape. Many are found an inch and half in length. The Beans are dropped by hand in rows about twenty inches apart, as ſoon as the land is ſufficiently dry in the ſpring. The quantity of ſeed about five and a half or ſix buſhels to the acre. This crop is kept perfectly free from weeds during the ſummer, and is pulled up by hand in harveſt: it is ſet up in lumps of a ſheaf at a place to dry, in a conical form, the butt-end being ſpread out as wide as poſſible, to prevent their being blown down. They are threſhed by the flail, and cleaned with the caſting-ſhovel and ſpry, like the other ſorts; and then culled by women, to take out every rotten and ſtained Bean, before they are ſent to market. The produce is from three to ten quarters on an acre.

The Windſor Bean is ſomewhat leſs, not ſo long, and more approaching to a ſquare form. It is managed in every reſpect as the Toker, only requiring a little leſs ſeed. Its produce is generally ſomewhat leſs, and its value a little more.

The Long-pod is about half the ſize of the Toker: it is an earlier ſort, and much uſed by the London gardeners. Four buſhels and a half to the acre is dropped by hand in rows eighteen inches apart. It is managed as the other garden Beans, and the produce is from three to ſix quarters.

The Spaniſh or Liſbon is a ſtill ſmaller kind, and ripens about the ſame time. The Mazagan is the ſmalleſt and earlieſt ripe.

The Spaniſh is dropped in by hand, about four buſhels and a half to the acre, in rows eighteen inches apart. The Mazagan is frequently drilled four buſhels to the acre. Theſe two ſorts are reaped as common Beans: the produce of the firſt is from three to five quarters, and ſometimes much more:—of the ſecond, from two quarters and a half to four and a half[c].

Mr. Marſhall, in his Rural Economy of Glouceſterſhire, has detailed the cultivation of pulſe in the vale of Glouceſter.

[b] Young's Iriſh tour, vol. 2. [c] Boys, ſurvey of Kent, p. 85. 8vo ed.

It invariably ſucceeds a corn crop: namely, wheat in the old fallow field courſe; barley in the new; and either wheat or barley on the every year's lands.

They begin ploughing as ſoon after Chriſtmas as the ſeaſon will permit, fetching up the ſoil as deep as the plough will turn it; nine, ten or more inches deep; and let it lie in whole furrow to take the froſt.

They begin about Candlemas, or as ſoon after as the land can be got upon with the harrows, to break the plits and level the ſurface for the ſetters. The ſoils of this vale moſtly fall like lime after being frozen; ſo that once going over with the harrows is ſufficient to reduce the ſurface to powder as fine as aſhes, leaving not the trace of a whole furrow.

Setting is done by women. The method varies in different parts of the diſtrict. In the central and ſouthern quarters, they ſet acroſs the ridges by the eye, without a line. About Cheltenham and along the northern border, they ſet along the ridges by a line. About Tewkeſbury, and towards Deerhurſt, it is common to ſet by a line, acroſs the ridges.

In theory, a line appears to be neceſſary. Women however, who have been long in the habit of ſetting without one, ſet pretty regularly by the eye; and the young ones are trained up, by putting one of them between two who are experienced.

Each ſetter has a ſetting pin, and a ſatchel, (provincially tuckin.) The ſetting-pin reſembles the gardener's dibble: but it has a croſs-pin or half-crutch near the top, to reſt the palm upon; and a groove on each ſide of the main pin to receive the forefinger and thumb: the length of the dibble is about eight inches; of the handle about four.

In ſetting the women walk ſideway, to the right, with their faces toward the ground which is ſet: the laſt row therefore is immediately under the eye, and the difficulty of ſetting another row, nearly parallel with it, is readily overcome by practice.

The diſtance between the rows varies from ten to fourteen inches: twelve may be conſidered as the prevailing width. The diſtance in the rows about two inches. The holes about two inches deep: and one Bean dropped in each hole.

The quantity of ſeed from two buſhels and a half to three buſhels on an acre.

The price of ſetting, ſixteen to eighteen pence a buſhel: coſting from three ſhillings and ſixpence to four ſhillings and ſixpence an acre.

Covering generally done with tined harrows, drawn once in a place: but if the ſoil be ſo light that the tines pull up the Beans, a thorn-harrow is made uſe of.

Preſently after the Beans are above ground, the ſurface is ſometimes looſened with the harrow, previous to the hoeing. The method of doing which is the common one practiſed by gardeners in drilled crops. The width of the hoe is five inches.

The ſecond hoeing ſhould be deferred as long as it can be with ſafety; but it ought always to be finiſhed before the Beans begin to bloſſom. In this hoeing, the rows muſt be carefully hand-weeded. Both of them are flat, without earthing up the Beans. The price of both, including hand-pulling, is ſix ſhillings an acre: more or leſs, according to the crop, and its degree of foulneſs.

A ſhort, low-podded crop is mown, uſually with a naked ſcythe: but tall Beans are uſually cut with a reaping-hook, and a hooked ſtick. In the former caſe they are gathered into rows with forks, and then into wads or bundles:—in the latter, they are either bound in ſheaves, and ſet up in ſhocks; or more uſually in hackles, or one enormous conical ſheaf.

They are uſed for feeding horſes and fatting hogs; and are bought up in great quantities at Briſtol for the inns, and for Guinea ſhips, as food for the negroes, in their paſſage from Africa to the Weſt Indies.

The produce is about three quarters an acre: four quarters, (or thirty-eight Wincheſter buſhels,) are not a very extraordinary crop; though much of the land has borne Beans every third year, and ſome of it perhaps every ſecond year, during a ſucceſſion of ages[d].

[d] Vol. 1. p. 140 to 154.

Beans are excellent on ſtrong clays, and wet loams as a preparation for wheat, inſtead of a fallow. The thick ſhade from this crop cauſes a putrid fermentation in the height of ſummer, opens the land, and looſens the ſoil. On this theory, Mr. Piſke, in march 1767, mucked ſix acres of barley ſtubble, and ſet it with Windſor Beans. The produce was twenty-four quarters, twenty-three of which were ſold to a gardener at Bury for thirty-ſix ſhillings the quarter.

October following, the ſame field was ſown with wheat: the produce upwards of three quarters on the acre; which was more by half a quarter than any that year from a clean fallow.

March 1768, ſixteen acres were ſet with the common Horſe Bean, upon an oat-ſtubble, ploughed at michaelmas, and mucked before the ſetting: the produce four quarters and a half to the acre. Wheat ſucceeded, which was the beſt in the pariſh.

In 1782, to prove the uſe of the bean culture as a preparation for barley, four acres in an eight acre field were ſown with turneps; two were ſet with Tick Beans; and two acres were a clean fallow. The Beans were kept clean: the turneps were hoed, and fed off with ſheep. The ſpring following, the whole field was ſown with barley: that after Beans was the beſt; after the fallow next; after turneps by much the worſt.

In the culture of Beans, they muſt be kept clean, which cannot be done but by hoeing early; and they muſt be manured for plentifully, twenty-five three-horſe loads of compoſt earth and dung to the acre; in order that a large crop may be obtained, which is not only of great importance in itſelf, but alſo to that which is to ſucceed; for every buſhel gained in the crop of Beans, is a certain gain in the wheat or barley which follows*.

VICIA. See *Aſtragalus, Ervum, Galega, Lathyrus.*

Viciæ ſimilis. See *Lathyrus amphicarpos.*

VICTORIALIS. See *Allium & Gladiolus.*

VIDARA. See *Rhamnus.*

VIDI-MARUM. See *Cordia Myxa.*

VILLARIA. *(So named by Schreber, in honour of Monſ. Villars, phyſician to the military hoſpital at Grenoble, &c. Author of* Hiſtoire des plantes de Dauphiné, 1786. 8°)

Lin. gen. Schreb. n. 1514.

Claſſ. 22. 5. Dioecia Pentandria.

GENERIC CHARACTER.

* *Male.*

CAL. *Perianth* one-leafed, five-parted, ſpreading, permanent: *ſegments* roundiſh, obtuſe, concave, coriaceous, thinner at the edge, almoſt equal: two more interior.

COR. *Petals* five, oblong, obtuſe, flat, ſpreading, coriaceous, thinner at the edge, twice as long as the calyx, permanent.

STAM. *Filaments* five, awl-ſhaped, erect, ſmaller by half than the calyx. *Anthers* roundiſh, twin.

PIST. *Germ* orbicular, depreſſed. *Style* very ſhort. *Stigma* capitate.

* *Female.*

CAL. as in the Male.

COR. as in the Male.

Nectary leaflets five, ovate, obtuſe, erect, alternate with the petals and ſhorter than them, permanent.

PIST. *Germ* ovate-turbinate. *Style* very ſhort, ſcarcely any. *Stigma* capitate, ſubtrifid.

PER. *Berry* ſubglobular, pointed with the permanent ſtyle, three-celled.

SEEDS ſolitary.]

VINCA. (*From* vinco *or* vincio; *becauſe it ſubdues other plants by its creeping, or binds them by its runners.*)

Lin. gen. n. 295. *Reich. n.* 322. *Schreb. n.* 419. *Gærtn. t.* 117. *Juſſ.* 144. Pervinca *Tournef. t.* 45.

Claſſ. 5. 1. Pentandria Monogynia.

Nat. Order of *Contortæ. Apocineæ* Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* five-parted, erect, acute, permanent.

COR. one-petalled, ſalver-ſhaped: *tube* longer than the calyx, cylindric below, wider above, marked with five lines, the mouth a pentagon: *border* horizontal, five-parted; *ſegments* faſtened to the apex of the tube, wider outwards and obliquely truncate.

STAM. *Filaments* five, very ſhort, inflexed and retroflexed. *Anthers* membranaceous, obtuſe, erect, curved in, fariniferous on both ſides at the edge.

PIST. *Germs* two, roundiſh, with two roundiſh little bodies lying by their ſides. *Style* one common to both, cylindric, length of the ſtamens. *Stigma* capitate, concave, placed on a flat ring.

PER. *Follicles* two, round, long, acuminate, erect, one-valved, opening longitudinally.

SEEDS numerous, oblong, cylindric, grooved, naked.

ESSENTIAL CHARACTER.

Contorted. *Follicles* two, erect. *Seeds* naked.

SPECIES.

1. Vinca minor. *Small Periwinkle.*
Lin. ſpec. 304. *Reich.* 1. 593. *Willd.* 1. 1232. *hort. cliff.* 77. *upſ.* 63. *mat. med.* 71. *Hudſ. angl.* 91. *Wither. arr. ed.* 3. 268. *Smith brit.* 270. *engl. bot. t.* 917. *Curt. lond.* 3. *t.* 16. 172. *Lightf. ſcot.* 147. *Relh. cant. ed.* 2. *n.* 218. *Sibth. oxon. n.* 245. *Abbot. beſſ. n.* 182. *Hoffm. germ.* 83. *Roth. germ.* 1. 95. 2. 243. *Pollich pal. n.* 241. *Leerſ herborn. n.* 152. *Krock. ſiles. n.* 365. *Neck. gallob.* 126. *Villars dauph.* 2. 486. *Ludw. edit. t.* 75. *Knipb. cent.* 1. *n.* 97, 98, 99. *Berg. phyt.* 2. 177. *Plenck. ic. t.* 113. *Blackw. t.* 59.
Pervinca minor. *Scop. carn. n.* 273. *Allion. pedem. n.* 369. *Hall. helv. n.* 572. *Ger. prov.* 326. 1.
P. vulgaris anguſtifolia, flore cæruleo. *Tournef. inſt.* 120.
Vinca pervinca minor. *Ger.* 747. *emac.* 894. 1. *Raii ſyn.* 268.
V. pervinca vulgaris. *Park. theat.* 381. *f.* 1.
Clematis. *Matth.* 956.
C. daphnoides. *Dod. pempt.* 405.—minor. *Bauh. pin.* 301. *Bauh. hiſt.* 3. :30. *Raii hiſt.* 1091.
Stems procumbent, leaves elliptic-lanceolate ſmooth at the edge, flowers peduncled, calyx-teeth lanceolate.

2. Vinca major. *Great Periwinkle.*
Lin. ſpec. 304. *ſyſt.* 252. *Reich.* 1. 593. *Willd.* 1. 1233. *Hudſ. angl.* 91. *Wither. arr. ed.* 3. 269. *Smith brit.* 270. *engl. bot. t.* 514. *Curt. lond.* 4. *t.* 19. 222. *Relh. cant. ed.* 2. *n.* 219. *Sibth. oxon. n.* 246. *Abbot beſſ. n.* 183. *Villars dauph.* 2. 486. *Fabric. helmſt. ed.* 2. 252. *Pallas it.* 3. 585. *Deſfont. atlant.* 1. 206. *Berg. phyt.* 2. 59. *Plenck ic. t.* 114. *Regnault ic.*
Pervinca major. *Scop. carn. n.* 274. *Allion. pedem. n.* 370. *Hall. helv. n.* 573. *Ger. prov.* 326. 1. *var.*
P. vulgaris latifolia, flore cæruleo. *Tournef. inſt.* 119. *Garid. aix. t.* 81.
Clematis daphnoides major. *Bauh. pin.* 302. *Bauh. hiſt.* 2. 132. *Dod. pempt.* 406. 1. *Ger. emac.* 894. 2. *Raii hiſt.* 1091. *ſyn.* 268. *Mor. hiſt. ſ.* 15. *t.* 2. *f.* 1.
C. daphn. latifolia. *Cluſ. hiſt.* 1. 121. 2. *Park. theat.* 381. 2.
C. ſ. Pervinca major. *Lob. obſ.* 360. 2. *ic.* 636.
Stems nearly erect, leaves ovate ciliate, flowers peduncled, calyx-teeth briſtle-ſhaped elongated.

[3. Vinca lutea. *Yellow Periwinkle.*
Lin. ſpec. 304. *Reich.* 1. 594. *Willd.* 1. 1233. *amœn.* 4. 307.
Apocynum ſcandens, ſalicis folio, flore amplo plano, *Cateſb. car.* 2. *t.* 53.
Stem twining, leaves oblong.]

4. Vinca roſea. *Madagaſcar Periwinkle.*
Lin. ſpec. 305. *Reich.* 1. 594. *Willd.* 1. 1233. *Gærtn. fruct.* 2. 172. *Mill. fig.* 124. *t.* 186. *Knipb. cent.* 8. *n.* 99. *Thunb. jap.* 110. *Lour. cochinch.* 118. *ed. Willd.* 146. *Curt. magaz. t.* 248.
Stem ſuffrutеſcent erect, flowers in pairs ſeſſile, leaves ovate-oblong, petioles two-toothed at the baſe.

[5. Vinca parviflora. *Small-flowered Periwinkle.*
Ait. kew. 1. 296. *Retz. obſ.* 2. 14. *n.* 33. & 5. 3. *n.* 38. *Willd. ſpec.* 1234.
V. puſilla. *Lin. ſyſt.* 252. *ſuppl.* 166. *Murr. in comm. gott.* 1772. *p.* 26. *t.* 4. *f.* 1.

* Young's Annals, 3. 97.

Cupa-Veela. *Rheed. mal. 9. 61. t. 33.*
Stem herbaceous erect, leaves lanceolate acute.

DESCRIPTIONS, *&c.*

1. Root perennial, creeping with branched fibres. The whole plant ſmooth and ſhining. Stems round, ſlender, leafy, erect when in flower, from nine inches to a foot in height, and much higher when ſupported by buſhes, marked on each ſide with a groove faintly impreſſed; after flowering, proſtrate, elongated, taking root at their joints. Mr. Woodward remarks, that the flowering-ſtem is upright in the ſpring, but that in autumn the flowers are borne on the ſhoots of the year, which are trailing. Leaves oppoſite, on footſtalks about one fourth the length of the leaves, which are quite entire, evergreen, ſhining, ſomewhat like thoſe of Privet, not having the fringed edge obſervable in V. major. Flowers axillary, alternate, ſolitary, void of ſcent, on nearly upright peduncles, almoſt twice the length of the leaves, round, ſmooth and ſhining. Calyx bell-ſhaped, five-cleft, ſmooth, with ſhort lanceolate ſegments; much ſhorter and leſs tapering than in V. major. Corolla blue with a white eye, varying to purple and white; of a darker colour and ſmaller ſize than in V. major [f].

This plant, like many others which run much at the root, ſeldom produces its follicles. Mr. Curtis and Dr. Smith inform us, that they have never ſeen them. Tournefort ſays that he never ſaw any fruit in Provence or Languedoc, where this plant is very common, nor about Liſbon; that Cæſalpinus is the only author who has deſcribed it, and that he obtained that which is engraved in his Elements by ſetting the plant in a pot with little earth. Miller did not ſucceed that way, but by cutting off all the lateral ſhoots. Leers affirms that the follicles are always two-ſeeded.

Whoever, ſays Mr. Curtis, looks into the tube of this flower with any degree of attention, muſt be ſtruck with the wiſdom ſhewn in the formation of the parts contained within it. Each anther is terminated by a membrane which bends over at top, and the membranes of all the anthers cloſing together, effectually ſeclude every thing that might injure the parts of the fructification below them. The filaments ſomewhat reſemble in ſhape a note of interrogation; the anthers in ſtructure are very ſimilar to thoſe of the violet, and open inwardly in the ſame manner; the ſtyle, which in moſt flowers is broadeſt at top, is here the ſlendereſt; they are two in number, but ſo cloſely united, that without a magnifier, the diviſion is ſcarcely to be perceived; the ſtigmas, according to Linneus, are two, it is moſt probable however, that the loweſt, which is flat with a glutinous edge, and forms a kind of ring round the ſtyle, is the true ſtigma; the top is a little elevated above this, and appears like a round white ball, which when magnified, is found to conſiſt of a number of hairs diverging from one centre, and is a very pleaſing ſight in the microſcope.

The ſmall Periwinkle varies much in the colour of the flowers, pale blue, purple, and white; they are alſo double; and the foliage is ſometimes variegated, either with white or yellow ſtripes.

At the foot of a ſheltered hedge expoſed to the morning ſun, it flouriſhes very much, eſpecially if the ſoil be moiſt; the flowers are there very ornamental in ſpring, and continue a month or ſix weeks [g]. They appear earlier than thoſe of V. major.

Native of Germany, Switzerland, France, Italy, Britain, &c.

Mr. Curtis ſays he has noticed it only in one ſpot near London; in the hedge of a field on the left hand ſide of Lordſhip lane near Dulwich, where it had every appearance of being wild. Merret however found it on the weſt of Hampſtead heath, and Dr. Milne in many other places, as in Beliſize lane, on the left hand in going from Primroſe hill to Hampſtead, in great abundance; under the paling of Clandon Place park; in a lane betwixt Hayes church in Kent and the common; at Addington; below Singlewell church near Graveſend, plentifully; a mile beyond Bexley on the Dartford Road; by the ſide of the paling of Miſley park; between Milton near Swanſcomb and Knockhall; at the bottom of a lane leading from Eltham to Southend, in the Foot's Cray road; about a mile from Sydenham; about two miles and a half from Croydon, in the way to Coombe; at Cobham in Surry; between Walthamſtow and Low Layton; and on a cliff near Stone church, among the buſhes. Blackſtone perceived it in a lane leading from Uxbridge moor to Iver heath, and in a little grove near Breakſpears, Middleſex. Mr. Warner found it on the left hand of the footway from Woodford to the church, and on the iſlands in his own gravel-pit pond. In the Feverſham catalogue it is mentioned as growing in Hay's wood, near Southſtreet, Boſton. Near Lewes in Suſſex. By Honingham church, Norfolk, plentifully, and in ſeveral lanes in that pariſh, undoubtedly wild, according to Dr. Smith. In Earſham wood, by Mr. Woodward. In Cambridgeſhire, under a hedge by Maid's Cauſeway, near the town at Cherry Hinton, near the church, and at Triplow-Potton and Aſpley in Bedfordſhire, by Dr. Abbot. In Magdalen College walks, between Wolvercot and Yarnton, and Cornbury, Oxfordſhire, by Dr. Sibthorp. Ranſal brow near Manchester, by Mr. Caley. Near Rippon in Yorkſhire, by the Rev. Mr. Dalton and Mr. W. Brunton, perfectly wild. In Coryton woods, Scotland, by Dr. Parſons.

It was found with a white flower, at Chiltington, four miles from Lewes, by Mr. Woolgar, of the latter place: and with a ſtriped leaf, in the field-way from Hampſtead to Willſton; at Weſt Wickham in Kent; in a wood near Erith; about half a mile from Tottenham; at Clandon place; and at Cobham, by Dr. Milne and Mr. Alex. Gordon [h].

2. This is larger in all its parts than the preceding. Stems erect, finally rooting at the end. Leaves broad-ovate three inches long and two broad, of a thick conſiſtence, finely fringed with ſhort rigid hairs at the edge, on thick footſtalks. Flowers ſolitary, alternate, on peduncles half the length of the leaves. Calyx-teeth elongated, briſtle-ſhaped, often ciliate, ſpreading at the tip. Corolla fine purpliſh blue, twiſted. Follicles very ſmooth and ſhining, awl-ſhaped at the top, divaricating. Seeds moſtly two, one above the other, oblong, with a longitudinal groove at top, roughiſh, but naked [k]. Calyx as long as the tube of the corolla; which is woolly within juſt above the anthers. Corolla blue with a bluſh of purple. Petioles long [l].

Flowering-ſtems two feet high and upwards, round but the ſides alternately ſomewhat flattened, ſmooth, dotted with red; other ſtems, producing no flowers, creep on the ground or climb up neighbouring plants. Peduncles longer than the leaves. Flowers large, pale blue with a whitiſh mouth [m]; varying to white. The foliage alſo is ſometimes ſtriped.

Linneus, (in ſyſt. veg.) aſſerts this to be a variety of the minor. And Monſ. Gerard (in Flora Gallo-Provinc.) ſays, that nature has not put any limits between them. They ſeem however to be as diſtinct as many other ſpecies of natural genera. Haller's remark of the fringe at the edge of the leaves in this, would be ſufficient to diſtinguiſh them, if there were nothing elſe; but ſeveral other marks are ſpecified above.

Native of France, Spain, Italy, Switzerland, England, and Algiers. With us it is more common in a wild ſtate than the preceding, in moiſt woods, and hedges. Mr. Curtis noticed it near London, under Lord Stormont's park pales, between Wandſworth and Putney common, and in a field near Beckenham in Kent, where it was certainly wild. Dr. Milne found it moſt abundantly between that village and Croydon, and near Beckenham church, and in innumerable other places in Kent, Surry, Eſſex, and Middleſex. It was obſerved by How, who publiſhed his Phytologia in 1650, near Kingſland, whence it is now doubtleſs ex-

[f] Smith brit. and engl. bot. Curt. lond.
[g] Curt. lond.
[h] Tourn. par.
[i] Indigenous Botany, p. 308.
[k] Withering.
[l] Smith brit. and engl. bot.
[m] Curtis.

tirpated. This was probably the firſt notice of its being found wild in England; ſince Gerarde and Parkinſon give no hint of its being ſo. Even Ray, in his hiſtory (1688) does not mark it as an Engliſh plant. Plot (1677) found it between Wolvercot and Yarnton, in Oxfordſhire, where Sibthorp marks the minor. Near Colcheſter, by Dr. Richardſon. In the way from Knowlton to Deal, and in a lane before you come to Foot's Cray from Rochill, by Mr. James Sherard [a]. In a meadow near Hareſield church, by Blackſtone. Near Walthamſtow, by Warner. Southorp in Northamptonſhire, by Morton. Obſerved by Profeſſor John Martyn, before 1732, at Madingley in the way to Drayton, on the outſide of St. John's College, and in many other places in Cambridgeſhire. At Coton in the ſame county, near the church in 1759, at Girton, Whittleſford, Rampton, and Bottiſham, by Mr. Relhan. At Ravenſden and Clapham in Bedfordſhire, by Dr. Abbot. In a grove at Thorpe, near Norwich, by Mr. Woodward. In Magdalen College walks, Oxford, by Dr. John Sibthorp. In the Iſle of Wight, to the ſouth of Yarmouth, plentifully, by Dr. Withering.

It having been doubted whether theſe plants are really wild in England, I have given the above numerous places of growth. They probably eſcaped originally out of gardens, and increaſing ſo readily have gradually diffuſed themſelves. However that may be, having been noticed in a wild ſtate, during a century and half, they may now fairly be reputed indigenous. It flowers in may.]

As theſe plants delight to grow under the cover of trees and buſhes, they may be made ornamental in large gardens, if they are planted on the verges of wilderneſſes, where they will ſpread and cover the ground: and as their leaves continue green all the year, they will have a good effect in winter, and their flowers appearing great part of ſummer, will add to the variety.

[3. This has the appearance of an Echites. Native of Carolina.]

4. Stem upright, branching, three or four feet high, when young, ſucculent, jointed, purple; but as the plant advances the lower parts become woody. The branches have the joints very cloſe, are covered with a ſmooth purple bark, and have oblong, ovate, entire leaves, two inches and a half long, and an inch and half broad, ſmooth and ſucculent, ſetting pretty cloſe to the branches. Flowers axillary, ſolitary, on very ſhort pedúncles: tube long and ſlender; brim ſpreading open flat, divided into five broad obtuſe ſegments, which are reflexed at their points. The upper ſurface of the petal is of a bright crimſon or peach colour, and their under ſide pale fleſh-colour. There is a ſucceſſion of flowers, from february to the end of october. Thoſe which appear early in the ſummer are ſucceeded by taper ſeed-veſſels, filled with roundiſh black ſeeds, which ripen in autumn.

[Stem ſomewhat rigid, round, ſmooth and even. Leaves oppoſite, lanceolate-oval, coriaceous with a white midrib: the petioles have a toothlet on each ſide at the baſe. Flowers axillary, ſeſſile in pairs. The calyx ends in five awl-ſhaped briſtles. Corolla ſalver-ſhaped; ſegments half-ſickle-ſhaped, obtuſe, mucronate, roſe-coloured with a dark-purple eye [b] and a white circle within it.

Mr. Curtis remarks, that the flowers do not always grow in pairs. It varies with a white flower, having the eye only purple.

Follicles two, ſmall, round, ſubclavate, ſtriated, pubeſcent, half-two-celled, opening by the inner ſide: partition narrow, doubled, taking its riſe from the future plaited inwards. Seeds from ſixteen to twenty in each follicle, ſmall, ovate, acuminate above, on one ſide grooved and rugged with ſharp tubercles, on the other ſide ſmooth in the middle and having a ſmall umbilical ſeat, of a cheſnut-brown or blackiſh colour, and bald: they are faſtened longitudinally on each ſide of the partition [c].]

The ſeeds of this beautiful plant came originally from the iſland of Madagaſcar to the royal garden at Paris, and were communicated by Monſ. Richard to Mr. Miller, who cultivated them in 1757. [It has ſince been found in Java, China, Cochinchina and Japan.

5. The other ſpecies are perennial, this is annual. Stem a ſpan high, quadrangular. Flowers at the ſides, and often at the top, in pairs, pedunculed. Corolla of the ſame ſize and colour with that of Lithoſpermum officinale [a].

Stem branched, even. Leaves ſinuate-toothed, ſomewhat rugged. Flowers uſually in pairs, on ſhort pedicels, axillary, in a briſtly involucre, ſmall with a long tube. Follicles linear, ſtriated, as it were jointed [b].

Native of the Eaſt Indies. Sent from Tranquebar by the indefatigable Konig. It is there a troubleſome weed in the gardens.—Introduced in 1778 by Sir Joſeph Banks. It flowers here in auguſt [c].]

PROPAGATION AND CULTURE.

1. 2. Theſe are eaſily propagated by their trailing ſtalks, which put out roots very freely: and if the ſtalks of the large ſort are laid in the ground, they will root very ſoon, and may be cut off and tranſplanted where they are to remain, and when they are once rooted, they will ſpread and multiply very faſt without farther care.

4. Sow the ſeeds upon a moderate hot-bed in the ſpring, and when the plants are fit to remove, tranſplant them on to a freſh hot-bed, at about four inches diſtance, ſhading them till they have taken new root: then treat them in the ſame way as other natives of warm countries; taking great care to prevent their drawing up weak, and not giving them too much water. When the plants have obtained ſtrength, take them up carefully with balls of earth to their roots, plant them in pots filled with good earth, and plunge them into a moderate hot-bed to facilitate their taking new root, obſerving to ſcreen them from the ſun, and when they are well rooted to enure them gradually to bear the open air: but unleſs the ſummer prove warm, theſe plants ſhould not be placed in the open air, for they will not thrive if they are expoſed to cold or wet; therefore during the ſummer they ſhould be placed in an airy glaſs-caſe, and in winter they muſt be removed into the ſtove, where the air is kept to a temperate heat.

It may alſo be increaſed by cuttings planted in pots during any of the ſummer months. Plunge the pots into a moderate hot bed, and if they are cloſely covered with bell or hand-glaſſes, they will put out roots the more readily: when they have ſo done, they muſt be gradually hardened, and afterwards planted in pots and treated in the ſame way as the ſeedling plants.

[VINCETOXICUM. See *Aſclepias*.

VINE. See *Vitis*.

VIOLA. *(Said to be from the Greek* Ion.*)*

Lin. gen. n. 1007. *Reich. n.* 1092. *Schreb. n.* 1364. *Tournef. t.* 236. *Juſſ.* 294. *Gærtn. t.* 112. Calceolaria *Loeſl.*

Claſſ. 19. 6. Syngeneſia Monogamia—*potius* Pentandria Monogynia.

Nat. Order of *Campanaceæ*. *Ciſti* Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* five-leaved, ſhort, permanent: *leaflets* ovate-oblong, erect, more acute at the tip, obtuſe at the baſe, faſtened above the baſe, equal, but variouſly diſpoſed: of which two ſupport the uppermoſt petal, two others each a ſecond and third lateral petals, and the remaining one, the two loweſt petals together.

COR. five-petalled, irregular. *Petals* unequal. The *uppermoſt petal* ſtraight, turned downwards, wider, blunter, emarginate, finiſhing at the baſe in a blunt horned *Nectary*, prominent between the leaflets of the calyx: the two *lateral* ones paired, oppoſite, obtuſe, ſtraight: the two loweſt paired, bigger, reflexed upwards.

STAM. *Filaments* five, very ſmall; two of them, which are neareſt to the uppermoſt petal, enter the nectary by annexed appendages. *Anthers* commonly connected, obtuſe, increaſed by membranes at the tip.

PIST. *Germ* ſuperior, roundiſh. *Style* filiform, prominent beyond the anthers. *Stigma* oblique.

[a] Raii ſyn. [b] Linn. ſpec. [c] Gærtner. [a] Linn. ſuppl. [b] Retz. obſ. 2. [c] Hort. kew.

PER.

PER. *Capſule* ovate, three-cornered, obtuſe, one-celled, three-valved.

SEEDS many, ovate, appendicled, faſtened to the valves. *Receptacle* linear, running like a line along each valve.

OBS. *The* Stigma *is either reflected into a ſingle hook, (as in the ſpecies called Martiæ,) or is a concave head perforated at the top, (as in the* Tricolors.) *The flower in the European ſpecies is always inverted, in the Indians it is commonly ſtraight: whence they have a different appearance.*

One ſpecies (V. diandra) *is anomalous, having only two ſtamens.*

ESSENTIAL CHARACTER:

Cal. five-leaved. *Cor.* five-petalled, irregular, horned at the back. *Anthers* cohering. *Capſ.* ſuperior, one-celled, three-valved.

SPECIES.

* *Stemleſs.*

[1. Viola palmata. *Palmated Violet.*
Lin. ſpec. 1323. *Reich.* 3. 962. *Willd.* 1. 1159. *Gron. virg.* 1. 182. 2. 135. *Pluk. mant.* 187. *amalth.* 129. *t.* 447. *f.* 1. *Curt. magaz. t.* 535.
Stemleſs, leaves palmate five-lobed toothed and undivided.]

2. Viola pedata. *Multifid-leaved Violet.*
Lin. ſpec. 1323. *Reich.* 3. 962. *Willd.* 1. 1160. *Gron. virg.* 1. 107. 2. 135. *Curt. magaz.* 89. *Pluk. phyt.* 1. 114. *f.* 7.
V. mariana folio digitato. *Petiv. ficc.* 20.
V. multifida. *Mill. dict. n.* 5.
Stemleſs, leaves pedate ſeven-parted.

3. Viola pinnata. *Pinnate leaved Violet.*
Lin. ſpec. 1323. *ſyſt.* 802. *Reich.* 3. 962. *Willd.* 1. 1160. *Hall. helv. n.* 561. *Gmel. ſib.* 4. 101. *t.* 49. *f.* 4. *Act. nat cur.* 3. *n.* 3. *Villars dauph.* 2. 663. *Allion. pedem. n.* 1636. *miſc. taur.* 3. 181. *t.* 5. *f.* 2.
V. montana laciniato folio. *Cluſ. hiſp.* 309.
V. alpina, folio in plures partes diſſecto. *Bauh. pin.* 199. *Raii hiſt.* 1051. 9.
V. montana, folio multifido. *Bauh. hiſt.* 3. 544.
V. 7. *Ger. emac.* 851.
V. montana laciniato folio. *Park. theat.* 755. 3.
Stemleſs, leaves pinnatifid.

[4. Viola ſagittata. *Arrow-leaved Violet.*
Ait. kew. 3. 287. *Willd. ſpec.* 1. 1160.
Stemleſs, leaves oblong acute cordate-ſagittate ſerrate cut at the baſe, flowers inverted.

5. Viola lanceolata. *Spear-leaved Violet.*
Lin. ſpec. 1323. *ſyſt.* 802. *Reich.* 3. 963. *Willd.* 1. 1161. *Gmel. ſib.* 4. 99. *t.* 49. *f.* 2. *Forſt. in Linn. tranſ.* 6. 310.
V. acadienſis, folio longo ſinuato. *Dierv.*
Stemleſs, leaves lanceolate crenate.

6. Viola obliqua. *Oblique-flowered Violet.*
Ait. kew. 3. 288. *Willd. ſpec.* 1. 1161.
Stemleſs, leaves cordate acute flattiſh ſmooth, flowers erect, petals bent obliquely.

7. Viola cucullata. *Hollow-leaved Violet.*
Ait. kew. 3. 288. *Willd. ſpec.* 1. 1162.
Stemleſs, leaves cordate ſharpiſh cowled at the baſe, flowers inverted, petals bent obliquely.

8. Viola primulifolia. *Primroſe-leaved Violet.*
Lin. ſpec. 1324. *Reich.* 3. 963. *Willd.* 1. 1162. *Gron. virg.* 135. *Lepech. it.* 1. 188. *Lour. cochinch.* 513. *ed. Willd.* 628.
Stemleſs, leaves oblong ſubcordate, petioles membranaceous.]

9. Viola hirta. *Hairy Violet.*
Lin. ſpec. 1324. *ſyſt.* 802. *Reich.* 3. 963. *Willd.* 1. 1162. *mant.* 483. *fl. ſuec. n.* 788. *Hudſ. angl.* 379. *Wither. arr. ed.* 3. 260. *Smith brit.* 244. *engl. bot. t.* 894. *Curt. lond.* 1. *t.* 64. *Relh. cant. ed.* 2. *n.* 192. *Sibth. oxon. n.* 256. *Abbot bedf. n.* 622. *Sym. ſyn.* 60. *Fl. dan. t.* 618. *Hall. helv. n.* 559. *Hoffm. germ.* 310. *Roth. germ.* 1. 104. 2. 267. *Pollich pal. n.* 835. *Krock. ſileſ. n.* 1480. *Villars dauph.* 2. 662. *Allion. pedem. n.* 1637. *Thunb. jap.* 326.
V. martia major hirſuta inodora. *Plot oxon.* 144. *t.* 9. *f.* 1. *Mor. hiſt. ſ.* 5. *t.* 35. *f.* 4. *Raii hiſt.* 1051. *ſyn.* 365.
V. foliis Trachelii ſerotina hirſuta radice lignoſa. *Merr. pin.*
Stemleſs, leaves cordate, they and the petioles hairy-biſpid, calyxes obtuſe:—bractes below the middle of the peduncles.

[10. Viola magellanica. *Magellanic Violet.*
Lin. ſpec. ed. Willd. 1. 1162. *Forſt. in comm. got.* 6. 41. *t.* 8.
Stemleſs, leaves kidney-form repand villoſe.]

11. Viola odorata. *Sweet Violet.*
Lin. ſpec. 1324. *ſyſt.* 803. *Reich.* 3. 964. *Willd.* 1. 1163. *mant.* 483. *fl. ſuec. n.* 784. *hort. cliff.* 427. *mat. med.* 194. *Woodv. med. bot.* 225. *t.* 81. *Gartn. fruct.* 2. 140. *Hudſ. angl.* 378. *Wither. arr. ed.* 3. 260. *Smith brit.* 245. *engl. bot. t.* 619. *Curt. lond.* 1. *t.* 63. *Lightf. ſcot.* 507. *Relh. cant. n.* 193. *Sibth. oxon. n.* 257. *Abbot bedf. n.* 623. *Sym. ſyn.* 60. *Fl. dan. t.* 309. *Hall. helv. n.* 558. *Hoffm. germ.* 311. *Roth. germ.* 1. 105. 2. 268. *Pollich pal. n.* 837. *Leers Herborn. n.* 683. *Krock. ſileſ. n.* 1482. *Neck. gallob.* 367. *Scop. carn. n.* 1097. *Villars dauph.* 2. 662. *Allion. pedem. n.* 1639. *Haſſelq. it.* 483. *Desfont. atlant.* 1. 313. *Thunb. jap.* 326. *Lour. cochinch.* 513. *ed. Willd.* 627. *Ludw. elſ. t.* 175. *Knorr del.* 1. *t.* V. *Knipb. cent.* 3. *n.* 97. *Blackw. t.* 55. *Regnault bot. Rencalm. ſpec.* 141. *t.* 140.
V. martia purpurea. *Bauh. hiſt.* 3. 542. *Raii hiſt.* 1049. *ſyn.* 364. *Petiv. brit. t.* 37. *f.* 3. *Taberu. ic.* 301. *Mor. hiſt. ſ.* 5. *t.* 7. *f.* 1.
V. nigra ſ. purpurea. *Dod. pempt.* 156. 1. *Ger. emac.* 850. 2. *Ger.* 699. 1.
V. purpurea. *Fuchſ. hiſt.* 311.
V. martia præcox purpurea. *Lob. ic.* 1. 608. 2.
V. martia purpurea, flore ſimplici odoro. *Bauh. pin.* 199.
V. ſimplex martia. *Park. parad.* 282.
β V. martia alba. *Bauh. pin.* 199. *Raii hiſt.* 1050. *ſyn.* 364.
V. flore albo. *Ger.* 699. 2. *emac.* 850.
V. ſimpl. martia flore albo. *Park. parad.*
γ. V. martia multiplici flore. *Bauh. pin.* 199.
Stemleſs, runners creeping, leaves cordate, they and the petioles ſmoothiſh, calyxes obtuſe:—bractes above the middle of the peduncle.

12. Viola paluſtris. *Marſh Violet.*
Lin. ſpec. 1324. *ſyſt.* 802. *Reich.* 3. 963. *Willd.* 1. 1163. *fl. lapp. n.* 278. *ſuec. n.* 786. *Hudſ. angl.* 379. *Wither. arr. ed.* 3. 261. *Smith brit.* 246. *engl. bot. t.* 444. *Curt. lond.* 3. *t.* 58. *Lightf. ſcot.* 506. *Abbot bedf. n.* 624. *t.* 3. *Hall. helv. n.* 560. *Hoffm. germ.* 310. *Roth. germ.* 1. 105. 2. 267. *Pollich pal. n.* 836. *Krock. ſileſ. n.* 1481. *Villars dauph.* 2. 662. *Allion. pedem. n.* 1638. *Pallas it.* 3. 34. *Thunb. jap.* 226.
V. paluſtris rotundifolia glabra. *Plot. oxon.* 144. *t.* 9. *f.* 2. *Mor. hiſt.* 2. 475. *ſ.* 5. *t.* 35. *f.* 5. *Raii hiſt.* 1050. *ſyn.* 364. *Petiv. brit. t.* 37. *f.* 5.
β. V. rubra ſtriata Eboracenſis. *Park. theat.* 755. *Raii ſyn.* 365. *Fl. dan. t.* 83.
Stemleſs, leaves kidney-form ſmooth, roots creeping.

** *Caulescent.*

[13. Viola canina. *Dog's Violet.*
Lin. ſpec. 1324. *ſyſt.* 803. *Reich.* 3. 964. *Willd.* 1. 1164. *mant.* 484. *fl. lapp. n.* 277. *ſuec. n.* 785. *hort. cliff.* 427. *Hudſ. angl.* 379. *Wither. arr. ed.* 3. 261. *Smith brit.* 246. *engl. bot. t.* 620. *Curt. lond.* 2. *t.* 61. *Lightf. ſcot.* 508. *Relh. cant. ed.* 2. *n.* 194. *Sibth. oxon. n.* 258. *Abbot bedf. n.* 625. *Hall. helv. n.* 563. *Hoffm. germ.* 311. *Roth. germ.* 1. 105. 2. 269. *Pollich pal. n.* 838. *Leers herborn. n.* 684. *Krock. ſiles. n.* 1483. *Neck. gallob.* 366. *Scop. carn. n.* 1098. *Villars dauph.* 2. 665. *Allion. pedem. n.* 1645. *Gron. virg.* 182.
V. canina ſylveſtris. *Ger. emac.* 851. 6.
V. ſylveſtris. *Park. parad.* 285. 1.—inodora. *Dod. pempt.* 156. 3.
V. martia inodora ſylveſtris. *Bauh. pin.* 199. *Raii hiſt.*

hiſt. 1050. *ſyn.* 364. *Petiv. brit. t.* 37. *f.* 4. 6. *Tournef. inſt.* 419. *Mor. hiſt. ſ.* 5. *t.* 7. *f.* 2.

V. cærulea martia inodora ſylvatica. *Bauh. hiſt.* 3. 544. 1.

β. V. canina flore albo. *Merr. pin.* 125. *Dill. in Raii ſyn.* 364.

γ. V. caninæ varietas minor. *Dill. in Raii ſyn.* 364. *t.* 24. *f.* 1.

δ. V. alpina. *Hudſ. angl. ed.* 1. 379.

V. martia alpina, folio tenello circinato. *Raii ſyn.* 366.

Stem when advanced aſcending channelled, leaves oblong-cordate, calyxes acute.

14. Viola lactea. *Cream-coloured Violet.*

Smith brit. 247. *engl. bot. t.* 445. *Sym. ſyn.* 61.

V. caninæ var. 3. *Wither. arr.* 262.

Stem aſcending round, leaves ovate-lanceolate, ſtipules gaſh-ſerrate.]

15. Viola montana. *Mountain Violet.*

Lin. ſpec. 1325. *Reich.* 3. 965. *Willd.* 1. 1163. *fl. ſuec. n.* 787. *Willich obſ. n.* 94. *Hoffm. germ.* 311. *Roth. germ.* 1. 105. 2. 270. *Hall. helv. n.* 567. *Krock. ſileſ. n.* 1485. *Villars dauph.* 2. 669. *Allion. pedem. n.* 1647. *Gmel. ſib.* 4. 47. *Kniph. cent.* 4. *n.* 99.

V. ſylveſtris longifolia. *Tabern.* 305.

V. flore cæruleo, longifolia. *Riv. t.* 119.

V. martia arboreſcens purpurea. *Bauh. pin.* 199. *Garid. aix. t.* 97.

V. erecta, flore cæruleo & albo. *Mor. hiſt.* 2. 475. *ſ.* 5. *t.* 7. *f.* 7.

V. arboreſcens. *Camer. epit.* 911.

V. ſurrecta purpurea. *Park. theat.* 755. *f.* 1. *Raii hiſt.* 1052.

V. aſſurgens tricolor. *Ger.* 703. *f.* 2. *emac.* 854. *f.* 2.

Jacea tricolor ſurrectis cauliculis, quibuſdam arborea. *Bauh. hiſt.* 3. 547.

β. V. perſicifolia. *Hoffm. germ.* 311. *Roth. germ.* 2. 271.

*Stems erect, leaves cordate oblong—*in β. *ovate-lanceolate.*

[16. Viola concolor.

Forſt. in Linn. tranſ. 6. 309. *t* 28.

Stems erect, leaves broad-lanceolate and ſtipules lanceolate-linear quite entire.

17. Viola nummularifolia.

Lin. ſpec. ed. Willd. 1. 1165. *Allion. pedem. n.* 1640. *t.* 9. *f.* 4. *Villars dauph.* 2. 663. *Schmidt bohem. n.* 246.

V. rupeſtris. *Schmidt bohem. n.* 249.

V. alpina minima nummulariæ folio. *Bocc. muſ.* 2. 163. *t.* 127.

Stems undivided very ſhort, leaves roundiſh-cordate ſub-crenate, ſtipules toothed.]

18. Viola cenifia.

Lin. ſpec. 1325. *Reich.* 3. 965. *Willd.* 1. 1165. *Allion. pedem. n.* 1641. *t.* 22. *f.* 6. *Hall. helv. n.* 565. *Villars dauph.* 2. 665.

Stems ſubliform undivided procumbent, leaves ovate petioled, the edge at the baſe ciliate, ſtipules undivided.

[19. Viola canadenſis. *Canadian Violet.*

Lin. ſpec. 1326. *Reich.* 3. 966. *Willd.* 1. 1166. *amœn.* 1. 157. *Ait. kew.* 3. 290.

Stem erect roundiſh, leaves cordate acuminate ſmooth, ſtipules entire.

20. Viola ſtriata. *Striated Violet.*

Ait. kew. 3. 290. *Lin. ſpec. ed. Willd.* 1166.

Stem erect ſemicylindric, leaves ovate cordate acute ſerrate, ſtipules lanceolate, ſerrate-ciliate.

21. Viola pubeſcens. *Downy Violet.*

Ait. kew. 3. 290. *Lin. ſpec. ed. Willd.* 1. 1166.

Stem erect villoſe round flattiſh on one ſide, leaves cordate pubeſcent, ſtipules oblong ſerrulate at the tip.]

22. Viola mirabilis. *Broad-leaved Violet.*

Lin. ſpec. 1326. *ſyſt.* 803. *Reich.* 3. 966. *Willd.* 1. 1167. *fl. ſuec. n.* 789. *hort. cliff.* 407. *Hoffm. germ.* 311. *Roth. germ.* 1. 106. 2. 271. *Jacqu. auſtr.* 1. 14. *t.* 19. *Krock. ſileſ. n.* 1486. *Villars dauph.* 2. 664. *Allion. pedem. n.* 1648. *Dill. elth.* 408. *t.* 303. *f.* 390.

Stem three-ſided, leaves kidney-form-cordate, ſtipules lanceolate quite entire, flowers on the ſtem commonly apetalous.

[23. Viola biflora. *Two-flowered Violet.*

Lin. ſpec. 1326. *ſyſt.* 803. *Reich.* 3. 966. *Willd.* 1. 1167. *fl. lapp. n.* 276. *ſuec. n.* 790. *hort. cliff.* 427. *fl. dan. t.* 46. *Hall. helv. n.* 564. *Scop. carn. n.* 1099. *Villars dauph.* 2. 664. *Krock. ſileſ. n.* 1487. *Allion. pedem. n.* 1643. *Gmel. ſib.* 4. 98. *n.* 61. *Pluk. phyt. t.* 233. *f.* 7. & *t.* 234. *f.* 1.

V. alpina rotundifolia lutea. *Bauh. pin.* 199.

Stem two-flowered, leaves kidney-form ſerrate.

24. Viola uniflora. *Siberian Violet.*

Lin. ſpec. 1327. *ſyſt.* 803. *Reich.* 3. 967. *Willd.* 1. 1167. *Gmel. ſib.* 4. 101. *t.* 48. *f.* 5.

Stem one-flowered, leaves cordate toothed.

25. Viola decumbens. *Trailing Violet.*

Lin. ſyſt. 803. *Willd.* 1. 1168. *ſuppl.* 397. *Thunb. prodr.* 41.

Cauleſcent, procumbent, leaves linear cluſtered.]

*** *Stipules pinnatifid. Stigma urceolate.*

26. Viola tricolor. *Panſy-Violet* or *Heart's-eaſe.*

Lin. ſpec. 1326. *ſyſt.* 803. *Reich.* 3. 967. *Willd.* 1. 1168. *fl. ſuec. n.* 791. *hort. cliff.* 427. *Gærtn. fruct.* 2. 139. *Hudſ. angl.* 380. *Wither. arr. ed.* 3. 262. *Smith brit.* 248. *Curt. lond.* 1. *t.* 65. *Lighf. ſcot.* 509. *Relh. cant. ed.* 2. *n.* 195. *Abbot beaſ. n.* 626. *Woodv. med. bot. ſuppl. t.* 252. *Hall. helv. n.* 569. *Hoffm. germ.* 311. *Roth. germ.* 1. 106. 2. 272. *Pollich pal. n.* 839. *Lœrs herborn. n.* 685. *Krock. ſileſ. n.* 1490. *Neck. gallob.* 366. *Scop. carn. n.* 1100. *Villars dauph.* 2. 668. *Allion. pedem. n.* 1649. *Gmel. ſib.* 4. 97. *Thunb. jap.* 326.

V. arvenſis. *Murr. prodr.* 73. *Sibth. oxon. n.* 259. *Sym. ſyn.* 61.

V. bicolor arvenſis. *Bauh. pin.* 200. *Raii hiſt.* 1053. *ſyn.* 364. *Petiv. brit. t.* 37. *f.* 9. *Mor. hiſt. ſ.* 5. *t.* 7. *f.* 10.

V. tricolor arvenſis. *Park. theat.* 755.

V. tric. petræa. *Ger. emac.* 854. 4.

Jacea bicolor frugum & hortorum vitium. *Bauh. hiſt.* 3. 546. 2.

J. altera. *Camer. epit.* 913.

Trinitatis herba. *Fuchſ. hiſt.* 803.

β. V. tricolor. *Murr. prodr.* 73. *Fl. dan. t.* 623. *Hall. helv. n.* 568. *Sym. ſyn.* 61. *Reneaim. ſpec.* 144. *t.* 140. *Rivin. t.* 120. *Ger.* 703. 1. *emac.* 854. *Raii hiſt.* 1052. *ſyn.* 365. *Petiv. brit. t.* 37. *f.* 8.

V. tric. hortenſis repens. *Bauh. pin.* 199.

V. tric. major & vulgaris. *Park. theat.* 756.

Jacea ſ. flos trinitatis. *Camer. epit.* 912.

J. tric. ſ. Trinitatis flos. *Bauh hiſt.* 3. 546.

Stem angular diffuſed, leaves oblong tooth-crenate, ſtipules lyrate-pinnatifid.

[27. Viola grandiflora. *Great-flowered Panſy-Violet.*

Lin. ſyſt. 803. *Reich.* 3. 968. *Willd.* 1. 1169. *mant.* 120. *Hall. helv. n.* 566. β. *Villars dauph.* 2. 667. *Krock. ſileſ. n.* 1491. *t.* 44.

V. calcarata. β. *Lin. ſpec.* 1326.

V. montana tricolor odoratiſſima. *Bauh. pin.* 199.

V. mont. lutea grandiflora. *Bauh. pin.* 200. *Barr. ic.* 692. *Raii hiſt.* 1052. 4.

Stem three-ſided ſimple, leaves ſomewhat oblong, ſtipules pinnatifid.]

28. Viola lutea. *Yellow Mountain Panſy-Violet.*

Wither. arr. ed. 3. 263. *Smith brit.* 249. *Sym. ſyn.* 61. *Hudſ. angl. ed.* 1. 331.

V. grandiflora. *Hudſ. ed.* 2. 380. *Lighf. ſcot.* 508. *Mill. dict. n.* 10.

V. montana lutea grandiflora noſtras. *Raii hiſt.* 1052. 5. *ſyn.* 365. *Petiv. brit. t.* 37. *f.* 10.

V. martia lutea. *Ger.* 701. 5. *emac.* 850. 5. *deſcr. non. ic.*

Stem three-ſided ſimple, leaves ovate-oblong crenate ciliate, ſtipules palmate-gaſhed.

[29. Viola Zoyſii.

Lin. ſpec. ed. Willd. 1. 1169. *Jacqu. collect.* 4. 297. *t.* 11. *f.* 1.

V. montana lutea ſubrotundo crenato folio. *Barr. ic.* 691.

Stem very ſhort, erect, leaves roundiſh crenate, ſtipules quite entire, peduncles three-ſided.

36. Viola calcarata. *Alpine or long-ſpurred Violet.*
Lin. ſpec. 1325. *ſyſt.* 803. *Reich.* 3. 968. *Willd.* 1. 1169 *Knock. ſilef. n.* 1492. *Villars dauph.* 2. 666. *Allion. pedem. n.* 1650.

V. alpina purpurea, exiguis foliis. *Bauh. pin.* 199.

V. montana cærulea grandiflora. *Tournef. inſt.* 420.

Melanium montanum. *Dalech. hiſt.* 1204.

Stem abbreviated, leaves roundiſh-cordate crenate, ſtipules roundiſh toothed, nectaries longer than the calyx.

31. Viola cornuta. *Pyrenæan Violet.*
Lin. ſpec. 1325. *ſyſt.* 803. *Reich.* 3. 968. *Willd.* 1. 1170. *Hall. helv. n.* 570. *Deſfont. atlant.* 313.

V. pyrenaica longius caulata, teucrii folio. *Tournef. inſt.* 481. *Dodart. ic.*

V. pyren. folio teucrii ſerotina. *Raii ſuppl.* 510.

Stem elongated, leaves ovate ſubcordate ciliate at the edge, ſtipules oblong pinnatifid, nectaries awl-ſhaped longer than the corolla.

32. Viola capenſis. *Cape Violet.*
Lin. ſpec. ed. Willd. 1. 1170. *Thunb. prodr.* 40.

Suffruticoſe, ſtem erect, leaves obovate ſerrate.

33. Viola arboreſcens. *Shrubby Violet.*
Lin. ſpec. 1325. *Reich.* 3. 969. *Willd.* 1. 1170.

V. hiſpanica fruticoſa longifolia. *Tournef. inſt.* 421.

V. hiſp. fruticans. *Barr. ic.* 568.

V. montana pumila anguſtifolia, flore inodoro. *Bauh. pin.* 199.

Stem ſhrubby, leaves lanceolate quite entire.

**** *Flowers erect, not inverted.*

34. Viola ſtipularis. *Weſt Indian Violet.*
Lin. ſpec. ed. Willd. 1. 1171. *Swartz prodr.* 117.

Stem ſimple creeping, leaves ovate lanceolate crenate ſmooth, ſtipules ciliate, peduncles ſolitary terminating.

35. Viola parviflora. *Small-flowered Violet.*
Lin. ſpec. ed. Willd. 1. 1171. *ſuppl.* 396.

Stems diffuſed weak many-leaved, leaves ovate petioled ſerrate, flowers axillary ſolitary.

36. Viola enneaſperma. *Nine-ſeeded Violet.*
Lin. ſpec. 1327. *ſyſt.* 803. *Reich.* 3. 969. *Willd.* 1. 1171. *fl. zeyl. n.* 317. *Burm. zeyl.* 195. *t.* 85. (Polygala.)

Velam-parenda. *Rheed. mal.* 9. 117. *t.* 60. *Raii ſuppl.* 402. 2.

Stem very much branched at the baſe, leaves lanceolate-linear quite entire diſtant, calyxes equal behind.

37. Viola linarifolia. *Toadflax-leaved Violet.*
Vahl. ecl. 2. 18.

Suffruticoſe, branched, leaves linear-lanceolate oppoſite and alternate almoſt quite entire ſmooth; peduncles axillary ſolitary.

38. Viola ſuffruticoſa.
Lin. ſpec. 1327. *ſyſt.* 803. *Reich.* 3. 969. *Willd.* 1. 1171. *fl. zeyl. n.* 318.

Stem procumbent, leaves lanceolate ſubſerrate cluſtered, calyxes equal behind.

39. Viola Calceolaria.
Lin. ſpec. 1327. *ſyſt.* 803. *Reich.* 3. 969. *Willd.* 1. 1172. *Swartz obſ.* 318.

V. Itoubou. *Aubl. guian.* 2. 808. *t.* 318.

Calceolaria caule ſimplici hirſuto, floribus axillaribus ſolitariis. *Loefl. it.* 183.

Stem ſimple hirſute herbaceous, leaves lanceolate hairy, flowers ſolitary.

40. Viola oppoſitifolia.
Lin. ſpec. 1327. *ſyſt.* 803. *Reich.* 3. 970. *Willd.* 1. 1172.

Calceolaria caule brachiato glabro, floribus racemoſis. *Loefl. it.* 183.

Stem ſuffruticoſe brachiate, leaves oppoſite, flowers racemed.

41. Viola Hybanthus.
Lin. ſpec. 1328. *ſyſt.* 803. *Reich.* 3. 970. *Willd.* 1. 1172. *Loefl. it.* 282. 185. *n.* 3. *Aubl. guian.* 2. 811. *t.* 319.

Hybanthus. *Jacqu. amer.* 77. *t.* 175. *f.* 24, 25. *pict.* 107. *t.* 260. *f.* 21.

Arboreſcent, ſcandent, prickly, leaves oblong obtuſe ſmooth.

42. Viola Ipecacuanha.
Lin. ſyſt. 804. *Reich.* 3. 970. *Willd.* 1. 1172. *mant.* 484. *ſuppl.* 397. *mat. med.* 194.

V. grandiflora, Veronicæ folio villoſo. *Barr. æquin.* 113.

Pombalia Ipecacuanha. *Vandelli faſc.* 7. *t.* 1.

Leaves oval hairy on the edge and beneath.

43. Viola diandra.
Lin. ſyſt. 804. *Reich.* 3. 970. *Willd.* 1. 1173.

Stem creeping herbaceous, leaves oblong, peduncles one-flowered.

DESCRIPTIONS, *&c.*

1. Root perennial. Leaves five-parted, the ſegments ovate, the middle ſegment wider, the outer one toothed only at the baſe [1].

Native of Virginia. It flowers here in may and june; and was cultivated by Mr. Miller in 1739 [2], as appears from his ſupplementary volume, publiſhed that year, and in which he has given thirty violets, many of which he omitted in the later editions of his Dictionary.

It is a ſingular ſpecies, and rare in this country, having no ſweet ſcent to recommend it [3].]

2. The leaves are divided into ſeven parts or lobes, [which are ſometimes toothed: they are of the ſort called pedate by Linneus.] The flowers ſtand upon naked foot-ſtalks: they are blue and have no ſcent either in this or the preceding ſpecies.

They appear in june, but are not ſucceeded by ſeeds here. Native of North America. [Cultivated in 1759, by Mr. Miller.]

3. This is a very low plant, ſeldom riſing two inches high. The leaves are ſmall and pinnatifid. The flowers are pale blue, and appear in june.

[It is like the preceding, but differs in having the ſegments more numerous, not produced at the baſe, lobed, and the outer ones only ſomewhat toothed [4].

This ſingular ſpecies, ſays Monſ. Villars, has the leaves rather digitate than pinnate; the ſegments, four or five in number, are obtuſe. The flower is ſmall, and on a ſcape three or four inches in length.

Root ſlender, branched. Root-leaves numerous, ſmooth, thickiſh, compoſed of three pairs of lobes, and an end one: the firſt four or five-cleft, with unequal blunt ſegments, the middle one obtuſely and ſhortly bifid and triſid. Flowering ſcape from the root, with two capillary briſtles, ciliate at the baſe. Flower nodding: ſegments of the calyx ovate, large, white, the uppermoſt very ſmall: the two uppermoſt petals ſmooth; the two middle very large, bearded, marked with lines, pale; the loweſt ſmooth, more ſlender, with blue lines. Allione remarks, that he has often ſeen two or three petals only. Fruit large, ovate, with ſpherical orange-coloured ſeeds [5].

Native of the mountains of ſouthern Europe and Siberia. Sent to Mr. Miller by Allione, and cultivated by him in 1759.

4. Leaves unequally and remotely ſerrate, below the middle gaſh-ſerrate, veined, ſubpubeſcent, a finger's length: petioles longer than the leaves, ſemicylindric, ſomewhat hairy. Scapes filiform, long, one-flowered, four-cornered, having a few hairs ſcattered over them, and a ſmall lanceolate leaf or two, reflexed at the top. Calyx-leaves lanceolate, acute, ſmooth. Petals oblong-ovate, blue: the uppermoſt white below the middle with blue veins, hairy within at the baſe, little more than an inch and half in length; the lateral ones a little longer than the uppermoſt, hairy and whitiſh at the baſe; the loweſt of the ſame length with theſe, whitiſh at the baſe, and beardleſs.

Native of Penſylvania. Introduced in 1775, by John Fothergill, M.D. It flowers in july, and is perennial [6].

5. The Canadian plant introduced by Kalm, has narrow leaves, on long petioles, with alternate parallel nerves, indiſtinctly ſerrate. Gmelin's Siberian plant has ovate-lanceolate leaves, on petioles ſhorter by half than the leaf, leſs ſtriated, and the flowers larger [7].

Mr. Forſter informs us that they are different ſpecies: Kalm's plant from Canada having very narrow lanceolate ſhining leaves, and a fibrous root throwing

[1] Willdenow. [2] Hort. kew. [3] Curtis. [4] Willdenow. [5] Haller. [6] Hort. kew. [7] Linn. tranſ.

out runners. Gmelin's from Siberia having ovate-lanceolate pubeſcent leaves, with a fuſiform root, and ſtemleſs.

The former was introduced here in 1785, by Mr. Archibald Menzies[c].

6. Leaves crenate-ſerrate, an inch and half long. Petioles twice or thrice as long as the leaves, ſemicylindric, channelled, ſmooth. Scapes filiform, ſemicylindric, ſmooth, erect, for the moſt part of the ſame length with the petioles. Calyx-leaves ſmooth. Petals oblong-ovate, ſtraw-coloured, blue at the baſe: the uppermoſt half an inch long, ſtreaked with blue, beardleſs; the lateral ones a little narrower and longer, bearded below the middle; the loweſt of the ſame length with the lateral ones, but a little wider, beardleſs. Native of Penſylvania and Virginia. Cultivated in 1762, by Mr. James Gordon. It flowers in may and june.

7. Leaves ſerrate, attenuated at the end, two inches and more in length. Petioles twice as long as the leaves, flat above, ſmooth. Scapes filiform, ſubcylindric, having a very ſmall leaf or two in the middle, for the moſt part the length of the petioles, reflexed at the end. Calyx-leaves ſmooth. Petals ovate-oblong, blue: the uppermoſt half an inch long, whitiſh below the middle, with violet-coloured veins, beardleſs; the lateral ones longer, whitiſh below the middle, bearded; the loweſt whitiſh at the baſe, beardleſs. Native of North America. Introduced in 1772, by Samuel Martin, M.D. It flowers in july[d].

8. Leaves very blunt, crenate, decurrent along the petiole, exactly as in Primula officinalis[e]. Native of North America. Said alſo to be found in Siberia, and in China near Canton.—Introduced in 1783, by Mr. William Young. It flowers in june[f].

9. Root ſomewhat woody, fibrous. Stem none. Runners or ſcions ſhort, ſimple, proſtrate but not taking root. Leaves nearly upright, heart-ſhaped, ſerrate, veiny, clothed on both ſides with ſhort denſe hoary hairs, on long hairy footſtalks, the hairs ſhort ſpreading and bent down. Stipules in pairs, radical, lanceolate, toothed. Scapes taller than the leaves, ſmooth, erect, one-flowered, bearing below their middle a pair of lanceolate ſmooth bractes. Flower nodding, blue, ſcentleſs. Calyx ſmooth. Lateral petals marked with a hairy line, as in V. odorata. Filaments flat. Anthers terminating in an orange-coloured membrane, cloſe but not united. Capſule roundiſh, hairy, containing ſeveral round ſeeds[g].

Mr. Curtis diſtinguiſhes this ſpecies from the odorata. It throws out young ſtalks, but then they are not procumbent, nor do they ever ſtrike root as thoſe of the odorata do; hence the hirta does not increaſe ſo faſt, nor ſpread ſo wide. Linneus makes a conſiderable difference in the form of the roots, but this proceeds chiefly from their age; for in both ſpecies, the older they are, the more tubercles or cicatrices are formed by the annual ſhedding of the leaves. The petioles form the moſt obvious difference: in the odorata they are nearly ſmooth, in this they are very hirſute, and this hairineſs puts on a ſilvery appearance in the young plants. The leaves in both are ſomewhat hirſute underneath; but thoſe of the hirta, in particular ſoils or ſituations, are ſometimes remarkably ſo; and thoſe of the odorata have a more gloſſy appearance on their upper ſurface: in the hirta they are ſomewhat longer, and not ſo perfectly heart ſhaped. In the odorata the bractes are placed above the middle of the ſcape or pedunclc; in the hirta they are ſituate below it! But this character muſt be obſerved when the flowers of each are fully expanded, for the ſcape of the odorata above the bractes is conſiderably elongated, as the flowers fade. Theſe appear about a week later than thoſe of the odorata, are of a paler blue, and have none of that fragrance which renders the odorata ſo grateful a harbinger of ſpring. Beſides the perfect flowers which firſt ſpring up, the hirta continues for a month or more to throw out others, which have no petals or only rudiments of them, which never appear beyond the calyx; but theſe produce ſeed as well as the others.

[c] Hort. kew. [d] Idem. [e] Linn. ſpec. [f] Hort. kew. [g] Smith brit. and engl. bot.

It is the ſame in the odorata, but in a leſs degree; and the capſules in both, when they become nearly ripe, lie cloſe to the ground; ſo that when they burſt, the ſeeds have an eaſy acceſs to the earth. Laſtly, there is ſome difference reſpecting the ſoil and ſituation; the odorata grows generally under warm hedges, among buſhes, or in woods; the hirta is pretty much confined to a calcareous ſoil, and often occurs in more expoſed ſituations. It is by far leſs frequent than the ſweet Violet. Long ſince obſerved about Charlton, in the way to Lewiſham, and near Sittingbourn in Kent. By North Cray Church, in many places about Foot's Cray, near Northfleet, and in the wood near Purfleet, by Mr. J. Sherard. In ſeveral places of Eſſex, and on the road from Athley to Silverton Steeple, on the confines of Cambridgeſhire towards Suffolk, by Mr. Dale. In coppices of Oxfordſhire, Shotover-hill, Stow-wood, Magdalen College woods[h]. Dr. Sibthorp marks it in the coppice under Shotover hills, and in Cheyney lane. Moor Barns, Cherry Hinton, &c. in Cambridgeſhire. At Marham in Norfolk, by Mr. Crowe. Near Bury in Suffolk, by Mr. Woodward. On Barton hill, Bedfordſhire, by Dr. Abbot. On St. Vincent's rocks near Briſtol, by Mr. Dyer. It flowers in april or may.

10. This has a large yellow flower, with bay-coloured veins. Native of Terra del Fuego, in boggy places[i].

11. Root fibrous, whitiſh: in old plants the upper part becomes knobby, and appears above ground, the knobs being formed from the baſe of the petioles which are left yearly; from the boſom of theſe knobs ſpring the ſcions or runners which creep on the ground, and are furniſhed with leaves and the ſame kind of ſtipules which are obſervable at the bottom of the plant: theſe runners are very long, and in general do not produce flowers till the ſecond year. Leaves ſomewhat rounded at the tip, notched at the edge, on the upper ſide ſmooth and ſhining, underneath ſlightly hairy, when young rolled in at the edges on longiſh upright nearly ſmooth footſtalks, which ſometimes however have a few ſcattered hairs. Stipules from the ſtump of the root in pairs, lanceolate, toothed, pale; each tooth terminates in a minute gland. Flower-ſtalks ſpringing from the root, taller than the leaves, ſmooth, bearing a pair of narrow bractes, preſſed to the ſtalk, and placed above the middle of it. Linneus remarks, that below the bractes they are quadrangular, and above them grooved on the upper ſide. They are incurvated at top, and ſupport one nodding flower. Calyx ſmooth, greeniſh purple. Corolla dark purple, varying to red purple, pale fleſh colour and white, poſſeſſing a fragrance generally moſt grateful. Spur ſhort and blunt: the two ſide petals marked with a hairy line on the inſide. Filaments very ſhort, flat. Anthers orange-coloured, dilated, cloſe but ſcarcely connected: from the back of two of them ſprings a ſlender flat greeniſh appendage, which enters the nectary. Style ſlendereſt at bottom and a little twiſted. Stigma hooked, and a little longer than the anthers. Seed-veſſel purpliſh, villoſe: containing ſeveral roundiſh, ſtraw-coloured ſeeds[k].

The accurate Gærtner, deſcribes the capſule as ſubglobular, rounded-three-cornered, one coloured. Seeds to each valve about five, ovate-globular, of a dirty whitiſh colour, twice as big as in the tricolor. Navel large, glandular, elongated into a thick peduncle downwards, and produced upwards into an awl-ſhaped apophyſis lying on the ſeed. Coat cruſty, brittle. Embryo nearly the length of the albumen, graſs-green, or the radicle only green and the cotyledons yellow.

This favourite flower, ſo highly eſteemed for its fragrance, is a native of every part of Europe, in woods, among buſhes, in hedges and on warm banks; flowering in march and april; and ripening its ſeeds towards the end of ſummer. I gathered a handful of the flowers from a ſingle plant this year (1804) at the end of november. Deſfontaines ſays it is frequent about Caſſa and Tozzer in Barbary, in the Palm groves; the

[h] Plot, Rali hiſt. and ſyn. Merr. pin. [i] Forſter. [k] Smith brit. and engl. bot. Curtis.

blue and white growing promiſcuouſly, and flowering in winter. Haſſelquiſt found it in Paleſtine. Thunberg in Japan, plentifully by way ſides, flowering from january to april. Loureiro, in China near Canton.

The flowers of Violets, taken in the quantity of a dram or two, act as a mild laxative, and are given to young children in the officinal preparation of a ſyrup. This ſyrup is very uſeful in chemiſtry, to detect an acid or an alkali; the former changing the blue colour to a red, and the latter to a green: for this purpoſe Violets are cultivated in large quantity at Stratford upon Avon. Slips of white paper ſtained with the juice of the petals, and kept from the air and light, anſwer the ſame purpoſe. The ſeeds are reported to be ſtrongly diuretic, and uſeful in gravelly complaints. The powdered root in doſes from forty to eighty grains, vomits and purges [1].]

β, γ. Of the Common Violet there are the following varieties: the ſingle blue, and white, the double blue and white, and the pale purple. Theſe are all commonly preſerved in gardens, for the odour of their flowers. [It is very common with white flowers in the chalky ground near Cambridge. And Dr. Withering ſays, all that he has ſeen wild about Birmingham are white, with the ſame fragrance as the blue, but without the hairs on the inſide of the claws which that has.—It has been found wild with double flowers. This variety is in much eſteem, both for the ſuperior ſize of the flowers, and their extreme fragrancy: they alſo appear later and thereby keep up the ſucceſſion.

12. Root creeping, whitiſh, toothed, ſomewhat fleſhy, with many fibres. Leaves cordate-reniform, tender, ſhining, ſpreading, crenate, veiny, often purple beneath, on ſmooth ſemicylindric foot-ſtalks. Stipules radical, numerous, ovate, acute, ſmooth, ſcarcely perceptibly ſerrate. Flower-ſtalks longer than the leaves, erect, ſquare, ſmooth; having a pair of lanceolate erect bractes about the middle, not always below the middle, as Mr. Curtis aſſerts they are. Flowers ſolitary, drooping, inodorous, paler and ſmaller than in the more common ſpecies; ſometimes fleſh-coloured with darker red veins. Calyx-leaves rather elliptical, ſlightly membranous at the edge. The two upper petals are ſcarcely ſtreaked at all, the two lateral ones have one dark longitudinal line, and are bearded with white near the baſe; the lowermoſt is beautifully marked with numerous branched ſtreaks, and terminates behind in a ſhort blunt ſpur. Anthers bordered with an orange-coloured membrane, though collected together yet ſcarcely united. Stigma acute, with a ſingular protuberance above it [m]. It is diſtinguiſhed by this circumſtance from the other ſpecies, alſo by the greater roundneſs of its leaves, the paleneſs of its flowers, and its place of growth in bogs, or the moiſt parts of ſandy or turfy heaths. Like the odorata, hirta, &c. it produces ripe ſeeds without perfect flowers, and that in a greater quantity and for a longer continuance [n].

Native of Europe and Japan. With us more frequent in Scotland and the North of England than in the South: yet it is found plentifully on the boggy part of Shirley common near Croydon: it was gathered in Norfolk by Mr. Dawſon Turner; near Ampthill by Dr. Abbot; and long ſince by Dr. Plot on the banks of the Cherwell between Oxford and Water Eyton, by Dr. Richardſon on Oakenſhaw-moor and Roadeſhall woods, and by Mr. J. Sherard in the bogs about a mile from Joan Coles. On the borders of the lake weſt of Ballynahinch, in Ireland, by Mr. Templeton.

β. The variety with red ſtriped flowers mentioned by Parkinſon, was found in Yorkſhire by Mr. Stonehouſe, a reverend Miniſter of Darfield in Yorkſhire. The leaves were rounder and thinner, and the flowers reddiſh with ſadder veins therein [o].

It ſhould ſeem by the coloured copies of the Flora Danica to be intended by t. 83 of that work, though the leaves are there repreſented leſs pointed or more truly kidney-ſhaped than ours [p].

13. Root ſomewhat woody. The firſt flowers radical, but ſeveral branched angular leafy ſtems ſoon ſpring forth, which continue growing and bearing numerous flowers for ſeveral weeks. Leaves heart-ſhaped or oblong, crenate, ſmooth; their footſtalks ſmooth, ſomewhat dilated at the top. Stipules fringed. Flower-ſtalks axillary, ſolitary, erect, ſquare, bearing two awl-ſhaped bractes in the upper part, and one nodding blue flower. Anthers ſcarcely cohering. Calyx-leaves acute. Stigma gibbous. Capſule rather more oblong than in the Sweet Violet. Seeds roundiſh [q], of a pale yellowiſh colour, in each valve ſeven or nine.

Dog's Violet differs from the Sweet one in the flowers having no ſmell, being generally larger, and growing from the ſtem; the ſtipules very ſtrongly edged with ſtiff hairs; the calyx-leaves pointed; the ſeed-veſſel more oblong. It differs from V. hirta in all theſe reſpects except the firſt. It produces ſeed like them during the ſummer months, without any expanded corolla [r].

Native of Europe and North America.—After the flowers of the Sweet Violet are gone, every coppice, heath, hedge bank and ſhady dell is decorated for two or three months, with the paler and leſs welcome bloſſoms of the V. canina. This epithet ſeems to have been given it, as to the hedge roſe, to expreſs a degree of inferiority.

This ſpecies varies in the colour of its flowers, in the ſize of the whole herb, and in the form of the leaves [s]. Hence the varieties β, γ, δ.

β. Dog's Violet is not unfrequent with a white flower, and ſometimes the ſpur only is white [t].

γ. Mr. Du-Bois obſerved about Mitcham in Surry a variety ſmaller in all reſpects, with the ſpur of the flower yellowiſh [u].

The leaves are very ſmall, the largeſt not exceeding half an inch in length, and one third of an inch in breadth; others on the plant are even much ſmaller; they are more rough than in the common ſort. Stipules not ſo much fringed. Not entirely without ſtem, but it is very ſhort, and there is ſeldom more than one flower. It is common on heaths, and may be traced up through all its ſtages to the largeſt plant of V. canina [x].

δ. The Alpine variety was obſerved in Wales by Mr. Llwyd. Dr. Richardſon, to whom he ſhowed it, did not think it different from the common Dog's Violet [y]. Yet Hudſon, in the firſt edition of his Flora, made it a diſtinct ſpecies, under the name of V. alpina or Welch Violet, with the character of a ſubtriflorous ſtem, and cordate leaves deeply ſerrate. But he does not aſſign any place of growth of his own knowledge. Dr. Smith only adopts it from Hudſon, not as a ſpecies, but a variety.

14. The herb in all its parts much ſmaller than the canina, and quite ſmooth. Stems procumbent at the baſe, and throwing out radicles from the joints, then erect, round, branched, leafy. Leaves alternate, on footſtalks about their own length, generally erect, lanceolate or inclining to ovate, decurrent, not cordate at their baſe, veiny, crenate, rather obtuſe. Stipules deeply ſerrate, and often pinnatifid; the ſerratures glandular not briſtly at the tip. Peduncles axillary, ſolitary, erect, riſing as high as the branches, each bearing above its middle a pair of purpliſh lanceolate bractes, moſtly toothed near their baſe, and at the top one nodding flower. Calyx-leaves linear-lanceolate, acute. Petals cream-coloured, obtuſe, much narrower than in V. canina, ſtreaked, eſpecially the lower one with purple lines, diſpoſed as thoſe in V. canina, and the two ſide petals, as in that, hairy above the baſe; ſpur ſhort and blunt. Anthers terminating in a broad dilated membrane, and not cohering. What diſtinguiſhes this from canina is principally the narrow and lanceolate form of the leaves, which if permanent would be ſufficient, but in cultivation the leaves become cordate; the flowers alſo turn blue. The ſtipules appear to be more deeply cut; and the bractes, which are entire and almoſt ſetaceous in canina, are in this lanceolate and moſtly toothed.—After all it is very doubtful whether it be any thing more than another variety of canina. It ſeems to be different from V. pumila of Villars. 2. 666.

[1] Woodville and Withering. [m] Smith brit. and engl. bot. [n] Curtis. [o] Park. theat. [p] Engl. bot. [q] Smith brit. and engl. bot. [r] Curtis. [s] Engl. bot. [t] Withering. [u] Dill. in Ray ſyn. [x] Woodward Mſ. [y] Ray ſyn.

Mr. T. F. Forſter, jun. found it on the wolds near Tunbridge wells; and Mr. Stackhouſe at Pendarvis in Cornwall. It flowers in may [a].

15. Height about half a foot. Leaves large, oval-lanceolate, a little cordiform at the baſe. Flowers on axillary peduncles, bright blue, moderately large [b].

Stem tender, erect, a foot or even eighteen inches high, leafy and branched. Leaves petioled, the lower roundiſh or ovate, crenate, the upper elliptic. Stipules very large, ſemipinnate; the extreme pinna largeſt, oblong. Petioles long, erect, with very large lanceolate briſtles. Upper petals blue, middle ones pale, bearded, loweſt with a broad yellow claw with deep blue lines; ſometimes the flower is wholly blue, and ſometimes moſt of it is yellow: ſpur ſhort. Inodorous [c].]

Miller ſays it riſes with erect ſtalks more than a foot high; that the flowers are produced upon long axillary peduncles, are ſhaped like thoſe of the Dog Violet, of a pale blue colour, appear at the end of may, and are ſucceeded by roundiſh capſules filled with ſmall ſeeds which ripen in auguſt.

[It is improperly named arboreſcent by Camerarius, having nothing woody about it

Cultivated in 1714, [d] in Cheſſea garden.

16. Stem herbaceous, flexuoſe, grooved and angular, ſimple, hiſpid, a foot high and more. Leaves alternate, acuminate, wrinkled, ciliate, pale green; not unfrequently ſharply toothed and lacerated. Petiole very ſhort, ſemicylindric. Stipules four, two larger and two ſmaller, bowed, entire, ciliate. Peduncles two, very ſmall, from the axils of the leaves; one bearing an abortive flower. Bractes two, very ſmall, linear, obtuſe. Flowers ſmall, pale green of the ſame colour with the plant, whence its trivial name. Calyx five-leaved, concave, hooked. The two upper petals very ſmall, linear, recurved, entire; the two lateral linear, toothed, recurved; the loweſt two-parted; ſpur very ſhort, blunt. Stamens awl-ſhaped, very ſhort. Anthers green-purple, biſid at the baſe. Piſtil ſhort: ſtigma not urceolate but hooked, perforated, twice as long as the anther.

Native of North America, in bogs [e].

Mr. Forſter, who has cultivated this above fourteen years in his garden, informs us that it flowered only twice in that time. This gentleman having ſtudied the genus with great aſſiduity, and remarked not fewer than ſixty ſpecies, it is much to be wiſhed that he would give the reſult of his labours to the world.

17. This is a very ſmall plant, three or four inches high, with the peduncles two thirds of its length. Root black and knobbed. Leaves almoſt round, with a ſcarcely viſible point, and a ſtill ſmaller notch at the baſe, petioled, and only three or four lines in diameter: at their baſe are two lanceolate ſtipules, ſharply toothed. Flower ſmall, nodding, pale blue or whitiſh; with a blunt ſpur, half the length of the calyx [f].

Willdenow ſays it differs from the ceniſia in having cordate leaves ſmooth at the edge, and toothed ſtipules.

Native of the alps of Daupliné and Piedmont.]

18. This is an humble plant, with entire leaves, not more than half an inch long, and a quarter of an inch broad, on ſhort footſtalks. Flowers large, of a light blue colour, appearing in june, and having no ſcent.

[Stems filiform, perennial, undivided, creeping on under ground, aſcending at the top, quite ſimple. Leaves very ſmall, ſmooth, crowded at the top of the ſtem. Peduncle ſolitary, long. Flower large, blue, with a ſpur ſhorter than the petals [g].

Native of Mount Cenis and other places in the Alps. Mr. Miller received it from Dr. Allione, and cultivated it in 1759.

19. Stem a ſpan high. Leaves alternate, reniform-cordate, ſerrate, even, pale beneath, on petioles ſhorter by half than the leaf, in the uppermoſt yet ſhorter. Stipules in pairs, erect, lanceolate, ſhrivelling. Peduncles from each axil, ſolitary, naked, the length of the leaves. Flowers corolled. It differs from mirabilis in having the leaves more mucronate, the flowers on the ſtem corolled, the ſtems firmer and bigger [h].

[a] Smith brit. and engl. bot. [b] Villars. [c] Haller. [d] Hort. kew. [e] Forſter. [f] Villars. [g] Linn. ſpec. [h] Idem.

Native of North America. Introduced in 1783, by Mr. William Young.

20, 21. Theſe alſo are natives of North America, and were introduced in 1772, by Mr. William Young. They all flower in june [a].

22. Leaves large, ſomewhat rigid, roundiſh, eſpecially the lower ones, produced at the end into a blunt-iſh point, crenate with blunt broadiſh notches, on the upper ſurface a few ſlender hairs, paler beneath and ſmooth, on long thick petioles. The flowers come out early in ſpring among the young leaves, they ſmell ſweet, and are ſomewhat larger and paler than thoſe of V. odorata; though they have all the parts of fructification, yet they very ſeldom produce capſules: theſe are produced at the top of the ſtem after the flowers are paſt, among the leaves, on ſhort peduncles; they are large, oblong, ſmooth, pale green, bluntly three-ſided, filled with round pale ſeeds. This ſtem riſes to a long ſpan in height, is three-ſided, ſmooth, and has a few leaves on it, eſpecially at the top. Calyxes in both ſorts of flowers compoſed of five leaves, three larger, and two ſmaller or narrower. Petals commonly wanting in the upper fertile calyxes, but they have the piſtil and five ſtamens with their anthers.

It differs much from V. odorata, in having a ſtem, larger and longer capſules, wider leaves, more produced, and with broader notches, it does not creep by runners, and the capſules, when they are produced next the root, do not lie on the ground, but ſtand up. It is not unlike V. hirta, eſpecially in the leaves; but in that the leaves and petioles are very hairy, the former are paler with ſmaller notches, the flowers alſo are paler and ſmaller than in this, the capſules are round and hairy, and it has no ſtem.

This ſpecies was firſt obſerved by Maurice Hoffman, who (in Fl. Alt. 63.) calls it Viola ananthos, ſtamine perpuſillo luteo, cui capſula oblonga triangula ſuccedit. It is noticed in Ruppius's Flora Jenenſis; and was communicated to him by Dillenius, who found it in Hangeſtein wood, about a mile from Gieſſen his native place, and introduced it into the Eltham garden [b]. It was afterwards found by Linneus about Upſal, in Oeland and Dalecarlia, and by others in Germany, Auſtria, &c.

A ſingular œconomy having been firſt remarked in this ſpecies, gave occaſion to its being named mirabilis; but it has ſince been found to take place in ſeveral other ſpecies, as hirta, odorata, and montana. Jacquin ſays that the barreneſs of the corollate flowers in the mirabilis appears to ariſe from a defect in the ſtyle.

23. This is a very tender plant. Stem a hand high, from decumbent erect, ſmooth, round below but flatted above. Leaves petioled, ſmooth and even. Stipules oblong, acute. Peduncles two, filiform, compreſſed a little, one terminating, the other axillary. Bractes two, alternate, ſmall, preſſed cloſe. Corollas yellow, the claws of the petals with dark veins [c].

Leaves, according to Haller, reniform without a point, roundly and minutely ſerrate, ſubhirſute, on long petioles. Upper calyx-leaf very ſmall, the middle ones very large. Flowers ſmall, the four upper petals yellow with rufous lines, the loweſt deep orange with black lines.

Native of the Alps of Europe. Cultivated by Mr. Miller in 1739. (vol. 2, n. 12.) It flowers in april and may.

24. Stem ſcarcely a ſpan high, naked, firm, bearing at the top three ſubalternate cordate toothed ſubvilloſe leaves, on very ſhort petioles. Flower one, yellow, bigger than the leaves, on a very ſhort peduncle. Native of Siberia [d]. Cultivated in 1774, by Mr. James Gordon. It flowers in june and july [e].

25. Stems decumbent, filiform, ſomewhat branched, ſcarcely fruteſcent. Leaves linear, ſomewhat cluſtered, an inch long, quite entire, acute, ſeſſile. Stipules minute, awl-ſhaped, acute. Peduncles ſolitary, longer than the leaves, axillary. Bractes in pairs, minute, on the middle of the peduncle. Corolla blue, ſpurred, very nearly allied to V. tricolor. Native of the Cape of Good Hope [f].

This and all the preceding ſpecies are perennial.

[a] Hort. kew. [b] Dillenius. [c] Krocker. [d] Hort. kew. [e] Linn. ſpec. [f] Hort. kew. [g] Linn. ſuppl.

26. Root annual, ſimple, fibrous. Stems aſcending, much branched. Stipules pinnatifid, with two or three pairs of ſhort linear pinnæ at the baſe, and a large elliptical one ſlightly toothed terminating. Leaves elliptical or lanceolate, ſerrate, or toothed. Peduncles axillary, ſolitary, longer than the leaves; lower ones ſpreading, ſometimes declining; with a pair of ſmall bractes a ſhort diſtance below the flower. Calyx-leaves acutely lanceolate, unequal, the three upper ſhorteſt, but longer than the upper petals; the two lower as long as the lower petal: all remaining and ſurrounding the capſule[r]. This is of an oblong ſpheroidal form, with ſix longitudinal bands, of different colours, namely whitiſh, ruſeſcent, or green, one-celled, three-valved; the valves at firſt concave, afterwards boat-ſhaped, converging, and throwing out the ſeeds. Theſe are numerous, (more than 30,) ovate-acuminate, ſmooth and ſhining, pale ſtraw-coloured or whitiſh; they are faſtened in longitudinal rows by means of ſhort pedicels to the middle of the back of the inner ſurface of the valves. They are covered with a ſingle thin papery coat. Albumen fleſhy, thick, white. Embryo almoſt the length of the albumen, of a graſs-green. Cotyledons orbicular, flattiſh. Radicle a little longer than the cotyledons, ſtraight, roundiſh, centrifugal[s].

The ſtem is about four or ſix inches high, angular, pubeſcent, at bottom of a dull purple colour: branches alternate, erect. Leaves alternate, petioled, hairy eſpecially about the edge, but ſometimes ſmooth; the lowermoſt often ſmaller and roundiſh, the uppermoſt narrow and ſlightly indented. Peduncles alternate, nearly quadrangular, channelled on the back, bent in at top. Petals obcordate, ſhorter than the calyx and whitiſh or yellow white, in its truly ſavage ſtate, when it appears as a weed among corn: but longer than the calyx, and variegated with yellow and purple in gardens[t]. The truly wild plant has ſometimes a few purple ſtreaks: and in a ſomewhat improved ſtate is blue or purpliſh, with or without yellow or white[u]. Theſe go under the name of V. bicolor.

β. With more than two colours, purple, blue, yellow, white, improved and enlarged by garden culture. Linneus remarks the black lines which ſometimes appear on the petals; and gave occaſion to Milton's expreſſion of "Panſies freakt with jet."]

Some of theſe varieties, ſays Mr. Miller, have very large beautiful flowers, with an agreeable odour; others have ſmaller flowers without ſcent. Some have the two upper petals of a deep yellow colour with a purple ſpot in each, the two middle of a paler yellow with a deep yellow ſpot, and the lower petal like velvet; in others the petals are white with yellow and purple ſpots; in ſome the yellow is the moſt prevailing colour, in others the purple.

[The variation from white to purple in this flower, gave occaſion to Shakſpeare, in his Midſummer Night's Dream, to feign a metamorphoſis of it, and at the ſame time to pay an elegant compliment to Queen Elizabeth.

"Yet mark'd I where the bolt of Cupid fell;
"It fell upon a little weſtern flower,
"Before milk-white; now purple with Love's wound,
"And Maidens call it Love in idleneſs."

It has ever been a favourite flower with the people, and has many provincial names bearing ſome alluſion to love: as that juſt mentioned; Kiſs me behind the garden gate; Call me to you; Three faces under a hood; in days of ſuperſtition it was called Herb Trinity, for an obvious reaſon ſuch as it was. Heart's-eaſe is the general name by which it is now known, and that ſhows the eſteem in which it is held. Its more elegant name Panſies is from the French Penſees. The meaning is alluded to by Shakſpeare in Hamlet. "There's Panſies, that for thoughts."— Gerarde's names are Hart's eaſe, Panſies, Live in idleneſs, Cull me to you, and Three faces in a hood.

Native of Europe, Siberia and Japan: in corn fields, gardens, &c. flowering from may to ſeptember; frequently earlier and in mild ſeaſons much later.

[r] Woodw. Miſ. [s] Gærtner. [t] Smith and Curtis. [u] Withering.

Heart's eaſe was repreſented by old writers on the materia medica as a powerful medicine in epilepſy, aſthma, ulcers, ſcabies and cutaneous complaints. Stark, Metzger, Haaſe and other moderns recommend it eſpecially as a remedy for the cruſta lactea. For this purpoſe, a handful of the freſh herb, or half a dram of it dried, and boiled two hours in milk, is to be ſtrained and taken night and morning. Bread with this decoction is alſo to be formed into a poultice, and applied to the part. By this treatment it has been obſerved, that the eruption during the firſt eight days increaſes, and that the urine, when the medicine ſucceeds, has an odour ſimilar to that of cats; but on continuing the uſe of the plant a ſufficient time, this ſmell goes off, the ſcabs diſappear, and the ſkin recovers its natural purity.

Inſtances of the ſucceſsful exhibition of this medicine, as cited by theſe authors, are very numerous. It appears, however, that Murſinna, Ackermann, and Henning were leſs fortunate; and the laſt of them declares, that in the different cutaneous diſorders in which he uſed it, no benefit was derived.

Haaſe, who adminiſtered it in various forms and large doſes, extended its uſe to many chronic diſorders; and from the great number of caſes in which it proved ſucceſsful, it ſeems to deſerve a farther trial in this country[t].

27. Stem high, branched, leafy, ſtipuled, altogether that of V. tricolor, but the flower is very large and yellow, with ovate petals, the length of the leaves, and a ſpur twice as long as the calyx, but ſhorter than the petals[u].

Linneus at firſt conſidered it as a variety of the calcarata, but afterwards ſeparated it, though he ſtill conſidered them as too nearly allied, and both as the progeny of V. tricolor: which is annual, whereas theſe are perennial.

Villars deſcribes the root as creeping; the ſtems from five or ſix inches to ten in height; the leaves as oblong, obtuſe, and entire from the bottom up to the middle, whence iſſue two or three naked peduncles, each bearing one flower. The ſtipules are intermixed with the leaves, as in the calcarata, but they are larger and more cut. The flower is of three colours, but the yellow predominates. The ſpur is as long again as the calyx: in the calcarata it is twice as long.

Native of Switzerland, Sileſia, Dauphiné, and the Pyrenees.

28. Root perennial, ſmall, ſlender. Stem unbranched, weak and proſtrate at the baſe, then erect or aſcending, leafy, triangular, very ſlightly downy, bearing one or two flowers on very long ſtalks from the boſoms of the upper leaves. Leaves alternate, petioled, more or leſs ovate, crenate, very like thoſe of the tricolor, but finely fringed; accompanied by a pair of large, deeply five-cleft, fringed ſtipules, the outer lobes of which are deepeſt and narroweſt. Calyx toothed at the baſe. Petals either all yellow with dark purple radiating veins, or the two uppermoſt blue purple and the reſt yellow with a blue tinge, or ſometimes wholly purple. Anthers ſlightly attached to each other. The ſtyle and ſtigma are of a ſingular form, and the purple line under the ſtigma is remarkable[v].

This ſpecies, which has been confounded with V. tricolor, differs widely from it in its place of growth, in being perennial, in having a ſimple ſtem, and the ſtipules deeply five-cleft and palmate, neither pinnatifid nor lyrate, though the middle lobe is larger than the reſt[w].

It has been confounded alſo with the preceding, but that has a much larger flower, and differs both in the ſpur and ſtipules. Our plant was entirely unknown to Linneus[x].

Our lutea is thus accurately deſcribed by Mr. Woodward under the name of grandiflora, from plants growing in great abundance on the hills above Dovedale in Derbyſhire. Stem erect, or aſcending, three-angled, ſimple. Stipules in pairs with winged clefts, linear or linear-lanceolate, the terminating one not much longer than the others, all abſolutely entire, ſlightly

[t] Woodville. [u] Linn. mant. [v] Smith brit. and engl. bot. [w] Engl. bot. [x] Withering.

hairy.

hairy. Lower leaves obtuſely ovate lanceolate, upper elliptical or lanceolate, diſtantly ſerrate or toothed, ſlightly hairy. Fruit-ſtalk one terminating, and ſometimes one or two more ariſe from the axils of the upper leaves, pointing upwards, and nearly parallel to the upper one. Bractes ſmall, in pairs, at a little diſtance beneath the flower. Calyx-leaves lanceolate, unequal, all much ſhorter than the petals. Corolla yellow, two upper petals oval, tapering to a narrow claw, unveined; ſide ones oval, as broad but ſhorter than the upper ones, with three purple veins near the baſe, and fringed, terminated in a bent claw; lower one very broad, ſlightly emarginate, tapering to the baſe, and ending in a blunt horn longer than the calyx but ſhorter than the petals; this petal is marked with branched purple veins towards the baſe. Mr. Woodward ſuſpects this not to be diſtinct from V. tricolor, though it differs in three, and thoſe not trifling particulars: the ſimple ſtem, the ſhape of the ſtipules, and the comparative length of the calyx and petals. The few fruit-ſtalks and their manner of growth alſo diſtinguiſh it.

The ſtem of the tricolor, ſays Dr. Withering, is almoſt always branched, but this is never ſo, even in the ſtrongeſt and moſt luxuriant ſpecimens.

This ſpecies is found only in mountainous paſtures. It is plentiful in the north of England, Scotland, and the wildeſt parts of South Wales, often in a rotten peaty ſoil. Near Latham in Lancaſhire, found by Mr. Heſketh, according to Gerarde. Between Malham and Settle, and about Hallifax, Yorkſhire, found by Dr. Richardſon. About Attamine cliffs near Settle in the ſame county, by Mr. Curtis. Dovedale, by Mr. Woodward. Chatſworth park, by Mr. Whately. Moorlands of Staffordſhire, between Leek and Buxton, by Dr. Stokes. In Scotland, on Broughton-heights in Tweddale, and on Pentland hills, two miles ſouth of Faſt-caſtle, at Crawford-John, near the Lead-hills in Lanerkſhire, and with a purple flower on Mall-gyrdy, in Breadalbane, &c. by Lightfoot. It flowers from may to ſeptember.—Ray, in his hiſtory, has diſtinguiſhed this ſpecies very well from the grandiflora.

29. This reſembles the grandiflora, but it has a ſhorter ſtem, ſhorter leaves, and quite entire very ſhort ſtipules. The flowers are yellow with a blue ſpur. Hoſt has united it with the grandiflora, but it differs from that in habit as well as the marks ſpecified above. Native of the mountains of Carinthia [a].

30. Leaves near the root very ſmall and crowded, oval, obtuſe, toothed and petioled. The ſtipules mixed with the leaves are wide, of the ſame colour, but pinnatifid, ſeſſile and oppoſite; whereas the leaves are petioled and alternate. The two lower calyx-leaves are ſlightly cloven into two lobes at their hinder part and turned back. The flower is large, with a ſlender ſpur from three to ſix lines in length. It is ſometimes white, and ſometimes it is found with flowers ſmaller by half than common, but having the ſame ſmell and colour, the ſtem and leaves only a little increaſed in ſize [b].

According to others, and the ſynonyms, the flowers are blue, not yellow, but the colour is very uncertain in this ſection of the violet, and the ſpecies are ſo nearly allied as not eaſily to be diſtinguiſhed.

Linneus remarks, that what nature has taken from the herb of V. tricolor in this plant, it has added to the flowers.

Native of the Alps of Europe. Cultivated by Mr. Miller in 1739: (vol. 2. n. 11.) It flowers in march [c].

31. This differs from the preceding, in having a long erect ſtem, whereas that is in a manner ſtemleſs; this has oblong petals leſs than the leaves, in that they are round and bigger than the leaves; in this the leaves are oblong-ovate, in that rounded-ovate; yet after all they are very nearly allied [d].

According to Deſfontaines, the ſtems are decumbent at the baſe, ſtriated, ſmooth; the leaves obtuſe, crenate, ſmooth, on petioles longer than the leaves; the ſtipules pinnatifid at the baſe; the peduncles long, one-flowered; the flower of the ſame ſize with that of the garden V. tricolor, violet or white; the ſpur awl-ſhaped, the length of the flower.

Native of the Pyrenees: Ray found it on mount Jura, but Haller ſays it has not been found by any other perſon in Switzerland. Deſfontaines obſerved it in mount Atlas near Belide, belonging to the Algerines.

Introduced in 1776, by Caſimer Gomez Ortega, M.D. It flowers in may [e].

All theſe are perennial, and differ in that reſpect from V. tricolor.

Deſfontaines has a ſpecies, which he entitles Viola ſuberoſa, and characterizes as ſuffruticoſe, with narrow-lanceolate, ſerrate, ſmooth leaves, awl-ſhaped ſtipules, axillary peduncles, and a very ſhort ſpur. The bark in very old trunks is cloven and fungous. Branches round, ſlender, unequal, leaflets at bottom decumbent, tubercled. Leaves at the end of the branches cluſtered, running down into a ſlender petiole. Stipules entire. Peduncles ſolitary, filiform, one-flowered, for the moſt part longer than the leaf. Calyx-leaves linear, acute. Corolla the ſize of V. biflora, pale blue or white, with a blunt ſpur. Style longer than the ſtamens. Stigma hooked. Native of mount Atlas, in the cleſts of rocks.

32. Native of the Cape of Good Hope.

33. Native of Spain. Theſe are both ſhrubby. This was introduced in 1784, by Mr. John Fairbairn [f], gardener of the botanic garden at Cheliea.

34. Native of the Weſt Indies, in the iſland of St. Chriſtopher [g]. Perennial.

35. Root perennial, cylindric, thickneſs of a pigeon's quill, flexuoſe, toruloſe, aſh-coloured. Appearance that of Veronica ſerpyllifolia. Stems ſcarce a foot high; diffuſed, ſomewhat twining, filiform, branched at the baſe, afterwards ſimple, ſubpubeſcent. Leaves on the ſtem and branches numerous, approximating, having five ſerratures on each ſide, blunt, flat, ſmooth, veined, the ſame ſize as thoſe of Vaccinium Vitis idæa. Peduncles axillary over the whole ſtem, ſhorter by half than the leaf, ſolitary, erect, naked, one-flowered. Flower the ſmalleſt of all the Violets. Capſule ſmall. This ſpecies has roots in habit and property very like thoſe of Ipecacuanha. Native of the hotter regions of South America, where it was found by Mutis [h].

36. Root perennial. Stem ſcarcely branched except at the baſe, where it is very much ſo, half a foot high, with rudiments of branches in the axils. Leaves ſcarcely petioled, alternate; without any ſtipules. Peduncles axillary, capillary, ſolitary, one-flowered. Calyx-leaves not at all appendicled at the back. Lower lip of the corolla wide, it is the upper and not as in the reſt reſupine downwards [i]. According to the Hortus Malabaricus there are eight ſhining ſeeds in the capſule.

Burmann ſays the flowers are blue and ſoon fall off.

Native of the Eaſt Indies.

37. Stem a ſpan high or little more, not much branched, ſmooth. Leaves ſeſſile, remote, the lower oppoſite, the upper alternate, ſcarcely an inch long, very ſmooth, paler underneath, blunniſh, for the moſt part quite entire, but ſometimes having one or two remote ſerratures. Stipules two on each ſide, briſtle-ſhaped, ſpreading. Peduncles one-flowered, the lower oppoſite, the upper alternate, twice or thrice as ſhort as the leaf, filiform, jointed above the middle, below the joint permanent like a thorn after the flower is fallen. Bracte minute, towards the baſe of the peduncle. Calyx equal behind: calyx-leaves lanceolate, attenuated, whitiſh at the edge. Lower petal linear. It differs from V. enneaſperma in having a ſuffruticoſe ſtem, and quite entire leaves:—from V. ſuffruticoſa in having remote oppoſite leaves. Found by Weſt in the iſland of Santa Cruz [k].

38. Herb procumbent, very much branched, hard as in Helianthemum. Leaves alternate, acute, ending in the petioles, ſcarcely manifeſtly ſerrate. Stipules awl-ſhaped, hardiſh, permanent; whence the plant is rugged and in a manner prickly. Peduncles capillary. Flower as in n. 36 [l]. Native of the Eaſt Indies.

39. This riſes with ſeveral upright, branchy, villoſe ſtems, with alternate, downy, grayiſh leaves: the

[a] Willdenow. [b] Villars. [c] Hort. kew. [d] Linn. ſpec. [e] Hort. kew. [f] Hort. kew. [g] Swartz. [h] Linn. ſuppl. [i] Linn. zeyl. [k] Vahl. [l] Linn. zeyl.

flowers

flowers are axillary and ſolitary, and either of a white or blue colour: the fifth petal is very large and rhomboid. It is a native of the Caribbee iſlands, flowering at various times of the year [m].

Native of Cumana, Cayenne and Martinico.

40. Shrubby, with a ſmooth ſtem. Native of Cumana. This and the preceding were found by Loefling, and ſuppoſed by him to belong to the genus Calceolaria.

41. This is an inelegant little tree, upright, branched, about ſeven feet high. Prickles awl-ſhaped, ſcattered, few. Leaves attenuated to both ends, emarginate, ſlightly ſerrate, petioled, coming out ſeveral together from the ſame tubercle. Common peduncles ſhort, bifid at top, few-flowered, one or two from the ſame tubercle with the leaves. Flowers ſmall, inodorous, with whitiſh corollas, ſcarcely to be examined with the naked eye. Fruit the ſize of a large pea [n].

This differs from the Violets in having many-flowered peduncles. Jacquin at firſt made it a diſtinct genus. Native of South America.

42. Root fibrous, white, branched. Stems two feet high, erect, round, even, branched. Leaves alternate, petioled, elliptic, ſharply ſerrate, ſmooth. Petioles very ſhort. Stipules in pairs, ſcarioſe, lanceolate, keeled, awned, hairy. Flowers lateral, ſolitary, peduncled, drooping, on a peduncle ſhorter than the leaves. Bractes two, on the middle of the peduncle, very ſhort, lanceolate, hairy at the tip. Calyx five-leaved, muricate at the edge. Petals five, white; two ſhorter than the calyx, linear; two a little longer, reflexed, emarginate; one very large, retuſe, wide, gibbous at the baſe without a ſpur, pubeſcent beneath. Many contend that the root of this is the White Ipecacuanha. It certainly is not the brown [o]. See Pſychotria emetica. Native of Braſil.

43. Stem filiform, climbing along hedges by creeping. Leaves alternate, remote. Peduncles ſolitary, jointed, thickened; with two minute bractes on them. Calyx by no means protruded behind. Corolla white: upper petal incumbent, very large, as it were ringent with a trifid helmet; lateral petals aſcending; lower petals ſmaller, bent downwards; the uppermoſt of theſe ends behind in a very long twiſted nectary or ſpur. Stamens five, three of which are anterior and ſterile; the other two poſterior and fertile. Allamand [p].

PROPAGATION AND CULTURE.

1, 2. Theſe North American Violets will ſucceed beſt by putting them in pots filled with loam and bog earth mixed, and plunged in a north border, where they may be ſheltered in winter, or taken up, and kept in a common hot-bed frame.]

The common Violets are eaſily propagated by parting their roots; this may be done at two ſeaſons: the firſt or moſt common ſeaſon for removing and parting theſe roots is at michaelmas, that the young plants may be well rooted before winter; this is generally practiſed where the plants are put on the borders of wood-walks in large plantations, but in the gardens where they are cultivated for their flowers, the gardeners tranſplant and part their plants ſoon after their flowering ſeaſon is over; they gather all the flowers firſt, and the plants, which are then removed, having all the remaining ſummer to grow and get ſtrength, will produce a greater quantity of flowers the following ſpring, than thoſe which are removed in autumn; but this is not to be practiſed, where they cannot be ſupplied with water till they have taken new root, unleſs in moiſt ſeaſons.

When theſe are planted, they ſhould be placed at a good diſtance from each other to allow them room to ſpread, for if they are expected to produce many flowers, they ſhould not be tranſplanted oftener than once in three or four years, and in that time the offſets will ſpread over the ground, if the roots are three feet aſunder.

Violets may alſo be propagated by ſeeds, which ſhould be ſown ſoon after they are ripe, which is about the end of auguſt. The plants will come up the following ſpring, and when they are fit to remove, they ſhould be tranſplanted in ſhady borders to grow till autumn, and then they may be planted where they are to remain, but the double-flowering Violets do not produce ſeeds.

The other ſorts of Spring Violets are ſometimes preſerved in botanic gardens for the ſake of variety; theſe may be propagated in the ſame way as the common ſort, but require a moiſt ſoil and a ſhady ſituation.

The upright ſort not ſending out ſhoots like the common Violet, increaſes but ſlowly by offſets; this may be propagated by ſeeds in plenty, and is as hardy as the common ſort.

The ſeveral varieties of Panſies (n. 26.) will ſcatter their ſeeds in a ſhort time after the flowers are paſt, and from theſe ſelf-ſown ſeeds the plants which come up in autumn, will flower very early in the ſpring, and theſe will be ſucceeded by the ſpring plants; ſo that where they are indulged in a garden, and their ſeeds are permitted to ſcatter, there will be a conſtant ſucceſſion of their flowers the greateſt part of the year; for they will flower all the winter in mild ſeaſons, and moſt part of the ſummer in ſhady ſituations, which renders them worthy of a place in every good garden; but then they muſt not be allowed to ſpread too far, leſt they become troubleſome weeds, for their ſeeds, when ripe, are caſt out of their covers with great elaſticity to a conſiderable diſtance, and the plants will ſoon ſpread over a large ſpace of ground, if they are permitted to ſtand.

The great yellow Violet propagates by offſets in pretty great plenty, if it has a moiſt ſoil and a ſhady ſituation; this may be tranſplanted in autumn, and the offſets may then be taken off, but the roots ſhould not be divided into ſmall heads; nor ſhould they be too often tranſplanted, becauſe they will not produce many flowers unleſs the plants are ſtrong, and have good root in the ground. This ſort will not live in a dry ſoil, nor in a ſituation much expoſed to the ſun.

[VIOLA. See *Cheiranthus*, *Lunaria*, *Tropæolum*.
——— aquatilis. See *Hottonia*.
——— mariana. See *Campanula*.
——— matronalis. See *Heſperis*.
——— paluſtris. See *Hottonia* and *Pinguicula*.
Violæ folio. See *Pſychotria*.
VIOLET, Calathian. See *Gentiana Pneumonanthe*.
——— Corn. See *Campanula hybrida*.
——— Damaſk and Dame's. See *Heſperis*.
——— Dog-tooth. See *Erythronium*.
——— Water. See *Hottonia*.]

VIORNA. See *Clematis*.

[VIPER'S BUGLOSS. See *Echium*.

VIPER'S GRASS. See *Scorzonera*.

VIREA. See *Apargia* and *Picris*.

VIRECTA.

Lin. gen. Schreb. n. 312. *Suppl.* 17. Juſſ. 200. Sipanea. *Aubl. t.* 56.

Claſſ. 5. 1. Pentandria Monogynia.

Nat. Order of *Rubiaceæ* Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* five-leaved, permanent, ſuperior: *leaflets* ſubulate-ſetaceous, equal, erect: *teeth* between the calyx-leaves very ſmall, glandular, ſolitary between each pair.

COR. one-petalled, funnel-form: *tube* three times as long as the calyx, ſlender, equal, erect: *border* five-parted equal, flat; *ſegments* ovate, entire.

STAM. *Filaments* five, inſerted in the middle of the tube, very ſhort. *Anthers* linear, ſubulate, converging.

PIST. *Germ* inferior, globular, within the calyx terminated by a raiſed permanent circle. *Style* filiform, ſmooth. *Stigma* two-parted: *ſegments* ſetaceous.

PER. *Capſule* globular, angular, hiſpid, crowned with the calyx, one-celled. *Receptacle* fleſhy, filling the capſule, covered with one row of ſeeds.

SEEDS numerous, ſmall, angular, hollow-dotted.

ESSENTIAL CHARACTER.

Cal. five-toothed, with teeth interpoſed. *Cor.* funnel-form. *Stigma* two-parted. *Capſ.* one-celled, many-ſeeded, inferior.

[m] Aublet. [n] Jacquin. [o] Linn. ſuppl. [p] Linn ſyſt.

SPECIES.

1. Virecta biflora. *Two-flowered Virecta.*
Lin. ſyſt. 197. *Willd.* 1. 972. *ſuppl.* 134. *Vahl. ſymb.* 2. 38.
Rondeletia biflora. *Rottb. ſurin.* 7. *t.* 2. *f.* 2.
Leaves ovate, peduncles two-flowered.

2. Virecta pratenſis. *Many-flowered Virecta.*
Vahl. ecl. 2. 11.
Sipanea pratenſis. *Aubl. guian.* 148. *t.* 56.
Leaves lanceolate, peduncles many-flowered.

DESCRIPTIONS, *&c.*

1. Root annual. Herb tender, like that of Mercurialis annua. Stem round, a ſpan high or more, ſimple, ſometimes rooting, pubeſcent. Leaves oppoſite, petioled, ovate, obtuſe, quite entire, decurrent along the petiole, veined, ſmall. Stipules interfoliaceous, ſmall, erect, awl-ſhaped. Peduncle terminating between two tender branches, for the moſt part ſhorter than the leaves, two-flowered: the lower flower ſeſſile. Corollas becoming red, with a white mouth. Native of Surinam, in moiſt places; found by Dalberg[1].

2. Branches roundiſh, oppoſite, with cloſe-preſſed hairs, ſcattered over them. Leaves oppoſite, an inch long, acute at each end, quite entire, having cloſe-preſſed hairs ſcattered over them on both ſides, veinleſs, nerved, paler underneath, on very ſhort petioles, on each ſide of which is a ſhort lanceolate ſtipule. Peduncles from the uppermoſt axils and from the top, oppoſite. Flowers four to ſix, at the top of the peduncle, ſcarcely pedicelled. Calyx rough-haired, ſuperior: ſegments linear, ſharp. Tube of the corolla twice as long as the calyx, thinly hairy on the outſide, and the opening hirſute: ſegments of the border oblong. Germ crowned at the edge. Style thicker above, almoſt the length of the border. Stigma club-ſhaped. Native of Guiana[2].

VIRGA AUREA. See [*Cacalia, Conyza, Erigeron, Senecio,*] *Solidago.*
——— paſtoris. See *Dipſacus.*
——— ſanguinea. See *Cornus.*
VIRGINIAN ACACIA. See *Robinia.*
——— Cowſlip. See *Dodecatheon Meadia.*
——— Creeper. See *Clematis.*
——— Guelder Roſe. See *Spiræa opulifolia.*
——— Poke. See *Phytolacca decandra.*
——— Silk. See *Periploca.*
VIRGIN'S BOWER. See *Clematis.*
VIROLA. See *Myriſtica.*
VISCAGO. See *Cucubalus, Lychnis, Silene.*
VISCARIA. See *Lychnis.*
Viſci modo. See *Tillandſia.*
VISCOIDES. See *Pſychotria.*]
VISCUM. (*or* Viſcus *of the Latin writers, from the Æolic* βισκος *for* ἰξος. *Veſtius.*)
Lin. gen. n. 1105. *Reich. n.* 1209. *Schreb. n.* 1504. *Tournef. t.* 380. *Juſſ.* 212. *Gærtn. t.* 27.
Claſſ. 22. 4. Dioecia Tetrandria.
Nat. Order of *Aggregatæ* δ Linn. *Caprifolia* Juſſ.

GENERIC CHARACTER.

* *Male.*
CAL. *Perianth* four-parted: *leaflets* ovate, equal.
COR. none.
STAM. four. *Filaments* none. *Anthers* oblong, acuminate, one growing to each calyx-leaf.
* *Female* commonly oppoſite to the male.
CAL. *Perianth* four-leaved: leaflets ovate, ſmall, ſeſſile, deciduous, placed on the germ.
COR. none.
PIST. *Germ* oblong, three-cornered, indiſtinctly crowned with a four-cleft margin, inferior. *Style* none. *Stigma* obtuſe, ſcarcely emarginate.
PER. *Berry* globular, one-celled, even.
SEED one, cordate, compreſſed, obtuſe, fleſhy.

ESSENTIAL CHARACTER.

MALE. *Cal.* four-parted. *Cor.* none. *Filam.* none. *Anthers* faſtened to the calyx.
FEM. *Cal.* four-leaved, ſuperior. *Cor.* none. *Style* none. *Berry* one-ſeeded. *Seed* cordate.

SPECIES.

1. Viſcum album. *Common* or *White Miſſeltoe.*
Lin. ſpec. 1451. *ſyſt.* 883. *Reich.* 4. 240. *hort. cliff.* 441. *fl. ſuec. n.* 905. *mat. med.* 211. *Woodv. ſuppl.* 150. *t.* 270. *Gærtn. fruct.* 1. 131. *Hudſ. angl.* 431. *Wither. arr. ed.* 3. 203. *Smith brit.* 1074. *Hull* 220. *Relh. cant. n.* 806. *Sibth. oxon. n.* 197. *Abbot bedf. n.* 702. *Hall. helv. n.* 1609. *Scop. carn. n.* 1217. *Pollich pal. n.* 926. *Villars dauph.* 2. 337. *Allion. pedem. n.* 2123. *Thunb. jap.* 63. *Mill. illuſtr.* 87.
Viſcum. *Matth. ed. valgr.* 1. 806. 2. 161. *Dod. pempt.* 826. *Camer. epit.* 555. *Ger.* 1168. 1. *emac.* 1350. 1. *Raii hiſt.* 1583. *ſyn.* 464. *Blackw. t.* 184. *Duham. arb.* 356.
V. baccis albis. *Baub. pin.* 423.
V. vulgare. *Park. theat.* 1393. 1.
Viſcus quercus & aliarum arborum. *Baub. hiſt.* 1. 2. 89.
Leaves lanceolate obtuſe, ſtem dichotomous, ſpikes axillary.

[2. Viſcum rubrum. *Red-berried Miſſeltoe.*
Lin. ſpec. 1451. *Reich.* 4. 241. *Cateſb. car.* 2. *t.* 81.
Leaves lanceolate obtuſe, ſpikes lateral.

3. Viſcum purpureum. *Purple-berried Miſſeltoe.*
Lin. ſpec. 1451. *Reich.* 4. 241. *Cateſb. car.* 2. *t.* 95.
β. V. baccis niveis racemoſis, foliis buxi luteis.
Plum. ſpec. 17. *ic.* 258. *f.* 3.
Leaves obovate, racemes lateral.

4. Viſcum opuntiodes. *Indian-fig-like Miſſeltoe.*
Lin. ſpec. 1452. *Reich.* 4. 241. *Brown. jam.* 357. 2. *Plum. ſpec.* 17. *ic.* 258. *f.* 1. *Sloan. jam.* 2. 93. *n.* 6. *t.* 201. *f.* 1. *Raii dendr.* 52.
Stem proliferous very much branched leafleſs compreſſed.

5. Viſcum japonicum. *Japoneſe Miſſeltoe.*
Thunb. in Linn. tranſ. 2. 329.
V. opuntia. *Thunb. jap.* 64.
Stem proliferous branched leafleſs, joints three-cornered.

6. Viſcum capenſe. *Cape Miſſeltoe.*
Lin. ſyſt. 883. *ſuppl.* 426.
Leafleſs, with brachiate branches.

7. Viſcum verticillatum. *Whorled Miſſeltoe.*
Lin. ſpec. 1452. *Reich.* 4. 241. *Brown. jam.* 356. *n.* 1. *Plum. ſpec.* 17. *ic.* 258. *f.* 2. *Sloan. jam.* 2. 93. *n.* 7. *t.* 201. *f.* 2. *Raii dendr.* 52.
Stem whorled, leaves ovate three-nerved blunt.

8. Viſcum flavens. *Yellow Miſſeltoe.*
Swartz prodr. 32. *Plum. ic.* 256. *t.* 258. *f.* 4.
V. racemoſum. *Aubl. guian.* 895. 4.
Leaves ovate veined, racemes axillary in threes or fours on each ſide.

9. Viſcum pauciflorum. *Few-flowered Miſſeltoe.*
Lin. ſyſt. 883. *ſuppl.* 426.
Leaves ovate obtuſe nerveleſs, flowers ſcattered ſolitary, ſtem ſhrubby, branches alternate.

10. Viſcum terreſtre. *Earth Miſſeltoe.*
Lin. ſpec. 1452. *Reich.* 4. 242.
Stem herbaceous four-cornered brachiate, leaves lanceolate.

11. Viſcum rotundifolium. *Round-leaved Miſſeltoe.*
Lin. ſyſt. 883. *ſuppl.* 426.
Leaves orbicular, flowers in whorls.

12. Viſcum antarcticum. *New-Zealand Miſſeltoe.*
Forſt. prodr. n. 370.
Leaves ovate quite entire, racemes on the branches and terminating jointed.]

DESCRIPTIONS, *&c.*

1. This plant inſtead of rooting and growing in the earth, fixes itſelf into the branches of trees, where it ſpreads and forms a large buſh. The branches are woody, and are covered with a pale or yellowiſh green bark; the largeſt is about the thickneſs of a man's finger, and the reſt gradually ſmaller; they have many joints which eaſily part aſunder; and at each of theſe are two thick fleſhy leaves, which are broad and rounded at their points, and narrow at their baſe. The flowers come out from the axils in ſhort ſpikes, and are compoſed of four greeniſh-yellow calyx-leaves. The female flowers are ſucceeded by round white berries, which are almoſt pellucid, about the ſize of currants,

[1] Linn. ſuppl. [2] Vahl. ecl.

rants, full of a tough viſcid juice, in the middle of which lies one heart-ſhaped flat ſeed.

[The root inſinuates its fibres into the woody ſubſtance of the tree on which it grows. The ſtem is one of the beſt inſtances we have of what Linneus calls dichotomous, in its mode of branching. The branches are round, ſmooth and even: the leaves pale green, oppoſite, tongue-ſhaped, quite entire, ſmooth and even: the flowers in axillary ſeſſile heads, few together, inſerted into a fleſhy common receptacle [1]. Berry inferior, marked with four brown warts at the top from the falling of the capſule, ſpherical, white, diaphanous, one-celled: pulp viſcid, pellucid, ſurrounding the ſeed. Seed elliptic, as it were emarginate, and thence heart-ſhaped, or a ſpherical triangle, compreſſed like a lens, fleſhy, when freſh, painted with white dendritic veſſels on a graſs-green baſe: navel in the baſe of the ſeed, ſlightly emarginate [2].

Native of Europe and Japan, on various trees: flowering in may. It is very rare with us in the northern counties, and in Scotland not remarked at all. In the fruit counties, as Worceſterſhire and Herefordſhire, very common in orchards and hedge-rows.

Miſſeltoe, ſays Gerarde, groweth upon Okes, and divers other trees almoſt every where. Parkinſon reports that it groweth very rarely on Okes with us, but upon ſundry other as well timber as fruit trees, plentifully in woods, groves, and the like, in all the land. Both theſe authors hold the exploded notion of this paraſite growing from its own ſuperfluous moiſture, and not from ſeed.

Mr. Ray, in his Cambridge catalogue (1660) ſays it grows upon Apple trees chiefly, but that he has ſometimes found it upon the White-thorn. In his Hiſtory he relates that he has ſeen it upon the Maple and Aſh in Mr. Willughby's park at Middleton in Warwickſhire, on the Hazel near Braintree in Eſſex, on the Lime, Elm, Willow, Mountain Aſh and Buckthorn; on Apples, Pears, and White-thorn frequently, on other trees more rarely. John Bauhin enumerates many other trees on which he and others have obſerved the Miſſeltoe to grow as Cratægus Aria, Hornbeam, Birch, &c. Bartholinus ſays that he never obſerved it on the Almond, but it is commonly found in Provence, both on that tree and the Box; and John Bauhin ſays that he once obſerved it on the Almond. Braſſavola ſaw it on the Vine.

The Miſſeltoe of the Oak has been celebrated from the time of the Druids both as a ſacred plant, and as a medicine.

" Ad viſcum Druidæ, Druidæ cantare ſolebant."

And the Oak itſelf on which it grew was alſo held ſacred. The Druids ſent round their attendant youths with branches of the Miſſeltoe to announce the entrance of the new year; and this cuſtom has continued down to modern times, for in ſome parts of France the children run about from houſe to houſe aſking for Miſſeltoe in rude rhymes, and calling out *Aguilanceuf*, that is *A gui l'an neuf*, or *to the Miſſeltoe, 'tis the new year* [3]. And in England, branches of this plant are hung up in moſt houſes at Chriſtmas, among other evergreens.

As a medicine, the Miſſeltoe of the Oak obtained great reputation for the cure of the Epilepſy; and a caſe of this diſeaſe in which it proved remarkably ſucceſsful, is mentioned by Mr. Boyle [4]. Monſ. Villars adminiſtered the dry leaves in powder to two children between eight and ten years of age, who were epileptic, and were cured by it; but he has cured others by emetics and Cinchona; whilſt others again have reſiſted all theſe remedies, together with cauteries, ſetons, extracts of henbane and valerian, electricity, &c.

The wood raſped or powdered, from a dram to a dram and half in a doſe, or a decoction of it, from two drams to an ounce and half, is a very old remedy in the epilepſy; but it is now diſregarded, and its ſenſible qualities promiſe little [5].

The uſe of it however has been ſtrongly recommended in various convulſive diſorders by Colbach. He adminiſtered it in ſubſtance, in doſes of half a dram or a dram of the wood or leaves, or an infuſion of an ounce. This author was followed by others, who have not only borne teſtimony to the efficacy of the Miſſeltoe not only in convulſions, but alſo in complaints denominated nervous, in which it was ſuppoſed to act in the character of a tonic. But all that has been written in favour of this remedy, has not prevented it from falling into general neglect, and the Colleges of London and Edinburgh have expunged it from their catalogues of the Materia Medica [6].

There ſeems to be a diſpoſition to doubt, whether the Miſſeltoe ever grows upon the Oak. It is certainly not common now in England upon that tree, and I do not recollect having ſeen it more than once, which was many years ſince, in the Duke of Manchester's park at Kimbolton. The Engliſh Oak is of ſo hard a texture, that it is no wonder if the Miſſeltoe ſhould find a difficulty in eſtabliſhing itſelf upon it; eſpecially as few Oaks are now left to be in a ſtate of decay, when it principally attacks trees, and contributes to haſten their diſſolution. The ſcarcity of this paraſitical plant on the Oak at preſent, is no proof that it might not have been plentiful when great part of the iſland was a foreſt, and there were trees in all ſtates of age and decay adapted to receive and nouriſh it.

Ray ſays that the Miſſeltoe is very rarely found on the Oak in England; but according to Cluſius, it is very abundant on that tree in many woods of Hungary; and Bellonius writes, that between mount Athos and Ceres and Tricala there is not an Oak to be ſeen without Miſſeltoe on it; he affirms indeed that it is different from that which grows on Apple and Pear trees, but he does not inform us in what the difference conſiſts. Scopoli obſerved it on the Pine and the Oak in Carniolia. Pollich ſays, " circa Lauteren in ſylvis paſſim ad quercus præprimis reperitur." Allione relates, that it occurs on the Oak, as well as other trees, on the hills about Turin.

The berries of Miſſeltoe are devoured by ſeveral birds, as the Blackbird, Fieldfare, Thruſh, and large Thruſh thence named Miſſel Thruſh or Miſſeltoe Bird. Birdlime is made from theſe berries and alſo from the bark [7]. The berries are boiled in water till they burſt, when they are well beaten in a mortar, and afterwards waſhed, till all the branny huſks are cleared away.

The Italians make their birdlime of the berries heated and mixed with oil, as is alſo that which they make of Holly bark; and to make it bear the water, they add turpentine.

The birdlime now commonly uſed with us, is made of the bark of Holly, which is ſtripped off about midſummer: this is boiled for ten or twelve hours, and when the green coat is ſeparated from the other, it is covered up with fern for a fortnight, and put in a moiſt place; by that time the bark will be turned to a jelly, and no fibres left: then it is beaten in a ſtone mortar till it becomes a tough paſte: this is waſhed in a running ſtream till no motes appear; is then put up to ferment for four or five days, is ſcummed as often as any thing ariſes, and then laid up for uſe. When uſed, a third part of oil is incorporated with it over the fire. The bark of our Wayfaring Shrub, as it is ſaid, will make birdlime as good as that of the Holly.

That which is brought from Spain has an ill ſmell. Damaſcus birdlime is ſuppoſed to be made of Sebeſtens, their kernels being frequently found in it; but this will not endure either froſt or wet.

[Our Engliſh name is from the German *Miſtel*; it is the ſame in Sweduſh: in Dutch, *Marentacken*: in French, *Gui*. The Italians have kept the Latin name, *Viſchio* or *Viſco*; the Portugueze, *Vilgo*. The Spaniards, *Liga*. The Japoneſe, *Kſei* or *Jadoriki*.

2. This Miſſeltoe, ſays Cateſby, has long ſmooth ſhining green leaves, growing by pairs: the berries are round, red, and ſomewhat ſmaller than thoſe of the Common Miſſeltoe: they grow in cluſters to ſtalks of above an inch long, which ſhoot forth by pairs from between the joinings of the leaves to the ſtalk. They grow to Mahogany and other trees of the Bahama iſlands.

[1] Smith brit. and Withering. [2] Gærtner.
[3] Plin. 16. 44. Voſſii etym. [4] Woodville. [5] Allione.
[6] Woodville. [7] Withering.

3. The leaves of this ſpecies, according to Cateſby, grow by pairs, and are narrow at their beginning, and broad at their ends, ſet on ſlender pliant ſtalks, growing confuſedly, after the manner of the common Miſſeltoe: between every pair of leaves ſhoot forth two ſlender ſtalks of about three inches in length, with pairs of oblong purple berries ſet oppoſite to each other. It is a native of America and the Weſt Indian iſlands, and is ſaid to grow principally on the Mancineel tree [b].

4. This ſeems by its way of growth to be near of kin to the Opuntiæ, having no leaves or rather ſtems; but what we may call the ſtem or firſt leaf at the coming out of the trunk of the tree is flat, ſomewhat roundiſh, of a very dark-green colour, having at every inch and half's diſtance, out of their ſides only, oppoſite branches, growing out of one another, after the manner of the Indian Fig, being an inch and half long, and an eighth of an inch broad, the whole growing to a foot in length: at the ends of the branches are ſmall yelloviſh flowers, two together: berries whitiſh, like thoſe of the ordinary Miſſeltoe. Native of Jamaica, on trees [c]. Alſo of the Society Iſles.

5. Branches dichotomous: joints three-cornered, oblong, compreſſed, very ſhort, gradually ſmaller, wrinkled [d]. Native of Japan. Taken at firſt by Thunberg for the preceding ſpecies [e].

6. This is a very branching, brachiate, jointed ſhrub, with the bark ſomewhat wrinkled longitudinally; each joint being round, and ending at top in a bluntiſh ſcale, exactly as in Salicornia herbacea, to which it approaches very much in ſtature. It has no leaves like the two preceding. Anthers ſeſſile two or four. Berries lateral, oppoſite, often three together, ſeſſile, the ſize of a currant, with a very ſhort cylindrical ſtyle, and an obtuſe ſtigma, about which is a little area girt with a four-cornered, ſhort, ſcarcely four-cleft margin. Native of the Cape of Good Hope, on trees; found by Sparrmann [f].

7. This hangs down from trees after the manner of Miſſeltoe, having a roundiſh, green, woody, ſtriated ſtalk, as big as a gooſe quill, two or three feet long, ſometimes flatter and ſometimes rounder, having a large pith. It divides into ſeveral branches, and theſe into twigs, at the diſtance of one, two or three inches; at which diviſions the ſtalk is always ſet round, almoſt after the manner of ſtellated plants, with roundiſh green leaves, an inch and half long, juſt like ſtalks, only ſmaller and very numerous, ſo that it appears very buſhy. Native of Jamaica, in the North parts [g].

Browne ſays it is pretty frequent in that iſland; growing on all the larger trees in every ſavannah. It is uſed there for the ſame purpoſes, as the Miſſeltoe of the Oak in England, but Dr. Browne never knew it to have any remarkable effect.

8. A ſhrubby ſpecies, according to Plumier's figure, with ſimple branches, ovate, ſinuous, very broad leaves, which are oppoſite and footſtalked: racemes ſeveral, upright, ſimple, axillary, upright and ſubumbellate: berries verticillate, placed at intervals, roundiſh and umbilicate: their colour is ſaid to be purple. Native of the Weſt Indies and Guiana [h].

9. Paraſitical, hoary but not tomentoſe. Found at the Cape of Good Hope by Thunberg [i].

10. Stem herbaceous, a foot high, even, brachiate, four-cornered. Leaves petioled, even, quite entire, veinleſs: the lower one ſmaller. Spikes axillary, ſeſſile, ſleſhy, oblong. Linneus ſaw only female flowers, and no fruit: the genus therefore is uncertain; and it may be a ſpecies of Loranthus. Native of Philadelphia, in moiſt meadows. Found by Kalm [k].

11. Paraſitical. Native of the Cape of Good Hope, where it was found by Thunberg [l].

12. Native of New Zealand [m].]

PROPAGATION AND CULTURE.

1. Miſſeltoe is always produced from ſeed, and cannot be cultivated in the earth like moſt other plants, but will always grow upon trees: hence the ancients thought it was an excreſcence of the tree, without any ſeed being previouſly lodged there; which opinion has been confuted from repeated experiments.

The manner of its propagation is this. The Miſſeltoe Thruſh, which feeds upon the berries of this plant in winter, when they are ripe, often carries them from tree to tree; for the viſcous part of the berry, which immediately ſurrounds the ſeed, ſometimes ſaſtens it to the outer part of the bird's beak, and to diſengage it, he ſtrikes his beak againſt the branch of the tree on which he alights, and leaves the ſeed ſticking to the bark; if this ſhould chance to be a ſmooth part, the ſeed will adhere to it, and the following year will put out and grow. In the ſame manner it may be propagated by art. The trees on which it moſt readily takes are the Apple, Aſh, White-thorn, and others which have a ſmooth rind. I have ſeveral times tried it upon the Oak without ſucceſs, for the bark of that tree is of too cloſe a texture to admit the ſticking of the ſeeds thereto, which is alſo the reaſon why it is ſo rarely found upon the Oak. Notwithſtanding the great encomiums which have been given to the Miſſeltoe of the Oak for its medicinal virtues, I cannot help thinking that it is equally good *from* whatever tree it be taken: nor is it poſſible to find this plant growing in any quantity upon the Oak; ſo that they who pretend to furniſh it for medicinal uſe, do but impoſe upon their cuſtomers; for it is ſo rarely met with, that whenever a branch of an Oak-tree has Miſſeltoe growing upon it, it is cut off and preſerved by the curious in their collections of natural curioſities, and of theſe there are few to be ſeen in England.

As to what ſome perſons have aſſerted, of its being propagated by Miſſeltoe Thruſhes, who having eat the berries, void the ſeed in their dung upon the branches of trees, I can by no means agree to it; for in this caſe the plant would always be found on the upper part or the ſides of ſuch branches, upon which only the dung can be ſuppoſed to lodge; whereas it is generally found at the under ſide of the branches: beſides I believe that the ſtomachs of theſe birds are too powerful digeſters, to ſuffer any ſeeds to paſs ſo entire as to grow.

[The firſt of theſe objections would apply to the other mode of propagation by nature and art. The ſecond is generally right, but yet it is certain that ſeeds now and then eſcape the powers of digeſtion, probably by a paſſage more accelerated than common, and vegetate when they happen to fall on their proper nidus. And though the ſeeds are firſt depoſited upon the upper part of the branch, the rains may ſoon waſh them to the ſides or even the lower part.

The ancients, as Ariſtotle, Pliny, &c. inſiſted that the only mode of propagation of the Miſſeltoe is by the excrement of birds, ſuppoſing that the heat of the body is neceſſary to mature the ſeed for vegetation. Julius Scaliger, John Bauhin, and other moderns of the old ſchool, adopted the idea of equivocal generation. Ray was too good a philoſopher to admit this doctrine, and aſks very reaſonably, to what end ſo great a quantity of ſeed ſeemingly perfect was created, if it were all barren and unfruitful? But Ray lived to ſee his theory and that of Ariſtotle confirmed by experiment; for Mr. Doody, an Apothecary of London, inſerted a ſeed of the Miſſeltoe into the bark of a White Poplar tree, which grew in his garden, with complete ſucceſs; this has been done ſince by many perſons, both by rubbing the berries on the ſmooth bark of various trees, and by inſerting them in a cleft. Doody ſeems to have bored a hole for the reception of the ſeed.

It is wonderful, as Ray juſtly obſerves, that Botaniſts and Philoſophers ſhould chooſe to argue pro and con ſo many years, not to ſay centuries, rather than take the pains to conſult nature, and determine the matter by an eaſy experiment [n].

The celebrated Tourneſort, in his travels in the Levant ſaw numbers of wild Pear trees covered with Miſſeltoe, and obſerved upon their trunks, how hard ſoever the bark was, the germination of the ſeeds. Theſe ſeeds, ſays he, which are in the ſhape of a heart, were

[b] Cateſby. [c] Sloane. [d] Thunb. in Linn. tranſ. [e] Thunb. jap. [f] Linn. ſuppl. [g] Sloane. [h] Aublet. [i] Linn. ſuppl. [k] Linn. ſpec. [l] Linn. ſuppl. [m] Forſter.

[n] Cat. cant. and hiſt. p. 1918.

out of their caſes, and had faſtened themſelves by their glue to the trunks and branches of theſe trees, at the time that winds or ſome other cauſe made them fall off. Each ſeed lay upon its ſide, in ſuch a manner that the radicle began to pierce the bark, whilſt the eye (or plume) ſhot out and unfolded itſelf[a].

VISCUM. See *Epidendrum*, *Loranthus*, *Tillandſia*.

Viſenia umbellata. See *Melochia odorata*.

VISMEA. *(So named by the younger Linneus, in memory of Mr. De Viſme a Portugueze merchant, well known for his love and knowledge of plants.* Suppl. 37.)
Lin. gen. Schreb. n. 833. *Suppl.* 36.
Mocanera. *Juſſ.* 318.
Claſſ. 11. 3. Dodecandria Trigynia.
Nat. Order of *Onagræ* Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* five-leaved, permanent: *leaflets* lanceolate, recurved: *three outer* hairy.
COR. *Petals* five, elliptic, ſpreading, ſcarcely longer than the calyx.
STAM. *Filaments* twelve, filiform, erect, ſhorter than the petals, inſerted into the receptacle. *Anthers* quadrangular, erect, terminated by an awn.
PIST. *Germ* rough-haired, ſuperior, attenuated as it were into a very ſhort rough-haired ſtyle. *Styles* three, filiform, ſmooth. *Stigmas* ſimple.
PER. *Nut* ovate, ſmooth, acuminate; two or three-celled, half-inferior, encloſed within the converging calyx-leaves, and for the moſt part covered by the one-leafed part of the calyx, which is connate with the nut, but a third of the upper part of the nut within the calyx is naked.
SEEDS in each cell one.

ESSENTIAL CHARACTER.

CAL. five-leaved, inferior. *Cor.* five-petalled. *Stigmas* five. *Nut* two or three-celled, half-inferior.

SPECIES.

1. Viſmea Mocanera.
Lin. ſyſt. 454. *Willd.* 2. 926. *Suppl.* 251.
Mocanera *Canar.*

DESCRIPTION, *&c.*

This is a ſmall ſhrub, with a round, ſomewhat warted ſtem. Leaves alternate, erect, on ſhort petioles, elliptic, very ſmooth, veined, ſerrate, the conſiſtence of the Bay. Peduncles axillary, ſolitary, nodding, ſcarcely longer than the petiole, naked, one-flowered. Flowers ſmall. Corolla yellow. When the flower is impregnated, the peduncle is erected, the calyx cloſed and thickened, and its three outer leaflets become brown and hairy. Native of the Canary iſlands, in mountain woods. Found by Francis Maſſon[b].]

VISNAGA. See *Daucus*.

[VISTNU-CLANDI. See *Evolvulus*.

VITALBA. See *Clematis*.

Vitaliana. See *Aretia*.]

VITEX. (A vinciendo ſ. viendo; *from the great flexibility of the twigs, which makes them fit to bind or tie any thing.*)
Lin. gen. n. 790. *Reich. n.* 853. *Schreb. n.* 1060. *Tournef. t.* 373. *Juſſ.* 107. *Gærtn. t.* 56. *Mill. fig. t.* 275.
Claſſ. 14. 2. Didynamia Angioſpermia.
Nat. Order of *Perſonatæ*. *Vitices* Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* one-leafed, tubular, cylindric, very ſhort, five-toothed
COR. one-petalled, ringent: *tube* cylindric, ſlender; *border* flat, two-lipped; *upper lip* trifid, with the middle ſegment wider: *lower lip* trifid, with the middle ſegment bigger.
STAM. *Filaments* four, capillary, a little longer than the tube, two of which are ſhorter than the others. *Anthers* verſatile.
PIST. *Germ* roundiſh. *Style* filiform, length of the tube. *Stigmas* two, awl-ſhaped, ſpreading.
PER. *Berry* or *Drupe* globular, four-celled.
SEEDS ſolitary, ovate.

ESSENTIAL CHARACTER.

CAL. five-toothed. *Cor.* border ſix-cleft. *Drupe* one-ſeeded: a four-celled nut.

[a] Voyage 3. lett. 21. p. 309. ed. Lyon and Hiſt. par. ed. Mart. art. Viſcum.
[b] Linn. ſuppl.

SPECIES.

[1. Vitex ovata. *Ovate-leaved Chaſte-tree.*
Lin. ſyſt. 578. *Willd.* 3. 390. *Thunb. jap.* 257.
V. rotundifolia. *Lin. ſuppl.* 294.
Leaves ſimple ovate.
2. Vitex triflora. *Three-flowered Chaſte-tree.*
Lin. ſpec. ed. Willd. 3. 390. *Vahl. ecl.* 2. 49.
Leaves ternate ſmooth, peduncles axillary and terminating three-flowered.
3. Vitex divaricata.
Lin. ſpec. ed. Willd. 3. 390. *Swartz prodr.* 93. *deſcr.* 2. 1078. *Vahl. ſymb.* 2. 76.
Leaves ternate quite entire ſmooth on both ſides, the end one very large; with a dichotomous divaricating panicle.
4. Vitex pubeſcens. *Downy Chaſte-tree.*
Lin. ſpec. ed. Willd. 3. 391. *Vahl. ſymb.* 3. 85.
Piſtacio-Vitex. *Lin. zeyl. n.* 415.
Leaves ternate pubeſcent, panicles trichotomous, braſtes length of the calyx.
5. Vitex altiſſima. *Tall Chaſte-tree.*
Lin. ſyſt. 578. *Willd.* 3. 391. *ſuppl.* 294.
Leaves ternate, quite entire, panicle whorled, ſpikes whorled, berry three-ſeeded.]
6. Vitex Agnus caſtus. *Officinal Chaſte-tree.*
Lin. ſpec. 890. *Reich.* 3. 198. *Willd.* 3. 391. *hort. cliff.* 327. *mat. med.* 157. *Woodv. med. bot. ſuppl.* 26. *t.* 222. *Jacqu. collect.* 3. 64. *Gærtn. fruct.* 1. 269. *Medic. in obſ. ſoc. accon. Lutr.* 1774. *p.* 283. *Scop. carn. n.* 783. *Allion. pedem. n.* 458. *Deſfont. atlant.* 2. 61. *Forſk. ægypt. cent.* 8. 213. *Gron. orient.* 77. *Gron. virg.* 169. *Ludw. eſt. t.* 28. *Regnault bot. Berg. phyt.* 45.
Vitex. *Camer. epit.* 105. *Dod. pempt.* 774. *Matth.* 196. *Dalech. hiſt.* 281. *Blackw. t.* 139.
V. foliis anguſtioribus cannabis modo diſpoſitis. *Baub. pin.* 475. *Tournef. inſt.* 503.
V. ſ. Agnus caſtus. *Ger.* 1201. *emac.* 1387.—folio anguſto. *Park. theat.* 1437.
Agnus folio non ſerrato. *Baub. hiſt.* 1. 205. *Raii hiſt.* 1696.
Elæagnum Theophraſti. *Lob. ic.* 2. 138.
β. Vitex latifolia. *Mill. dict. n.* 2.
V. latiore folio. *Baub. pin.* 475. *Park. theat.* 1437. *n.* 2. *Raii hiſt.* 1696. *Knipb. cent.* 2. *n.* 99.
V. folio ſerrato. *Baub. hiſt.* 1. 205.
Leaves digitate ſeven or five-leaved lanceolate moſtly quite entire, ſpikes whorled panicled.
7. Vitex inciſa. *Cut-leaved Chaſte-tree.*
Willd. ſpec. 3. 392. *Lamarck encycl.* 2. 605.
V. chinenſis. *Mill. dict. n.* 5. *fig. t.* 275. *f.* 1. 2.
Lagoondee. *Marſd. Sumatra.* 90.
Leaves digitate quinate, leaflets gaſh-pinnatifid, ſpikes ſubverticillate.
[8. Vitex Leucoxylon. *White-wooded Chaſte-tree.*
Lin. ſyſt. 578. *Willd.* 3. 392. *ſuppl.* 293.
Leaves digitate quinate, leaflets petioled oblong quite entire, panicles diochotomous, berry one-ſeeded.]
9. Vitex triſolia. *Three-leaved Chaſte-tree.*
Lin. ſpec. 890. *ſyſt. ed.* 13. 483. *ed.* 14. 579. *Reich.* 3. 199. *Willd.* 3. 392. *ſuppl.* 293. *fl. zeyl. n.* 413. *Forſk. prodr. n.* 245. *Lour. cochinch.* 390. *ed. Willd.* 474.
V. integerrima. *Mill. dict. n.* 3.
V. triſolia minor indica. *Pluk. phyt. t.* 206. *f.* 5. *Burm. zeyl.* 229. *t.* 109. *ind.* 137.
Piperi ſimilis, fructus ſtriatus, ſemina. *Baub. pin.* 412.
Lagondium vulgare. *Rumph. amb.* 4. 48. *t.* 18.
Caranoſi. *Rheed. mal.* 2. 13. *t.* 11. *Raii hiſt.* 1575.
Leaves ternate and quinate, leaflets ovate acute quite entire hoary beneath, panicle with a ſtraight rachis, pedicels dichotomous.
[10. Vitex umbroſa.
Lin. ſpec. ed. Willd. 3. 392. *Swartz prodr.* 93. *deſcr.* 2. 1076.
Nephrandra. *Coth. diſpoſit.* 8.
Leaves quinate quite entire ſmooth on both ſides, racemes compound axillary.
11. Vitex capitata.
Lin. ſpec. ed. Willd. 3. 393. *Vahl ecl.* 2. 50. *t.* 18.

Leaves

Leaves quinate-digitate, leaflets lanceolate smooth quite entire, flowers capitate-subumbelled.]

12. Vitex Negundo. *Five-leaved Chaſte-tree.*
Lin. ſpec. 890. *ſuſt.* 579. *Reich.* 3. 199. *Willd.* 3. 393. *fl. zeyl. n.* 414. *Oſb. it.* 92. *Burm. ind.* 138. *Lour. cochinch.* 390. *ed. Willd.* 474.

V. paniculata. *Lamarck encycl.* 2. 606.

V. triſolia minor indica ſerrata. *Plak. alm.* 390. *Burm. zeyl.* 229.

Negundo arbor mas. *Bauh. hiſt.* 1. 189.

Lagondium litoreum. *Rumph. amb.* 4. 50. *t.* 19.

Bemnoſi. *Rheed. mal.* 2. 15. *t.* 11. *Raii hiſt.* 1575.

Leaves quinate and ternate ſerrate, flowers raceme-paniculed.

[13. Vitex ſpicata.
Lour. cochinch. 390. *ed. Willd.* 475.

Leaves quinate crenate, ſpikes linear terminating.

14. Vitex pinnata.
Lin. ſpec. 890. *ſuſt.* 579. *Reich.* 3. 200. *Willd.* 3. 393. *Burm. ind.* 138. *t.* 43. *f.* 2.

Camunium ſinenſe. *Rumph. amb. l.* 7. *c.* 15. *p.* 28. *t.* 18. *f.* 1.

Aglaia odorata. *Lour. cochinch.* 173. *ed. Willd.* 216.

Leaves pinnate quite entire, panicles trichotomous.

DESCRIPTIONS, *&c.*

1. This is a tree, in appearance and colour like V. Agnus caſtus, except in the leaves, which are nearly roundiſh, and two inches long. Peduncles axillary, ſhort, one-flowered [a].

Stem creeping. Leaves decuſſated, petioled, ovate, obtuſe, quite entire, green above but underneath ſoft and white-tomentoſe. Flowers at the top of the branchlets, at firſt axillary, but finally terminating and paniculed. Panicle ſubtrichotomous, very ſhortly pedunculed. Berry globular, twin, four-valved, four-celled. Seeds minute. Native of China and Japan [b].

2. Branches below roundiſh, ſmooth, purpliſh, above four-cornered with a ruſt-coloured down, jointed: joints two inches long. Gems golden-ruſt-colour. Leaflets on very ſhort petioles from two to five inches in length, the lateral ones a little ſmaller, elliptic-lanceolate, wider outwards, towards the baſe gradually narrowed a little, bluntly acuminate, veined, ſmooth on both ſides, quite entire. Petioles purpliſh, above channelled, an inch and half long, golden tomentoſe at the top. Axillary peduncles, oppoſite, ſolitary; the terminating ones in pairs, length of the petioles, compreſſed. Pedicels in threes, one-flowered, half an inch long, the middle one ſhorter. Bractes two, briſtle-ſhaped, towards the top and at the baſe of the lateral pedicels. Calyx almoſt an inch long; corolla twice the length, golden-tomentoſe on the outſide. Calyx a little different from its congeners; but the corolla the ſame. Native of Cayenne [c].

3. Branches obſcurely four-cornered, *ſmooth*, with an aſh-coloured bark. Leaves at the *tops* of the branches, oppoſite, petioled: leaflets petioled, membranaceous; the lateral ones oblong, ſcarcely an inch *long*, acute, ſometimes acuminate; the end one four or five inches long, ovate, acuminate. Peduncles axillary, ſolitary, three or four times dichotomized: pedicel at the diviſions one-flowered, filiform, like the reſt. Frequent in the iſlands of Martinico, St. Lucia, and Santa Cruz. Called by the French there, bois de Lezard.

4. Branches four-cornered, pubeſcent. Leaves oppoſite, petioled: leaflets ſeſſile, two inches long, or a little leſs, ovate attenuated, quite entire, above marked with very fine lines along the nerves, and ſmoothiſh; beneath ribbed, veined, pubeſcent. Panicle terminating, large, trichotomous, finally dichotomous. Under the firſt diviſions on each ſide is a ternate leaf. Bractes ſpreading, oppoſite, ſeſſile, oblong, obtuſe, length of the calyx, hoary. Flowers ſix or ſeven on the outmoſt branches of the panicle, ſeſſile, alternate. Calyx bell-ſhaped, five-toothed, hoary. Corolla twice as long as the calyx, tomentoſe on the outſide. Berry the ſize of black Pepper, four-ſeeded. Native of the Eaſt Indies.

It differs from V. triſolia, in having the leaves not hoary beneath, the pedicels not dichotomous, but with the flowers longitudinally ſeſſile and alternate, and by the ſquarroſe habit of the panicle, from the ſpreading and reflex bractes, which are bigger than in the other ſpecies [d].

5. Leaflets ovate, acuminate at both ends, ſmooth above, pubeſcent underneath. Found in the vaſt woods of Ceylon by Koenig [e].

6. This has a ſhrubby ſtalk eight or ten feet high, ſending out their whole length oppoſite branches, which are angular, pliable, and have a grayiſh bark. Leaves for the moſt part oppoſite upon pretty long foot-ſtalks; they are compoſed of five, ſix or ſeven leaflets ſpreading out like the fingers of a hand; the lower ones ſmall; and the middle largeſt; they are ſmooth and entire; the largeſt are about three inches long, and half an inch broad in the middle, ending in blunt points, of a dark green on their upper ſide, but hoary on their under. The flowers are produced in ſpikes at the extremity of the branches, from ſeven to fifteen inches in length, compoſed of diſtant whorls; in ſome plants they are white, in others blue. They are generally late before they appear, ſo that in bad ſeaſons they do not open fair in England, and even in warm years the plants produce no ſeeds here. They have an agreeable odour when they open fair, and make a good appearance in autumn, when the flowers of moſt other ſhrubs are gone; for in warm mild ſeaſons I have ſeen theſe ſhrubs in full flower the middle of October.

[The fruit, according to Gærtner, is a berried drupe, received into the calyx, globular, with a little point upon the top, ruſeſcent, the ſize of a large pepper corn: pulp thin, ſomewhat aromatic: ſhell bony, ovate-globular, acuminate downwards, four-celled. One ſeed in each cell, faſtened to the baſe of it, oblong, acuminate at bottom, angular ruſeſcent. We ſhall ſeek in vain for a four-ſeeded berry in the Vitex. Gærtner remarks that he never could ſee a ſix-cleft corolla, except in Tournefort's figure, whence Linnæus took his generic character. Native of Sicily and the kingdom of Naples, where Ray obſerved it to be plentiful, flowering in auguſt. Scopoli found it about Tergeſte and in Iſtria—Allione on the maritime hills near Albenga—Bellardi between Menton and Monaco—Dr. Smith near Lodano, on Dec. 26, in ſeed. He remarks that it is a ſmall ſhrub there, and that the ſeeds have an unpleaſant aromatic ſmell [f]. Forſkahl found it in Egypt—Deſfontaines, in the kingdom of Tunis—Rauwolff, about Aleppo and Racka—Gronovius in Virginia. It was cultivated here in 1570, according to Lobel [g].

The ſeeds, from the time of Dioſcorides and Pliny, have been highly celebrated for ſecuring chaſtity, hence the abſurd officinal name of the ſhrub, Agnus caſtus; ἁγνος in greek being the ſame with *caſtus* in Latin: and hence the Athenian matrons, in the ſacred rites of Ceres, uſed to ſtrew their couches with the leaves. Hence alſo it has had the affected name of Piper eunuchorum and monachorum.

The ſeeds of the Chaſte-tree are, however, ſo far from being thought antiaphrodiſiac, that writers of later times have aſcribed to them an oppoſite quality; their aromatic pungency ſeems to favour this opinion, and Bergius ſtates them to be carminative and emmenagogue [h]. See n. 9. and 13.

β. Mr. Miller conſiders the Broad-leaved Chaſte-tree as a diſtinct ſpecies. He ſays] it is a lower ſhrub, ſeldom riſing more than four or five feet high, with ſeveral ſtalks which do not branch ſo much as the other; their bark is alſo whiter. The leaflets are not ſo diſproportionate in their length, the longeſt being ſeldom more than three inches, and the ſhorteſt an inch and half: they are near an inch broad, ſerrate, and not ſo ſtiff as thoſe of the former. The ſpikes are ſhorter; the flowers ſmaller, always blue, and appear ſooner. Native of the South of France and Italy.

7. [Stature of the preceding, but ſmaller in all its parts, with quinate acuminate pinnatifid leaves pubeſcent underneath. Vitex Negundo, under which name this ſpecies occurs in the gardens, is quite another

[a] Linn. ſuppl. [b] Thunberg. [c] Vahl. [d] Vahl. ſymb. [e] Linn. ſuppl. [f] Tour. 1. 223. [g] Adv. 423. Hort. kew. [h] Woodville.

plant, differing in the ſize of all the parts, and the raceme-panicled, not whorled inflorescence [1].]

Mr. Miller deſcribes it as a lower ſhrub, ſeldom riſing more than three feet high, ſending out on every ſide ſpreading branches, which are ſlender and angular. Leaves oppoſite upon pretty long footſtalks; ſome compoſed of three, others of five leaflets, which are deeply and regularly cut on their ſides like pinnatifid leaves, and end in acute points: the largeſt of theſe leaflets is about an inch and half long, and three quarters of an inch broad in the middle; they are of a dull green colour on their upper ſide and gray on their under. The branches are terminated by ſpikes of flowers three or four inches long, diſpoſed in whorls; in ſome plants they are white, in others blue, and ſome have bright red flowers: they are in beauty from the middle of July to the beginning of ſeptember; but no ſeeds are produced in Europe. Native of China: whence ſeeds were ſent to Paris by the Miſſionaries. Mr. Miller has young plants from France: [but the ſpecies ſeems to have been ſince loſt in England, as it does not appear in the Kew catalogue.

8. This very much reſembles Vitex trifolia, but differs in having the leaves very ſmooth on both ſides, and a dichotomous panicle from the firſt diviſion. Found by Koenig in the vaſt woods of Ceylon [2].

9. Leaflets ovate, acute, quite entire, tomentoſe underneath [3]: the two neareſt to the petiole ſmaller [4].

Stem ſhrubby, branched, round, eight feet high, the thickneſs of a finger, procumbent, ſometimes creeping. Leaves ternate, ſeldom quinate; leaflets waved, duſky green above, cinereous-hoary beneath, ſoft: common petioles long, oppoſite. Flowers violet in dichotomous terminating racemes. Upper lip of the corolla trifid, lower bifid. Fruit ſmall, globular, hard, ſmooth, black, like Pepper, four-ſeeded [5].]

Mr. Miller ſays, that it riſes nine or ten feet high, with many ſide branches, which have a brown bark; and that the flowers are ſmall and white, not followed by ſeeds in England. [Native of the Eaſt Indies; very common on the coaſt both of China and Cochinchina, creeping in the ſand, alſo in the Friendly iſlands.

The fruit is reputed in the eaſtern countries to be warm, diſcutient, nervine, cephalic, and emmenagogue; and to be of ſervice in paralyſis, weakneſs and pains of the limbs. It is in great uſe among Indian practitioners both internally and externally. The plant has a bitter taſte, and a ſtrong ſomewhat aromatic ſmell [6].

10. Native of Jamaica, in ſhady places.

11. This is a middle-ſized tree. Branches roundiſh, warted, at the warts a little dilated and four-cornered, ſmooth with an aſh-coloured bark, even: branchlets leafing and flowering, the lower alternate, the end ones often in threes, alternately compreſſed. Leaves at the ends of the branchlets, oppoſite, approximating, ſpreading: leaflets tender, the middle ones petioled, the outmoſt ſeſſile, four inches long, the outer ones gradually leſs, all lanceolate, attenuated, ſharp at each end, veined, very ſmooth, on petioles two or three inches in length. Peduncles axillary, ſolitary, length of the petiole, ſmooth, ſlender. Flowers ſix to twelve at the top of the peduncles at firſt ſeſſile, but afterwards very ſhortly pedicelled. At the baſe of the calyx are a few minute bractes. Calyx ſilky-villoſe, five-toothed; when fruiting enlarged to five times its former dimenſions, hemiſpherical, ſmooth, netted-veined. Corolla alſo ſilky-villoſe; upper lip bifid, lower trifid: throat villoſe. Drupe ovate-oblong, ſubmucronate, double the ſize of a pea; with a four-celled ſhell in it, having one ſeed in each ſhell. Native of the iſland of Trinidad, where it was found by Ryan [7].

12. Leaflets three or five, ovate-lanceolate, ſinuate-ſerrate, underneath naked and veined [8].

Stem arboreous, twiſted, the thickneſs of the human arm, with ſpreading branches. Leaflets lanceolate, for the moſt part quite entire, but ſometimes ſerrate, flat, veined, of a duſky aſh colour, on oppoſite petioles. Flowers purpliſh, in looſe, terminating, erect racemes. Cflyx, corolla and fruit as in V. trifolia. The taſte and ſmell as in that. The qualities alſo the ſame, only weaker [9].]

Stalks eight or ten feet high, with a gray bark. Branches oppoſite. Leaves oppoſite, upon long footſtalks: leaflets deeply ſerrate, ending in very acute points; the largeſt three inches and a half long, and an inch and quarter broad, dark green above, but gray beneath. Flowers in oppoſite axillary whorled ſpikes: and the branches are terminated by branching ſpikes of flowers, which are blue. They appear in july and auguſt, but do not produce ſeeds in England.

[Native of the Eaſt Indies, China, and Cochinchina. —Cultivated in 1697, by the Dutcheſs of Beaufort [1].

13. Stem ſhrubby, erect, eight feet high, thick. Leaves quinate, rarely ternate, lanceolate, crenate, ſome quite entire, bright green, tomentoſe, wrinkled, ſtrong-ſmelling, oppoſite, on long petioles. Flowers pale violet, on long linear ſpikes, often heaped, terminating: involucrets awl-ſhaped, many-flowered. Calyx very ſmall, five-cleft, acute, permanent. Corolla tube ſhort, globular: border ſpreading, five-cleft; ſegments obtuſe, the four upper nearly equal, the loweſt bigger. Filaments ſhorter than this ſegment, but longer than the others. Fruit roundiſh, brown, ſmaller than Pepper, containing four ſeeds. Native of China and Cochinchina. Qualities the ſame as the trifolia: the leaves are moſt frequently uſed externally, in paralyſis, contraction and weakneſs of the limbs, and wandering pains [2].

14. Native of Ceylon and other iſlands of the Eaſt Indies. Doubtful whether it appertains to this genus. Loureiro determines that it not only is not of this genus, but that it belongs to another claſs and order, pentandria digynia. He thus deſcribes it under the name of Aglaia odorata. It is a tree eight feet in height; the wood hard and yelloviſh; the bark thin and brown; the branches ſpreading; the head very cloſe and thick. Leaves ternate or quinate; leaflets oval, attenuated at the baſe, quite entire, ſmooth, ſhining; on ſhort petioles. Flowers yellow, very ſmall, globular, ſweet-ſmelling, on oblong, axillary racemes. Fruit ſmall, red. Native of China and Cochinchina, where it is alſo cultivated in the gardens of the great, for its beauty and ſweetneſs. In Malay it is called Tſjuulang. Loureiro has named it from the ſplendour and beauty of the plant, and from the ſweetneſs of the flowers. He ſuſpects the Bumalda trifolia of Thunberg to be of this genus; but Willdenow remarks, that Bumalda differs in many points from Loureiro's generic deſcription of Aglaia.]

PROPAGATION AND CULTURE.

6. This plant is very hardy, and may be propagated by planting the cuttings early in the ſpring, before they ſhoot; it requires a freſh light ſoil, and muſt be frequently refreſhed with water until it has taken root; after which the plants muſt be carefully cleared from weeds during the ſummer ſeaſon, and if the following winter prove ſevere, lay a little mulch upon the ſurface of the ground between the plants, to prevent the froſt from penetrating to their roots, which would injure them while they are young; and as theſe cuttings are apt to ſhoot late in the year, their tops will be very tender, and the early froſts in autumn often cut them down a conſiderable length, if they are not protected, therefore they ſhould then be covered with mats, which will be of great ſervice to them. Toward the middle of March, if the ſeaſon is favourable, you ſhould tranſplant them either into the places where they are deſigned to remain, or into a nurſery to grow two or three years to get ſtrength, where they muſt be pruned up, in order to form them into regular ſtalks, otherwiſe they are very ſubject to ſhoot out their branches in a ſtraggling manner.

They may alſo be propagated by laying down their branches in the ſpring of the year, in doing which be very careful not to break them, for their ſhoots are apt to ſplit if they are violently forced; theſe will take root in one year, provided they are watered in very dry weather, and may then be tranſplanted out, and managed as was directed for thoſe plants raiſed from cuttings,

[1] Willdenow. [2] Linn. ſuppl. [3] Linn. ſpec. [4] Linn. ſuppl. [5] Loureiro. [6] Idem. [7] Vahl. [8] Linn. ſpec. [9] Loureiro. [1] Hort. kew. [2] Loureiro.

The

The 9th ſort being too tender to live in the open air in England, muſt be planted in pots, and conſtantly kept in the ſtove; it is propagated both by cuttings and layers, but the cuttings of this muſt be planted in pots, and plunged into a moderate hot-bed, covering them cloſe with a bell or hand-glaſs to exclude the air; they ſhould be refreſhed with water now and then, but it muſt not be given them too freely. The beſt time to plant the cuttings is about the middle or latter end of april, for if they ſucceed, they will put out roots in ſix or ſeven weeks, and will then begin to ſhoot, they ſhould therefore have the free air gradually admitted to them to prevent their ſhooting weak; then they may be carefully taken up, and each planted into a ſeparate ſmall pot filled with light earth, and plunged into the hot-bed again, ſhading them from the ſun till they have taken new root; after which they ſhould have plenty of free air at all times when the weather is good, treating them in the ſame manner as other tender plants. In winter they muſt be kept in a moderate temperature of heat, but in the ſummer they ſhould have the free air in mild weather, but muſt not be removed into the open air.

As this plant retains its leaves all the year, it makes a variety in the ſtove, but the flowers have no great beauty.

7. Plant cuttings in the ſpring in pots, plunging them into a moderate hot-bed and covering them with glaſſes. When theſe are well rooted, take them carefully up, and plant each in a ſeparate ſmall pot filled with light earth, placing them in the ſhade until they have taken new root: then remove them to a ſheltered ſituation with other greenhouſe plants, where they may remain all the ſummer. In autumn they muſt be put under ſhelter; but as they caſt their leaves early in autumn, they muſt not be much watered in winter. They are late in putting out new leaves in the ſpring, and have much the appearance of dead plants before theſe appear.

12. This alſo is encreaſed by cuttings in the ſpring, a little before the buds open, and muſt be managed as directed for the ſeventh ſpecies. Having lived ſome years in the open air, the ſevere froſt of 1740 deſtroyed all the plants. [But it has been ſince recovered to our gardens.

The directions given for the ſeventh and ninth ſpecies will ſuffice for all the reſt, which are natives of the Eaſt or Weſt Indies, China or Japan.

VITEX. See *Rhus*.

VITICELLA. See *Clematis* and *Galax*.]

VITIS. (*From* viere, *to tie, or* vincire, *to bind.*)

Lin. gen. n. 284. *Reich. n.* 305. *Schreb. n.* 396. and *p.* 284. *Tournef. t.* 384. *Juſſ.* 267. *Gærtn. t.* 106.

Claſſ. 5. 1. Pentandria Monogynia.

Nat. Order of *Hederaceæ*. *Vites* Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* five-toothed, very ſmall.

COR. *Petals* five, rude, ſmall, caducous.

STAM. *Filaments* five, awl-ſhaped, from erect ſpreading, caducous. *Anthers* ſimple.

PIST. *Germ* ovate. *Style* none. *Stigma* obtuſe-headed.

PER. *Berry* globular or ovate, two-celled.

SEEDS two, bony, turbinate-cordate, contracted at the baſe, ſemibilocular.

OBS. *Gærtner deſcribes the unripe berry as five-celled; the ripe one as one-celled and five-ſeeded. But Schmidel, Haller, Ehrhart, &c. never could ſee five ſeeds. One or two ſeeds are often abortive.*

ESSENTIAL CHARACTER.

Petals cohering at the top, ſhrivelling. *Berry* five-ſeeded (two-ſeeded) ſuperior.

SPECIES.

1. Vitis vinifera. *Common Vine.*
Lin. ſpec. 293. *Reich.* 1. 569. *Willd.* 1. 1180. *hort. cliff.* 74. *upſ.* 50. *mat. med.* 70. *Woodv. med. bot.* 531. *t.* 195. *Gærtn. fruct.* 2. 108. *Hall. helv. n.* 825. *Allion. pedem. n.* 1759. *Deſcript. atlant.* 1. 202. *Thunb. jap.* 103. *Lour. cochinch.* 155. *ed. Willd.* 192. *Gron. virg.* 144. *Jacqu. collect.* 1. 160. *Duham. arb. fruit.* 2. *t.* 1.—6. *Blackw. t.* 154. *Du Roi barbarc.* 2. 488. *Ludw. eff. t.* 125. *Knipb. cent.* 6. *n.* 100. *Schmid. anal. t.* 7. *Plenck ic. t.* 144. *Baub. pin.* 299. *Fuchſ. hiſt.* 84. *Matth* 1320. *Dod. pempt.* 415. *Baub. hiſt.* 3. 67. *Ger.* 725. *emac.* 875. *Park. parad.* 563. *theat.* 1556. *Raii hiſt.* 1613.

β. Vitis apyrena. *The Currant Vine.*
V. corinthiaca ſ. apyrena. *Baub. hiſt.* 2. 72. *Raii hiſt.* 1614. *Plenck. ic. t.* 145.
Uvæ paſſæ minores, vel Paſſulæ Corinthiacæ. *Baub. pin.* 299. 4.
Uvæ Corinthiacæ. *Park. theat.* 1556.
Leaves lobed ſinuate naked.

[2. Vitis palmata. *Palmate-leaved Vine.*
Lin. ſpec. ed. Willd. 1. 1180. *Vahl. ſymb.* 3. 42.
Leaves palmate ſmooth, ſegments gaſhed, umbels racemed.]

3. Vitis indica. *Indian Vine.*
Lin. ſpec. 293. *ſyſt.* 244. *Reich.* 1. 569. *Willd.* 1. 1180. *fl. zeyl. n.* 90. *Swartz obſ.* 95. *Lour. cochinch.* 155. *ed. Willd.* 192. *Browne. jam.* 178. *Sloan. jam.* 2. 104. *t.* 110. *f.* 4. *Plnk. phyt. t.* 249. *f.* 1.
V. ſylveſtris indica, acinis rotundis. *Raii dendr.* 67.
Scembra Valli. *Rheed. mal.* 7. *t.* 6.
Leaves cordate toothed villoſe beneath, tendrils racemiferous.

[4. Vitis flexnoſa. *Japaneſe Vine.*
Thunb. in Linn. tranſ. 2. 332. *Lin. ſpec. ed. Willd.* 1. 1181.
Vitis indica. *Thunb. jap.* 103.
Leaves cordate toothed villoſe beneath, ſtem flexuoſe, panicles elongated.]

5. Vitis Labruſca. *Downy-leaved Vine.*
Lin. ſpec. 293. *Reich.* 1. 570. *Willd.* 1. 1181. *arb.* 409. *Wangenh. amer.* 124. *Du Roi barbarc.* 2. 493. *Thunb. jap.* 103. *Lour. cochinch.* 155. *ed. Willd.* 193.
V. hederæ folio ſerrato. *Plum. ſpec.* 18. *ic.* 259. *f.* 1.
V. ſylveſtris virginiana. *Baub. pin.* 299.
Leaves cordate ſubtrilobate toothed tomentoſe underneath.

6. Vitis vulpina. *Fox-grape* or *Vine.*
Lin. ſpec. 293. *Reich.* 1. 570. *Willd.* 1. 1181. *Wangenh. amer.* 123.
V. vulpina dicta virginiana nigra. *Pluk. alm.* 392.
V. aceris folio. *Raii dendr.* 68. *n.* 5.
Leaves cordate tooth-ſerrate naked on both ſides.

[7. Vitis heterophylla. *Various leaved Vine.*
Lin. ſyſt. 244. *Willd.* 1. 1181. *Thunb. jap.* 103.
Leaves ſimple gaſh-three-lobed and five-lobed ſerrate naked.]

8. Vitis laciniosa. *Parſley-leaved Vine.*
Lin. ſpec. 293. *Reich.* 1. 570. *Willd.* 1. 1181. *arb.* 410. *Lin. hort. cliff.* 74.
V. laciniatis foliis. *Corn. canad.* 182. *t.* 183. *Park. theat.* 1555. 2. *ic.* 1556. 2.
V. apii folio. *Baub. hiſt.* 2. 73. *Raii hiſt.* 1614.
Leaves quinate, leaflets multifid.

9. Vitis hederacea. *Ivy-leaved Vine.*
Lin. ſpec. ed. Willd. 1. 1182. *Ehrh. beitr.* 6. 85.
V. hederacea indica. *Stapel. theatr.* 364.
Hedera quinquefolia. *Lin. ſpec.* 292. *Du Roi barbarc.* 1. 302. *Mill. dict. n.* 2. *and dict. noſtr. n.* 3.
Leaves quinate ovate acuminate toothed.

[10. Vitis heptaphylla. *Finger-leaved Vine.*
Lin. ſyſt. 244. *Reich.* 1. 570. *Willd.* 1. 1182. *mant.* 212.
Leaves digitate ſeptenate ovate quite entire.

11. Vitis pinnata. *Pinnate-leaved Vine.*
Lin. ſpec. ed. Willd. 1. 1182. *Vahl. ſymb.* 3. 43.
Leaves pinnate tooth-ſerrate ſmooth.]

12. Vitis arborea. *Pepper Vine.*
Lin. ſpec. 294. *Reich.* 1. 571. *Willd.* 1. 1183. *arb.* 411.
V. caroliniana, foliis apii, uva corymboſa purpuraſcente. *Act. bonon.* 3. *par.* 2. *p.* 365. *t.* 24.
Frutex ſcandens, petroſelini foliis, virginianus, clavi-culis donatus. *Pluk. mant.* 85. *t.* 412. *f.* 2.
Leaves ſuperdecompound, lateral leaflets pinuate.

DESCRIPTION, *&c.*

The common Vine is univerſally known to have a thick twiſted irregular weak ſtem, covered with a brown

brown cloven bark, and having very long tough flexible branches, trailing along the ground, or climbing trees by means of tendrils. The leaves are lobed and sinuated, serrate, ſmooth and alternate, on long footſtalks. The tendrils are oppoſite to a leaf and are attended by the flowers in a raceme. The flowers are whitiſh or herbaceous, very ſmall and inſignificant in appearance but having a very agreeable ſmell; the petals cohering at the tip and concealing the genitals in manner of a veil, but ſoon fall off. Berry globular, in ſome varieties ovate, before it is ripe regularly divided into five cells; but afterwards one-celled, almoſt pellucid, coloured in ſome, colourleſs in others. In the middle is a ſhort column, ſpringing from the woody fibres of the pedicel of the berry; to the top of this the ſeeds are faſtened by its peculiar umbilical chord: this chord is filiform, running along the inner ſide of the ſeed to its very top, then reflected to the back, and finally entering the navel. Seeds naturally five, but for the moſt part fewer[s]: others have not diſcovered more than two. In ſome berries they are all abortive.

Native of moſt of the temperate parts of the world. In very cold regions it refuſes to grow; and within 25° or even 30° of the equinoctial line, it ſeldoms flouriſhes ſo as to produce good fruit. In the Northern Hemiſphere, the proper wine country is from 25° to 51° of latitude. Thunberg informs us, that grapes do not ripen very well in Japan, and are not high flavoured in that country. Browne however ſays that the Muſcadine Grape ripens well in Jamaica, and would produce a mellow and rich wine, if care were taken to cultivate it. The Vine is ſpontaneous in Carolina and all North America, from 25° to 45° of latitude, but they do not ſucceed in making wines there in the ſame latitude with Spain and Italy. The American woods are in many parts ſo entangled with vines for many miles together, that their trailing branches are a great impediment in travelling, and lofty trees are overtopped and wholly covered with them [t].

The Vine was gradually introduced into the different countries of ſouthern Europe, from the Eaſt, where we know it was cultivated from the time of Noah. In the age of Homer it grew wild in the iſland of Sicily, and probably in the adjacent continent, but it was not improved by ſkill, nor did the rude inhabitants extract a liquor from it. A thouſand years afterwards, Italy could boaſt, that of the fourſcore moſt generous and celebrated wines, more than two thirds were produced from her own ſoil. The bleſſing was ſoon communicated to the Narbonneſe province of Gaul; but ſo intenſe was the cold to the north of the Cevennes, that in the time of Strabo, it was thought impoſſible to ripen Grapes in thoſe parts of Gaul. This difficulty, however, was gradually vanquiſhed; and there is ſome reaſon to believe, that the vineyards of Burgundy are as old as the age of the Antonines. In the beginning of the fourth century, the orator Eumenius ſpeaks of the vines in the territory of Autun, which were decayed through age, and the firſt plantation of which was totally unknown. The Pagus Arebrignus is ſuppoſed, by M. D'Anville, to be the diſtrict of Beaune, celebrated even at preſent for one of the firſt growths of Burgundy [r].

Mr. Miller tells us, that the vineyards in ſome parts of Italy will hold good above three hundred years, and that vines of one hundred years old are accounted young ones.

It would ſeem probable that the luxurious Romans ſhould introduce the Vine into Britain, during their eſtabliſhment in the iſland; and that it ſhould have maintained its ground ever ſince, with various fortune. But there is little doubt that Vineyards were common appendages to Abbies and Monaſteries, which were frequently filled with Monks who were foreigners, or had lived much in Italy, and had there contracted ſuch a habit of drinking wine with their meals, that it appeared to be in a manner a neceſſary.

Mr. Pegge, from Pliny's ſilence on that head, in the large account which he gives of the Vine in his fourteenth book, concludes that Britain had it not when Pliny wrote. But Tacitus, writing of the times when Julius Agricola commanded here, expreſsly denies us the Vine. If ſo, it is not probable that we had it for many years after, ſince Domitian ordered vineyards in the Provinces to be deſtroyed, both becauſe they occaſioned a ſcarcity of corn, and were an incitement to ſedition by the encouragement which they gave to drunkenneſs: and from this time none could plant vineyards without the permiſſion of the Emperors; till Probus, who acceded in A.D. 276, reſcinded the edict, towards the end of his reign. Mr. Pegge conceives that licence was granted the Provincials to plant vineyards about the year 280, and the Britanni are expreſsly mentioned by Vopiſcus among the nations who partook of it.

Bede, who finiſhed his hiſtory A.D. 731, writes expreſsly, "Vineas etiam quibuſdam in locis germinant."

It is natural to ſuppoſe, that the propagation of the Vine would be firſt attempted in the ſouthern parts of our iſland, both becauſe they are the warmeſt, and the neareſt to Gaul. Accordingly the neighbourhood of Wincheſter was formerly famous for Vines, as appears from the old verſes cited by Mr. Somner; and Twyne ſuppoſes this city to have taken its name from hence.

Of Canterbury and that neighbourhood the ſame author makes the abbat of St. Auguſtine's ſay, that their houſe was formerly not deſtitute of vines: and Somner informs us, that in the year 1285, both that abbey and the priory of Canterbury were plentifully furniſhed with vineyards.

At Roche ſter, a large piece of ground adjoining to the city is now called the Vine: another is ſo called at Sevenoke in Kent: this alſo was the name of the ſeat of the barons Sandes in Hampſhire. At Halling, near Roche ſter, the biſhop of that ſee had formerly a vineyard; for when Edward II. in the nineteenth year of his reign, was at Bockinfeld, biſhop Hamſon ſent him thither, as Lambarde tells us, "a preſent of his drinkes, "and withal both wine and grapes of his own growth "in his vineyarde at Halling." Captain Nicholas Toke, of Godington, in Great Chart, in Kent, "hath "ſo induſtriouſly and elegantly, ſays Philipot, cultivat-"ed and improved our Engliſh Vines, that the wine, "preſſed and extracted out of their grapes, ſeems not "only to parallel, but almoſt to out-rival that of "France."

Of Suſſex, Lambarde writes, "Hiſtory doth mention, "that there was about that time, (the Norman inva-"ſion) great ſtore of Vines at Santlac (near to Bat-"tel.") He adds, as to Berkſhire, "the like where-"of I have redd to have been at Wyndſore, in ſo "moche as tythe of theim hathe beene theare yelded "in great plenty, which gyveth me to think, that "wyne hath been made longe ſence within the realme; "although in our memorie it be accompted a great "deintye to heare of." He farther obſerves, that ſome part of the wine was ſpent in the king's houſhold, and ſome ſold for the king's profit.

John Twyne has remarked, that William of Malmeſbury has extolled the Vines and wine of Glouceſterſhire; and the paſſage is extant in William's book de Geſtis Pont. IV. p. 283. See alſo Camden [u].

Domeſday book mentions at Rageneia in Eſſex one park, and ſix arpennies of vineyard, which, if it take well, yields twenty modii of wine.—And at Ware, a park and ſix arpennies of vineyard very lately planted.

We hear of vineyards alſo in Middleſex, Cambridgeſhire at Denny abbey, the Iſle of Ely, at Dunſtable, and at St. Edmundſbury; in the engraved plan of which town the vineyard of the abbey is particularly noted. Within the walls of the city of London there is a ſtreet called the vineyard; and in the liberties and ſuburbs, and in Weſtminſter, there is Vine-ſtreet in Hatton garden, and St. Giles's and Piccadilly; and the vineyards by Houndſditch and Coldbath fields [x].

In the archives of the church of Ely is the following regiſter:

Exitus Vineti	-	-	-	2 15 3½
Ditto Vineæ	-	-	-	10 12 2½

10 buſhels

[s] Gærtner. [t] Cateſby. [r] Gibbon, t. c. 2. p. 64.

[u] Archæologia. 1. 321—329. [x] Pegge in Arthæd. 3. 56.

10 buſhels of Grapes from the Vineyard	0	7	6
7 Dolia Muſti from the Vineyard 12 Edw. II.	15	1	0
Wine ſold for	1	12	0
Verjuice	1	7	0
One Dolium, and one pipe filled with new wine, and ſuppoſed at Ely.			
For wine out of this Vineyard	1	2	2
For verjuice from thence	0	16	0

No wine, but verjuice made 9 Edw. IV.

Hence it appears plainly that at Ely Grapes would ſometimes ripen, and the convent made wine of them; and when they did not, they converted them into verjuice [c].

In Northamptonſhire, Martin, Abbot of Peterborough, in the time of King Stephen, is ſaid expreſsly, in the Saxon Chronicle, to have planted a vineyard, and it was a large one [d]. Madox, in his Hiſtory of the Exchequer writes, that the Sheriffs of Northamptonſhire and Leiceſterſhire were allowed in their account, for the livery of the King's vine-dreſſer at Rockingham, and for neceſſaries for the vineyard [e].

There are evidences of Vineyards ſtill farther north, as at Darley abbey in the county of Derby. And perhaps the ſeveral villages there of South Winfield, North Winfield, and Wingerworth, take their names from vineyards formerly flouriſhing at thoſe places [f].

Petrarch therefore muſt ſurely have been ill informed, when he ſays that "the Engliſh drink nothing but beer and cyder, and the Flemiſh hydromel; each of theſe countries being ſo far diſtant from thoſe in which Vines grow, that the people cannot afford to purchaſe wine [g]." This famous poet lived in the reigns of our three firſt Edwards, being born in 1304 and dying in 1374. Now long before this, in different years of Henry the ſecond's reign, allowances were made to the officer who farmed Windſor of that prince for wine, perry and cyder. In the reign of Henry III. the neglect of vineyards in England, is attributed by Twyne in part to that fondneſs for French wine which then came upon us. In this king's time, about the year 1260, a Dolium (thirty-ſix gallons) of the beſt wine could be bought for forty ſhillings, ſometimes for two marks, and ſometimes for twenty ſhillings. In 1285 (temp. Edw. I.) we have ſeen, that the churches at Canterbury were plentifully furniſhed with vineyards. In 1325, the 19th of Edw. II. we have alſo ſeen that the biſhop of Rocheſter ſent the King wine and grapes of his own growth from his vineyard at Halling in Kent [h]. As to the ſplendid reign of Edward III. when our commerce ſo much increaſed, and we had the command of ſo great part of France, it cannot be ſuppoſed that there was any want of French wines in England, allowing that our own vineyards were much neglected. If Petrarch meant only that wine was not the general drink of the commonalty in England, it never has been ſo at any period, nor is it ſo even in this luxurious and expenſive age.

Several cauſes may be aſſigned why vineyards were neglected, and at length in a manner diſuſed in this country. The principal cauſe probably was that our wine was of an inferior quality, and that better wine could be had cheap from our French provinces. The advancement of agriculture alſo contributed to their being relinquiſhed. We may however fairly conclude with Mr. Pegge, that there were many vineyards in England, for ſeveral centuries ſince the conqueſt; few of our greater religious foundations, in the ſouth at leaſt, having been without them.

In more modern times, the Vine, ſays Dr Plot, has been improved by Sir Henry Lyttleton to that advantage at Over-Arley, that he has made wine ſo good there, as not to be diſtinguiſhed from the beſt French wines. And Dr. Ralph Bathurſt, preſident of Trinity college and dean of Wells, made as good claret at Oxford in 1685, as one could wiſh to drink [i].

Barnabe Googe, in his Epiſtle to the Reader, prefixed to his tranſlation of Hereſbachius's Huſbandry, 1586, ſays, "he is fully perſuaded we might have a reaſonable good wine growing in many places of this realme: as undoubtedly we had immediately after the Conqueſt, till partly by ſlothfulneſs, not liking any thing long that is painful, partly by civil diſcord long continuing, it was left, and ſo with time loſt, as appeareth by a number of places in this realme, that keep ſtill the name of Vineyards: and upon many cliffs and hills are yet to be ſeen the roots and old remains of Vines. There is beſides Nottingham an ancient houſe called Chilwell, in which remaineth yet as an ancient monument in a great window of glaſs, the whole order of planting, proyning, ſtamping and preſſing of Vines. Beſide, there is yet alſo growing an old Vine that yields a Grape ſufficient to make a right good wine, as was lately proved by a gentlewoman in the ſaid houſe. There hath moreover good experience of late years been made by two noble and honourable Barons of this realme, the Lord Cobham, and the Lord Williams of Tame, who both had growing about their houſes as good Vines as are in many places of France."

Samuel Hartlib, in 1659, ſays, that here in England ſome ingenious gentlemen uſually make wine, very good and long laſting. He inſtances Sir Peter Ricard, at Great Chart, in the Wilde of Kent, a place very moiſt and cold, who yearly made ſix or eight hogſheads, which was very much commended by divers who had taſted it.

We are informed in Rea's Flora (1702) that Sir Thomas Hanmer aſſerted, he had drunk in ſeveral places good wine of Engliſh growth.

At Arundel caſtle in Suſſex, a ſeat of the Duke of Norfolk's, a noble Vineyard was ſome years ago planted: it has ſucceeded, and annually yields conſiderable quantities of wine: there are at this time (1763) in his grace's cellar at Arundel, above ſixty pipes of excellent Burgundy. This wine is not, it is true, of quite ſo fine a flavour as the wines of Beaune; yet does it much exceed quantities of Burgundy wine annually imported into England, and moſt of what is conſumed commonly in France [k].

Mr. Bradley ſays, he cannot help mentioning how our poor ſoils might be improved by making of vineyards; a good inſtance of which is at Mr. John Warner's, a gentleman of Rotherhithe, who makes good wine from his own vineyards.

Stephen Switzer, in his Ichnographia Ruſtica, publiſhed in 1742, affirms that Vineyards may be ſo cultivated in England, as to produce large quantities of Grapes, and thoſe ſo well ripened, as to afford a good and ſubſtantial vinous juice: that there were then in ſeveral parts of Somerſetſhire flouriſhing Vineyards, and that the Vineyard of the late Sir William Baſſet annually produced ſome hogſheads of good-bodied and palatable wine.

Bartholomew Rocque, of Walham Green, made wine for thirty years from a Vineyard he had planted in a common field garden; and although the ground was flat, the wine was as good as that of Orleans or Auxerre.

I have known, ſays Mr. Hanbury, good wine made of Grapes growing in England, and have drank our Burgundy no way inferior, as my taſte could find out, to that noted wine which we have conſtantly imported from that country.

Mr. Viſpre, in a diſſertation on the growth of wine in England, printed at Bath in 1786, informs us, that he planted a piece of ground with Vines at Wimbledon in march 1783; that his intention was to train the ſhoots, as he did afterwards at Cheſſea, upon the ground in their natural poſitions, like the vines of melons and cucumbers; and that he hoped thus to make good wine with well-ripened Grapes, almoſt every year. In 1784, he preſented his plan to the Society for the Encouragement of Arts, &c. [l]. The ſecond ſeaſon proving more favourable than the firſt, the Grapes on the Vines trained near the ground were conſiderably larger than thoſe of the ſame kind growing on a ſouth wall.

Hales, in his Practical Huſbandry, ſays that he drank

[c] Speedily, 187. [d] Archæol. 1. 329. [e] Speechly, 187. Archæol. 1. 330. [f] Seward's Biogr. 23. [g] Archæol. 1. 327, 328, 332. and 3. 59, 61, 66. [h] Archæol. 1. 330, 331. and 3. 61. [i] Muſeum Ruſticum, 1. 85. [k] Tranſ. vol. 3. for 1785.

with Dr. Shaw, wines made under his own care, from a little vineyard behind his garden at Kenſington, which equalled many of the lighter wines of France; and while due care was taken of the Vineyard at Hammerſmith, much very good wine was obtained there for ſale: yet neither of theſe were favourable ſpots. Mr. King's Vineyard at Brompton was well known to the curious. As was alſo that of the Hon. Charles Hamilton at Pain's-Hill, near Cobham in Surry. This laſt was ſituated on the ſouth ſide of a gentle hill, the ſoil a gravelly ſand; it was planted entirely with two ſorts of Burgundy Grapes, the Auvernat, which is the moſt delicate, but the tendereſt, and the Miller grape, commonly called the black Cluſter, which is more hardy. The wine which he made reſembled Champagne[n].

From the evidences thus collected I think we may fairly conclude, notwithſtanding the difficulties which the Hon. Daines Barrington and others have thrown in the way; firſt that we had in former times many Vineyards in England, properly ſo called, that were not Orchards of apples and pears, much leſs plantations of currants: and ſecondly, that Vineyards might now be cultivated in the ſouthern and weſtern parts of England, in proper ſoils and ſituations, by perſons ſkilled in their management, provided they adopted the ſorts of Grapes beſt ſuited to the climate, and kept the wines low, as they do in the northern parts of France.]

Mr. Miller, in alluſion probably to ſome of the trials above recited, ſays that if we were to judge only by the ſucceſs of ſome modern eſſays made near London, where ſmall Vineyards have been planted a few years paſt, there would be no great encouragement to begin a work of this kind, becauſe the produce of very few of theſe Vineyards has been ſo kindly as were to be wiſhed: but this ſhould not deter others from making farther trials, for ſcarcely one of them was placed in a proper ſoil and ſituation, and not one was rightly planted and managed: and how can ſucceſs be expected from Vineyards under theſe diſadvantages, when even in France and Italy they would ſucceed little better, if their management were not directed with more judgment. Mr. Miller therefore humbly offers his own opinion, founded on ſome trials he had ſeen made, and on inſtructions that he had received from ſeveral curious perſons abroad who cultivated Vineyards for their own uſe, and from their friends who were very exact in obſerving the ſeveral methods of practice among the vignerons; whence he hopes that the prejudice which moſt people have againſt a project of this kind, will either be removed, or ſuſpended until trials have been judiciouſly made.

[The Vine is not generally reputed to be a tree, but rather a trailing ſhrub; yet in its wild ſtate it arrives ſometimes at a conſiderable ſize. Pliny mentions one which attained a bulk ſufficient to make a ſtatue of Jupiter, and columns for Juno's temple. The great doors of the cathedral of Ravenna were made of Vine-tree planks; ſome of which are twelve feet long, fourteen and fifteen inches broad; the whole ſoil of that country producing vines of prodigious growth. Such another in Margiana is ſpoken of by Strabo, that was twelve feet in circumference. Pliny mentions one of ſix hundred years old in his time. At Ecoan, the late Duke of Montmorency's houſe, is a table of very large dimenſion, made of the like plant. That which renders this the more ſtrange is, that a tree growing in ſuch a wreathed and twiſted manner, rather like a rope than timber, and needing the ſupport of others, ſhould arrive to ſuch a bulk and firm conſiſtence. But ſo it is, and Olearius affirms, that he found many Vines near the Caſpian Sea, whoſe trunks were as big about as a man[o]. No wood, Pliny ſays, is of a more laſting nature. On the Barbary coaſt, Vines are now growing of ſurpriſing dimenſions; ſome of them having trunks eight or nine feet in circumference.

In general we are not to expect Vines that are pruned and dreſſed to attain this enormous ſize; the vigour of the ſtock being tranſuſed into the branches, and conſumed in bearing fruit. In our climate in particular we are not to look for inſtances of longevity and magnitude in the Vine. When however it is planted in a genial ſoil and ſituation, it will attain an amazing ſize and expanſion even in this country.

One inſtance we have at Northallerton in Yorkſhire, where a Vine is now (1789) growing, that once covered a ſpace of one hundred and thirty-ſeven ſquare yards; and might probably have covered three or four times that area. The circumference of the trunk, a little above the ground, was three feet eleven inches. It is ſuppoſed to have been planted an hundred and fifty years; but from injudicious management it was then in a very declining ſtate. The ſoil is light and rich, of a dark colour, and inclining to ſand[p].

At Valentines, the ſeat of Donald Cameron, Eſq. to the north of Ilford in Eſſex, is a Vine of the black Hamburgh ſort, which was planted in april 1758. The branches extend two hundred feet, and the ſtem is about nineteen inches in girth. It never produces leſs than three hundred weight of fruit annually, and has been known to bear four hundred weight and a quarter. The average profit, when it was in the hands of a gardener, was eighty pounds per annum; but the Grapes did not then ripen till june: when the hot-houſe was kept warmer they ripened in march; when it is ſuppoſed they would have been worth, in ſome years, three hundred pounds[q].

When Mr. Speechly ſaw it, which was about eight years prior to Mr. Lyſons's account, it was in the hands of the gardener. It then furniſhed the entire roof of a pine-ſtove ſeventy feet long and eighteen feet broad; ſome of the branches alſo were trained downwards, and covered great part of the back wall. It was exceedingly robuſt, and under a very judicious management, by the gardener who planted it. The bunches in general were ſingularly fine, and compoſed of large well-ſwelled berries, but the crop was not large in the year 1788, when Mr. Speechly ſaw it.

Mr. Laurents, head maſter of the grammar ſchool at Bury in Suffolk, gives a detailed account of a Vine there which covers forty-four yards of a wall ten feet high; and ſome of the branches run over the wall and cover about twelve yards more. It is thirty-five or thirty-ſix years old. The cluſters hang very thick, and each weighs from half a pound to a pound. Upon ſome vigorous ſhoots there were about forty cluſters. If it had been always pruned in the manner it has been for three or four years paſt, it would probably have covered three or four times the area of wall that it does at preſent. The ſoil is a light looſe browniſh mould, about two feet thick on a looſe ſand, with coarſe gravel, and at the depth of twenty feet is water[r].

But the moſt famous Vine for the quantity of its produce, is in a grape-houſe on the ſouth ſide of Hampton Court Palace. It is of the black Hamburgh kind, and occupies the whole houſe, which is ſeventy feet by fourteen. It was planted in the year 1769; the ſtem is about thirteen inches in girth; and the principal branch, having been trained back at the extremity of the houſe, is one hundred and fourteen feet in length. This Vine has been known to produce, in one year, two thouſand two hundred bunches of grapes, weighing on an average one pound each[s].

Of Grapes, or the fruit of the Vine, moſt of the uſes are ſo generally known, that it is not neceſſary to enlarge upon them. A few words may ſuffice upon their medical qualities. Of the juice of the unripe fruit is made Verjuice, now much ſuperſeded by juice of lemons; but ſtill employed externally in bruiſes and ſprains. The dried fruit, Uvæ paſſæ majores et minores, Raiſins and Currants, are uſed as agreeable lubricating aceſcent ſweets, in pectoral decoctions, and for obtunding the acrimony of other medicines, and rendering them grateful to the palate and ſtomach. The general effects of wine are, to ſtimulate the ſtomach, exhilarate the ſpirits, warm the habit, quicken the circulation, and promote perſpiration: taken in too large quanti-

[n] Sir Edw. Barry on Wines, 458. Speechly, p. 197—209.
[o] Evelyn's Silva, b. 3. ch. 3.
[p] Speechly, 177. [q] Lyſons env. 4. 87. Gilp. for. ſcen. 1. 149.
[r] Speechly, 179. [s] Lyſons, 5. 72.

ties it is but too well known to prove intoxicating and powerfully ſedative. In many diſorders wine is admitted to be of important ſervice, eſpecially in fevers of the typhous kind, or of a putrid tendency: in many caſes it proves of more immediate advantage than the Peruvian bark. Delirium, the conſequence of exceſſive irritability, and a defective ſtate of nervous energy, is often removed by the free uſe of wine. In the putrid ſore throat, in the ſmall-pox when attended with great debility and ſymptoms of putreſcency, in gangrenes, and even in the plague, wine is conſidered a principal remedy. In almoſt all caſes of languor and great proſtration of ſtrength, wine is a more grateful and efficacious cordial than can be furniſhed from the whole claſs of aromatics.

The Tartar, which is thrown off from wines, and conſiſts of the vegetable alkali ſuperſaturated with acid, is alſo an officinal article. Cryſtals of Tartar are in common uſe as a laxative and mild cathartic; are ſerviceable in the dropſy; and enter ſeveral officinal compoſitions.

Vinegar is eſteemed of great uſe in almoſt all inflammatory and putrid diſorders; and is very efficacious in counteracting the effects of vegetable poiſons. Inhaled in form of a vapour, it is uſeful in the putrid ſore throat. It is alſo much employed as a menſtruum, or for extracting the virtues of other medicines.

The leaves (pampini) and the tendrils (capreoli,) having an aſtringent acid taſte, were formerly uſed in diarrhœas, hemorrhages, and other diſorders, requiring refrigerant and ſyptic medicines. The juice or ſap of the Vine (lacryma,) has been recommended in calculous diſorders, and is ſaid to be an excellent application to weak eyes, and ſpecks of the cornea [a].

Varieties.

The Vine having been aſſiduouſly cultivated from the time of Noah, in a variety of ſoils and climates, the varieties are very numerous, and might be increaſed indefinitely, if more attention were given to raiſing it from ſeed, which is ſeldom done on account of the facility with which it may be propagated by other methods.

Virgil has given ſome of the varieties moſt eſteemed in his time:

" Non eadem arboribus pendet vindemia noſtris,
" Quam Methymnæo carpit de palmite Leſbos.
" Sunt Thaſiæ vites, ſunt ex Mareotides albæ:
" Pinguibus hæ terris habiles, levioribus illæ.
" Et paſſo pſythia utilior, tenuiſque lageos,
" Tentatura pedes olim, vincturaque linguam,
" Purpureæ, preciæque, et quo te carmine dicam
" Rhætica? nec cellis ideo contende Falernis.
" Sunt etiam Ammineæ vites, firmiſſima vina,
" Tmolius adſurgit quibus, et rex ipſe Phanæus,
" Argitiſque minor: cui non certaverit ulla,
" Aut tantum fluere, aut totidem durare per annos.
" Non ego te, Dis, et menſis accepta ſecundis,
" Tranſierim, Rhodia, et tumidis, bumaſte racemis.
" Sed neque quam multæ ſpecies, nec nomina quæ ſint,
" Eſt numerus; neque enim numero comprendere reſert:
" Quem qui ſcire velit, Lybici velit æquoris idem
" Diſcere quam multæ Zephyro turbentur arenæ:
" Aut ubi navigiis violentior incidit eurus,
" Noſſe, quot ſonii veniant ad litora fluctus."

Pliny has been very copious upon this ſubject, but it would ſerve no purpoſe to give a long catalogue of names, which we could not reduce to the ſorts with which we are now acquainted.

The oldeſt liſt of Grapes which we have in Engliſh is that of Parkinſon in 1629.

1, 2. Our ordinarie Grape both white and red, which excelleth Crabs for Verjuice, and is not fit for wine with us.

3. The white Muſcadine; very great, ſweet, and firm, ſome of the bunches have weighed ſix pounds, and ſome of the Grapes half an ounce.

4. The red Muſcadine as great, chiefly differing in colour.

5. The Burlet, very great and white, fitter for verjuice than wine, except in a hot year, when it is pleaſant.

6. The little black Grape that is ripe very early.

7. Raiſin of the Sunne Grape, very great and in very great cluſters, reddiſh when ripe, yet in an extraordinarie hot yeare, it hath got a little blewneſſe caſt over it: but naturallie verie blew.

8. The Curran Grape, or the Grape of Corinth, the leaſt of all; beareth both few and verie ſeldome with us. There is another ſort that are red or browne, and of a ſour taſte.

9. The Greeke wine Grape, blackiſh and very ſweete.

10. The Frontignack: white, verie ſweete and delicate, as the wine declareth, that ſmelleth as it were of Muſke.

11. The ſquare Grape; not fully round but ſided.

12. The Damaſco; great, white and very ſweete.

13. The Ruſſet; reaſonable faire, exceeding ſweet and whitiſh, with a thick ſkin, cruſted over with a ſhew of aſh colour.

14. The long white Grape, like unto a Pigeon's egge, or as it were pointed pendent like a Pearle.

15. The partie-coloured Grape; reaſonable great, diſcoloured when ripe, ſometimes the whole bunches, and ſometimes but ſome of the Grapes being parted whitiſh, and blacke halfe through, verie variably.

16. The Rhenith wine Grape; white, and endureth the cold of winter when it commeth earely, more then the Muſcadine, and is nothing ſo ſweete.

17. The White wine Grape, is very like unto the preceding, the ſoile only and climate adding more ſweetneſſe.

18. The Claret wine Grape is altogether like the white, but reddiſh, which lying bruiſed upon the ſkins before they are preſſed, give that Claret tincture to the wine.

19. The Teint; deeper and darker, whoſe juice is of ſo deepe a colour, that it ſerveth to colour other wine.

20. The Burſarobe; faire, ſweete and white: of much eſteeme about Paris.

21. The Alligant; verie ſweete, giving ſo deep and lively a coloured red wine, that no other is comparable to it, and therefore uſually called Spaniard's blood.

22. Blew or blacke Grape of Orleans; giving a darke coloured ſweete wine much commended in thoſe parts.

23. The Grape without ſtones, growing near Aſcalon, the wine whereof is redde, and of a good taſte.

Mr. Ray, in 1688, gives a few of the Grapes, which were then moſt in requeſt in England.

1. The white and red Muſcadine.
2. The ſmall black, or cluſter or Currant-grape.
3. The Canada or Parſly-grape.
4. The Frontignac, white and red.
5. The red and black Orleans.
6. The Raiſin of the Sun Grape.
7. The Burlet.
8. The Grape de Arbois, in Burgundy: large, longiſh, oval, firm but ſweet. This ſort does not ripen early, and is therefore unfit for cold ſituations.
9. The Burſarobe.
10. The Muſcate. Uvæ moſchatæ, Apianæ Plinio, C. Bauh.
11. The Canary Grape: tranſlated hither from the Rhine.

Mr. Ray adds a liſt of the principal wines then in uſe.

French wines: 1. Vin de Paris. 2. Champagne. 3. Common Claret or Graves wine. 4. Burgundy. 5. Common white wine. 6. Frontignac. 7. Orleans. 8. Hermitage.

Spaniſh wines: 1. Canary Sack. 2. Malaga Sack. 3. Sherry Sack. 4. Alicant wine. Not unlike which is Tent wine.

Portugal: Porto-port wine is imported, but rarely. —Madeira wine is chiefly carried to America.

Italian wines: few are imported. 1. Red Florence wine. 2. Verdea, alſo from Tuſcany, white and ſweet. —Wines eſteemed in Italy are, Malvaſia from Crete; Vicentine;

[a] Woodville.

Vicentine; Montefiaſcone; Montepulciano; Syracuſe; and Lacryma Chriſti. Red Muſcadine is alſo imported from Crete.

German wines: are Neccar, Rheniſh, Hock, Moſelle and Baccherac.

For farther information Ray refers to a work of Andrea Baccio, printed at Rome in 1596.

John Rea, in 1702, gives moſt of thoſe in Mr. Ray's liſt, and adds,

1. Blood-red.
2. The red round Lombardy.
3. White Rheniſh.
4. Small white Muſcat.
5. Muſcat of Frontignan.

The Grapes moſt eſteemed in Italy are la Lugliatica and Tremorina.

The fitteſt for England are, white and red Muſcadine, the two ſorts of Frontiniack, Blood-red, and D'Arbois.

The beſt Vines, he ſays, were then on the walls of the Phyſick Garden at Oxford.

This author gives directions for making a Vineyard in England, from Sir Thomas Hanmer. The ſorts he recommends for this purpoſe are the white and red Muſcadine and the Frontiniack. He does not however encourage the planting of Vineyards in England.

John Roſe, who was gardener to king William at St. James's, in the Engliſh Vineyard, printed at the end of Evelyn's French Gardener, 12mo. 1691, mentions a new white Grape, which he ſays he found in his Majeſty's garden at St. James's, with a red wood, and a dark leaf, the fruit of which ripens as ſoon in ſtandard as againſt ſome walls.

Hitherto no heat but that of the ſun had been applied to the ripening of Grapes. Stoves for preſerving curious exotics from hot climates had been introduced ſoon after the middle of the ſeventeenth century; and towards the end of the ſame century artificial fire was applied to raiſing Ananas or Pine-apples. The firſt mention I find made of its application to Vines is by Mr. Laurence in his Fruit-garden Kalendar, 1718: where he ſays he has been informed that the Duke of Rutland, at Belvoir caſtle, has done ſo much juſtice to the Vine, as to have theſe artificial fires conſtantly burning behind his ſlope walls from Lady-day to Michaelmas; whereby he is rewarded with the largeſt Grapes, and even the beſt Frontignacs in july.

I have not ſeen them, ſays Mr. Laurence; but it is eaſy to conceive, that by the help of Stoves at convenient diſtances, and cavities in the ſtructure of the wall to convey the heat to all parts, the deſireable purpoſe of early, large, and good Grapes muſt be attained; eſpecially if the conſtant care of matting them at night be not neglected; without which all would quickly be ſpoiled by the cold and perpendicular dews or froſts, that fall ſo frequently in april and may.

Our modern forcers of Grapes, will laugh at ſuch improvement. It is however a conſiderable ſtep from Maſter Parkinſon's blanket[1].

But to return to our varieties: Bradley, in 1724, gives a liſt of forty-nine Grapes, which are moſt eſteemed in France; but as he does not pretend to reconcile theſe with our Engliſh catalogues, I will not ſet them down here, but proceed to Mr. Miller's, and ſubjoin ſome from the lateſt and moſt approved writers on the ſubject.]

N. B. *The letter* (h) *diſtinguiſhes the Grapes proper for a Hothouſe; the letter* (v) *for a Vinery; and the letter* (w) *for a common Wall.*

1. July Grape, or Morillon noir hatif. *Duham.* 2. 264. *n.* 1. *Speechly n.* 37. *Forſyth n.* 1. *Bradley n.* 1. Berry ſmall, round, black, growing looſe on the bunches, which are ſmall, but many. Juice ſugary, with little flavour. Principally eſteemed for ripening early without fire heat. Mr. Miller ſays, the beginning of auguſt; Mr. Forſyth, ſeptember.

2. The black Sweet-water. *Speechly n.* 17. *Forſyth n.* 20. Berry ſmall, roundiſh, growing cloſe in the bunches, which are ſhort. Skin thin, juice very ſweet. Birds and flies are very apt to devour them if they are not guarded: they are alſo ſubject to crack. This ripens ſoon after the preceding. *v. w.*

3. The white Sweet-water. *Speechly n.* 16. *Forſyth n.* 19. Berry large and round when in perfection. Juice ſugary, but not vinous. It is apt to have very ſmall berries among the large ones.—It is eſteemed an excellent Grape, the juice being very agreeable; the ſkin and fleſh very delicate. In ſome ſituations, on the ſide next the ſun, the berries are clouded with a ruſſet colour, and are then generally moſt admirable. This Grape is forced in Holland preferably to any other. It is by the Dutch called Parel druyf. *Speechly b. v. w.*

4. Chaſſelas Blanc, or Royal Muſcadine. *Duham. n.* 2. *t.* 1. *f.* or D'Arboyce, *Speechly n.* 29. *Forſyth n.* 2. An excellent Grape; the bunches generally large, and at the upper part having two ſmaller ſide bunches or ſhoulders. Berries round, white, when perfectly ripe turning to an amber colour. Juice rich and vinous. It ripens in ſeptember; but if carefully preſerved, will hang very late, and become excellent.—The berry is of a moderate ſize, with a thin ſkin, and a juicy ſoft fleſh. The bunches ſometimes weigh ſix or ſeven pounds. The Vine is very diſtinguiſhable by the wood and foliage, generally growing remarkably groſs and ſtrong. *Speechly. b. v.*

5. The Chaſſelas Muſqué, or le Cour Grape, by ſome Frankindal. *Duham. n.* 4. Excellent, and generally ripens well in England on a good-aſpected wall. Berries like thoſe of the preceding in ſhape, ſize and colour; but fleſhy with a little muſky flavour. It ripens in ſeptember.—Mr. Speechly ſays, that he had his Black Muſcadine, *n.* 28. from Holland, by the name of Frankendale. See *n.* 19.

6. The Black Cluſter, or Meunier Grape, ſo called from the hoary down of the leaves in ſummer. For the ſame reaſon Speechly calls it Miller's Burgundy, n. 33. And Forſyth, the Miller Grape. Morillon taconné, *Bradley n.* 2. It is a good fruit, and ripens well here. The bunches are ſhort; the berries oval, and very cloſe, ſo that many of the inner ones continue green, when thoſe on the outſide are perfectly ripe. It is by ſome called the Burgundy Grape, and ripens in ſeptember.—Speechly adds, that the ſkin and fleſh are delicate, the juice ſweet and pleaſant. *v. w.*

This author has another that he calls Small Black Cluſter, n. 34. the berries and bunches of which are little different from Miller's Burgundy, but the leaves have leſs down, and are ſomewhat ſmaller. The fruit is ſweet and delicate, and is ſometimes called the Burgundy Grape. See Forſyth *n.* 24.

7. The Auvergne, or true Burgundy Grape, ſometimes called Black Morillon. *Forſyth n.* 44. Le Bourguignon, *Bradl. n.* 24?—An indifferent fruit for the table, but one of the beſt for making wine. Berries oval, and hanging looſer on the bunches than in the Cluſter Grape, ripen more equally.

8. The Corinth or Currant Grape. *Duham. n.* 14. *t.* 7. *Forſyth n.* 49. Raiſin de Corinthe *Bradl. n.* 18. Berry ſmall, roundiſh, generally without ſtone, of a deep black colour, and much cluſtered on the bunches, which are ſhort. It has a ſugary juice, and ripens in ſeptember, but will not laſt long. *b. v.*

[Richard Hakluyt, in his Remembrances, 1582, informs us that it is ſaid, ſince we traded to Zante, that the plant which beareth the *Coren* is brought into this realm from thence.

I have heard thoſe who have eaten the fruit ripe in that Iſland, ſpeak of it with exquiſite delight.

Mr. Speechly has a White Corinth Grape, with a ſmall round berry, thin ſkinned, having a very delicate juicy fleſh, of an agreeable flavour. The berries when perfectly ripe, are tranſparent, ſo that the ſeeds appear very diſtinctly. N. 48. *Forſ. n.* 30. This therefore differs from the black Zante Grape, which ſeldom has any ſeeds.

Bradley has both a red and a blue Curran Grape, beſides the common ſort.]

9. The Red Chaſſelas. *Forſyth n.* 51. Very like the White (n. 4.) in ſize and ſhape, but of a dark red colour. It is a very good Grape, but ripens later than the White. See *Bradl. n.* 8.

[1] Park. parad. p. 401.

10. The White Muſcadine. *Speechly n.* 37. White or Common Muſcadine, by ſome called the Chaſſelas. *Forſyth n.* 5. Somewhat like the Chaſſelas, (n. 4.) but the berries are ſmaller and hang looſer on the bunches, which are longer but not ſo thick. The juice is ſweet, but not ſo rich.—It is however the beſt Grape that we have for a common wall, and is a great bearer. *Forſyth.* It is often eaten before it is well matured, but when well perfected is an exceeding fine Grape. *Speechl.*

11. Black Frontinac, or Muſcat noir. *Duham. n.* 9. *Forſyth n.* 15. *Bradl.* 13, 14. Blue or Violet Frontinac. *Speechly n.* 14. Berries round of a good ſize, looſe on the bunches, yet do not ripen equally; when fully ripe they are very black, and are covered with a meal or flue like the Plum: the juice is very rich and vinous. Bunches ſhort. It ripens at the end of ſeptember or beginning of october.

12. The Red Frontinac, or Muſcat rouge. *Duham. n.* 7. *t.* 4. *Forſyth n.* 16. *Bradl. n.* 12. An excellent Grape when fully ripe, but unleſs the ſeaſon proves very warm, they rarely ripen without artificial heat in England. Bunches longer than thoſe of the former, the berries large and round, when fully ripe of a brick colour, but when unripe gray with a few dark ſtripes. This is then taken to be a different kind commonly called Griſley Frontinac: but it is the ſame Grape. The juice of this has the moſt vinous flavour of all the ſorts, and is greatly eſteemed in France. *v.*

Both Speechly (n. 12.) and Forſyth (n. 18.) have a Grizzly Frontinac, which they diſtinguiſh from this. The Red Frontinac of the former (n. 15.) is different from Miller's, and he ſays is undoubtedly the true one. Berries of a moderate ſize, round, of a fine red colour, and high flavour. They grow cloſe upon the bunches, which are of a moderate ſize. He had ſeen only two or three bunches, produced here laſt ſummer from a plant which came from France the preceding year, growing in a pot.

13 White Frontinac. Muſcat Blanc. *Duham. n.* 6. *t.* 3. *Speechly n.* 11. *Forſyth n.* 17. Bunches larger than either of the former, berries round, ſo cloſely cluſtered that unleſs they are carefully thinned early in the ſeaſon they will not ripen; and the moiſture will be detained in the autumn, which will cauſe them to rot. Juice excellent; and when the fruit is perfectly ripe, it is inferior to none. *b. v. w.*

14. Alexandrian Frontinac, or Muſcat d'Alexandrie, by ſome called Muſcat of Jeruſalem. *Duham. n.* 10. *t.* 5. White Muſcat of Alexandria. *Speechly n.* 1. *Forſyth n.* 6. Berries oval, hanging looſe on the bunches, which are long and not ſhouldered. There are two ſorts, one with white, the other with red berries; their juice is very rich and vinous, but they ſeldom ripen in England without artificial heat.—This Grape is in great eſtimation, and is more generally planted in hot-houſes than any other ſort. When perfectly ripe, the berries are of a fine amber colour: the ſkins are thick; the pulp hard, and not very juicy, but of a high muſky flavour. *Speechly.*

15. Red Hamburgh. Berries inclined to oval, thin-ſkinned, dark red, with a juicy delicate fleſh, that has a rich vinous flavour. Size middling. Bunches large. End of october or in november. *b. v. Speechly n.* 19. *Forſyth n.* 22. It is ſometimes called the Gibraltar Grape.

16. Black Hamburgh. Like the preceding, but black. Mr. Speechly remarks, that the ſkin is thick, and the pulp hard; but that it is a valuable Grape, being a good-flavoured fruit, and a plentiful bearer.—Mr. Miller ſays it is by ſome called the Warner Grape. It ripens with the former. *b. v. Speechly n.* 18. *Forſyth n.* 21.

17. St. Peter's Grape. *Speechly n.* 43. *Forſyth n.* 47. Berry large, oval, deep black. Bunches very large, and make a fine appearance at the table, but the juice is not rich, and it ripens late in the year. —Mr. Speechly ſays, the berry is nearly globular, the ſkin thin, and the pulp very delicate and juicy; as it is very apt to crack, it is not generally planted in forcing-houſes, *v.* He has another (n. 44.) which he calls Black Grape from Paleſtine. It is like the St. Peter, but does not crack in the hot-houſe.

The leaves are much more divided than thoſe of the other ſorts, approaching to the Parſley-leaved Grape

The Claret Grape, Bourdelais or Verjuice Grape, the Raiſin Grape, the ſtriped Grape, and many others which never come to perfection here, are not worthy of any place in gardens, unleſs for the ſake of variety; for even when they have the aſſiſtance of heat to bring them to maturity, their juice is harſh, and without flavour.

[Since Mr. Miller's time many new Grapes have been introduced; and the luxury of forcing has been carried to ſuch an extent, that ſeveral ſorts are now cultivated which were then neglected, as they would not ripen kindly on walls, or by the common mode of treatment then uſed.

The choiceſt of theſe, from the catalogues of Mr. Speechly and Mr. Forſyth are here added.

18. The Malmſey Muſcadine. *Sp. n.* 30. *Forſ. n.* 3. Malvoiſee Muſquée. *Bradl. n.* 15. It ſomewhat reſembles the Royal Muſcadine. (n. 4.) The juice is very ſweet, and of a high flavour. It is a good bearer and a very fine Grape. *w. v.*—Bradley ſays it is one of the richeſt muſked Grapes; comes from Montierrat, and grows plentifully about Turin.

19. The Black Muſcadine. *Sp. n.* 28. *Forſ. n.* 4. Muſcat noir. *Bradl. n.* 13. Berries and bunches ſomewhat ſmaller than in the White Muſcadine. (n. 10.) Very prolific, and makes a fine appearance, on account of the black berries being powdered with a blueiſh bloom; but the pulp is not ſo delicate and juicy as the white. *b. v.*

Mr. Speechly ſays he procured a plant of this Grape from Holland by the name of Frankendale.

20. The Red Muſcat of Alexandria. *Forſ. n.* 7. Muſcat rouge. *Bradl. n.* 12. Reſembles the White; (n. 14.) only the berries are red. *b.*

Bradley ſays, it requires a good deal of ſun to bring it to perfection, but is then one of the beſt Grapes.

21. The White Muſcat from Lunel. *Sp. n.* 49. *Forſ. n.* 8. Berries large and oval, when perfectly ripe of a fine amber colour, ſometimes clouded with brown or ruſſet, eſpecially on the ſide next the ſun. Skin thin, and pulp delicate, full of a vinous juice. This Vine is a plentiful bearer and highly eſteemed. *b. v.*

22. The Black Muſcadel. *Sp. n.* 8. *Forſ. n.* 9. Berries large, oval, black; with a thin ſkin, and a delicate juicy fleſh. *b.*

The ſame bunch contains berries of different ſizes, ſome of them very large and long, but ſomewhat compreſſed and flat at the ends. The leaves change in autumn to a beautiful ſcarlet.

23. The Red Muſcadel. *Sp. n.* 9. *Forſ. n.* 10. Berries large, oval, of a beautiful red colour, with a thick ſkin and hard fleſh, ſomething like the Raiſin Grape. The bunches frequently weigh ſix or ſeven pounds, and are moſt elegantly formed of equal berries. It is one of the lateſt ripe. *b.*

The leaves change in autumn to a beautiful red and green.

24. The Black Damaſcus. *Sp. n.* 2. *Forſ. n.* 11. Berries large, round, black, with a thin ſkin, and a delicate, rich, juicy pulp, of an exquiſite flavour. *b.*

The ſame bunch commonly has berries of different ſizes; the ſmall ones, without ſtones, and the large ones with only one. It is a late Grape, but a moſt excellent and very valuable ſort.

25. The Black Tripoli. *Sp. n.* 3. *Forſ. n.* 12. Nearly allied to the preceding, but the berries are all large and equal, with one ſtone in each. It is a truly valuable late Grape. *b.*

The foliage in both theſe is ſimilar, and in autumn beautiful.

26. The black Spaniſh or Alicant Grape. *Sp. n.* 26. *Forſ. n.* 13. Groſnoir d'Eſpagne, *Bradl. n.* 37. Berries inclining to an oval ſhape, moderately large and black, on exceedingly long unſhouldered bunches. Skin thick, and the ſeeds uncommonly large. Pulp ſoft, juicy, and of an agreeable flavour. It is a pretty good fruit, and is ſometimes called the Lombardy Grape. *b. v.* See *n.* 42.

The leaves in autumn are beautifully variegated with red, green and yellow.

The moſt excellent Spaniſh Wine is made from this Grape.

27. The Black Liſbon. *Sp. n.* 46. *Forſ. n.* 14. Berries large, globular, black, thin-ſkinned, and juicy. Bunches large-ſhouldered, reſembling the Black Hamburgh. It is a good Grape. *b. v.*

28. Grizzly Frontinac. *Sp. n.* 12. *Forſ. n.* 18. Berries round, ſomewhat larger than the White, (n. 13.) brown, red and yellow. It has a high, muſky, perfumed flavour. *b. v.*

29. The White Hamburgh. *Sp. n.* 20. *Forſ. n.* 23. Berries large, oval, with a thick ſkin and hard fleſh. It is a plentiful bearer, and forms large bunches; but is not ſo valuable as the Black or Red Hamburgh, (n. 15. 16.) It is ſometimes called the Portugal Grape. *b.*

30. The large Black Cluſter. *Sp. n.* 35. *Forſ. n.* 25. Berries larger and more oval than the ſmall; (ſee *n.* 6.) with a juice of a harſh rough taſte. *v.*

Mr. Speechly ſays it was ſent him from Liſbon, and that he was aſſured it is the Grape of which Port wine is made.

31. The White Grape from Alcobaca. *Sp. n.* 10. *Forſ. n.* 26. Berry large, oval, white, with a thin ſkin and juicy pulp; on large and long bunches, without ſhoulders. *v.*

It was ſent to Mr. Speechly, with many others, from Portugal, by Gerrard De Viſme, Eſq.

32. The White Morillon. *Sp. n.* 36. *Forſ. n.* 27. Berry oval, white, of a moderate ſize, and delicate juicy pulp, growing cloſe on the bunches, which are ſmall. Leaves ſoft, covered with down on the under ſide, ſomewhat ſimilar to the genuine Tokay Grape, to which it appears to be nearly allied.

33. Early White Grape from Teneriffe. *Sp. n.* 42. *Forſ. n.* 28. Berries round, middle-ſized, with a thin ſkin, and delicate juicy pulp, of an extraordinary ſweetneſs. The berries and bunches much reſemble the common Muſcadine, to which it appears to have a near affinity. *v. w.*

34. The Aleppo Grape. *Sp. n.* 4. *Forſ. n.* 31. Berries middle-ſized, roundiſh, with a thin ſkin, and delicate juicy fleſh of an exquiſite vinous flavour. Colour various, white, black, but the major part ſtriped in the ſame bunch, ſometimes one half is white and the other half black, and the colours never intermix, but are divided by ſtraight lines. The leaves in autumn are very curiouſly ſtriped with green and yellow, ſomewhat ſimilar to the Aleppo Lettuce. *b. v.*

35. The Red Grape from Syracuſe. *Sp. n.* 5. *Forſ. n.* 32. Berries very large, oval, ſomewhat irregularly formed; hanging looſely on the bunches, which are pretty large. This is a noble Grape, but little known in this country. *b.*

36. Le Cocoeur or Morocco Grape. *Sp. n.* 6. *Forſ. n.* 33. Berries large, ſomewhat heart-ſhaped, of a tawny grizzly colour; often unequally ſized: they never contain more than one ſtone, and the ſmall ones have none. The pedicels are ſhort, and ſingularly large. It is a much-eſteemed Grape, and very ſcarce. *b.*

37. The Golden Galician. *Sp. n.* 7. *Forſ. n.* 34. Berries large, oval, with a hard fleſh but of a tolerable flavour. They and their footſtalks are of a light yellow colour. *b.*

38. The Black Raiſin Grape. *Sp. n.* 39. *Forſ. n.* 35. Berries large, oval, with a thick ſkin and a firm fleſh. It forms long handſome bunches. *b.*

39. The White Raiſin Grape reſembles the preceding, except that the berries are white.

Mr. Twiſs in his travels through Spain and Portugal, informs us, that Raiſins are cured theſe two ways: firſt, by cutting the ſtalk of the bunches half through, when the Grapes are almoſt ripe, and leaving them ſuſpended on the Vine by their ſtalks. The ſun, in this ſtate, candies them, and when they are dry they are packed up in boxes.—Secondly: when the Vines are pruned, the tendrils are preſerved till the time of vintage: a great fire is then made, wherein the tendrils are burnt, and in the lye, made of their aſhes, the newly-gathered Grapes are dipt, after which they are expoſed to the ſun to dry.

Mr Swinburne, in his travels through Spain, ſays that the Raiſins dried upon the coaſt of Valencia are dipped in a lye of wine and aſhes. *Speechly p* 14. *note.*

40. The Malvoiſe, ſometimes called the Blue Tokay. *Sp. n.* 21. *Forſ. n.* 37. La Malvoiſie or Malmſey Grape. *Bradl. n.* 41. Berries ſmall, inclining to oval, brown powdered with a blue bloom; ſkin thin, and fleſh delicate, full of a vinous juice. *b. v.*

Bradley ſays it bears well, and though the berry is ſmall, it is extremely rich and high flavoured; that it ripens early, and is ſo full of juice that he eſteems it the moſt melting of all Grapes.

He has two other Malvoiſies, red and white, but he eſteems the firſt the beſt.

41. The genuine Tokay. *Sp. n.* 22. *Forſ. n.* 38. White, inclining to oval, rather cloſe on the bunch, which is of a moderate ſize: ſkin thin, and pulp delicate, abounding with a very agreeable juice. The leaves on the under ſide are covered with a fine ſoft down, like ſattin. The Duke of Portland received it from Hungary. *b. v.*

42. The Lombardy. *Sp. n.* 23. *Forſ. n.* 39. Berry large, inclining to oval, of a beautiful flame-colour. The bunches are regularly formed with ſhoulders, and frequently weigh ſix or ſeven pounds. *b. v.*

The leaves are much divided, and their upper ſurface is of a deep green colour. This is by ſome called the Rheniſh Grape, and by others the Flame-coloured Tokay.

43. The Smyrna. *Sp. n.* 24. *Forſ. n.* 40. Berry large, red, oval, with thin ſkin and delicate juicy fleſh; on long bunches with ſhoulders looſely connected. The leaves in autumn have purple edges. It is a good Grape, but little known in this country. *b. v.*

44. The Brick Grape. *Sp. n.* 25. *Forſ. n.* 41. Berries ſmall, inclining to oval, of a pale red or brick colour; growing cloſe on the bunch, which is very ſmall. It is a very ſweet Grape, but not much eſteemed. *v. w.*

45. The Claret Grape. *Sp. n.* 31. *Forſ. n.* 42. Berries ſmall, black, inclining to oval, growing cloſe, in ſmall bunches: the juice is blood-red, of a harſh taſte, excepting the Grapes are perfectly matured, and then it may be conſidered rather as an agreeable delicate fruit. The leaves change to a ruſſet-red early in ſummer, and to a deep red in autumn. *b. v.*

46. The Syrian Grape. *Sp. n.* 32. *Forſ. n.* 43. Berries white, large, oval, with a thick ſkin, and a firm hard fleſh; on well-formed bunches enormouſly large. It is very prolific, and when well perfected, may be called a very eatable fruit; it may alſo be kept without difficulty many weeks longer than any other ſort. They may thus be had in perfection in january and ſometimes even in february. *b.*

This is ſuppoſed to be the ſort of Grape which the twelve ſpies, who were ſent by Moſes to view the land of Canaan, cut down by the brook of Eſhcol, and bare it between two upon a ſtaff. (Numb. 13. 23.) How large the bunch might be we are not told; but Strabo teſtifies that the Vines in Margiana and other places were ſo big, that two men could ſcarcely compaſs them with their arms, and that they produced bunches of Grapes two cubits or a yard long. And Huetius informs us, that Crete, Chios and other iſlands of the Archipelago afford bunches of ten, and ſometimes of thirty-ſix or forty pounds weight. Nay even in this country, a bunch of the Syrian Grape was produced at Wellbeck under the care of Mr. Speechly, that weighed nineteen pounds and an half. Ignorant perſons, judging from the ordinary ſize of a bunch of grapes, have attempted to throw a ridicule upon the circumſtance of conveying a ſingle bunch between two men. Suppoſing the branch with its cluſter to have weighed forty or fifty pounds, it might certainly have been carried by one man: but as it was to be exhibited to the people, it was proper that the fruit ſhould be preſerved fair, whole and unbruiſed, which it could not have been without carrying it in the manner they are related to have done. Accordingly when the Duke of Portland ſent his large cluſter to the Marquis of Rockingham as a preſent, it was conveyed to Wentworth houſe, a diſtance of more than twenty miles, by four labourers, who carried it, ſuſpended on a ſtaff in pairs, by turns. Its greateſt diameter was nineteen inches and an half,

its circumference four feet and an half, and its length twenty-one inches three quarters [a].

47. Cat's Grape. *Sp. n.* 38. *Forf. n.* 45. Berries ſmall, oval, greeniſh white, with a thin ſkin, and ſoft juicy pulp, growing cloſe on ſmall bunches. Taſte very diſagreeable unleſs perfectly ripe, and then it is very ſweet. *b. v.*

48. The Damſon Grape. *Sp. n.* 41. *Forf. n.* 46. Berries very large, oval, of a beautiful purple colour, growing looſely on large bunches. Leaves large, thick, and ſucculent, having ſomething of the appearance of green leather. *b.*

49. The Greek Grape. *Sp. n.* 47. *Forf. n.* 48. Berries of a moderate ſize inclining to oval, bluiſh white, growing cloſe in moderately-ſized handſome bunches. It is a delicate fruit juſtly eſteemed. The leaves grow on very ſhort footſtalks, and bear a reſemblance to thoſe of the Sweetwater. *b. v.*

50. The Cornichon. *Sp. n.* 50. *Forf. n.* 50. Berries white, with a thick ſkin, and a firm ſweet fleſh. Their ſhape is remarkable, tapering from the ſtalk, but not in a regular manner, and ending in a blunt point, according to the French name, ſomething like a horn; but its figure is more like the long end of a ſmall fiſh's bladder. *b.*

51. The new Muſcat of Jeruſalem. Introduced by Mr. Phillip Miller about thirty-ſix years ago, (1766) and now in the Botanic Garden at Cheſſea. Berries large, round, red, in fine ſeaſons the ſize of a gooſberry: but as it does not ripen well on a wall in this country, it might be worth while to try it in a hot-houſe or vinery. *Forſyth n.* 52.

52. The Black Prince. Berries large; bunches alſo large, in a favourable ſeaſon weighing a pound and half on walls. It very well deſerves a place in the hot-houſe and vinery. Ripe in october, and will hang till the middle of november. *Forſyth n.* 53.

Mr. Speechly ſays he might add two or three ſeedling Grapes that have borne fruit: one the produce of the Black Frontinac, impregnated by the White Sweetwater, which may be conſidered as a valuable ſort. The berries are black, but of unequal ſizes. It ripens early.

Mr. Forſyth alſo adds ſeveral names to his liſt, without any deſcription or obſervation. Some of them are mere varieties of varieties; and of ſuch there is no end. They are however the following:

Black Frankindale. See *n.* 5. and 19.
Black Gibraltar. See *n.* 15. for the Red.
Black Muſcat of Alexandria. See *n.* 14.
The Miller Grape. See *n.* 6.
New White Sweetwater. See *n.* 3.
Paſſe Muſk.
Pearl Muſcadine.
Red Conſtantia.
Red Raiſin. See the Black and White, *n.* 38 and 39.
Sir Abraham Pitches's Fine Black.
Weſt's St. Peter. See *n.* 15. It is common for perſons who raiſe new varieties, to add their own names to an old one.
White Conſtantia.

From this and the Red is made the famous Conſtantia wine, ſo called from a place near the Cape of Good Hope. But Colonel Paterſon informs us that this wine, when tranſplanted to but a ſmall diſtance from that ſpot, produces a very inferior wine. The ſituation of the place is rather low, but rather more elevated than other parts of the diſtrict; and the ſoil is a light ſandy loam.

Mr. Speechly ſays, that he had his Black or Purple Frontinac, *n.* 13. from the Cape by the name of Black Conſtantia. The berries, he ſays, are black, but when produced under glaſs are generally dark purple: they are moderately large, round, and of a moſt excellent flavour. The bunches are very long. It has been generally called the Red Frontinac (See *n.* 12.) and is one of our very beſt Grapes.

Seleft Vines for a ſmall Garden.

The White Muſcadine. White Sweetwater. Black Sweetwater. Large and Small Black Cluſter. The Miller Grape.

St. Peter's and the Black Hamburgh, will do very well in favourable ſeaſons [a].

Mr. Speechly remarks, that the leaves of white Grapes change to a yellow colour. Thoſe of the Claret grape change to a dark purple and ruſſet green early in the ſeaſon. Thoſe of the Blue Frontinac and Black Muſcadine change late to a beautiful ſcarlet and yellow intermixed. The leaves of the Aleppo Grape are curiouſly ſtriped with red, green and yellow; the Muſcadel, Smyrna, Morocco, Black Damaſcus, Grizzly Frontinac, and Black Spaniſh or Alicant, are alſo exceedingly beautiful.

The leaves of the pale-red and grizzly Grapes are not always tinged with red; but whenever the leaſt tinge of red, purple or ſcarlet appears on the leaves of the Vine at the time of their maturation, it is a certain ſign that the Grape will be grizzly, red, or black. By attending to this, we may aſcertain at the end of the firſt year, the colour which the Grapes of ſeedling Vines will have.

β. The Currant Vine has been noticed among the varieties: it is not unuſual to have ſome berries without ſtones in other varieties: and we have dried Grapes frequently imported under the name of Sultana Raiſins, that are eſteemed on that account.

2. Branches purpliſh, ſmooth. Leaves equal in length and breadth, cordate at the baſe; ſegments lanceolate, attenuated, the lateral ones with lanceolate teeth on the outſide, the middle one deeply ſerrate on each ſide above. Stipules lanceolate. Racemes an inch long; with approximating umbellers. Native of Virginia [b]. Vahl ſays he had it from the Paris Garden.]

3. Trunk woody, ſending out many ſlender branches, furniſhed with branching tendrils, by which they faſten themſelves to trees. Flowers in bunches like thoſe of the other ſorts, ſucceeded by berries or Grapes of an auſtere taſte.

[Size of the common Vine but with gray hairs ſcattered over the whole. Leaves undivided, almoſt ſmooth above, but villoſe and veined beneath with thick veſſels. It has a ſimple tendril from the axils, and ſimple raceme from the middle of the tendril [c].

Leaves ovate, acute, alternate, on reddiſh petioles. Flowers white, like thoſe of the common Vine and equal, on ſmall lateral racemes. Berries round, browniſh-green, ſmall, watery, acid, eatable [d].

It produces a great quantity of ſmall black Grapes in the lower hills of Jamaica; but they are of a rough taſte, and would doubtleſs make an excellent red wine, if properly managed. It ſeems to thrive beſt in the Red hills. In Jamaica it is known by the name of Water-withe. When it grows luxuriant, as it generally does in the higher woody lands, it is ſo full of juice, that a piece of about three feet will yield near a pint of clear taſteleſs water; which has ſaved the lives of many who have wandered long in the woods, without any other refreſhment of a liquid ſort [e].

Native both of the Eaſt and Weſt Indies, and Cochinchina.

4. Stem round, aſh-coloured, ſmooth. Leaves acute, villoſe beneath, eſpecially along the nerves. Petioles filiform, half an inch long. Panicles without tendrils, with glomerate floſcules. Native of Japan [f]. At firſt not diſtinguiſhed by Thunberg from the preceding.]

5. Leaves large, covered with a white down on the under ſide. Berries round and black, with a rough-flavoured juice.

[Stem very long and ſlender, branched, and climbing by tendrils. Leaves ſubtrilobate and entire, ſerrate-toothed, with a ruſt-coloured down beneath, rough, alternate, on long petioles. Flowers very ſmall, pale, on ſhort lateral racemes. Berries round, black, acid but eatable.

From the fermented Grapes of this and the Indian Vine a tolerably good ſpirit is diſtilled in Cochinchina [g].

[a] Forſyth, p. 113. [b] Vahl. [c] Linn. Syſt. [d] Loureiro. [e] Browne and Sloane [f] Thunberg. [g] Lourtiro.

[a] Speechly, p. 41. and Pegge's note.

Native

Native of North America, Amboyna, Cochinchina and Japan.—Introduced in 1656, by Mr. John Tradeſcant, jun[a].]

6. Stem ſhrubby climbing by tendrils. Berries black, with a flavour reſembling the ſcent of a fox; whence the name. [Native of Virginia. Cultivated 1656, by Mr. John Tradeſcant, jun[a].

7. Stem climbing, ſomewhat angular, ſmooth and even, jointed, knobbed: branches alternate, ſpreading, reſembling the ſtem. Leaves alternate; the lower ones larger, five-lobed; upper gradually leſs, three-lobed with the lobes gaſhed and toothed; uppermoſt undivided, ſerrate, deep green above and even, beneath paler with the veins ſtanding out and rugged. Petioles round, have a brown downy groove above, ſpreading, as long as the leaf from an inch to a finger's length. Tendrils oppoſite to the peduncles, bifid, ſmooth. Flowers axillary, in ſubdichotomous ſmooth panicles. Corolla white. Berries globular, green, ſmooth, the ſize of a pea, containing two or ſometimes three or four ſeeds, ſurrounded by a hardiſh white rind, ſubcordate, attenuated below, ſubbilocular. Native of Japan, flowering there in july and auguſt[c].]

8. The ſtalks and branches of this are like thoſe of the common Grape, but the leaves are cut into many ſlender ſegments. The Grapes are round, white, and diſpoſed in looſe bunches. Mr. Miller ſays, it is ſuppoſed to grow naturally in Canada, [but that is probably a miſtake, which took its riſe from Cornutus having inſerted it in his work. It was cultivated by Mr. John Tradeſcant, jun. in 1656.] But as the fruit has little flavour, and ripens late in autumn, it has been almoſt baniſhed the Engliſh gardens, where at preſent there are only a few plants preſerved for the ſake of variety.

[Speechly and Forſyth have a white Parſly-leaved Grape, called alſo Ciotat, or Ciouta, as Bradley writes it. In his catalogue from France it is named Raiſin d'Autriche à feuille de Perſil. Berries round, white, of a moderate ſize, with a thin ſkin, and delicate juicy pulp, but not of a vinous flavour. The bunches are of a pretty good ſize, almoſt ſimilar to the White Muſcadine. Bradley adds that it bears pretty well. *Sp. n.* 45. *Forſ. n.* 29. *Bradl. n.* 6.

There is a variety of this with red berries.

9. See Hedera quinquefolia, n. 3.

10. This reſembles the preceding ſpecies. Stem ſcandent. Leaves alternate, digitate, on long petioles: leaflets ſeven, or from five to eight, on petiolets, elliptic, ſmooth, ſubſtantial, mucronate, twice as long as the petiolets. Raceme terminating, very large, formed of alternate ſpikes, which are ſimple and ſubtomentoſe. Flowers ſeſſile, ſmall, in remote whorls. Calyx five-toothed. Petals cohering at the top, deciduous at the baſe. Stamens five. Piſtil blunt. Therefore it is not either a Hedera or a Ciſſus. Native of the Eaſt Indies[b].

11. Branches purpliſh, ſmooth, round. Leaflets in fives, the middle ones ſubſeſſile, the reſt petioled, the loweſt frequently augmented on the outſide with a lobe, ovate, acuminate, having four or five large ſerratures on each ſide, pale green beneath, two inches long. Peduncles oppoſite to a leaf, twice bifid. Pedicels umbelled. Flowers ſmall. Native place unknown. Vahl had it from Schumacher[i].]

12. Stem woody, ſending out many ſlender branches, which climb by tendrils. Leaves compoſed of many ſmaller winged leaves, divided ſomewhat like thoſe of common Parſley, of a lucid green on their upper ſide, but much paler on their under. Flowers axillary in looſe bunches, very ſmall, white, compoſed of five ſmall petals, which expand and ſoon fall off. They are not ſucceeded by any fruit in England, but the berries which come from North America, their native place of growth, have generally three ſeeds in each.

Mr. Rand gave it the name of Reynardſonia, from Samuel Reynardſon, Eſq. of Hillendon near Uxbridge, who was a great collector of foreign plants, [and cultivated the Pepper Vine there before the year 1700, as we learn from Plukenet[k].] Mr. Miller ſays, that the characters are not ſufficiently known in Europe, to determine its proper genus; for it ſeldom flowers here, and has never produced any fruit in England. He therefore leaves it in this genus on the authority of Linneus.

[a] Hort. kew. [b] Idem. [c] Thunberg. [i] Vahl. [k] Linn. mant.

PROPAGATION AND CULTURE.

All the ſorts of Grapes are propagated either from layers or cuttings, the former of which is greatly practiſed in England, but the latter is what I would recommend, as being much preferable to the other; for the roots of Vines do not grow ſtrong and woody, as in moſt ſorts of trees, but are long, ſlender, and pliable; therefore when they are taken out of the ground, they ſeldom ſtrike out any fibres from their weak roots, which generally ſhrivel and dry; ſo that they rather retard than help the plants in their growth, by preventing the new fibres from puſhing out; for which reaſon I had rather plant a good cutting than a rooted plant, provided it be well choſen, and there is little danger of its not growing.

But as there are few perſons who make choice of proper cuttings, or at leaſt that form their cuttings rightly in England, ſo it will be proper to give directions for this in the firſt place, before I proceed. You ſhould always make choice of ſuch ſhoots as are ſtrong, and well ripened of the laſt year's growth: theſe ſhould be cut from the old Vine, juſt below the place where they were produced, taking a knot, or piece of the two years wood to each, which ſhould be pruned ſmooth; then you ſhould cut off the upper part of the ſhoots, ſo as to leave the cutting about ſixteen inches long. When the piece or knot of old wood is cut at both ends near the young ſhoot, the cutting will reſemble a little mallet, from whence Columella gives the title of Malleolus to the Vine cuttings. In making the cuttings after this manner, there can be but one taken from each ſhoot; whereas moſt perſons cut them into lengths of about a foot, and plant them all, which is very wrong; for the upper part of the ſhoots is never ſo well ripened as the lower, which was produced early in the ſpring, and has had the whole ſummer to harden, ſo that if they take root, they never make ſo good plants; for the wood of thoſe cuttings being ſpongy and ſoft, admits the moiſture too freely, whereby the plants will be luxuriant in growth, but never ſo fruitful as ſuch whoſe wood is cloſer and more compact.

When the cuttings are thus prepared, if they are not then planted they ſhould be placed with their lower part in the ground in a dry ſoil, laying ſome litter upon their upper parts to prevent them from drying: in this ſituation they may remain till the beginning of april (which is the beſt time for planting them) when you ſhould take them out, and waſh them from the filth they have contracted; and if you find them very dry, you ſhould let them ſtand with their lower parts in water ſix or eight hours, which will diſtend their veſſels, and diſpoſe them for taking root. Then the ground being before prepared where the plants are deſigned to remain (whether againſt walls, or for ſtandards, for they ſhould not be removed again,) the cuttings ſhould be planted; but in preparing the ground, you ſhould conſider the nature of the ſoil, which, if ſtrong, and inclinable to wet, is by no means proper for Grapes; therefore where it ſo happens, you ſhould open a trench where the cuttings are to be planted, which ſhould be filled with lime rubbiſh, the better to drain off the moiſture; then raiſe the border with freſh light earth about two feet thick, ſo that it may be at leaſt a foot above the level of the ground, then you ſhould open the holes at about ſix feet diſtance from each other, putting one good ſtrong cutting into each hole, which ſhould be laid a little ſloping, that their tops may incline to the wall, but it muſt be put in ſo deep, as that the uppermoſt eye may be level with the ſurface of the ground; for when any part of the cutting is left above ground, as is the common method uſed by the Engliſh gardeners, moſt of the buds attempt to ſhoot;

[a] Hort. kew.

ſo that the ſtrength of the cuttings are divided to nouriſh ſo many ſhoots, which muſt conſequently be weaker than if only one of them grew; whereas on the contrary, by burying the whole cutting in the ground, the ſap is all employed on one ſingle ſhoot, which conſequently will be much ſtronger; beſides, the ſun and air are apt to dry that part of the cutting which remains above ground, and ſo often prevents their buds from ſhooting.

Then having placed the cutting into the ground, you ſhould fill up the hole gently, preſſing down the earth with your foot cloſe about it, and raiſe a little hill juſt upon the top of the cutting, to cover the upper eye quite over, which will prevent it from drying; this being done, there is nothing more neceſſary, but to keep the ground clear from weeds until the cuttings begin to ſhoot; at which time you ſhould look over them carefully to rub off any ſmall ſhoots, if ſuch are produced, faſtening only the firſt main ſhoot to the wall, which ſhould be conſtantly trained up, as it is extended in length, to prevent its breaking or hanging down; you muſt continue to look over theſe once in about three weeks during the ſummer ſeaſon, conſtantly rubbing off all lateral ſhoots which are produced, leaving only the firſt main ſhoot; and be ſure to keep the ground conſtantly clear from weeds, which, if ſuffered to grow, will exhauſt the goodneſs of the ſoil, and ſtarve the cuttings.

The Michaelmas following, if your cuttings have produced ſtrong ſhoots, you ſhould prune them down to two eyes, which, though by ſome people may be thought too ſhort, yet I am ſatisfied, from ſeveral experiments, to be the beſt method. The reaſon for adviſing the pruning Vines at this ſeaſon, rather than deferring it till ſpring is, becauſe the tender parts of thoſe young ſhoots, if left on, are ſubject to decay in winter, for they are apt to grow late in the year, ſo the tops of their ſhoots are tender, and the early froſts will pinch them, and then they frequently are killed down a conſiderable length, which weakens their roots; but if they are cut off early in autumn, the wounds will heal over before the bad weather, and thereby the roots will be greatly ſtrengthened.

In the ſpring, after the cold weather is paſt, you muſt gently dig up the borders to looſen the earth; but you muſt be very careful in doing this, not to injure the roots of your Vines; you ſhould alſo raiſe the earth up to the ſtems of the plants, ſo as to cover the old wood, but not ſo deep as to cover either of the eyes of the laſt year's wood. After this they will require no farther care until they begin to ſhoot, when you ſhould look over them carefully, to rub off all weak dangling ſhoots, leaving no more than one or two ſhoots, which are produced from the eyes of the laſt year's wood, which ſhould be faſtened to the wall; and from this time, until the Vines have done ſhooting, you ſhould look them over once in three weeks or a month, to rub off all lateral ſhoots as they are produced, and to faſten the main ſhoots to the wall as they are extended in length, which muſt not be ſhortened before the middle or latter end of July, when it will be proper to nip off their tops, which will ſtrengthen the lower eyes; and during the ſummer ſeaſon, you muſt conſtantly keep the ground clear from weeds; nor ſhould you permit any ſort of plants to grow near the Vines, which would not only rob them of nouriſhment, but ſhade the lower part of the ſhoots, and thereby prevent their ripening, which will not only cauſe their wood to be ſpongy and luxuriant, but render it leſs fruitful.

As ſoon as the leaves begin to drop in autumn, you ſhould prune theſe young Vines again, leaving three buds to each of the ſhoots, provided they are ſtrong, otherwiſe it is better to ſhorten them down to two eyes if they are good; for it is a very wrong practice to leave much wood upon young Vines, or to leave their ſhoots too long, which greatly weakens the roots; then you ſhould faſten them to the wall, ſpreading them out horizontally each way, that there may be room to train the new ſhoots the following ſummer, and in the ſpring dig the borders as before.

The third ſeaſon you muſt go over the Vines again as ſoon as they begin to ſhoot, to rub off all danglers as before, and train the ſtrong ſhoots in their proper places, which this year may be ſuppoſed to be two from each ſhoot of the laſt year's wood; but if they attempt to produce two ſhoots from one eye, the weakeſt of them muſt be rubbed off, for there ſhould never be more than one allowed to come out of each eye. If any of them produce fruit, as many times they will the third year, you ſhould not ſtop them ſo ſoon as is generally practiſed upon the bearing ſhoots of old Vines, but permit them to ſhoot forward till a month after Midſummer, at which time you may pinch off the tops of the ſhoots; for if this were done too ſoon, it would ſpoil the buds for the next year's wood, which in young Vines muſt be more carefully preſerved than on older plants, becauſe there are no other ſhoots to be laid in for a ſupply of wood, as is commonly practiſed on old Vines.

During the ſummer you muſt conſtantly go over your Vines, and diſplace all weak lateral ſhoots as they are produced, and carefully keep the ground clear from weeds, as was before directed, that the ſhoots may ripen well; which is a material thing to be obſerved in moſt ſorts of fruit-trees, but eſpecially in Vines, which ſeldom produce any fruit from immature branches. Theſe things being duly obſerved, are all that is neceſſary in the management of young Vines; I ſhall therefore proceed to lay down rules for the government of grown Vines, which I ſhall do as briefly as poſſible. And,

Firſt, Vines rarely produce any bearing ſhoots from wood that is more than one year old, therefore great care ſhould be taken to have ſuch wood in every part of the trees; for the fruit are always produced upon the ſhoots of the ſame year, which come out from buds of the laſt year's wood. The method commonly practiſed by the gardeners in England is, to ſhorten the branches of the former year's growth, down to three or four eyes, at the time of pruning; though there are ſome perſons who leave theſe ſhoots much longer, and affirm that by this practice they obtain a greater quantity of fruit; but however this may be, it is a very wrong practice, ſince it is impoſſible that one ſhoot can nouriſh forty or fifty bunches of Grapes, ſo well as it can ten or twelve; ſo that what is gotten in number, is loſt in their magnitude; beſides, the greater quantity of fruit there is left on Vines, the later they are ripened, and their juice is not ſo rich; and this is well known in the wine countries, where there are laws enacted to direct the number and length of ſhoots that are to be left upon each Vine, leſt by overbearing them, they not only exhauſt and weaken the roots, but thereby render the juice weak, and ſo deſtroy the reputation of their wine.

Wherefore the beſt method is, to ſhorten the bearing ſhoots to about four eyes in length, becauſe the lowermoſt ſeldom is good, and three buds are ſufficient, for each of theſe will produce a ſhoot, which generally has two or three bunches of Grapes; ſo that from each of thoſe ſhoots there may be expected ſix or eight bunches, which is a ſufficient quantity. Theſe ſhoots muſt be laid about eighteen inches aſunder, for if they are cloſer, when the ſide ſhoots are produced, there will not be room enough to train them againſt the wall, which ſhould always be provided for; and as their leaves are very large, the branches ſhould be left at a proportionable diſtance from each other, that they may not croud or ſhade the fruit.

At the winter pruning of your Vines you ſhould always obſerve to make the cut juſt above the eye, ſloping it backward from it, that if it ſhould bleed, the ſap might not flow upon the bud; and where there is an opportunity of cutting down ſome young ſhoots to two eyes, in order to produce vigorous ſhoots for the next year's bearing, it ſhould always be done, becauſe in ſtopping of thoſe ſhoots which have fruit upon them as ſoon as the Grapes are formed, which is frequently practiſed, it often ſpoils the eyes for producing bearing branches the following year, and this reſerving of new wood is what the vignerons abroad always practiſe in their vineyards. The beſt ſeaſon

for pruning of Vines is the end of october, for the reaſons before laid down.

The latter end of april, or the beginning of may, when the Vines begin to ſhoot, you muſt carefully look them over, rubbing off all ſmall buds which may come from the old wood, which only produce weak dangling branches; as alſo when two ſhoots are produced from the ſame bud, the weakeſt of them ſhould be diſplaced, which will cauſe the others to be ſtronger: and the ſooner this is done, the better it is for the Vines.

In the middle of may you muſt go over them again, rubbing off all the dangling ſhoots as before, and at the ſame time you muſt faſten up all the ſtrong branches; ſo that they may not hang from the wall; for if their ſhoots hang down, their leaves will be turned with their upper ſurfaces the wrong way, and when the ſhoots are afterwards trained upright, they will have their under ſurface upward; and until the leaves are turned again, and have taken their right poſition, the fruit will not thrive; ſo that the not obſerving this management, will cauſe the Grapes to be a fortnight or three weeks later before they ripen; beſides, by ſuffering the fruit to hang from the wall, and be ſhaded with the cloſeneſs of the branches, it is greatly retarded in its growth; therefore during the growing ſeaſon, you ſhould conſtantly look over the Vines, diſplacing all dangling branches and wild wood, and faſten up the other ſhoots regularly to the wall, as they are extended in length; and towards the middle of june you ſhould ſtop the bearing branches, which will ſtrengthen the fruit, provided you always leave three eyes above the bunches; for if you ſtop them too ſoon, it will injure the fruit, by taking away that part of the branch which is neceſſary to attract the nouriſhment to the fruit, as alſo to perſpire off the crudities of the ſap, which is not proper for the fruit to receive.

But although I recommend the ſtopping thoſe ſhoots which have fruit at this ſeaſon, yet this is not to be practiſed upon thoſe which are intended for bearing the next year, for theſe muſt not be ſtopped before the middle of july, leſt, by ſtopping them too ſoon, you cauſe the eyes to ſhoot out ſtrong lateral branches, whereby they will be greatly injured.

During the ſummer ſeaſon you ſhould be very careful to rub off all dangling branches, and train up the ſhoots regularly to the wall as before, which will greatly accelerate the growth of the fruit, and alſo admit the ſun and air to them, which is abſolutely neceſſary to ripen and give the fruit a rich flavour; but you muſt never diveſt the branches of their leaves, as is the practice of ſome perſons; for although the admitting of the ſun muſt be neceſſary to ripen them, yet if they are too much expoſed thereto, their ſkins will be tough, and it will retard their ripening; beſides, the leaves being abſolutely neceſſary to nouriſh the fruit, by taking them off, the fruit is ſtarved, and ſeldom comes to any ſize, as I have ſeveral times obſerved; therefore a great regard ſhould be had to the ſummer management of the Vines, where perſons are deſirous to have their fruit excellent, and duly ripened.

When the fruit is all gathered, you ſhould prune the Vines, whereby the litter of their leaves will be entirely removed at once, and their fruit will be the forwarder the ſucceeding year.

[*Method of managing Vines againſt flued or hot-walls, commonly called Vineries or Grape Houſes.*

A Vinery or Grape Houſe conſiſts of walls twelve or fourteen feet high, running from eaſt to weſt, furniſhed with ſtoves and proper flues, with a roof and lights of glaſs covering a border of about ten feet in width. See the engraved Elevation, Section and Ground Plan.

Where Vines are intended to be forced at an early ſeaſon, it is uſual to have upright glaſſes, two and an half or three feet high in front, to ſupport the roof, to admit ſun and light to the border, which is generally occupied by low-growing vegetables; but where Grapes are not wanted early, a low wall in front will anſwer as well.

Suppoſing the wall to be twelve feet high, the breadth of the border ten feet, and the height of the upright wall in front three feet, the roof will then form an angle of about 43°; which experience ſhows to be a proper pitch for forcing Vines after the vernal equinox.

A Grape Houſe may alſo be conſtructed on a plan ſimilar to that of a ſingle-pitted Pine-ſtove. The back wall fourteen feet high; the roof ſlanting, and covering an extent of about ſixteen feet; and a flue running from eaſt to weſt near the front wall. Such a building is well calculated not only for Grapes, but for early crops of melons, ſtrawberries, &c.

Glaſs being the principal article of expenſe in forcing fruit; where there is a Peach-houſe, the glaſs-frames may ſerve both for that and the Vinery, provided the buildings are conſtructed of the ſame dimenſions; for as Peaches do not require to be covered with glaſs later than the middle of ſummer, a crop of Grapes may be got by means of the ſame glaſſes after that ſeaſon.

Good crops of Grapes may alſo be obtained from Vines trained againſt walls about ſix feet high, by means of melon-frame glaſſes, if a ſmall ſlanting roof is made of proper dimenſions to receive the glaſſes. A ſmall degree of fire-heat would be of great advantage, and might be applied either by a flued wall, the flue running through the houſe, or by caſt-iron pipes[1].]

The borders againſt theſe hot walls ſhould have the earth taken out two feet deep (provided the ground is dry,) otherwiſe one foot will be ſufficient, becauſe in wet land the borders ſhould be raiſed at leaſt two feet above the level of the ground, that the roots of the Vines may not be injured by the wet. When the earth is taken out, the bottom of the trench ſhould be filled with ſtones, lime rubbiſh, &c. a foot and a half, or two feet thick, which ſhould be levelled and beaten down pretty hard to prevent the roots of the Vines from running downward. The trenches ſhould be made five feet wide at leaſt, otherwiſe the roots of the Vines will in a few years extend themſelves beyond the rubbiſh, and finding an eaſy paſſage downwards, will run into the moiſt ground, and thereby imbibe ſo much wet, as to leſſen the vinous flavour of the Grapes; but before the rubbiſh is filled into the trench, it is a better method to raiſe a nine inch wall, at five feet diſtance from the hot wall, which will keep the rubbiſh from intermixing with the neighbouring earth, and alſo confine the roots of the Vines to the border in which they are planted, ſo that they cannot reach to the moiſture of the ground about them. This nine inch wall ſhould be raiſed to the height of the intended border, ſo will be of great uſe to lay the plate of timber of the frames upon, which will be neceſſary to cover the Vines when they are forced, whereby the timbers will be better preſerved from rotting; and where the borders are raiſed to any conſiderable height above the level of the ground, theſe walls will preſerve the earth of the borders from falling down into the walks; but in carrying up theſe walls, it will be proper to leave little openings about eight or ten feet diſtance, to let the water paſs off, becauſe when the rubbiſh at the bottom of the trench unites and binds very hard, the water cannot eaſily find a paſſage through it; therefore it will be the better method to leave theſe ſmall paſſages in the front wall, leſt the moiſture being confined at bottom, ſhould be pent up as in a ditch which will be of ill conſequence to the Vines, but theſe openings ſhould be two feet below the ſurface.

When the walls are finiſhed and thoroughly dry, the rubbiſh ſhould be filled in, as before directed; then there ſhould be freſh light earth laid upon it two feet thick, which will be a ſufficient depth of ſoil for the Vines to root in. Theſe borders ſhould be thus prepared at leaſt a month or ſix weeks before the Vines are planted, that they may have time to ſettle. The beſt time to plant them is about the end of march, or the beginning of april, according as the ſeaſon proves early or late. Theſe I would alſo adviſe to be planted with cuttings, rather than rooted plants, for the reaſons before aſſigned, but there ſhould be two cuttings put into each hole, or placed at a nearer diſtance, leſt any of them ſhould fail; for if all ſhould

[1] Speechly, p. 97. and 124.

ſucceed, the weakeſt of them may be eaſily drawn out the following ſpring. Theſe cuttings ſhould be well choſen from good bearing Vines, and the ſhoots ſhould be well ripened, otherwiſe they will never make good plants. The diſtance theſe Vines ſhould be allowed to remain is the ſame as for common walls, i. e. about ſix feet. In planting them there ſhould be holes opened with a ſpade, about fourteen or fifteen inches deep, for if there be but three or four inches of good earth under the foot of the cuttings it will be ſufficient; then the cuttings ſhould be laid in the holes a little ſloping, afterward the earth ſhould be filled into the holes, and gently preſſed with the foot to the cuttings, and raiſed in a heap over them, ſo as juſt to cover the uppermoſt eyes of the cuttings; afterward lay a little mulch on the ſurface of the ground about the cuttings, to prevent the ſun and air from drying the earth, and if the ſpring ſhould prove very dry, they ſhould have ſome water once a week, which will be as often as the cuttings require it, for nothing will deſtroy them ſooner than too much water, which rots their bark, and deſtroys them. If theſe cuttings are well choſen, and the inſtructions here laid down duly obſerved, they will make ſtrong ſhoots the firſt ſummer, for I have frequently planted cuttings which have ſhot five feet in one year, but then I carefully rubbed off all the ſide dangling ſhoots as they were produced, and never permitted more than one ſhoot to remain on each cutting, which is what ſhould always be obſerved by thoſe who have the care of Vines. With this management there will be little hazard of the cuttings taking root, for in upwards of five hundred cuttings which I received from Italy, and which had been cut off from the Vines in the beginning of november, wrapped up in moſs, and put on board the ſhip, (which did not arrive at the port of London until march, ſo that they were full four months cut off before they were planted,) there were not twenty of the number which failed, and many of them ſhot about ſix feet the firſt ſeaſon.

As I have directed the pruning of Vines to be performed in autumn (which is without diſpute the beſt ſeaſon for this work,) ſo in preſerving of the cuttings till the planting ſeaſon, I have adviſed them to be cut to their lengths, and their ends laid into the ground, and then covered with litter or moſs to keep the air from them; but ſince I have found it a much better method not to ſhorten the ſhoots, from which the cuttings are to be made, but to lay their ends juſt into the ground, about two inches deep, and ſo leave them at full length, only obſerving to cover them with dry litter or Peas haulm in froſty dry weather, tho' in moiſt weather the covering ſhould not remain on, becauſe it would make the cuttings grow mouldy, which would greatly injure them. Then in the ſpring, when they are to be planted, they ſhould be taken out of the ground, and their upper part cut off, ſo as to reduce them to about fourteen inches in length, according to the diſtance of the buds or eyes; for thoſe cuttings whoſe buds grow pretty cloſe together, need not be left more than one foot long, but in others fourteen or ſixteen inches will be full ſhort. The leaving the upper part of the ſhoots on all the winter is of great ſervice to the cuttings, becauſe when they are cut off in autumn, the air penetrates the wounded part, and greatly injures the other eyes.

The management of theſe Vines, for the three firſt years after planting, being the ſame as is practiſed for thoſe againſt common walls, I ſhall not repeat it in this place, having fully treated of that already; only will obſerve, that during theſe three years, the Vines ſhould be encouraged as much as poſſible, and the ſhoots not left too long, nor too many in number on each root, that they may be duly ripened and prepared for bearing the fourth year, which is the ſooneſt they ſhould be forced; for when any ſorts of fruit-trees are forced by fire too young, they ſeldom continue long in health, ſo that what fruit they produce is ſmall, and not well-flavoured; therefore, in being over haſty to ſave a year or two, very often the whole deſign miſcarries; for unleſs the trees are in a proper condition to bear much fruit, it is not worth while to make fires for a ſmall quantity of ſtarved ill-taſted fruit, the expenſe and trouble being the ſame for ten or twelve bunches of Grapes, as it will be for a hundred or more.

Theſe Vines ſhould not be forced every year, but with good management they may be forced every other year, though it would be better if it were done only every third year; therefore, in order to have a ſupply of fruit annually, there ſhould be a ſufficient quantity of walling built to contain as many Vines as will be neceſſary for two or three years, and by making the frames in front moveable, they may be ſhifted from one part of the wall to another, as the Vines are alternately forced; therefore I would adviſe about forty feet length of walling to be each year forced, which is as much as one fire will heat; and when the Vines are in full bearing, will ſupply a reaſonable quantity of Grapes for a middling family; but for great families, twice this length will not be too much.

In moſt places where theſe hot walls have been built, they are commonly planted with early kinds of Grapes, in order to have them early in the ſeaſon; but this I think is hardly worth the trouble, for it is but of little conſequence to have a few Grapes earlier by a month or ſix weeks, than thoſe againſt common walls, therefore I ſhould adviſe, whenever a perſon is willing to be at the expenſe of theſe walls, that they may be planted with ſome of the beſt kinds of Grapes, which rarely come to any perfection in this country without the aſſiſtance of ſome artificial heat, of which the following ſorts are the moſt valuable.

The Red Muſcat of Alexandria.
The White Muſcat of Alexandria.
The Red Frontinac.
The White Frontinac.
The Black Frontinac.

When the Vines which are planted againſt the hot walls are grown to full bearing, they muſt be pruned and managed after the ſame manner as hath been directed for thoſe againſt common walls, with this difference only, viz. that thoſe ſeaſons when they are not forced, the Vines ſhould be carefully managed in the ſummer for a ſupply of good wood, againſt the time of their being forced, ſo that it will be the better method to diveſt the Vines of their fruit, in order to encourage the wood; for as few of the ſorts will ripen without heat, it is not worth while to leave them on the Vines during the ſeaſon of reſting, except it be the common Frontinacs, which in a good ſeaſon will ripen without artificial heat, but even on theſe, I would not adviſe many Grapes to be left during the years of their reſting; becauſe as the deſign of this is to encourage and ſtrengthen them, therefore all poſſible care ſhould be had that the young wood is not robbed by overbearing; for thoſe years when the Vines are forced, the joints of the young wood are generally drawn farther aſunder, than they ordinarily grow in the open air; ſo that when they are forced two or three years ſucceſſively, the Vines are ſo much exhauſted, as not to be recovered into a good bearing ſtate for ſome years, eſpecially if they are forced early in the ſeaſon; or where great care is not taken in the ſummer to let them have a proper ſhare of free air, to prevent their being drawn too much, and alſo to ripen their ſhoots. Thoſe years when the Vines are forced, the only care ſhould be to encourage the fruit, without having much regard to the wood, ſo that every ſhoot ſhould be pruned for fruit, and none of them ſhortened for a ſupply of young wood, becauſe they may be ſo managed by pruning in the years of their reſting, as to repleniſh the Vines with new wood. Thoſe Vines which are deſigned for forcing in the ſpring, ſhould be pruned early the autumn before, that the buds which are left on the ſhoots, may receive all poſſible nouriſhment from the root, and at the ſame time the ſhoots ſhould be faſtened to the trellis in the order they are to lie; but the glaſſes ſhould not be placed before the Vines till about the middle or end of january, at which time alſo the fires muſt be lighted, for if they are forced too early

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in the year they will begin to ſhoot before the weather will be warm enough to admit air to the Vines, which will cauſe the young ſhoots to draw out weak, and thereby their joints will be too far aſunder, conſequently there will be fewer Grapes on them, and thoſe bunches which are produced will be ſmaller than when they have a ſufficient quantity of air admitted to them every day.

If the fires are made at the time before directed, the Vines will begin to ſhoot the middle or latter end of februaary, which will be ſix weeks earlier than they uſually come out againſt the common walls, ſo that by the time that other Vines are ſhooting, theſe will be in flower, which will be early enough to ripen any of theſe ſorts of Grapes perfectly well. The fires ſhould not be made very ſtrong in theſe walls, for if the air is heated to about ten degrees above the temperate point on the botanical thermometers, it will be ſufficiently warm to force out the ſhoots leiſurely, which is much better than to force them violently. Theſe fires ſhould not be continued all the day time, unleſs the weather ſhould prove very cold, and the ſun does not ſhine to warm the air, at which times it will be proper to have ſmall fires continued all the day; for where the walls are rightly contrived, a moderate fire made every evening, and continued till ten or eleven of the clock at night, will heat the wall, and warm the incloſed air to a proper temperature; and as theſe fires need not be continued longer than about the end of april (unleſs the ſpring ſhould prove very cold,) the expenſe of fuel will not be very great, becauſe they may be contrived to burn coal, wood, turf, or almoſt any other ſort of fuel; though where coal is to be had reaſonable, it makes the eveneſt and beſt fires, and will not require ſo much attendance. When the Vines begin to ſhoot, they muſt be frequently looked over to faſten the new ſhoots to the trellis, and rub off all dangling ſhoots; in doing of which great care muſt be taken, for the ſhoots of theſe forced Vines are very tender, and very ſubject to break when any violence is offered. The ſhoots ſhould alſo be trained very regular, ſo as to lie as near as poſſible to the eſpalier, and at equal diſtances, that they may equally enjoy the benefit of the air and ſun, which is abſolutely neceſſary for the improvement of the fruit. When the Grapes are formed, the ſhoots ſhould be ſtopped at the ſecond joint beyond the fruit, that the nouriſhment may not be drawn away from the fruit in uſeleſs ſhoots, which muſt be avoided as much as poſſible in theſe forced Vines; upon which no uſeleſs wood ſhould be left, which will ſhade the fruit, and exclude the air from it by their leaves.

As the ſeaſon advances and the weather becomes warm, there ſhould be a proportionable ſhare of free air admitted to the Vines every day, which is abſolutely neceſſary to promote the growth of the fruit; but the glaſſes ſhould be ſhut cloſe every night, unleſs in very hot weather, otherwiſe the cold dews in the night will retard it. The bunches of the White Frontinac ſhould alſo be carefully looked over, and the ſmall Grapes cut out with very narrow-pointed ſciſſars, in order to thin them, for theſe berries grow ſo cloſe together on the bunches, that the moiſture is detained between them, which often occaſions their rotting; and the air being excluded from the middle of the bunches, the Grapes never ripen equally, which by this method may be remedied, if done in time; and as theſe Grapes are protected by the glaſſes from the blights which frequently take thoſe which are expoſed, there will be no hazard in thinning theſe Grapes ſoon after they are ſet, at which time it will be much eaſier to perform this operation, than when the Grapes are grown larger, and conſequently will be cloſer together; but in doing this the bunches muſt not be roughly handled, for if the Grapes are the leaſt bruiſed, or the bloom which there naturally is upon them, be rubbed off, their ſkins will harden, and turn of a brown colour, ſo that the fruit will never thrive after; therefore the ſciſſars which are uſed for this purpoſe, ſhould have very narrow points, that they may be more eaſily put between the Grapes without injuring the remaining ones. The other ſorts of Grapes which I have recommended for theſe hot walls, not producing their fruit ſo cloſe together on the bunches they will not require this operation, unleſs by any accident they ſhould receive a blight, which often occaſions a great inequality in the ſize of the Grapes; which, whenever it thus happens, will require to be remedied by cutting off the ſmall Grapes, that the bunches may ripen equally, and appear more ſightly.

By the middle of june theſe Grapes will be almoſt full grown, therefore the glaſſes may be kept off continually in the day time, unleſs the ſeaſon ſhould prove very cold and wet, in which caſe they muſt be kept on, and only opened when the weather is favourable; for as the racy vinous flavour of theſe fruits is increaſed by a free air, ſo during the time of their ripening, they ſhould have as large a ſhare as the ſeaſon will admit to be given them.

Before the Grapes begin to ripen, they muſt be carefully guarded againſt birds, waſps, and other inſects, otherwiſe they will be deſtroyed in a ſhort time: to prevent which, the Vines ſhould be carefully covered with nets ſo as to exclude the birds, who make great havock with the Grapes, by breaking their ſkins; and if there are a few twigs covered with birdlime placed here and there on the outſide of the nets, it will be of ſervice, becauſe the birds are often ſo bold as to attempt to break the nets to get to the Grapes; which, if they attempt, they may be ſo entangled on theſe twigs, as not to get looſe; and whenever that happens, they ſhould not be diſengaged, but ſuffered to remain to keep off their companions; and if they get off themſelves, it will have the deſired effect, for there will few other birds come to the ſame place that ſeaſon, as I have more than once experienced.

As to the waſps, the beſt method is to hang up ſome phials about half filled with ſugared water, and rub the necks of the phials with a little honey, which will draw all the waſps and flies to them, which, by attempting to get at the liquor, will fall into the phials and be drowned; theſe phials ſhould be carefully looked over once in three or four days to take out the waſps and deſtroy them, and to repleniſh the phials with liquor. If this be duly obſerved, and the phials placed in time, before the Grapes are attacked, it will effectually prevent their being injured; but where theſe precautions are not taken, the Grapes will be in danger of being abſolutely deſtroyed; for as theſe early Grapes will ripen long before any others againſt common walls, they will be in much more danger, there being no other fruit for them at that ſeaſon in the neighbourhood; whereas when Grapes in general begin to ripen, there is a quantity in almoſt every garden; ſo that if they deſtroy a part in each garden, yet there will be a greater chance to have ſome eſcape, than where there is only one wall for them to attack.

Theſe ſorts of Grapes being forced in the manner before directed, will begin to ripen early in auguſt, eſpecially the Black and Red Frontinacs, which will be fit for the table a fortnight earlier than the other ſorts; but as the deſign of forcing them is to have them in as great perfection as poſſible in this climate, they ſhould not be gathered until they are thorough ripe, for which reaſon ſome of the later ſorts ſhould be left on the Vines till ſeptember; but then the glaſſes ſhould be kept over them in wet and cold weather to protect the fruit from it, but whenever the weather is fair, the glaſſes muſt be opened to let in the free air, otherwiſe the damps, ariſing from the earth at that ſeaſon, will cauſe a mouldineſs upon the Grapes, which will rot them; ſo that if the ſeaſon ſhould prove very cold and wet while the fruit is upon the Vines, it will be proper to make a ſmall fire every night to dry off the damps, and prevent this injury. Moſt people in England gather their Grapes too ſoon, never ſuffering them to remain on the Vines to ripen perfectly, even in the warmeſt ſeaſons, when, if they are left on till after Michaelmas, they will be good.

[Directions for the management of Vines in the Hot-houſe or Pine Stove.

Having a Hot-houſe built according to the inſtruc-

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tions given under the article Stoves: and having taken the proper precautions to lay it dry by drains, and by a floor of chippings of ſtone, coarſe gravel, broken bricks or lime rubbiſh, eight or ten inches thick, over which a thin layer of fine loam may be well puddled to fill up the chinks, if neceſſary, on account of having a retentive clay ſoil or a barren ſand; and having given the whole a fall of ſix or eight inches; unleſs the ſoil ſhould happen to be a rich ſandy loam, fill up the area with a compoſt-mould compoſed of one fourth ſtrong loam; one fourth turf from a paſture where the ſoil is a ſandy loam, one fourth ſweepings or ſcrapings of pavements or hard roads, one eighth rotten cow and ſtable-yard dung mixed, and one eighth of vegetable mould from decayed oak leaves: the graſs muſt be well rotted, and the whole worked together till it is uniformly mixed. Where ſandy loam cannot be had, common ſand may be uſed; and the mould of rotten ſticks, or old woods, or from hollow trees, may be ſubſtituted for decayed leaves.

This border being prepared, if the weather will permit, the Vines may be planted at the end of February or the beginning of March, in front of the Hot-houſe; having firſt taken the precaution to put a little moſs round the upper part of each ſtem, with two or three folds of paper over it, tied with baſs matting; to prevent the eyes from being injured in putting the plants through the holes in the wall.

Oppoſite to each rafter, and cloſe to the front wall, make a hole two feet over, and one foot deep; make the mould taken out of the holes fine, and add a little of the compoſt. Turn the plant carefully out of its pot, and put the upper part through the hole. If the ſhoot will juſt reach the bottom of the rafter, when planted, it will be ſufficient, but as the earth may ſettle a little, it is better to allow two or three inches for this circumſtance. In cloſing the mould to the plant care ſhould be taken to preſerve the roots, their fibres being exceedingly brittle. Lay a thin coat of rotten dung over the mould, and give the plant a gentle watering: then take off the bandage, and faſten the top of the ſhoot to the rafter.

Only one ſhoot ſhould remain on each plant. Two may be left for a time, but when one is ſecure, the other muſt be taken off, but not cloſe to the old wood, as that would occaſion it to bleed.

From the time the Vines begin to grow, they will require conſtant watering, eſpecially in dry weather, and before the roots have penetrated deep into the border.

Train a ſhoot up to each rafter, and if the rafters be not a ſufficient depth to keep the leaves of the Vines from touching the glaſs, fix iron pins of about nine inches in length, at proper diſtances under each rafter; theſe ſhould have a ſmall hole or eye at the bottom, through which a ſmall iron rod or ſtrong wire ſhould be thruſt, for the ſupport of the branch. The pins and wires muſt be painted.

The Vine-plants will frequently ſhow fruit at one year old, but this ſhould not be ſuffered to ſtand, except a ſingle bunch, if wanted to aſcertain the ſort.

During the ſummer, water the roots conſtantly; keep them regularly faſtened to the rafters; diveſt them of their wires and lateral ſhoots; and above all, guard them againſt the depredations of the red ſpider and other inſects.

The Vines may be permitted to run two-thirds of the length of the rafters, twenty or twenty-five feet, before they are ſtopped: and thoſe which grow remarkably ſtrong, may be ſuffered to run the whole length of the rafters, or about thirty feet.

After theſe ſhoots are ſtopped, which is done by pinching off their tops, they will, in general, puſh out laterals, at three or four eyes on the upper part of the ſhoot; it will be prudent to permit theſe to grow twelve or fourteen inches before their tops are pinched off. Theſe in their turn, will puſh out ſecondary laterals, which ſhould be pinched off at the ſecond or third joint; and thus the ſap may be diverted till the end of the ſeaſon.

November and the beginning of december, when the leaves begin to fall, is the beſt ſeaſon for pruning. The firſt ſeaſon, ſuppoſing the Vines to have grown with equal vigour, the ſhoots may be pruned alternately to three, four or five eyes, and to about twenty-one or twenty-two feet. But if they have grown moderately ſtrong, the ſhoots ſhould be pruned down to about eleven feet.

By this alternate pruning, the former ſhoots will make fine wood for the ſucceeding ſeaſon, and the latter will produce a crop of fruit; after which, theſe fruit-bearing ſhoots muſt all be cut down nearly to the bottom of the rafters. But when any of the plants appear weak, and have not made ſhoots more than eight, ten, or twelve feet long, it will be proper to prune every ſhoot down to two, three or four eyes.

In pruning, take off the ſhoots, with a clean ſloping ſtroke, about half an inch above the eye. Make choice of a bold eye to terminate the ſhoot, and faſten it completely to the rafter.

Vines in pine-ſtoves begin to make weak ſhoots early in january; the houſe being then kept warm on account of early crops raiſed in moſt hot-houſes. But when it is kept to a proper degree of heat for pines during the winter months, the Vines will ſeldom begin to puſh till about the middle of february. It is uſual to ſee them puſh only towards the ends of the ſhoots, the other eyes remaining in a dormant ſtate, and cauſing a long ſpace of naked wood. To make the eyes puſh more generally, as ſoon as the ſap is in motion, keep the houſe, for a ſhort time, a few degrees warmer than uſual. In the morning the thermometer ſhould be 5° or 6° above temperate, and in the day-time the houſe ſhould be kept as warm as the weather will permit. It will alſo be neceſſary to guard the ſtem of the Vine on the outſide againſt froſt; for one ſevere night would greatly injure, if not totally deſtroy, the hopes of a crop. This may be done, by wrapping the part expoſed round with moſs, faſtened thick with baſs matting. Leave this covering on till ſpring froſts are over, and then waſh the ſtem well to clean it.

When Vines break out freely, they puſh at almoſt every eye, nearly at the ſame time. It is eaſy to diſtinguiſh which will make the moſt promiſing ſhoots even as ſoon as the eyes begin to break; and by the time they are three or four inches long, the bunches are very diſtinguiſhable. The Vines ſhould be diveſted of the leaſt promiſing and ſupernumerary ſhoots as ſoon as poſſible, as it will greatly contribute to invigorate the remainder.

Caution ſhould be obſerved not to leave too abundant a crop; for few bunches in a high ſtate of perfection, are preferable to many in a leſs. Therefore in caſe the ſhoots which are pruned to about twenty-two feet, ſhould ſhow two or three bunches at almoſt every eye, as they will frequently do, no more ſhould be permitted to ſtand than the leading ſhoot, and four or five on each ſide; and the remaining ſhoots ſhould have only one bunch left on each, which ſhould be the beſt proportioned and moſt regularly formed. The ſhoots ſhould be left four or five feet apart on each ſide, and one ſhoot as near the bottom as it can be got. Train them regularly on each ſide of the rafter, and pinch off the top of each as ſoon as it begins to interfere with the adjoining ſhoot above; or in general, let the ſhoots be ſtopped at the ſecond or third joint above the bunch.

During the time of flowering, ſhould the weather prove hot and dry, with briſk winds, the berries of many kinds of Grapes, particularly the blue Frontenac, white Sweetwater, and black Damaſcus, are liable to fall off at the time of their ſetting, and the remainder are in general ſmall and without ſtones. This proceeds from the calyx adhering to and drying upon the germ, and thereby preventing its impregnation. It is proper therefore at this period to water the roots of the Vines plentifully, to keep the houſe as cloſe as the weather will permit, and to water the walks and flues in the hot-houſe conſtantly, eſpecially late in the evening, when the glaſſes ſhould be immediately cloſed. The heat of the houſe will exhale the moiſture, and raiſe a kind of artificial dew, which, by falling upon the calyx, will cauſe it to expand and fall off. But although Grapes ſet beſt in a cloſe moiſt air, yet the houſe ſhould not be violently hot during the time of their ſetting.

When the weather is ſerene, tranſparent drops of dew will be obſervable in a morning on the points of the leaves. This is the moſt favourable indication that can happen at the ſeaſon of the Vine's flowering: for the Grapes ſet well, and the growth of the berries is extremely rapid, when the Vines are in this ſtate.

Pull off all ſuperfluous ſhoots, and diveſt the young ſhoots of all their laterals, during the ſummer. Do this without reſerve, becauſe every ſhoot left more than twenty feet long at the laſt year's pruning, with intent to produce a crop of fruit, muſt be cut down nearly to the bottom at the next winter's pruning.

But all the reſt of the Vines that were cut down at the laſt year's pruning, ſuppoſe one at every alternate rafter, muſt be trained with one ſhoot each, exactly the ſame in every reſpect as in the preceding ſeaſon.

When Grapes are at their laſt ſwelling, are becoming tranſparent, and change from green to red or black, and till they are nearly on the point of being ripe, the Vines will require a plentiful ſupply of water, eſpecially if the ſeaſon prove hot and dry. The ſituation of Vines in a pine-ſtove may be conſidered as ſimilar to that of very hot climates, where they cannot have Vineyards without a command of water.

After the fruit is cut, the Vines will not require any other management till the pruning ſeaſon, but taking off their lateral ſhoots in the ſame manner as in the preceding year.

At the next winter's pruning all the Vines that produced a full crop of fruit, ſhould be cut down nearly to the bottom, that is to the lowermoſt ſummer ſhoot, which ſhould alſo be cut down to the firſt or ſecond eye.

But all thoſe Vines that were cut down nearly to the bottom the preceding ſeaſon, and which will, in general, have made very ſtrong wood, muſt be left to the length of twenty-one or twenty-two feet each, with intent to produce a full crop of fruit the following ſeaſon.

The management of the Vines during the next ſummer, will be nearly the ſame as in the preceding one: only as they have increaſed in ſtrength and ſize, they will be enabled to produce and ſupport a larger burden of fruit.

The crop ſhould, at all times, be proportioned to the ſize and vigour of the Vine: but eſpecially whilſt Vines are young, great moderation ſhould be uſed as to the number of bunches that are allowed to ripen.

The ſhoots may now be laid rather cloſer than in the preceding ſeaſon, and two bunches may remain on ſtrong and vigorous ſhoots, eſpecially of thoſe kinds which do not produce large bunches. The bunches ſhould be well thinned when the berries are about the ſize of a ſmall ſhot. The main ſhoulders, as alſo the leſs projecting parts of the bunch, ſhould be ſuſpended by ſmall ſtrings to the rafters, and every part raiſed to an horizontal poſition. In thinning the berries, great care ſhould be taken to leave all the moſt projecting ones on every ſide of the bunch. In very cloſe-growing bunches, it will be neceſſary to clip out more than two-thirds of the berries; in ſome, one half; but in the looſe-growing kinds, one third is generally ſufficient. Thus the remaining berries will ſwell well, grow to a great ſize, and not be ſubject to rot; as they are apt to do in a hot-houſe, when they are wedged together.

Not only the rafters or roof of the hot-houſe, but the back wall alſo above the flue, may be furniſhed with fruit.

For this purpoſe, let every fourth or fifth Vine-plant be trained in one ſhoot quite to the top of the rafter, and then directed ſideways ten or twelve feet along the top of the back wall. At the winter's pruning, bring down that part of the ſhoot perpendicularly, and cut it off at one foot above the top of the flue. The next ſpring, encourage only two ſhoots from the two extreme or lowermoſt eyes of each ſhoot ſo brought down, and train them in an horizontal direction one foot above the top of the flue. Theſe ſhoots however will grow with greater readineſs, if they are trained upwards during the ſummer; and they may eaſily be brought to the deſired poſition at the next winter's pruning. They will then form againſt the back wall the figure of the letter T inverted.

In the next ſeaſon the horizontal ſhoots will produce new wood from almoſt every eye, provided all the ſhoots be pinched off from every other part as ſoon as they appear. Lay in the ſhoots from one to two feet apart, according to the kind of Vine.

Train all the ſhoots in a perpendicular direction, and provided they are ſtrong, and vigorous, ſuffer them to grow to the length of five or ſix feet before they are ſtopped; but all theſe ſhoots muſt be cut down to two or three eyes at the next winter's pruning.

Only one ſhoot ſhould be permitted to riſe from each ſpur the following ſeaſon; and although they will in general be ſufficiently ſtrong, and produce two or three bunches a piece, yet only one bunch ſhould remain on each ſhoot: theſe will then be large and fine, and the wood will be greatly benefited by ſuch practice.

Theſe ſhoots muſt be pruned next winter very differently. One ſhoot muſt be left four feet, that next it only a few inches long, and ſo alternately.

The Vines on the rafters will require a management in future ſeaſons nearly ſimilar to that already deſcribed for them; and although it will not be adviſable to prune them alternately ſo near to the bottom of the rafters as was directed for the two preceding ſeaſons, yet it will be frequently found neceſſary to cut an old ſhoot down to the lowermoſt ſummer ſhoot, as near to the bottom of the rafter as can be. The ſide ſhoot, on the other rafters, ſhould not be permitted to ramble over the adjoining lights; but at the end of every ſeaſon it will be proper to cut ſuch ſhoots down to the ſecond or third eye next the old wood, provided the bottom eyes are bold and ſtrong; this muſt be done not only to ſtrengthen the Vines, but alſo to prevent the roof of the houſe from being too much crowded with old wood.

Whilſt the Vines are young, one rafter will ſuffice for a Vine-plant; but when they become older, they will require a larger ſpace; eſpecially the ſtrong-growing kinds, which produce large leaves and bunches. It will be proper therefore to train ſhoots ſideways on the wall-plate, from the ſtem of the plant, immediately at its entrance into the houſe. Theſe ſhoots ſhould be carried up the adjoining rafters, and the plants growing againſt ſuch rafters muſt be taken entirely away; except it ſhould happen that the plant growing againſt ſuch rafter is trained forward to furniſh the back wall.

When a Vine-plant occupies two or more rafters, it will be right to prune occaſionally, particularly whilſt the Vine is young, one or more of ſuch ſhoots down nearly to the bottom of the rafter. This will not only contribute to ſtrengthen the plant, but will afford means to furniſh the rafters with a ſucceſſion of young wood.

When Vine-ſhoots are thus conducted to different rafters, every ſhoot may be conſidered as a ſeparate plant, and muſt be trained up in one ſhoot: from that time it will require a management ſimilar to that already laid down[n].

On the Propagation of Vines.

Beſides the two common modes of propagating the Vine, which are treated of by Mr. Miller, by layers and cuttings; they may alſo be increaſed by ſeeds, by graſting, and by inoculation.

In raiſing Vines from ſeed, it ſhould be ſown at the end of february or beginning of march, in pots filled with light freſh mould, and plunged in a moderate hot-bed, gently ſprinkling the mould from a watering-pot having a fine roſe. Six or eight ſeeds, if gathered from ripe Grapes and carefully preſerved through the winter, will be ſufficient for a ſmall pot, for if ſown too thick, the plants are apt to be drawn and weak. In dry weather water the pots gently every day; but in wet or moiſt weather give them ſo much water only as will keep the mould moiſt till the plants begin to vegetate. Let this be done in the afternoon, when the ſun is going off the frame; which ſhould be ſhut down immediately, and if the heat be not too great, it may remain ſhut during the night. As the heat of the bed decays, add a lining of horſe-dung, to be ſhaken up and repaired,

[n] Speechly, p. 24. and p. 71 to 95.

as occaſion requires, till the plants have got ſufficient ſtrength to do without any bottom heat.

About the end of auguſt take the lights off, that the plants may be hardened before winter, taking care to ſhelter them in frames covered with mats, which will prevent the autumnal froſts from injuring the tender ſhoots.

When the plants are about ſix inches high, tranſplant them ſingly into other pots (deep forty-eights), filled with light freſh mould, taking great care not to hurt the roots, or to break the leaders; then plunge them again into the hot-bed; or if the heat of the old bed be too much decayed, have a new one prepared to receive them. If they grow vigorouſly, they muſt be ſhifted into larger pots (thirty-twos.)

If the plants are above ſix inches high, tie them to ſmall rods, as high as the frames will permit, leaving only one ſtem for the firſt year.

When the leaves begin to drop, pick them carefully off the pots, to prevent the plants from becoming mouldy.

Keep the plants under frames, or in the greenhouſe, in hard winters, to ſhelter them from ſevere froſt. In march or the beginning of april, if from ſeed ripened in this country, plant them out where they are to remain; but if from foreign ſeed, plant only one or two, till it has been aſcertained that they are worth cultivating.

After they are planted, cut them at the third eye, if ſtrong; but at the ſecond, if weakly: at the ſame time rubbing off the lower bud with the finger and thumb [a].

Mr. Speechly recommends the Grapes deſigned for ſeed to remain on the Vine till they are perfectly ripe, when the ſtones are generally of a very dark-brown colour; to take them from the pulp, and to lay them on a ſheet of paper, in ſome airy, but ſhady place to dry, till ſpring.

The intention of raiſing Vines from ſeed being to procure new varieties of Grapes, ſuperior to the old ones; Mr. Speechly recommends, that in the hot-houſe, where a variety of the beſt Grapes is trained, the young branches of two different kinds ſhould be ſo brought together, as ſoon as they ſhow their fruit, that their bunches, in the ſame ſtate of maturity, may admit of being entwined. Attention ſhould be paid to the ſize, the flavour, and the delicacy of the ſkin and fleſh; alſo to the form of the bunch, and the length of the foot-ſtalk.

He remarks that all the Frontinac Grapes are proper to add flavour to other kinds; that the White Muſcat of Alexandria is a good one to be joined with many other ſorts, on account of its large looſe-growing bunches, and large well-flavoured berries; that the White Sweetwater may be coupled with various ſorts that are ſmall and leſs delicate; particularly with the Red Frontinac; the Syrian with the White Muſcat of Alexandria; the Black Hamburgh with the White Frontinac or Sweetwater; the Black Damaſcus with the Grizzly Frontinac; Flame-coloured Tokay with Red Frontinac; White Muſcat of Alexandria with White Sweetwater; Black Frontinac with White Muſcadine; St. Peter's Grape with White Muſcat of Alexandria. Hence he augurs, that the beſt ſorts of Grapes hitherto known, will at ſome future day, be eſteemed only as ſecondary or inferior [b].

This theory may be fanciful, and we cannot ſay any thing deciſive upon it till it has been tried; Mr. Speechly having merely thrown it out to ſtimulate perſons of taſte and curioſity.

It is probable however that many of the preſent varieties of Grapes have been obtained from ſeed, either ſown by hand, or accidentally let fall by birds, &c. And it is undoubtedly the chief, if not the only way to obtain new kinds with us. If therefore it be little practiſed, it is partly on account of the diſtant proſpect of fruit, partly from the hazard of obtaining better kinds than we have already. To this it may be anſwered, that a ſeedling Vine, judiciouſly managed, will produce fruit the third or fourth year; and if proper care and attention be beſtowed on the ſeed ſown, the beſt ſorts may very reaſonably be expected [c].

[a] Forſyth. p. 115. [b] Page 39 to 44. [c] Idem. p. 38 and 44.

On Grafting of Vines.

At the pruning ſeaſon, make choice of cuttings for grafts, or ſcions, from the beſt bearing branches of the ſorts intended to be propagated. In general the bottom part of the laſt year's ſhoot is to be preferred; but in well-ripened vigorous wood, any part of the ſhoot will anſwer, provided it be not too long-jointed. Theſe cuttings ſhould be preſerved in pots filled with light ſandy earth till the grafting ſeaſon.

Vines in a pine-ſtove ſhould be graſted in the beginning of january; but the middle of march is a proper ſeaſon to graft Vines growing in the open air. In general they ſhould be graſted about three weeks before they begin to break into bud.

Upon ſmall ſtocks, not more than an inch in diameter, cleft-grafting is moſt proper; but upon larger ſtocks, whip-grafting is to be preferred. In both methods care ſhould be taken in fitting the ſtock and ſcion together, and the operation ſhould be performed with great exactneſs. Faſten them together with baſs matting, and cover them with clay in the uſual way.

Though the ſcion will ſometimes begin to puſh in a few weeks, yet it will frequently remain dormant two or three months: during this period the ſtock muſt be ſtripped of all its ſhoots, as ſoon as they appear; and to preſerve the ſcion in a vegetative ſtate, the clay muſt be kept moderately moiſt, by wrapping wet moſs round it, and by keeping the moſs conſtantly ſprinkled with water.

When the ſcion has made ſhoots five or ſix inches long, the clay and bandage ſhould be carefully taken off.

But the moſt eligible method with Vines is grafting by approach. In which caſe it is neceſſary, to have the plant intended to be propagated, in a pot. Strong plants, that have been two or three years in pots, are to be preferred; but plants from the nurſery may be potted, and grafted in the ſame ſeaſon, if brought into a hot-houſe or vinery.

Fine Grapes and good wood may be obtained even the firſt ſeaſon, by any of theſe methods, but particularly by the laſt; in which it is obvious that the graft has a double ſupport; namely, from the ſtock, and from the plant in the pot.

In grafting by approach the clay and bandage ſhould remain two or three months after the graft has formed an union; for if it be taken off ſooner, the graft will be very liable to ſpring from the ſtock. The pot ſhould be plentifully ſupplied with water till the month of auguſt, when the graft ſhould be ſeparated from the plant in the pot. Two or three inches of wood below the bottom of the graft may be left, but ſhould be taken clean off at the next winter's pruning.

The Syrian Vine is the moſt proper for ſtocks, and plants raiſed from ſeeds of this ſort, are greatly preferable to plants raiſed either from layers or cuttings for this purpoſe. If the produce of theſe ſeeds ſhould even degenerate to a kind of wildneſs, they will ſtill be the better for ſtocks, becauſe they will on that account, riſe with greater vigour.

The moſt important advantages of grafting are; firſt, that if a wall ſhould have been planted with bad kinds of Vines; inſtead of ſtubbing them up, and making a new border, by which ſeveral years muſt elapſe before the wall can again be completely filled; by grafting, the nature of the Vines may be changed immediately; for good Grapes may be obtained from the ſame year's graft: and in a hot-houſe the grafts, if permitted, will frequently ſhoot thirty or forty feet the firſt ſummer. Secondly, in ſmall Vineries, or Vine-frames, where any great variety could not be had in the common way; it may be procured by grafting different kinds upon the ſame plant. Thus a Syrian Vine, in the hot-houſe at Welbeck, produces ſixteen different ſorts of Grapes.

But the principal advantage of grafting, is the improvement of the various kinds, and particularly the ſmall ones, which generally make weak wood. This may be done by grafting the weak and delicate-growing Vines upon the ſtocks of thoſe which are more robuſt and vigorous. Thus the ſmall blue Frontinac engrafted on the Syrian Vine, produces well-ſized *handſome* bunches, with berries almoſt as large as thoſe of the Black Hamburgh [a].

[a] Speechly. p. 153 to 159.

On propagating Vines by Layers.

Mr. Miller has not given any directions upon this ſubject.

Vines may be increaſed by ſtools in open quarters, in the ſame manner as nurſery-men propagate foreſt trees and ſhrubs; but the beſt way is to train ſhoots that will eaſily bend, on walls, at full length during the ſummer, and in February to lay the fineſt and ſtrongeſt acroſs the foot-path into pots (twenty-fours or ſix-teens) filled with freſh mould, and plunged in the ground about two inches below the ſurface; at the ſame time making an inciſion or two in the old wood, or giving it a twiſt juſt below a joint: they will generally take without notching or twiſting, but it is the ſurer way to do it. Introducing the ſhoots through the bottom of the pots is now laid aſide, becauſe when this method is followed, the layers generally have larger roots below the pots than in them. The layers muſt be cut, leaving two or three ſtrong eyes upon each.

When the ſhoots begin to run, tie them to long ſtakes, to prevent their being broken by the wind. Pick off all the runners and ſide ſhoots, leaving only two or three fine ſtrong ſhoots on each plant, which ſhould be trained at full length during the ſummer.

Cover the ſhoots with good dung or rotten leaves, to keep the mould moiſt; and in very dry ſummers give them a good watering once or twice a week.

By this method, there may be two or three rows of layers from one wall; taking care to lay the branches alternately, and to keep the pots plunged about two inches below the level of the ground. The plants will be well rooted in the pots before autumn, and fit for planting in vineries, hot-houſes, &c.

When they are to be planted out, cut them carefully from the mother Vine, and carry them in the pots to the place where they are to be planted; taking care to preſerve the ball of earth about their roots as much as poſſible, when they are turned out of the pots.

If the ſeaſon be warm and fine, Grapes of early kinds ripen very well on theſe layers before they are taken up; and, if properly managed, they will bear ſome fruit the firſt year after planting. One of the ſtrongeſt ſhoots muſt be left nearly at full length, cutting it as high as the uppermoſt full bud, leaving nothing but round well-ripened wood. If there are three ſhoots, the remaining two ſhould be cut ſo as to leave only two full eyes upon each, which ſhould be trained at full length, to produce fine wood for next year. The ſhoot which was trained the preceding year ſhould then be cut down, leaving only two ſtrong eyes to produce wood for the following year; and ſo on every year, cutting the branches alternately. By ſo doing, the walls will be kept always covered with fine healthy bearing wood; and much time will be ſaved in furniſhing hot-houſes and vineries[1].

On propagating Vines by Cuttings.

Mr. Miller has treated largely upon this mode of propagation, and this only: ſome improvements however may be ſuggeſted even here from late experience.

The cuttings ſhould be choſen from thoſe ſhoots which have the ſhorteſt joints, always having one or two joints of the laſt year's wood, cutting it perfectly ſmooth and a little rounding at the lower end, and as near to a joint of the old wood as poſſible. Cut the upper end ſmooth and ſloping towards the wall; or if in beds or borders, let the cut always face the north. Againſt piers or walls, ſet them at about a foot diſtance, and ſo deep as to have the ſecond eye level with the ground; remembering always to rub off the lower eye. Pick off all runners and ſide ſhoots, leaving only two ſhoots, which ſhould be trained at their full length. In January or February they may be pruned, leaving one or two eyes on each, according to the ſtrength of the ſhoot.

In the firſt year, eſpecially if the ſummer be dry, and they have not been duly watered, they will make little progreſs: but in the ſecond year it will be plainly diſcerned which is the ſtrongeſt plant, and that only ſhould be left to fill up the vacant ſpace on the wall. The reſt ſhould be taken up and planted in other ſituations where they are wanted.

Mr. Speechly[2] offers what he thinks a more advantageous method, from only a ſingle eye and about three inches and an half of the laſt year's wood: plants thus raiſed being, as he has experienced, greatly preferable to cuttings raiſed in the common way, as having more abundant roots, growing ſhorter, being more prolific, and coming into bearing the ſecond year. This method firſt occurred to the Rev. Mr. Michell, a profound philoſopher, who has explained the ſubject at length, in a letter to Mr. Speechly, which he has printed as a note.

Make choice of the cuttings after a warm dry ſeaſon. Each ſhould have two inches of the old wood, with one eye of the new. When the Vines are pruned there will be great choice: ſelect ſuch as are of a middling ſize, and have the wood round and perfectly ripened. Cut the bottom part perfectly ſmooth; and if any of the old dead ſnags remain, cut them off cloſe to the quick wood, and cut the top ſloping towards the back of the hot-houſe or frame. Put only one cutting in each pot, which ſhould be a deep forty-eight, filled with rich light mould well prepared. The plants will thus grow much ſtronger and quicker than when many are crowded together, and the ſun and air will have a freer admiſſion to ripen the wood. When the plants begin to get ſtrong, and the pots full of roots, ſhift them into larger pots (thirty-twos.)

This mode is beſt adapted to private gardens. They who raiſe plants for ſale in larger quantities, and cannot conveniently ſpare ſo much room, may plant three or more cuttings in each pot. A method frequently practiſed by nurſerymen and gardeners, who wiſh to have their plants fit for ſale the ſame year, is to ſet them in pots in the hot-houſe, among the tan, on the flues, or round the curbs of the pit. They may be raiſed in this manner, either ſingly in ſmall pots, or ſeveral together in larger ones, tranſplanting them ſingly when they have taken root. In this caſe it will be neceſſary to have a hot-bed ready to plunge the pots in as ſoon as they are tranſplanted. Thus their growth will be forwarded very much, and before autumn they will be fit for ſale[3].

Mr. Michell prefers planting the cuttings in the bark without pots, both becauſe he thinks the pots prevent the heat from being ſo kindly, and that ſo many more cuttings may be planted in the naked bark; four or five inches diſtance being ſufficient, provided they are not ſuffered to grow there too long before they are potted. For cuttings forced in this way he does not think that old wood is either neceſſary or uſeful; a hot-houſe ſummer upon them being fully ſufficient to ripen their wood, if not even almoſt to over-ripen it. This learned gentleman's reaſons for preferring the ſhort cuttings with a ſingle eye are very philoſophical, and are well confirmed by experience[4].

Mr. Speechly recommends forward ſhoots forced early, for cuttings; theſe having a longer ſummer to ripen the wood. He reprobates the choice of ſhoots of uncommon ſize, as abounding too much with pith: and directs an attention to the following particulars: 1. The eye or bud ſhould be large, prominent, and bold. 2. The ſhoots ſhould be moderately ſtrong, round and ſhort-jointed. 3. The texture of the wood ſhould be cloſe, ſolid, and compact. But the beſt criterion is its ſolidity and having very little pith[5].

On the Pruning and Training of Vines.

The wood muſt be ſtrong, or the bunches will be ſmall. If the latter be the caſe, cut the plant down to two or three eyes, in order to have ſtrong wood for next year. If there be much old naked wood on the Vines, with ſome ſmall weak ſhoots at the extremities, cut them down as near the ground as poſſible: you will then have no fruit for that year. Or you may cut every other ſhoot; leaving the old ones to produce ſome ſmall Grapes. The next year, there will be plenty of fine wood, provided the ſtrongeſt ſhoots have

[1] Forſyth, p. 118 to 120.

[2] Page 53. [3] Forſyth, p. 115 to 118. [4] Speechly, p. 55. note. [5] Idem. p. 57.

been

been nailed in, and all the ſide ſhoots pinched off, or cut out with a ſharp penknife cloſe to the eye: but never twiſt them, for by twiſting you hurt the bud that is to produce fruit next year: always obſerving to cut as near to a bud as poſſible, and taking care to lay in the wood very thin in ſummer, that the ſun and air may be freely admitted to ripen it. Keep the ſhoots nailed to the wall, to prevent their being broken by high winds; and pick off all the ſide ſhoots every time they are nailed, which ought to be done ſeveral times during the ſummer months, according to the quickneſs of their growth. In fine weather they will require to be looked over once every fortnight or three weeks. Never ſuffer the Vines to run together in a cluſter, and to mat; for that will infallibly ruin them for bearing the ſucceeding year. Top the ſhoots as ſoon as the Grapes come to the ſize of ſmall peas, a joint or two above the fruit; but never top the leading ſhoot, nor that which you intend ſhould bear fruit next year.

In the ſecond year never prune till the beginning of february, except in very forward ſeaſons, owing to a fine autumn and mild winter, after the wood has been well ripened in the preceding ſummer; in which caſe the Vines will be more forward in the middle of january, than in backward ſeaſons at the end of march. It is common to begin pruning ſoon after the fall of the leaf; but if a froſt ſets in before the wood is hard, it will be very much injured. We have often fine weather in october and november, which helps to ripen the wood after wet autumns.

When the leaves begin to fall, take a ſoft broom, and ſweep them off upwards gently; which will aſſiſt in hardening the wood.

In pruning, always make choice of the ſtrongeſt and longeſt ſhoots, leaving them as long as the eyes are good and plump, and the wood round; but by no means leave them when they become flat, for ſuch ſeldom bear fruit; or if they do, it will be very ſmall. Never lay in any that has leſs than from fifteen to thirty good eyes, according to the ſtrength of the ſhoot; which will produce two bunches from every good eye. The ſhoots that have borne fruit in the preceding year ſhould be cut out next year, except when you want to fill the wall, and the ſhoots are very ſtrong. Never leave any but fine ſtrong wood, always cutting at the ſecond, third or fourth eye; rubbing the loweſt bud off, and that which comes out at the joint between the new and the laſt year's wood. By theſe means you will get as much fruit from theſe ſhort ſhoots as you would have by the common way of pruning. Obſerve to leave two or three of the ſtrongeſt ſhoots for next year's bearing wood, and never top them. If there is not room to train them, you may lead them over the tops of the other trees, if the Vines are planted againſt piers; or you may run them behind the ſtandards, and thus cover the whole of the wall. You may alſo run the ſhoots at the bottom of the wall behind the dwarf trees; or you may tack them down over the top of the wall, on the other ſide, provided the walls are low; you may alſo train them over the tops of trees on each ſide; which never does any harm to the trees below, provided they are kept nailed to the wall; they may even be planted on north and eaſt aſpects, and trained over the tops of the ſouth and weſt walls to fill the upper parts, till the Peaches and Nectarines cover them.

Although the foregoing directions are given chiefly for Vines on walls in the open ground, yet the ſame method may be practiſed for forced Grapes.

The following is the method which Mr. Forſyth purſued with ſome Vines which were planted againſt the piers of a ſouth wall, among old peaches, nectarines, &c.

When he took them in hand, the fruit was ſo ſmall and hard as to render it unfit to be ſent to table. The Vines were trained upright, which cauſed them to grow ſo luxuriantly that the ſap flowed into the branches inſtead of the fruit.

He let two ſtrong branches grow to their full length without topping them in the ſummer. The next year he trained theſe in a ſerpentine form, leaving about thirty eyes on each ſhoot, which produced one hundred and twenty fine bunches of Grapes, weighing from one pound to a pound and a quarter each. Next year he trained five plants in the ſame way, allowing the ſhoots intended for bearing wood to run their full length in ſummer, training them wherever there was a vacancy between the old trees; and where there were none, running them along the top of the wall without topping them. In winter he trained them in a ſerpentine manner ſo as to fill the wall as regularly as poſſible: they were as productive as thoſe in the former year.

After a three year's trial, he followed the ſame practice with the whole; and in the year 1793 ſent, for the uſe of the king and royal family, three hundred and ſeventy-eight baſkets of Grapes, each weighing about three pounds, without planting a ſingle Vine more than there were the preceding year, in which he was able to ſend only fifty-ſix baſkets of the ſame weight, and thoſe ſo bad and ill-ripened, that they were not fit to be ſent to table.

Obſerve to bring the ſhoots as near as poſſible from the bottom of the Vine, that the wall may be well covered. When the walls are high, and the ſhoots from the ſerpentine branches ſtrong, they may ſometimes remain; but if the walls are low, and the ſerpentine branches produce weak ſhoots, they ſhould be cut out in the autumnal pruning, and the ſtrongeſt of the young wood trained up in their room [r].

For the method of pruning and training Vines in ſtoves, ſee Directions for their management in the Hot-houſe given above.

On Watering the Vine.

The Vine requires a warm dry ſoil in England, yet in a hot dry ſummer it ſhould have a plentiful ſupply of water, eſpecially in the hot-houſe. In hot countries the Vine is ſaid to grow moſt luxuriant near water, and the alluſions to this circumſtance in Scripture are very frequent. In Madeira, we are told, they do not attempt to plant Vineyards, except where there is a command of water: and in Spain a copious vintage depends upon abundant rains [s].

With reſpect to Vines on walls in the open air, after the Grapes are ſet and begin to ſwell, they may be watered three times a week, if the weather be hot and dry, with the Barrow Engine; ſprinkling them all over the leaves and fruit, preſſing your forefinger over the top of the pipe, to throw the water as fine as ſmall rain. This will keep the Vines clear from duſt and inſects, and promote the ſwelling of the fruit; but it muſt never be done when the nights are cold and froſty. The beſt time for the operation is about four o'clock, in a ſouth aſpect; for the ſun will then be going off the wall, and the leaves will have time to dry before night. In very hot dry weather, a good bottom watering once a week, will forward the ſwelling of the fruit; but when the fruit is fully ſwelled, it ſhould be left off, particularly when the nights begin to be cold, for it would then hurt the flavour of the fruit [s].

With reſpect to Vines in hot-houſes, proviſion being made by drains, &c. as above directed, to keep the border in a dry ſtate during winter, gentle and frequent waterings ſhould be given in ſpring, when the weather is dry.

When the Vines are in flower, even the frequent ſprinkling the flues and walks in a hot-houſe; and the border, &c. in a vinery, will greatly benefit the plants. A good heat however ſhould be kept up, becauſe Grapes ſet beſt in a vapourous heat of between ſeventy and ſeventy-five degrees.

In a hot-houſe, if the walks, &c. are ſprinkled when there is a ſtrong ſun, the exhaled moiſture will inſtantly form a kind of artificial dew, which is exceedingly nouriſhing to Grapes in their infant ſtate.

When ſtrong fires are kept, if the flues are frequently ſprinkled with water, a ſteam will ariſe, which has alſo a good effect. With this view, contrivances have been made to introduce hot ſteam into ſtoves.

When the Grapes are grown to the ſize of ſmall peas, the Vines will require a conſtant ſupply of water, till they are full grown. If the border be kept in a moderate moiſt ſtate during the above period, the Vines will

[r] Forſyth, p. 123 to 127. [s] Speechly, p. 85, 87, 140.
[s] Forſyth, p. 127.

grow luxuriant, and the Grapes will ſwell to a large ſize. But when the Grapes are nearly ripe, the waterings ſhould be leſs frequent, as too much water at that ſeaſon would tend to debaſe their flavour.

When the crop is gathered, the border ſhould be frequently watered, till the leaves of the Vines begin to change. But from that time, and during the winter, the border ſhould be kept in a dry ſtate.

It does not ſeem neceſſary to water the leaves of Vines growing in the ſtove, except they ſhould be infected with inſects. But during a mild rain, the upper lights may be let down, that the Vines on the back wall may reap the benefit of it.

During winter, the Vine-border may be watered with the drainage of dunghills; but this ſhould only be applied when the roots are in a ſtate of inaction[b].

On the Preſervation of Vines and Grapes.

Although the Vine is not very liable to be infeſted with inſects, when growing in the open air; yet few plants ſuffer more from their ravages than when trained under glaſs, eſpecially in Pine-ſtoves: the conſtant warmth kept up in theſe houſes during winter ſerving to keep up the ſucceſſion of them from one ſeaſon to another.

A ſpecies of Acarus, commonly called the Red Spider, is the moſt pernicious; theſe inſects frequently attack the leaves of the Vine early in the ſummer, and their increaſe in dry weather being very quick and great, they will ſoon greatly damage, and in time totally deſtroy the foliage. They generally reſide and breed on the under ſide of the leaves; and when they are very numerous they work a fine web all over it, and round the edges. The upper ſurface appears full of very ſmall dots or ſpots of a light colour.

The Red ſpider however does not confine itſelf to the leaves, but attacks the bunches of Grapes alſo, eſpecially when they are almoſt ripe; and as they extract the juice from them, the Grapes ſoon become ſoft, flabby and ill-flavoured.

The Thrips, an hemipterous inſect, ſometimes attacks the young ſhoots of Vines growing in the open air, eſpecially thoſe which are weak or newly planted. If young ſhoots are injured by late ſpring froſts, the tender part of the leaf will curl up, and change to a dark-brown colour: in this ſtate the Thrips attacks them with great greedineſs, eſpecially the White Sweetwater and Muſcadine. This inſect however is ſeldom injurious to Vines growing in the open air, except in the ſpring; to thoſe in the hot-houſe they are moſt hurtful when the Grapes are nearly ripe; they attack the bunches as well as the leaves, and commonly prey upon the extremities of the berries, particularly that next the foot-ſtalk. In white Grapes, the part injured changes to a dark colour, the foot-ſtalk turns black, and the berry withers.

Aphides or Plant-lice ſometimes infeſt the young ſhoots of Vines, but as they grow very rapidly, theſe inſects do not often greatly injure them.

Two or three ſpecies of Cocci ſometimes infeſt the Vine, as Coccus heſperidum and adonidum. The latter is ſometimes miſtaken for the crimſon tinged Pine-bug. Theſe abound in hot-houſes and conſervatories, and breed upon the Coffee Tree, Oleander, &c. but they are not very prejudicial to the Vine.

All theſe inſects, the Acarus excepted, may be deſtroyed by a ſtrong fumigation of tobacco. For the method of doing this, ſee the article STOVES.

It would be improper to fumigate late in the ſpring, or in the ſummer, becauſe the ſmoke would injure the Grapes, by giving them a diſagreeable flavour. Where inſects have been numerous the preceding ſeaſon, they muſt be deſtroyed effectually before the Vines come into flower; this may be done by fumigating two or three different times, at the diſtance of three or four days between each operation. Pine-ſtoves are much more liable to be infeſted with theſe inſects, than Grape-houſes or Vineries, becauſe in theſe it is uſual to take off the glaſs-frames during the winter, by which the inſects generally periſh, but the warmth of the pine-

[b] Speechly, p. 146 to 152.

ſtove protects them through the winter. In theſe too, the Thrips is often greatly encouraged by the vegetables cultivated there, particularly by kidney-beans. In order therefore to prevent the increaſe of theſe inſects, which is very rapid, after the ſtove has been fumigated, remove all the kidney-bean plants, and then ſow a freſh crop of them immediately, placing the pots all over the flues, &c. that in caſe any inſects ſhould have eſcaped the fumigation, the young kidney-bean plants may attract them: as ſoon as theſe plants appear to be infected, take them away and ſow a freſh crop.

The Red Spider may be deſtroyed by a compoſition of one pound of flowers of ſulphur, and two ounces of common ſcotch ſnuff or very good tobacco duſt, well mixed together. Take a ſmall bruſh, ſuch as is uſed for common painting, dip it lightly in the compoſition, then lay one hand on the upper ſurface of the leaf, and with the other draw the bruſh very gently backwards and forwards all over the under ſurface. The Acarus being ſoft and delicate, is hereby deſtroyed with the moſt gentle touch; the bruſh alſo readily wipes off their web, as well as their globular tranſparent eggs, which are faſtened by a fine membrane to the leaves; and thus we are ſecured from the danger of a ſucceeding brood.

This proceſs may ſeem tedious; but it is eaſily performed upon Vines trained in a regular manner, and a ſingle operation is generally ſufficient for a whole ſeaſon. This ſhould be performed as ſoon as the inſects make their appearance. Sulphur alone is ſufficient for the purpoſe, but the ſnuff or tobacco duſt renders the mixture equally fatal to the Thrips alſo[c].

Mr. Forſyth aſſerts, that the beſt thing to deſtroy the Red Spider and other inſects is moiſture. Frequent watering of trees with lime-water, and throwing it plentifully on the under ſide of the leaves, will in a ſhort time extirpate the Red Spider.

In hot-houſes, he recommends uſing water only, in the following manner. Between three and four in the afternoon, fill the barrow-engine with ſoft water, wheel it along the paths of the houſe, where they are wide enough to admit it, and ſprinkle all the plants; play alſo in a fine ſhower againſt the top lights and ſhelves, till the water ſtands an inch deep in the paths. If you cannot conveniently get the barrow-engine into the houſe, and have not Phillips's ſmall copper engine, or ſome other of the like ſort; open the front lights, or ſlide down the top lights, and throw water in from thence. When this operation is performed within, every light muſt be ſhut; when from without, keep one light only open at a time; the houſe muſt be then kept cloſe ſhut till next morning: this will cauſe ſuch an exhalation from the glaſs, tan, &c. that the plants will be covered with the vapour, which will infallibly deſtroy the Cocci, Aphides, and other inſects: but the watering muſt be repeated every afternoon, during hot weather only. Before morning the plants will have imbibed all the moiſture, and the paths will be perfectly dry.

To protect Grapes, as they ripen, from birds, in the open air, they muſt be bagged; or, where the bunches hang very thick, the Vines may be covered with nets, or buntine, which is the ſtuff of which ſhips' colours are made; theſe will admit the air freely to the Grapes, and will ſoon dry after rain. They are alſo the beſt covering in the ſpring, in cold, wet or ſnowy weather.

For Waſps and the large Fleſh Fly or Blue-bottle as it is vulgarly called, there is no other remedy but hanging plenty of bottles with ſome ſweet liquor in them upon the Vines. The Fly comes firſt, and is no leſs deſtructive to the fruit than the Waſp. The bottles ſhould be hung up as ſoon as the former make their appearance; and ſhould be emptied frequently. When the weather is very hot and the Waſps are numerous, they will frequently be ſo intent upon the fruit as not to enter faſt enough into the bottles: if you then take a little oil in a cup and with a feather dipped in it touch their backs, they will inſtantly drop down. Great numbers may eaſily be deſtroyed this way; and ſo might

[c] Speechly, p. 160 to 168.

the

the flies, if their motions were not ſo quick that it is difficult to touch them.

The bunches of Grapes ſhould be kept under the ſhade of the leaves till they begin to ripen; then thoſe which cover the fruit may be picked off, leaving ſuch as are a little above it to be a ſhelter from the wet and froſt in the nights: this will aſſiſt in ripening the fruit; and take off only a few leaves at a time, according to the quantity of Grapes to be gathered at once: by theſe means the fruit will continue three times as long in ſucceſſion, as it would if the leaves were picked off all at once. If all the leaves ſhould be taken off ſoon after the fruit is ſet, the fruit will not ſwell, but become hard and ſmall, and generally crack. When the leaves are not too thick, they admit the rays of the ſun to paſs through, and a warm glow of heat will be reflected from the wall.

Grapes will often hang on the Vines till the middle of november, if they are well covered with nets or buntine: but when the froſt begins to ſet in ſharp they ſhould be gathered. Where ſeveral bunches are on one branch, it may be cut off, leaving ſix inches in length, or more, of the wood, according to the diſtance between the bunches, and a little on the outſide of the fruit at each end: ſeal both ends with common ſealing-wax; then hang them acroſs a line in a dry room, taking care to clip out any berries that begin to decay or grow mouldy. In this way Grapes may be kept till february; or, if they are cut before the bunches are very ripe, they may be kept much longer. They may alſo be preſerved in jars; each bunch being wrapped in ſoft paper, and layers of bran, well dried, being laid between them. Put ſome bran at the bottom and top; ſhake the whole gently; put ſome paper over it, and cover the jar with a bladder firmly tied on to exclude the air. Keep the jar in a dry room, or where you can have a fire in wet or damp weather [4].

With reſpect to the tranſporting or carriage of Grapes, when they are to be conveyed by water, they may be packed in boxes or jars with ſand. They are thus brought from Portugal. But ſand is too heavy for land carriage, and the Grapes muſt then be waſhed before they can be eaten. They may alſo be packed with any ſmall bright ſeed. Clover-ſeed is very proper for this purpoſe; but this alſo is heavy, and too valuable to be waſted. Some pack them in tow, wool, cotton or paper-ſhavings. Mr. Speechly recommends oat-chaff as moſt eligible, both on account of its lightneſs and its elaſticity. Care ſhould be taken that it have not any diſagreeable ſmell, and that it be cleanſed of all impure matter: the Grapes ſhould be perfectly dry, and the branches well examined, that if there be any decayed, cracked or bruiſed berries, they may be clipped off: each bunch ſhould then be tied in a bag of ſilver or gauze paper. Grapes packed in this manner, ought not to be more than two courſes in depth, otherwiſe the lower bunches would be liable to ſuffer injury by the weight above. The courſe of chaff between the layers of fruit, and likewiſe at the top and bottom, ought, when it is well preſſed down, to occupy a ſpace of two or three inches.

When Grapes are to travel by a ſtage coach, the boxes ſhould be made to ſuit the ſeats of the coach; for unleſs they go within or on the top, they will commonly be ſpoiled [5].]

Of Vineyards in England.

There have of late years been but very few Vineyards in England, though it appears by ancient records that they were formerly very common, as may be gathered from the ſeveral places in divers parts of England, which yet retain that name, which teſtify the quantities of ground which were allotted for Vineyards, to abbies and monaſteries, for wine for the uſe of the inhabitants; but as to the quality of the wines which were then produced in England, we are at preſent ignorant; and how theſe Vineyards were rooted up, and became ſo generally neglected, we have no very good accounts left. Whatever might be the cauſe of this total neglect in cultivating Vines in England, I will not pretend to determine, but ſuch was the prejudice moſt people conceived to any attempts of producing wine in England, that for ſome ages paſt, every trial of that kind has been ridiculed by the generality of people, and at this day very few perſons will believe it poſſible to be effected.

The firſt and great things to be conſidered in planting Vineyards is the choice of ſoil and ſituation, which, if not rightly choſen, there will be little hopes of ſucceſs, for upon this the whole affair greatly depends. The beſt ſoil for a Vineyard in England is ſuch, whoſe ſurface is a light ſandy loam, and not above a foot and a half or two feet deep, above the gravel or chalk, either of which bottoms are equally good for Vines; but if the ſoil is deep, or the bottom either clay, or ſtrong loam, it is by no means proper for this purpoſe; for although the Vines may ſhoot vigorouſly, and produce a great quantity of Grapes, yet theſe will be later ripe, fuller of moiſture, and ſo conſequently their juice not mature, nor well digeſted, but will abound with crudity, which in fermenting will render the wine ſour and ill-taſted, which is the common complaint of thoſe who have made wine in England.

Nor is a very rich, light, deep ſoil, ſuch as is commonly found near London, proper for this purpoſe; becauſe the roots of the Vines will be enticed down too deep to receive the influences of ſun and air, and hereby will take in much crude nourithment, whereby the fruit will be rendered leſs valuable, and be later ripe, which is of ill conſequence to theſe fruits; which are known to imbibe a great ſhare of their nouriſhment from the air, which if replete with moiſture (as is commonly the caſe in autumn,) muſt neceſſarily contribute greatly to render the juices leſs perfect, therefore great attention ſhould be had to the nature of the ſoil upon which they are planted.

The next thing neceſſary to be conſidered, is the ſituation of the place, which if poſſible, ſhould be on the north ſide of a river, upon an elevation inclining to the ſouth, with a ſmall gradual deſcent, that the moiſture may the better drain off, but if the ground ſlopes too much, it is by no means proper for this purpoſe; but if, at a diſtance from this place, there are larger hills, which defend it from the north and north-weſt wind, it will be of great ſervice, becauſe hereby the ſun's rays will be reflected with a greater force, and the cold winds being kept off, will render the ſituation very warm. Add to this a chalky ſurface; which if thoſe hills do abound with (as there are many ſuch ſituations in England,) it will ſtill add to the heat of the place, by reflecting a greater quantity of the ſun's rays.

The country about this ſhould be open and hilly, for if it be much planted, or low and boggy, the air will conſtantly be filled with moiſt particles, occaſioned by the plentiful perſpiration of the trees, or the exhalations from the adjoining marſhes, whereby the fruit will be greatly prejudiced (as was before obſerved.) Theſe Vineyards ſhould always be open to the eaſt, that the morning ſun may come on them to dry off the moiſture of the night early, which, by lying too long upon the Vines, greatly retards the ripening of their fruit, and renders it crude and ill taſted. And ſince the fruit of Vines is rarely ever injured by eaſterly winds, there will be no reaſon to apprehend any danger from ſuch a ſituation, the ſouth-weſt, north-weſt, and north winds being the moſt injurious to Vineyards in England (as indeed they are to moſt other fruit,) ſo that, if poſſible, they ſhould be ſheltered therefrom.

Having made choice of a ſoil and ſituation proper for this purpoſe, the next thing to be done is, to prepare it for planting. In doing of which the following method ſhould be obſerved: in the ſpring it ſhould be ploughed as deep as the ſurface will admit, turning the ſward into the bottom of each furrow; after this it ſhould be well harrowed, to break the clods, and cleanſe it from the roots of noxious weeds, and it muſt be often ploughed and harrowed for at leaſt one year, to render the ſurface light; and hereby it will be ren-

[4] Forſyth, p. 128. 258, 278. [5] Speechly, p. 88. note.

dered fertile, by imbibing the nitrous particles of the air (eſpecially if it be long expoſed thereto before it is planted;) then in march the ground ſhould be well ploughed again, and after having made the ſurface pretty even, the rows ſhould be marked out from ſouth-eaſt to north-weſt, at the diſtance of ten feet from each other; and theſe rows ſhould be croſſed again at five or ſix feet diſtance, which will mark out the exact places where each plant ſhould be placed; ſo that the Vines will be ten feet row from row, and five or ſix feet aſunder in the rows, nearer than which they ought never to be planted. And herein moſt people who have planted Vineyards have greatly erred, ſome having allowed no more than five feet row from row, and the plants but three feet aſunder in the rows; and others, who think they have been full liberal in this article, have only planted their Vines at ſix feet diſtance every way, but neither of theſe have allowed a proper diſtance to them, as I ſhall ſhew: for in the firſt place, where the rows are placed too cloſe, there will not be room for the ſun and air to paſs in between them to dry up the moiſture, which, being detained amongſt the Vines, muſt produce very ill effects: and, ſecondly, where the Vines are placed in exact ſquares, ſo near together as ſix feet, there can be no room for the current of air to paſs between them, when their branches are extended on each ſide, and ſo conſequently the damps in autumn will be entangled and detained amongſt the Vines, to the great prejudice of their fruit; for ſince the autumns in England are often attended with rains, cold dews, or fogs, all proper care ſhould be taken to remove every thing which may obſtruct the drying up the damps which ariſe from the ground.

The ſkilful vignerons abroad are alſo ſenſible how much it contributes to the goodneſs of their Vines, to allow a large ſpace between the rows; and therefore where the quality of the wine is more regarded than the quantity, there they never plant their Vines at leſs than ten feet row from row, and ſome allow twelve. It was an obſervation of Bellonius, almoſt two hundred years ſince, that in thoſe iſlands of the Archipelago, where the rows of Vines were placed at a great diſtance, the wine was much preferable to thoſe which were cloſe planted; and this he poſitively affirms to be the caſe, in moſt countries where he had travelled. Indeed we need not have recourſe to antiquity for the certainty of ſuch facts, when we are daily convinced of this truth in all cloſe plantations of any kind of fruit, where it is conſtantly obſerved, that the fruits in ſuch places are never ſo well coloured, ſo early ripe, nor near ſo well flavoured, as thoſe produced on trees, where the air can freely circulate about them, and the rays of the ſun have free acceſs to the branches, whereby the juices are better prepared before they enter the fruit.

Having thus conſidered the diſtance which is neceſſary to be allowed to theſe plants, we come next to the planting; but in order to this, the proper ſorts of Grapes ſhould be judiciouſly choſen; and in this particular we have egregiouſly erred in England. All the Vineyards at preſent planted here, are of the ſweeteſt and beſt ſort of Grapes for eating, which is contrary to the general practice of the vignerons abroad, who always obſerve, that ſuch Grapes never make good wine; and therefore, from experience, make choice of thoſe ſorts of Grapes, whoſe juice, after fermenting, affords a noble rich liquor; which Grapes are always obſerved to be auſtere, and not by any means palatable. This is alſo agreeable to the conſtant practice of our cyder-makers in England, who always obſerve, that the beſt eating apples make but poor cyder; whereas the more rough and auſtere ſorts, after being preſſed and fermented, afford a ſtrong vinous liquor. And I believe it will be found true in all fruits, that where the natural heat of the ſun ripens and prepares their juices ſo as to render them palatable, whatever degree of heat theſe juices have more, either by fermentation, or from any other cauſe, will render them weaker and leſs ſpirituous. Of this we have many inſtances in fruits; for if we tranſplant any of our ſummer or autumn fruits, which ripen perfectly in England, without the aſſiſtance of art, into a climate a few degrees warmer, theſe fruits will be meally and inſipid; ſo likewiſe if we bake or ſtewany of theſe fruits, they will be good for little, loſing all their ſpirit and flavour by the additional heat of the fire; and ſuch fruits as are by no means eatable raw, are hereby rendered exquiſite, which, if tranſplanted into a warmer climate, have, by the additional heat of the ſun, been alſo altered ſo as to exceed the moſt delicious of our fruit in this country.

From whence it is plain, that thoſe Grapes which are agreeable to the palate for eating, are not proper for wine; in making of which, their juices muſt undergo a ſtrong fermentation; therefore ſince we have in England been only propagating the moſt palatable Grapes for eating, and neglect the other ſorts; before we plant Vineyards, we ſhould take care to be provided with the proper ſorts from abroad, which ſhould be choſen according to the ſort of wines intended to be imitated; though I believe the moſt probable ſort to ſucceed in England is the Auvernat, or true Burgundy Grape, (which is at preſent very rare to be found in the Engliſh Vineyards, though it is a common Grape in the gardens againſt walls.) This ſort of Grape is moſt preferred in Burgundy, Champaign, Orleans, and moſt of the other wine countries in France; and I am informed, that it ſucceeds very well in ſeveral places to the north of Paris, where proper care is taken of their management; ſo that I ſhould adviſe ſuch perſons as would try the ſucceſs of Vineyards in England, to procure cuttings of this Grape from thoſe countries; but herein ſome perſon of integrity and judgment ſhould be employed, to get them from ſuch Vineyards where no other ſorts of Grapes are cultivated; which is very rare to find, unleſs ſome particular Vineyards of the citizens, who are very exact to keep up the reputation of their wines, nothing being more common than for the vignerons to plant three or four ſorts of Grapes in the ſame Vineyard, and at the time of Vintage to mix them all together: which renders their wines leſs delicate, than in ſuch places where they have only this one ſort of Grape. And here I would caution every one againſt mixing the juice of ſeveral Grapes together, which will cauſe the wine to ferment at different times, and in different manners.

The cuttings being thus provided (for I would always prefer theſe to layers, or rooted plants, for the reaſons given at the beginning of the article VITIS) about the beginning of April is the beſt ſeaſon for planting, when it will be proper to put the lower ends of the cuttings in water about three inches, ſetting them upright for ſix or eight hours before they are uſed; then at the center of every croſs mark already made by a line, to the diſtance the Vines are deſigned, ſhould be a hole made with a ſpade, or other inſtrument, about a foot deep, into each of which ſhould be put one ſtrong cutting, placing it a little ſloping; then the hole ſhould be filled up with earth, preſſing it gently with the feet to the cutting, and raiſing a little hill to each about three inches, ſo as juſt to cover the uppermoſt eye or bud, which will prevent the wind and ſun from drying any part of the cuttings, and this upper eye only will ſhoot, the under ones moſt of them will puſh out roots, ſo that this ſhoot will be very ſtrong and vigorous.

After they are thus planted, they will require no other care until they ſhoot, except to keep the ground clear from weeds, which ſhould be conſtantly obſerved; but as the diſtance between the rows of Vines is very great, ſo the ground between them may be ſown or planted with any kind of eſculent plants, which do not grow tall, provided there is proper diſtance left from the Vines, and care taken that the Vines are not injured by the crops, or in the gathering, and carrying them off the ground; and this huſbandry may be continued three or four years, till the Vines come to bearing; after which time, there ſhould be no ſort of crop put between them in ſummer, becauſe the cleaner the ground is kept between the Vines from weeds or plants, the more heat will be

be reflected to the Grapes; but after the Grapes are gathered there may be a crop of Coleworts for ſpring uſe planted between the rows of Vines, and the cultivating of theſe will be of uſe to the Vines, by ſtirring of the ground; but as to watering, or any other trouble, there will be no occaſion for it, notwithſtanding what ſome people have directed, for in England there is no danger of their miſcarrying by drought. When the cuttings begin to ſhoot, there ſhould be a ſmall ſtick of about three feet long ſtuck down by each, to which the ſhoot ſhould be faſtened, to prevent their breaking or lying on the ground; ſo that as the ſhoots advance, the faſtening ſhould be renewed, and all ſmall lateral ſhoots (if there are any ſuch produced) ſhould be conſtantly diſplaced, and the ground between the Vines always kept clean. This is the whole management which is required the firſt ſummer.

But at michaelmas, when the Vines have done ſhooting, they ſhould be pruned; for if they are left unpruned till ſpring, their ſhoots being tender (eſpecially towards their upper parts) will be in danger of ſuffering if the winter ſhould prove ſevere.

This pruning is only to cut down the ſhoots to two eyes; and if, after this is done, the earth be drawn up in a hill about each plant, it will ſtill be a greater defence againſt froſt.

At the beginning of march the ground between the Vines ſhould be well dug to looſen it, and render it clean; but you ſhould be careful not to dig deep cloſe to the Vines, leſt thereby their roots ſhould be cut or bruiſed, and at the ſame time the earth ſhould be again laid up in a hill about each plant; but there muſt be care taken, not to bury the two young eyes of the former year's ſhoot which were left to produce new wood.

At the beginning of may, when the Vines are ſhooting there ſhould be two ſtakes fixed down to the ſide of each plant, which muſt be ſomewhat taller and ſtronger than thoſe of the former year; to theſe the two ſhoots (if ſo many are produced) ſhould be faſtened, and all the ſmall trailing or lateral ſhoots ſhould be conſtantly diſplaced, that the other ſhoots may be ſtronger, and the ground ſhould alſo be kept very clear from weeds as before.

The autumn following theſe Vines ſhould be pruned again in the following manner; thoſe of them which have produced two ſtrong ſhoots of equal vigour, muſt be cut down to three eyes each; but in ſuch as have one ſtrong ſhoot and a weak one, the ſtrong one muſt be ſhortened to three eyes, and the weak one to two; and ſuch Vines as have produced but one ſtrong ſhoot, ſhould be ſhortened down to two eyes alſo in order to obtain more wood againſt the ſucceeding year.

In the ſpring, about the beginning of march, the ground between the Vines ſhould again be dug, as before, and two ſtakes ſhould be placed down by the ſide of all ſuch Vines as have two ſhoots, at ſuch diſtance on each ſide of the plant as the ſhoots will admit to be faſtened thereto, and the ſhoots ſhould be drawn out on each ſide to the ſtakes, ſo as to make an angle of about forty-five degrees with the ſtem; but by no means ſhould they be bent down horizontally, as is by ſome practiſed, for the branches lying too near the earth, are generally injured by the damps which ariſe from thence, but eſpecially when they have fruit, which is never ſo well taſted, nor ſo early ripe upon thoſe branches, as when they are a little more elevated.

In may, when the Vines begin to ſhoot, they muſt be carefully looked over, and all the weak dangling ſhoots ſhould be rubbed off as they are produced, and thoſe ſhoots which are produced from ſtrong eyes, ſhould be faſtened to the ſtakes to prevent their being broken off by the wind.

This management ſhould be repeated at leaſt every three weeks, from the beginning of may to the end of july; by which means the ſhoots which are trained up for the ſucceeding year will not only be ſtronger, but alſo better ripened and prepared for bearing, becauſe they will have the advantage of ſun and air, which is abſolutely neceſſary to prepare their juices; whereas if they are crouded by a number of ſmall dangling weak branches, they will ſhade and exclude the rays of the ſun from the other ſhoots; and ſo by detaining the moiſture a longer time amongſt the branches, occaſion the veſſels of the young wood to be of a larger dimenſion; and hereby the crude juice finds an eaſy paſſage through them; ſo that the ſhoots in autumn ſeem to be moſtly pith, and are of a greeniſh immature nature, and wherever this is obſerved, it is a ſure ſign of a bad quality in the Vines. The ſoil alſo ſhould be conſtantly kept clean, becauſe if there are any vegetables (either weeds or plants of other kinds) growing between the Vines, it will detain the dews longer, and by their perſpiration, occaſion a greater moiſture than would be, if the ground were entirely clear; ſo that thoſe who plant other things between their rows of Vines, are guilty of a great error.

In autumn the Vines ſhould be pruned, which ſeaſon I approve of rather than the ſpring (for reaſons before given;) and this being the third year from planting, the Vines will now be ſtrong enough to produce fruit, therefore they muſt be pruned accordingly. Now ſuppoſe the two ſhoots of the former year, which were ſhortened to three eyes, have each of them produced two ſtrong branches the ſummer paſt, then the uppermoſt of theſe ſhoots upon each branch ſhould be ſhortened down to three good eyes (never including the lower eye, which is ſituate juſt above the former year's wood, which ſeldom produces any thing, except a weak dangling ſhoot;) and the lower ſhoots ſhould be ſhortened down to two good eyes each, theſe being deſigned to produce vigorous ſhoots for the ſucceeding year, and the former are deſigned to bear fruit; but where the Vines are weak, and have not produced more than two or three ſhoots the laſt ſeaſon, there ſhould be but one of them left with three eyes for bearing; the other muſt be ſhortened down to two, or if weak one good eye, in order to obtain ſtrong ſhoots the following ſummer; for there is nothing more injurious to Vines, than the leaving too much wood upon them, eſpecially while they are young; or the overbearing them, which will weaken them ſo much, as not be recovered again to a good ſtate in ſeveral years, though they ſhould be managed with all poſſible ſkill.

In march, the ground between the Vines ſhould be well dug as before, obſerving not to injure their roots by digging too deep near them; but where there are ſmall horizontal roots produced on or near the ſurface of the ground, they ſhould be pruned off cloſe to the places where they were produced; theſe being what the vignerons call day roots, and are by no means neceſſary to be left on: and after having dug the ground, the ſtakes ſhould be placed down in the following manner: on each ſide of the Vine ſhould be a ſtake put in at about ſixteen inches from the ſtoot, to which the two branches, which were pruned to three eyes, each for bearing, ſhould be faſtened, (obſerving, as was before directed, not to draw them down too horizontally;) then another taller ſtake ſhould be placed down near the ſtoot of the Vine, to which the two ſhoots which were pruned down to two eyes, ſhould be faſtened, provided they are long enough for that purpoſe; but if not, when their eyes begin to ſhoot, theſe muſt be trained upright to the ſtakes, to prevent their trailing on the ground, hanging over the fruit branches, or being broken by the wind.

In may, the Vines ſhould be carefully looked over again, at which time all weak lateral branches ſhould be rubbed off as they are produced; and thoſe ſhoots which ſhew fruit, muſt be faſtened with baſs to the ſtakes to prevent their being broken, until they are extended to three joints beyond the fruit, when they ſhould be ſtopped; but the ſhoots which are deſigned for bearing the following ſeaſon, ſhould be trained upright to the middle ſtake, by which method the fruit branches will not ſhade theſe middle ſhoots, nor will the middle ſhoots ſhade the fruit, ſo that each will enjoy the benefit of ſun and air.

This method ſhould be repeated every fortnight or three weeks, from the beginning of may to the middle of july, which will always keep the ſhoots in their right poſition, whereby the leaves will not be inverted, which greatly retards the growth of the fruit; and by keeping the Vines conſtantly clear from horizontal ſhoots, the fruit will not be crouded with leaves and ſhaded, but will have conſtantly the advantage of the ſun and air equally, which is of great conſequence; for where the fruit is covered with theſe dangling ſhoots in the ſpring, and is afterwards expoſed to the air, either by diveſting it of the leaves, or elſe diſplacing the branches entirely, as is often practiſed, the fruit will become hard, and remain at a perfect ſtand for three weeks, and ſometimes will never advance afterward, as I have ſeveral times obſerved; therefore there cannot be too much care taken to keep it conſtantly in a kindly ſtate of growth, as the vignerons abroad well know, though in England it is little regarded by the generality of gardeners, who when their Grapes ſuffer by this neglect, immediately complain of the climate or the untowardneſs of the ſeaſon, which is too often a cover for neglects of this nature. And here I cannot help taking notice of the abſurd practice of thoſe who pull off the leaves from their Vines, which are placed near the fruit, in order to let in the rays of the ſun to ripen them; not conſidering how much they expoſe their fruit to the cold dews, which fall plentifully in autumn, which, being imbibed by the fruit, greatly retard it; beſides no fruit will ripen ſo well when entirely expoſed to the ſun, as when gently ſcreened with leaves; and by the pulling off theſe leaves, which are abſolutely neceſſary to prepare the juices before they enter the fruit, the groſs parts of which are perſpired away by the leaves, the fruit muſt either be deprived of nouriſhment, or elſe ſome of the groſs particles will enter with the more refined parts of the juice, and thereby render the fruit worſe than it would otherwiſe be, were the leaves permitted to remain upon the branches; for if the weak dangling ſhoots are conſtantly diſplaced as they are produced, the fruit will not be too much ſhaded by the leaves that are upon the bearing branches.

When the fruit is ripe, if the ſtalks of the bunches are cut half through a fortnight before they are gathered, it will cauſe the juice to be much better, becauſe there will not be near ſo great a quantity of nouriſhment enter the fruit, whereby the watery particles will have time to evaporate, and the juice will be better digeſted. This is practiſed by ſome of the moſt curious vignerons in the ſouth of France, where they make excellent wine. But if after the fruit be cut, it is hung up in a dry room upon ſtrings, ſo that the bunches do not touch each other, for a month before they are preſſed, it will alſo add greatly to the ſtrength of the wine, becauſe in that time a great quantity of the watery parts of the juices will evaporate. This is a conſtant practice with ſome perſons who inhabit the Tyroleſe, on the borders of Italy, where is made a moſt delicious rich wine, as hath been atteſted by Dr. Burnet in his travels; and I have heard the ſame from ſeveral gentlemen who have travelled that road ſince. But with all the care that can poſſibly be taken, either in the culture of the Vines, or in making the wine, it will not be near ſo good while the Vineyard is young, as it will be after it has been planted ten or twelve years; and it will be conſtantly mending, until it is fifty years old, as is atteſted by ſeveral curious perſons abroad, as alſo by the moſt ſkilful wine-coopers at home, who can tell the produce of a young Vineyard from that of an old one, after it is brought to England by the colour of the wine. This difference is very eaſily accounted for from the different ſtructure of the veſſels of the plants; thoſe of the young Vines being larger, and of a looſer texture, eaſily admit a larger quantity of groſs nouriſhment to paſs through them; whereas thoſe of old Vines, which are more woody, are more cloſely conſtricted, and thereby the juice is better ſtrained in paſſing through them, which muſt conſequently render it much better, though the Grapes from a young Vineyard will be larger, and afford a greater quantity of juice; ſo that people ſhould not be diſcouraged if their wines at firſt are not ſo good as they could wiſh, ſince afterward, when the Vineyard is a few years older, the wine may anſwer their expectation.

The Vineyard being now arrived to a bearing ſtate, ſhould be treated after the following manner: firſt, in the pruning there ſhould never be too many branches left upon a root, nor thoſe too long; for although by doing this, there may be a greater quantity of fruit produced, yet the juice of theſe will never be ſo good as when there is a moderate quantity which will be better nouriſhed, and the roots of the plants not ſo much weakened; which is found to be of ſo bad conſequence to Vineyards, that when gentlemen abroad let out Vineyards to vignerons, there is always a clauſe inſerted in their leaſes to direct how many ſhoots ſhall be left upon each Vine, and the number of eyes to which the branches muſt be ſhortened; becauſe were not the vignerons thus tied down, they would overbear the Vines, ſo that in a few years they would exhauſt their roots, and render them ſo weak as not to be recovered again in ſeveral years; and their wine would be ſo bad, as to bring a diſreputation on the Vineyard, to the great loſs of the proprietor.

The number of branches which the Italians generally agree to leave upon a ſtrong Vine are four; two of the ſtrongeſt have four eyes, and the two weaker are ſhortened down to two eyes each.

Conſtantly keep the ground clean between the Vines; dig it carefully every ſpring; and every third year manure it. If the land be ſtiff and inclinable to bind, then lay on ſea-land, or ſea-coal aſhes; but if it be looſe and dry; a little lime mixed with dung is the beſt manure. Spread it thin upon the ſurface, and in digging bury it equally in every part. It is much preferable to all dung, and where the Vineyard is large, a third part may be manured every year.

Dig and manure about the beginning of march, at which time all the ſuperficial roots muſt be cut off, but the larger roots muſt not be injured; therefore the ground cloſe to the ſtem of the Vines muſt not be dug very deep. After this is done, place the ſtakes, one on each ſide, at about ſixteen inches from the ſtems, to which the longeſt bearing branches ſhould be faſtened; and one ſtake on each ſide cloſe to the ſtem, to which train the two ſhorter branches upright, to furniſh wood for the ſucceeding year.

In the ſummer look them over carefully, rubbing off all weak dangling ſhoots, and training the good ones to the ſtakes regularly, as they are produced. Stop thoſe which have fruit in june, about three joints beyond the bunches; but the upright ſhoots, which are deſigned for bearing the following year, muſt not be ſtopped till the middle of july, when they may be left about five feet long.

All this ſummer dreſſing ſhould be performed with the thumb and finger, and not with the knife, becauſe wounds made by inſtruments in ſummer do not heal ſo ſoon; and the ſhoots being very tender whilſt young, may eaſily be ſtopped by gently nipping the leading bud.

When a Vineyard is thus carefully dreſſed, the rows regular, the ſtakes exactly placed, and the upright ſhoots ſtopped to an equal height, it makes a beautiful appearance, and when the Vines are in flower, they emit a moſt grateful ſcent, eſpecially in the morning and evening.

But as the beauty of a Vineyard depends upon the regular diſpoſition of the Vine-branches, great care ſhould be taken to train them regularly, and to provide every year for bearing wood; becauſe that which has produced fruit is commonly cut away after the fruit is gathered, or at leaſt is ſhortened down to two eyes, to force out ſhoots for the next year; where there is not a ſufficient number of branches of thoſe trained upright, ſo that in ſummer, when the Vines are in perfection, ſix upright ſhoots ſhould be trained for the next year's wood, and three or four bearing branches with fruit on them: more than theſe ought never to be left on one Vine.

The Auvernat or true Burgundy Grape is valued in France before any other ſort, becauſe the fruit never

grows very close upon the bunches, and therefore is more equally ripened; for which reason it should also be preferred in England; for the Grapes in close bunches are commonly ripe on one side, and green on the other, which is a bad quality for such as are to be used in making wine.

[With respect to the practicability of having Vineyards in England, Mr. Speechly remarks, that the vinous latitude extending to the fifty-first degree in the northern hemisphere; that good wines are made in a part of Germany, which is under the same parallel of latitude with our southern counties; and that where the situation and soil are proper for Vines, the lands cannot possibly be more beneficially employed than by being converted into Vineyards.

He recommends an elevated situation, where there is a gentle declivity to the south or south-east, well sheltered from the north, north-west and north-east.

Plantations of forest trees would contribute much to give warmth and shelter; but they must not be too near, so as to confine the air.

Not only gentle declivities, but all slopes on the sides of calcareous hills and mountains are proper for Vineyards, provided they have a southern aspect; which is the case with the rocks on the south coast of England.

As to the soil, the Vine delights in such gravelly and rocky lime-stone soils as are frequently found on the sides of such steep hills and mountains, and will even flourish among mere stones, and the ruins of old walls. Indeed the soil can hardly be too dry in our climate for Vines.

Hence the introduction of Vineyards into this country ought not to have any bad effect on Agriculture, because all strong deep lands best adapted to tillage, are the most unsuitable to Vines; which will prosper in situations and soils, where the lands could hardly be rendered profitable any other way. Though they would not grow robust on sheeps of poor gravelly rocky soils; yet they would be more prolific than such as are planted on rich lands, and the fruit would be higher flavoured.

Respecting the sorts of Vines which are best adapted to our climate, Mr. Speechly agrees with Mr. Miller, that the sweet early Grapes are improper for making wine in this country. He recommends those which are cultivated in Germany, particularly that of which rhenish wine is made, in preference to any sort cultivated in France[f].

As to the management of a Vineyard sufficient directions have been already given. Mr. Speechly[g] would have the Vines trained horizontally, similar to the method practised in Holland, with Vines in frames, he thinks they would derive many advantages from this method of training, not only by warmth and shelter, but because they would easily be protected from spring frosts, by applying the boughs of trees, particularly evergreens, and because the Grapes would be greatly benefited by the reflection of the ground.

I am very doubtful of this; and should rather suppose that shading the ground so effectually would be rather injurious to the Grapes in our moist climate.

Most of what Mr. Speechly has delivered on the subject of Vineyards is speculative. The Hon. Charles Hamilton made a fair experiment at Pain's Hall. The Vineyard there was on the south side of a gentle hill; the soil a gravelly sand. It was planted entirely with two sorts of Burgundy Grapes, the Auvernat and the Black Cluster. The first year he attempted to make red wine in the usual way, but it was very harsh and austere; the second he succeeded better in making a white wine, which nearly resembled Champaign in flavour; in two or three years, as the Vines grew stronger, the wine had a finer flavour than the best Champaign. He sold it to wine-merchants for fifty guineas a hogshead; and one wine-merchant to whom he sold five hundred pound's worth at one time, assured him, that he sold some of the best of it from seven shillings and six-pence to ten shillings and sixpence the bottle.

After many years experience he let the Grapes hang till perfectly ripe; they were then carefully cut off with sciffors, and brought home in small quantities, to prevent their heating or pressing one another; then they were picked off the stalks, and all the mouldy and green ones were thrown aside, before the Grapes were put into the press; which was done in a few hours after they were gathered. As fast as the juice ran from the press, it was put into hogsheads, and closely bunged up. These were left all winter in the cool barn. When the fermentation was over, it was racked off into clean hogsheads, and carried to the vaults, before any warm weather could raise a second fermentation. In march if any of the hogsheads were not quite fine, they were fined down with fish-glue. All were bottled at the end of march. In about six weeks the wine would be in perfect order for drinking, and be in prime for above one year. The second year the flavour and sweetness abated, and gradually declined till they failed entirely. Some that was kept sixteen years became very like old Hock. The only art ever used was putting three pounds of white sugar-candy to some of the hogsheads, when the wine was first tunned from the press, in conformity to a rage that then prevailed for very sweet Champaign.

Mr. Hamilton on this experience declares himself convinced, that much good wine might be made in many parts of the south of England; many soils and situations being fitter for a Vineyard than his, which was much exposed to the south-west winds, and on a declivity rather too sharp. He allows that the uncertainty of our climate is much against Vineyards, and that many fine crops have been spoiled by may frosts and wet summers: but that one good year balances many disappointments.

Sir Edward Barry, who handed this account to the public, remarks that the prospect of some success, even from the first trials, seems almost certain, if conducted by the rules given by Mr. Hamilton and Miller, with the necessary assistance of a good vigneron; and that it is not improbable that in time Vineyards may be planted, for the profit arising from them, and this country supplied with native wines, very superior to many of those which are now imported[h].

This prophecy has not yet been fulfilled, and there seems little probability that Vineyards should ever become a general article of cultivation in England. The difficulties and discouragements are great and various; those arising from the uncertainty of the climate, and the nicety requisite in the management of the wine, are obvious. Vineyards newly planted cannot be expected to yield a racy juice, and the English are in general of a temper too impatient to wait many years for a rich high-flavoured wine. In the mean time the expense of culture and management will be considerable, and the profit perhaps trifling; so that a large capital will be required for a speculation which may ultimately turn out to be disadvantageous. For even supposing a wine of good quality to be at length produced; unless it should have that sort of flavour which suits fashionable palates, like Claret, Burgundy, and Champaign; or is adapted to the taste of the million, like Port wine, the sale of it will never be so great as to answer an extensive cultivation.]

3. The third sort being a native of warm countries, will not live in England without artificial heat; it is easily propagated by seeds, when they are brought from the countries where the plants grow naturally, for they do not produce any here; these must be sown in small pots, which should be plunged into a hot-bed of tanner's bark. When the plants come up and are fit to remove, they should be each transplanted into a separate small pot filled with light earth, and plunged into a fresh hot-bed of tanner's bark, shading them from the sun till they have taken new root; then they must be treated in the same way as other tender exotic plants from the same countries, always continuing them in the stove, otherwise they will not

[f] Speechly, p. 183 to 194. [g] p. 196. [h] Speechly, p. 205 to 209.

thrive,

thrive. Theſe plants caſt off their leaves every winter.

5. 6. The fifth and ſixth ſorts grow in great plenty in the woods of America, where I have been informed, are many other ſorts, which produce fruit very little inferior to ſome of the fine ſorts which are cultivated in Europe; notwithſtanding which, it is generally thought impoſſible to make wine in America: this I dare ſay, muſt proceed from a want of ſkill, rather than any bad quality in the ſoil or climate; ſo that inſtead of planting Vineyards on their looſe rich lands (as hath been generally practiſed by the inhabitants of theſe countries) if they would plant them upon riſing ground, where the bottom was rocky or hard near the ſurface, I dare ſay they would have very good ſucceſs; for the great fault complained of in thoſe countries is, that the Grapes generally burſt before they are fully ripe, which muſt certainly be occaſioned by their having too much nouriſhment; therefore, when they are planted on a poorer ſoil, this will be in part remedied. Another cauſe of this may proceed from the moiſture of the air, (occaſioned by the perſpiration of trees, &c.) which being imbibed by the fruit, may break their ſkins. This indeed cannot be prevented, until the country is better cleared of the timber: but however, this ſhould caution people not to plant Vines in ſuch places where there are great quantities of wood, becauſe of this effect, which it hath on the Grapes. But to return:

Theſe two Vines are preſerved in the gardens of thoſe who are curious in botany, but I have not ſeen either of them produce fruit in this country. They may be propagated by layers in the ſame manner as the common Grapes, which will take root in one year, and may be taken off, and tranſplanted in the ſpring where they are to remain, which ſhould be againſt a warm wall; becauſe if they are expoſed to much cold in winter they are often deſtroyed, eſpecially while they are young.

Their pruning and management is the ſame with any other ſorts of Grapes, but only they ſhould have fewer ſhoots, and thoſe ſhortened down very low; indeed the Fox Grape does not like much cutting; otherwiſe it will make very weak ſhoots the following year, and never arrive to any conſiderable ſtrength, ſo will not be capable of producing any fruit.

8. The eighth ſort is planted againſt walls, and treated in the ſame way as the common Vines, and may be propagated by cuttings or layers in like manner.

12. The twelfth ſort is preſerved in ſome gardens for the ſake of variety, but it rarely produces flowers in England, and has not much beauty; it is a native in Virginia and Carolina, from both which countries I have received the ſeeds. As this ſort does not produce ſeeds here, it is generally propagated by laying down the young branches, which will put out roots in one year fit to remove, when they may be taken off, and tranſplanted where they are to remain. Theſe require ſupport; and as their young branches are tender, and liable to be killed by froſt, if they are planted againſt a wall or pale, expoſed to the ſouth, they will ſucceed much better than when they are fully expoſed to the open air, and ſupported by props. The young ſhoots of theſe plants ſhould be ſhortened down to two or three buds in the ſpring, which will cauſe the ſhoots of the following ſummer to be much ſtronger, and when they are regularly trained againſt the wall or pale, they will produce flowers in warm ſeaſons.

This plant is very apt to puſh out ſuckers from the root, by which it is often propagated, but the plants ſo raiſed are very ſubject to ſend out ſuckers again, whereby they are robbed of their nouriſhment, and do not thrive ſo well as thoſe which come from layers.

[VITIS. See *Ciſſus*, *Cucumis*, *Hedera*, *Rhus*, *Tamus*.]

VITIS IDÆA. See [*Andromeda*, *Arbutus*, *Gualtheria*, *Lonicera*, *Meſpilus*, *Myrſine*, *Royena*,] *Vaccinium*.

[VITMANNIA. *(So named by Vahl, in honour of Abbé F. Vitmann, profeſſor at Milan.)*

Vahl. ſymb. 3. 51. *t.* 60. Samadera *Gærtn. t.* 156. Claſſ. 8. 1. Octandria Monogynia.

GENERIC CHARACTER.

CAL. *Perianth* one-leafed, ſhort, four-cleft: *ſegments* rounded, concave within, convex without.

COR. *Petals* four, linear-oblong, little concave, thickiſh, hoary on the outſide, obtuſe, unguiculate. *Nectary* a ſmall obovate ſcale at the baſe of each filament, ſhorter on the alternate ones.

STAM. *Filaments* eight, a little ſhorter than the petals, ſmooth. *Anthers* linear, ſubbifid at the baſe.

PIST. *Germ* ſuperior, four-lobed: *lobes* ſemiorbicular, compreſſed, ſlightly connate, eaſily ſeparable from one another and from the ſtyle: (perhaps they are rather four germs.) *Style* ſimple awl-ſhaped, length of the filaments. *Stigma* acute.

PER. *Nut* ſemilunar, compreſſed, one-celled, valveleſs.

SEED one, large, obovate-ſickled, turgidly lenticular, ſmooth.

ESSENTIAL CHARACTER.

Cal. four-cleft. *Cor.* four-petalled. *Nect.* a ſcale at the baſe of each filament. *Nut* ſemilunar, compreſſed, one-ſeeded.

SPECIES.

1. Vitmannia elliptica.

Vahl. ſymb. 3. 51. *t.* 60. *Willd. ſpec.* 2. 320.
Samundura. *Lin. ſyſt. n.* 433.
Samadera. *Gærtn. fruct.* 2. 352.

DESCRIPTION, *&c.*

This is a tree, with round, ſmooth branches, compreſſed a little at the tip. Leaves alternate, a hand and more in length, elliptic, obtuſe, quite entire, ſmooth on both ſides, veined, ſtiffiſh, on a ſhort petiole which is flattiſh above, but convex underneath. Stipules none. Pedunceles lateral or a little below the top of the branch, ſolitary or ſometimes two together, compreſſed a little. Pedicels umbelled, ſhort, one-flowered[1]. Fruit a corky or woody nut, compreſſed like a lens, or concavo-convex, or ſnail-ſhaped, in the middle diſtinctly varicoſe with prominent veſſels, but ſmooth towards the periphery, and gradually narrowing to an edge: the upper rim ſtraightiſh, thick with a longitudinal groove and an oblong tubercle below the tip; the lower rim remarkably bowed, quite entire, compreſſed to an edge: the ſurface ſmooth and ſomewhat ſhining; the colour dun or yellow bay. Seed yellow or ruſſet-cinnamon, faſtened to a thick tubercle in the upper part of the cell: coat ſimple, coriaceous, thickiſh; albumen none: radicle placed behind the baſe of the cotyledons.

Size of the nut various, bigger than the palm of the hand, or ſcarcely an inch in diameter, and from a narrow beginning widening gradually into the ſhape of a fly's wing; but always ſomewhat concave and ſnail-ſhaped. Gærtner conjectures, that the fruit, when complete, is compoſed of two nuts, horizontally oppoſite; and that it belongs to the order of Contortæ[2].

It differs entirely from Heretiera. Native of the Eaſt Indies, where it was found by Koenig[1].]

ULEX. *(The name of a ſhrub in Pliny, the aſhes of which were uſed as a lye in ſeparating gold from the ſubſtances with which it was mixed. Martinius derives it ab ulligine; but if it be our furze, or any thing like it, we ſhould rather derive it from* ulex, *criſpus, contortus.)*

Lin. gen. n. 881. *Reich. n.* 932. *Schreb. n.* 1169. *Gærtn. t.* 330. *Juſſ.* 352. Genista-Spartium. *Tournef. t.* 112.

Claſſ. 17. 4. Diadelphia Decandria.
Nat. Order of *Papilionaceæ* or *Leguminoſæ*.

GENERIC CHARACTER.

CAL. *Perianth* two-leaved, permanent: *leaflets* ovate-oblong, concave, ſtraight, equal, a little ſhorter than the keel: upper leaflet two-toothed, lower three-toothed.

COR. papilionaceous, five-petalled. *Standard* obcordate, emarginate, erect, very large. *Wings* oblong, obtuſe, ſhorter than the ſtandard. *Keel* two-petalled, ſtraight, obtuſe, converging by the lower margin.

STAM. *Filaments* diadelphous, ſimple and nine-cleft. *Anthers* ſimple.

PIST. *Germ* oblong, cylindrical, hirſute. *Style* filiform, riſing. *Stigma* obtuſe very ſmall.

[1] Vahl. [2] Gærtn. [1] Vahl.

PER. *Legume* oblong, turgid, ſcarcely longer than the calyx, ſtraight, one-celled, two-valved.
SEEDS few, roundiſh, emarginate.

ESSENTIAL CHARACTER.

Cal. two-leaved. *Legume* ſcarcely longer than the calyx. *Filaments* all connected.

SPECIES.

1. Ulex europæus. *Common Furze, Whin* or *Gorſe. Lin. ſpec.* 1045. *ſyſt.* 643. *Reich.* 3. 417. *Gærtn. fruct.* 2. 330. *Hudſ. angl.* 312. *Wither. arr. ed.* 3. 626. 1. *Smith brit.* 756. *engl. bot. t.* 742. *Forſt. in Sym. ſyn.* 160. *Hull.* 159. *Light. ſcot.* 385. *Relh. cant. ed.* 2. *n.* 581. *Sibth. oxon. n.* 614. *Abbot bedf. n.* 507. *Fl. dan. t.* 608. *Neck. gallob.* 311. *Villars dauph.* 3. 424. *Ger. prov.* 489.
U. grandiflorus. *Pourr. act. tolos.* 3. 333.
Geniſta ſpinoſa. *Dod. pempt.* 659. 1.—vulgaris. *Ger. emac.* 1319. *f.* 1. *Raii hiſt.* 1729. *ſyn.* 475.
G. ſpin. major. *Ger.* 1138. 1. *deſcr.* non *fig.*—vulgaris, &c. *Park. theat.* 1004. 1.
G. ſpin. major longioribus aculeis. *Bauh. pin.* 394.
Geniſtellæ ſpinoſæ affinis, Nepa quibuſdam. *Bauh. hiſt.* 1. 2. 400.
Geniſta-Spartium majus brevioribus & longioribus aculeis. *Tournef. inſt.* 645. item *ſt. paris.*
Scorpius 1. *Cluſ. hiſt.* 1. 106.
Calyx-teeth obſolete converging, bractet ovate lax, branchlets erect.

[2. Ulex nanus. *Dwarf Furze.*
Smith brit. 757. *engl. bot. t.* 743. *Forſt. in Sym. ſyn.* 160. *Relh. cant. ed.* 2. *n.* 582.
U. europæus β. *Lin. ſpec.* 1045. *Reich.* 3. 418. *Hudſ. angl.* 312. *Wither. arr. ed.* 3. 626. *var.* 2. *Hull* 159. 2. *Lightf.* 385.
Geniſta ſpinoſa minor. *Park. theat.* 1004. 3. *Raii ſyn.* 475. 2.
G. ſpinoſa major, brevibus aculeis. *Bauh. pin.* 394.
Calyx-teeth lanceolate diſtant, bractes minute preſſed cloſe, branchlets decumbent.]

3. Ulex capenſis.
Lin. ſpec. 1046. *Reich.* 3. 418.
Geniſta-Spartium bacciferum, ericæ foliis africanum. *Pluk. phyt. t.* 185. *f.* 6. *Pet. gaz. t.* 83. *f.* 9.
Leaves ſolitary obtuſe, ſpines ſimple terminating.

DESCRIPTIONS, *&c.*

[1. This ſhrub, ſo well known in England, has its branches very cloſe, deeply furrowed, woolly or hirſute, full of thorns, which are ſtretched out, branched, angular, very ſharp, ſmooth, evergreen, leafy, frequently flower-bearing; according to Withering, awl-ſhaped, a little bowed downwards, woolly at the baſe, yellow at the ends. Leaves at the baſe of the ſpines and ſpinules, ſolitary, awl-ſhaped, terminating in ſharp yelloviſh thorny points, ſomewhat rugged, often hirſute, deciduous. Pedunculs axillary, ſingle or two together, one-flowered, villoſe. Bractes two, approximating to the calyx, looſe, not preſſed cloſe, ſometimes ſpreading, ovate, concave, tomentoſe, five times ſhorter than the calyx or thereabouts. Calyx pale green, ſomewhat ruſty, tomentoſe; teeth ſmall, obtuſe, converging. Corolla half as long again as the calyx, bright-yellow or gold-coloured, having the ſmell of honey ſo ſtrong as to ſcent the whole air, when the flowers are in full vigour. Withering remarks, that the ſtandard and wings are fleſhy at the baſe, the latter ſet with hairs along the lower edge, and curiouſly wrinkled along the upper; petals of the keel united by an intertexture of woolly hairs. Filaments all united in one, (which contradicts the character given by Linneus) with the tube cloven above. Legume oblong, pubeſcent[a], about half an inch long, ſwelling a little, valves very ſmooth within, without any hollows or partitions. Seeds eight or ten, (I never obſerved more than four or five,) reniform-triangular, turgidly lens-ſhaped, ſmooth and ſomewhat ſhining, ruſſet or greeniſh, with a very prominent navel[b].

Native of Britain, Denmark, Brabant, France, Portugal and ſome parts of Germany, on dry gravelly and ſandy heaths and commons. Dr. Smith ſays it is more abundant in Portugal and the weſtern parts of France than any other country except our own. Withering ſays, it does not flouriſh in very poor ſoil: certainly it is never found in ſtrong or wet ſoils. In Cornwall it is extremely luxuriant, growing to the height of ſix or eight feet. I have frequently obſerved it as high in woods, and where it has been ſown thick in incloſures. It begins to flower in may, and continues during a great part of the year. Withering ſays from february to auguſt; and Dr. Stokes, that he obſerved it to be out of flower on the 19th of auguſt. According to Ray, it flowers from may through the whole autumn till winter. This author relates that it is not leſs frequent in Belgium than it is in England; he mentions it as remarkable that he found it in Provence, where it is ſo warm. That ſeems to be its boundary ſouth. Northwards it does not grow in Sweden or Ruſſia; nor is it common in Scotland. Linneus lamented that he could hardly preſerve it alive in a greenhouſe. Many parts of Germany are wholly deſtitute of the Furze-buſh, inſomuch that Dillenius was in a perfect extaſy when he firſt ſaw our commons covered with its golden flowers. And Gerarde relates that about Dantzick, Brunſwick and in Poland, there was not a branch of it growing, except ſome few plants and ſeeds that he ſent, which were moſt curiouſly kept in their faireſt gardens, as alſo our common Broom, which he ſent thither likewiſe, being firſt deſired by divers earneſt letters.

In the ſouth of England it is called Furze; in the eaſtern counties Whins, and in the north Gorſe. In French it is Ajonc or Jonc-marin, contracted to Jomarin.]

Some years ago the ſeeds of Furze were ſown for hedges; and if the ſoil was light, it ſoon became ſtrong enough for a fence againſt cattle; but in a few years theſe hedges became naked at bottom, and ſome of the plants failing, there were gaps in them: of late years therefore they have been little uſed. On very poor hungry gravel or ſandy land this crop has produced more profit than any other, eſpecially where fuel is dear: and it may be uſed in heating ovens, burning lime and bricks, and for drying malt.

[Mr. Evelyn recommends Furze not only for hedges, but for fodder to cattle in winter. Duhamel ſpeaks much in its favour for the latter purpoſe. It has been uſed alſo for fodder in Scotland. The colliers in the foreſt of Dean, chop it ſmall, and give it to their horſes in winter, with great ſucceſs[a]. In Cornwall, where fuel is ſcarce, it is cultivated to advantage, and is generally cut to make faggots for heating ovens, which it does ſoon, burning rapidly and with a great degree of heat. The aſhes are uſed to make ley. Team horſes may be ſupported by this ſhrub, if it is cut young, and bruiſed in a mill to break the thorns. Goats, kine, ſheep and horſes feed upon the tender tops. It is in ſome reſpects a very hardy plant, and will make fences upon the bleakeſt mountains, and cloſe to the ſea ſide, where the ſpray of the ſea deſtroys almoſt every other ſhrub; but it is impatient of cold, and is often deſtroyed, or at leaſt cut down to the roots, by ſevere froſt[b].

2. The dwarf procumbent Furze has been commonly conſidered as a mere variety of the greater upright ſort; even Tournefort and Miller, who erected numberleſs varieties into ſpecies, have not diſtinguiſhed them.] The latter ſays, there are two or three varieties, but they are not worthy to be enumerated: and he affirms that he ſowed their ſeeds in the garden, and found all the varieties ariſe from the ſame ſeeds. [Parkinſon has ſeparated them, and ſays very juſtly, that the leſſer Furze-buſh groweth always lower, with ſmaller and ſhorter thorns; he remarks that the leaves abide much longer before they fall away, which is not until the end of ſpring or beginning of ſummer, ſo that both leaves and flowers are oftentimes ſeen a good while together; the flowers are ſmaller and of a paler colour; the cods are ſmall and ſhort, without any freeze upon them. Dr. Withering remarks, that the ſeed-veſſels

[a] Smith. [a] Gærtner.

[a] Silva and Hunter's edition. Young's annals, vol. 8.
[b] Withering.

in both are more or leſs woolly, ſo that Parkinſon's diſtinction, taken from that circumſtance, does not hold good. Ray, with his uſual caution, heſitates whether he ſhould conſider them as diſtinct ſpecies, though this is ſmaller and more humble, with ſhorter ſlenderer ſpines, of a paler green, but not leſs frequent, and flowering in autumn, when the larger ſort is for the moſt part going out of flower. He informs us alſo, that Doody had remarked this to differ from the common greater Furze, in having the branches always ſpread on the ground, the thorns ſhorter and leſs pungent, the flowers paler and not appearing before autumn. Dr. Withering diſtinguiſhes them thus; in the common one the corolla is longer than the calyx, and the thorns longer than the corolla: in the dwarf Furze the corolla is as long as the calyx, and the thorns are ſhorter than the corolla. Should theſe characters prove permanent, it will be readily allowed, he ſays, that they are diſtinct ſpecies. Dr. Stokes ſays this ſeems to be a truly diſtinct variety.

Dr. Smith ſays it is much lower than the common ſort, with decumbent branches; the ſpines horizontal or partly deflexed; the bractes very ſmall, brown, often ſcarcely apparent, preſſed cloſe to the calyx, as Mr. Stackhouſe ſuggeſted to him; calyx more ſilky and leſs tomentoſe, with the teeth very conſpicuous, deeply cut and diſtant; corolla little longer than the calyx, of a leſs flaming colour; legume rough-haired. It is found with the other chiefly on dry elevated heaths, but by no means ſo general; flowering from auguſt to october. I muſt confeſs it always appeared to me ſufficiently diſtinct from the preceding ſpecies.]

3. Stem woody and hard covered with a greeniſh bark when young, but afterwards becomes grayiſh. Branches ſlender and woody. It has not produced any flowers in the Engliſh gardens. Native of the Cape of Good Hope, where it uſually grows to the height of five or ſix feet.

PROPAGATION AND CULTURE.

1. 2. Theſe ſhrubs propagate themſelves very plentifully by ſeeds, which when ripe are caſt out of the pods to a conſiderable diſtance, and ſoon vegetate.

3. This is preſerved in the greenhouſe or dry ſtove with other hardy exotics. It is difficult to increaſe either by layers or cuttings.

ULMARIA. See *Spiræa*.

ULMIFOLIA. See *Grewia*.

ULMUS. *(Derivation unknown. In Greek* Πτελεα *)* *Lin. gen. n.* 316. *Reich. n.* 345. *Schreb. n.* 443. *and p.* 285. *Tournef. t.* 372. *Juſſ.* 408. *Gærtn. t.* 49.

Claſſ. 5. 2. Pentandria Digynia.

Nat. Order of *Scabridæ*. *Amentaceæ Juſſ.*

GENERIC CHARACTER.

CAL. *Perianth* one-leafed, turbinate, wrinkled: border five-cleft, erect, coloured within, permanent.

COR. none.

STAM. *Filaments* five, (ſometimes four or eight.) awl-ſhaped, twice as long as the calyx. *Anthers* four-grooved, erect, ſhort.

PIST. *Germ* orbicular, erect. *Styles* two, ſhorter than the ſtamens, reflexed. *Stigmas* pubeſcent.

PER. *Berry* oval, large, juiceleſs, compreſſed, membranaceous-winged, one-celled.

SEED one, roundiſh, ſlightly compreſſed.

ESSENTIAL CHARACTER.

Cal. five-cleft, inferior, permanent. *Cor.* none. *Capſ.* membranaceous, compreſſed flat, one-ſeeded.

SPECIES.

1. Ulmus campeſtris. *Common Elm.*
Lin. ſpec. 327. *ſyſt.* 265. *Reich.* 1. 631. *Willd.* 1. 1324. *hort. cliff.* 83. *fl. ſuec. n.* 226. *mat. med.* 75. *Woodv. med. bot.* 540. *t.* 197. *Willd. arb.* 391. *Hudſ. angl.* 109. *Wither. arr. ed.* 3. 278. *Smith brit.* 281. *Hall. helv. n.* 1586. *Hoffm. germ.* 86. *Roth. germ.* 1. 118. 2. 301. *Pollich pal. n.* 255. *Krock. ſiles. n.* 380. *Villars dauph.* 3. 797. *Allion. pedem. n.* 2068. *Gmel. it.* 1. 125. *Pallas it.* 1. 16. *Deſcnt. atlant.* 1. 220. *Hunt. Evel. p.* 114, 119. *ic. Plenck. ic. t.* 172.

U. nuda. *Ehr. beitr.* 6. 86.

Ulmus. *Dod. pempt.* 837. *Camer. epit.* 70. *Lob. ic.* 2. 89. *obſ.* 607. 1. *Matth.* 144.

U. camp. & Theophraſti. *Baub. pin.* 246.

U. vulgariſſima folio lato ſcabro. *Ger.* 1297. 1. *emac.* 1480. 1. *Raii hiſt.* 1425. *ſyn.* 468.

U. vulgaris. *Park. theat.* 1404. 1.

β. Ulmus minor folio anguſto ſcabro. *Ger. emac.* 1480. 2. *Raii hiſt.* 1426. *ſyn.* 469.

U. minor. *Park. theat.* 1404. 4.

U. ſativa. *Mill. dict. n.* 3.

Leaves doubly-ſerrate rugged, unequal at the baſe, flowers ſubſeſſile heaped.

2. Ulmus ſuberoſa. *Dutch Elm.*
Lin. ſpec. ed. Willd. 1. 1324. *arb.* 391. *Moench. weiſſenſt.* 136. *Ehrh. beitr.* 6. 87.

U. tetrandra. *Schkuhr bot. handb.* 178. *t.* 57. *b. et t.* 57. *a. f. g.*

U. ſativa. *Du Roi harbecc.* 2. 502.

U. hollandica. *Mill. dict. n.* 5.

U. carpini folio, cortice arboris albido. *Mattuſch. ſiles. n.* 170.

α. *arborea.*

β. *fruticoſa.*

γ. *pumila.*

Leaves doubly ſerrate ſomewhat unequal at the baſe, flowers ſubſeſſile conglomerate four-ſtamened, fruits ſmooth, bark of the branchlets corky-winged.

3. Ulmus montana. *Broad-leaved Elm* or *Wych-Haſel.*
Baub. pin. 427. *Wither. arr. ed.* 3. 279. *Smith brit.* 282. *Relh. cant ed.* 2. *n.* 232.

U. glabra. *Hudſ. angl. ed.* 1. 95.

U. ſcabra. *Mill. dict. n.* 2.

U. campeſtris. *Fl. dan. t.* 632. *Hudſ. angl* 129. γ.

U. effuſa. *Willd. ſpec.* 1325. *Sibth. oxon. n.* 267. *Sym. ſyn.* 67. *Abbot. n.* 192.

U. latifolia. *Cullum* 96.

U. octandra. *Schkuhr. bot. handb.* 178. *t.* 57. *b. Hoffm. germ.* 86.

U. hollandica. *Du Roi harbecc.* 2. 505.

U. ciliata. *Ehrh. beitr.* 6. 88.

U. longioribus florum et ſeminum petiolis. *Rupp. jen.* 330.

U. folio latiſſimo, floribus in petiolis pendentibus. *Buxb. halens.* 340.

U. folio latiſſimo ſcabro. *Ger. emac.* 1481. 3. *Raii hiſt.* 1426. *ſyn.* 469.

U. latiore folio. *Park. theat.* 1404. 2.

β. Ulmus glabra. *Mill. dict. n.* 4. *Cullum* 97.

U. folio glabro. *Ger. emac.* 1481. 4. *Park. theat.* 1404. 3. *Raii hiſt.* 1426. *ſyn.* 469.

Leaves doubly-ſerrate acuminate unequal at the baſe, flowers peduncled diffuſed.

[4. Ulmus americana. *American Elm.*
Lin. ſpec. 327. *Reich.* 1. 632. *Willd.* 1. 1325. *Du Roi harbecc.* 2. 506. *Wangenh. amer.* 46. *Gron. virg.* 145. *Gærtn. fruct.* 1. 225.

α. *rubra. American Red Elm.*
Ait. kew. 1. 319. *Clayton in Gron. virg.* 39.

Leaves ovate wrinkled rugged, branches red.

β. *alba. American White Elm.*
Ait. kew. 1. 320. *Clayt. in Gron. virg.* 39.

Leaves oblong rugged, branches whitiſh.

γ. pendula. *American drooping Elm.*
Ait. kew. 1. 320.

Leaves oblong ſmoothiſh, branches pendulous.

Leaves equally ſerrate, unequal at the baſe.

5. Ulmus nemoralis. *Hornbeam-leaved Elm.*
Ait. kew. 1. 320. *Willd. ſpec.* 1. 1526. *arb.* 395.

Leaves oblong ſmoothiſh equally ſerrate almoſt equal at the baſe, flowers ſeſſile.

6. Ulmus pumila. *Dwarf Elm.*
Lin. ſpec. 327. *Reich.* 1. 632. *Willd.* 1. 1326. *Gmel. ſib.* 3. 105. *n.* 82. *Pallas roſ.* 76. *t.* 48.

U. humilis. *Amm. ruth. n.* 160.

U. pumila, foliis parvis, glabra, cortice ſungoſo. *Pluk. alm.* 293.

Leaves equally ſerrate, equal at the baſe.

7. Ulmus integrifolia. *Entire-leaved Elm.*
Roxb. corom. 1. 56. *t.* 78. *Willd. ſpec.* 1. 1326.

Leaves quite entire.

DESCRIPTION

DESCRIPTIONS, &c.

1. Bark cloven, on the branches corky. Leaves rugged on both ſides, villoſe beneath along the ſmall veins. Flowers from their proper gems, cluſtered, ſcarcely pedunculed, numerous, browniſh-fleſh-coloured. Capſules oblong. Timber hard tough [5]. The flowers have a violet ſmell [6].

This Elm is a very great high tree. The bark of the young trees, and the boughs of the elder trees are ſmooth and very tough, and will ſtrip or pill from the wood a great length without breaking: the bark of the body of the old tree, as the trees grow in bigneſs, tears or rents, which makes it very rough. The innermoſt wood is of a reddiſh yellow or browniſh colour and curled, and after it is dry very rough and hard to cleave. The wood next the bark or ſap is white. Before the leaves come forth, the flowers appear, about the end of march, growing on the twigs or branches, cloſely compacted or thruſt together, of a red colour: after which come flat ſeeds, more long than broad, not much unlike the garden Arach ſeed in form and bigneſs; for the moſt part falling away before or ſhortly after the leaves ſpring forth, but ſome hang on a great part of the ſummer. Leaves dark green, the middle-ſized ones two inches broad and three inches long, rough or harſh on both ſides, indented about the edges, and many times crumpled, having a nerve in the middle, and many ſmaller nerves growing from it; on one ſide always longer than on the other [7].

Native of Europe and Barbary. Linneus ſays it is ſcarcely to be found above Helſing and Finland. (64°). Evelyn informs us, that before the walks and viſtas were planted at Aranjuez, Caſal del Campo, Madrid, the Eſcurial, &c. with trees which Philip the ſecond cauſed to be brought out of England, it does not appear that there were any elms in Spain [8]. It is doubted by this learned planter and others whether the Elm be indigenous of England. Some affirm, ſays Evelyn, that it was firſt brought out of Lombardy; there are no conſiderable woods of it any where; Shropſhire and ſeveral other countries, and rarely any beyond Stamford to Durham, having any growing in many miles together [9]. Aubrey informed Mr. Ray that the Elm is not to be found to the north of Grantham or Stamford.

However this may be, we certainly poſſeſſed this tree in the Saxon times: and there can be no ſtronger proof, ſays Dr. Hunter, that the Elm is a native of England, than that there are near forty places which take their names from it, and moſt of them mentioned in Doomſday-book. Chaucer lived at Newelm in Oxfordſhire; Dryden at Nine-elms near Lambeth. There is alſo Barn-elms, &c.] Mr. Miller ſays, it is very common in the north-weſt counties of England, where it is generally believed to grow naturally in the woods.

The Elm grows to a great ſize; in little more than forty years, ſays Mr. Evelyn, it will arrive to a load of timber. He mentions many then ſtanding in Epſom pariſh, which would bear almoſt three feet ſquare for more than forty feet. An Elm planted by Henry IV. was ſtill ſtanding in the Luxembourg gardens at Paris, when the Revolution broke out; but whether it has ſurvived that event, I am unable to ſay. This great [illegible]beth's famous contemporary queen Elizabeth is ſaid to have planted an Elm with her own hand at Chelſea, where her father had a palace in which ſhe was brought up when an infant. It went always by her name, and I remember it a ſtately flouriſhing tree, except that the top was decayed. It ſtood at the upper end of Church lane, near where the turnpike now is, and was a boundary of the pariſh on the north ſide. It was felled, to the great regret of the neighbourhood, on the eleventh of november 1745, and ſold for a guinea by Sir Hans Sloane, Bart. lord of the manor. It was thirteen feet in circumference at bottom, and ſix feet ſix inches, at the height of forty-four feet: the height was one hundred and ten feet, of which fifteen feet at the top were decayed, the tree having ſuffered by the hard froſt in 1739—40.

[5] Smith. [6] Withering. [7] Goodyer in Ger. emac.
[8] Silva, b. 1. c. 4. § 7. [9] Id. ib. § 8.

In a manuſcript obligingly lent me by Craven Ord, Eſq. and probably written by Oldys, mention is made of ſeveral remarkable Elms. As of one at Charlton, in Kent, about which Horn-fair is kept, ſpreading eight yards on every ſide, the height about ten yards, but the trunk not above a foot in diameter.

One of Sir Francis Bacon's Elms in Gray's Inn walks was felled upon a ſuſpected decay in 1720 or 1726, and was above twelve feet round: it had forty-five feet of timber in it. In 1750 not above eight trees of his plantation were left. They were planted in 1600.

At Fulham are or were ſome Elms, planted in the time of king Edward VI: and one at Richmond, ſaid to be planted by a courtier of king Henry VII, whilſt that king kept his court there, and yet (in Oldys' time) in its prime.

The walk of Elms on that ſide of the Mall in St. James's Park next to the palace, are ſome of them about one hundred and ſixty years of age. One which ſtood at the upper end turning up to the Green Park, being blown down, was found to be above ſixty feet in height, and near twelve in circumference near the root. (They are now conſiderably more than two hundred years old, but very few (in 1805) are remaining, and thoſe very much decayed.)

Two Elms at St. John's College in Oxford, were ſizeable trees in the reign of queen Mary.

Stately rows of Elms at Hilhall in Eſſex, are ſaid to have been planted by Sir Thomas Smith.—So far Mr. Ord's manuſcript.

Mr. Boutcher informs us that he ſold a line of Engliſh Elms, above ſixty in number, at a guinea a tree, at twenty-four year's growth: they were about eighteen inches in diameter, a foot above ground, and forty feet high.

Mr. Coxe, in his account of Monmouthſhire, mentions an ancient Elm at Raglan Caſtle, which is twenty-eight feet five inches in circumference near the root.

Mr. Marſhall ſays, the largeſt Elms he has ſeen of the fine-leaved ſort, as he calls it, grow in the Vale of Gloceſter; and that there are ſeveral in the pariſh of Churcham down, which girt, at five feet high, from ten to twelve feet. But the fineſt Elm in the vale ſtands in the road between Cheltenham and Tewkeſbury, within a few hundred yards of the Boddington Oak. It is known by the name of Piffe's Elm; and the toll-gate is called Piffe's Elm pike. The ſmalleſt girt of this tree, which falls about five feet high, was in 1783 exactly ſixteen feet. At ten feet high it throws out large arms, which have formerly been lopped, but are now furniſhed with tree-like ſhoots, riſing ſeventy or eighty feet high, with an extent proportionable. There is an Elm of the ſmall-leaved ſort in Hyde Park, the ſtem of which is larger than this; but it is hollow, its head much impaired, and is a mere dotard compared with Piffe's Elm [1].

Elm timber, ſays Mr. Evelyn, is of ſingular uſe; eſpecially where it may lie continually dry, or wet, in extreams; therefore proper for water-works, mills, the ladles and ſoles of the wheel, pipes, pumps, aqueducts, pales, ſhip planks beneath the water-line: alſo for wheelrights, handles for the ſingle hand-ſaw. Rails and gates of Elm, thin-ſawed, are not ſo apt to rive as Oak. The knotty for naves and hubs; the ſtraight and ſmooth for axle-trees; and the very roots for curiouſly dappled works. It has ſcarce any ſuperior for kerbs of coppers, feather edge, and weather-boards; but it does not without difficulty admit the nail, without bereing. Chopping-blocks, blocks for the hat-maker, trunks and boxes to be covered with leather; coffins; dreſſers and ſhovel-board tables of great length, of a luſtrous colour, if rightly ſeaſoned. Alſo and for the carver by reaſon of the tenor of the grain, and toughneſs which fits it for all thoſe curious works of frutages, foliage, ſhields, ſtatues, and moſt of the ornaments appertaining to the orders of architecture, and for not being much ſubject to warping. Vitruvius commends it both for tenons and mortaiſes. It makes alſo the ſecond ſort of charcoal [2].

Mr. Marſhall adds, that in places where bricks are rendered dear, by the want of a proper ſupply of fuel,

[1] Planting, 2. 429. [2] Silva, b. 1. c. 4.

as in Surry and Kent, great quantities of this tree are cut up for ſtuds and weather-boarding for the ſides of barns, ſtables, and even dwelling-houſes: and in the ſouthern counties in general it is much uſed in carpenter's work of all kinds as a ſubſtitute for oak [a].

The bark dried and ground to powder has been mixed with meal in Norway to make bread, in times of ſcarcity.—The leaves ſuffered to dry upon the branches, and laid up in a dry barn prove a great relief to cattle in winter, where fodder is ſcarce: they are acceptable to horſes, kine, ſheep, goats, and ſwine. In ſome parts of Herefordſhire they gather them in ſacks for this purpoſe. It is ſaid that ſilk-worms will devour the leaves when tender with great avidity [b].

The inner tough bark has no remarkable ſmell, but a bitteriſh taſte, and abounds with a ſlimy juice, which has been recommended in nephritic caſes, and externally as a uſeful application to burns; the bark of the branches is more bitter than that of the trunk, and therefore probably more efficacious.

The complaints for which it is chiefly recommended are of the cutaneous kind allied to herpes and lepra. A decoction drank freely has been known to carry off the water in dropſies. Dr. Lettſom found it moſt effectual in what he ſuppoſes to be the lepra ichthyoſis of Sauvages, in which it ſucceeded after all the medicines uſually employed in ſuch caſes had failed. A remarkable inſtance of its efficacy alſo in lepra vulgaris, affecting the whole body, is related by Banau; who propoſes its uſe in various other diſeaſes, as fluor albus, rheumatiſm, old ulcers, cancerous and ſcrophulous affections, tinea capitis, ſcurvy, &c. In very obſtinate caſes it is neceſſary to perſevere in the uſe of the decoction for ſome months [c].

Elm twigs were anciently uſed as inſtruments of caſtigation. For Plautus ſpeaks of a rogue who had been chaſtiſed ſo often, that he had waſted all the Elms in the country in rods and cudgels.

The Elm, ſays Mr. Gilpin, naturally grows upright; and when it meets with a ſoil it loves, riſes higher than the generality of trees; and after it has aſſumed the dignity and hoary roughneſs of age, few of its foreſt brethren, though properly ſpeaking it is not a foreſter, excel it in grandeur and beauty. The character of the Elm, in its ſkeleton partakes much of the Oak; ſo much, that when it is rough and old, it may eaſily, at a little diſtance, be miſtaken for an Oak. In full foliage its character is better marked; and no tree is better adapted to receive grand maſſes of light; nor is its foliage, ſhadowing as it is, of the heavy kind. Its leaves are ſmall, and this gives it a natural lightneſs; it commonly hangs looſely, and is in general very picturеſque [d].

β. The narrow-leaved Elm is like the other, but much leſſer and lower; the leaves are uſually about two inches and a half long, and an inch or an inch and quarter broad; indented about the edges, and having one ſide longer than the other, and being harſh on both ſides like the other. Mr. Goodyer ſays he ſaw it growing but once, and that in the hedges by the high road between Chriſtchurch and Limmington in the new foreſt in Hampſhire, about the middle of ſeptember 1624; and that he brought ſome ſmall plants of it, not a foot in length, which when he was giving this account in 1633, were riſing up ten or twelve feet high, and growing with him by the other, were eaſily to be diſcerned apart [e].]

This is called in the nurſeries the Engliſh Elm; Mr. Miller ſays improperly, for it is not a native of England, and is only found near London, or in plantations where the trees were procured from that neighbourhood. Some perſons, he ſays, have ſuppoſed that it was brought from Germany. [Dr. Smith ſtates it to be the opinion of Mr. Crowe, that this is the origin of all the cultivated varieties.

Mr. Miller ſays, that there are ſeveral other varieties, but not worth noticing; among theſe is that with variegated or blotched leaves. Mr. Gilpin mentions the Weeping Elm, of which the fineſt ſpecimens are in St. John's Walks at Cambridge.

2. The cork-barked, or as we commonly call it, the Dutch Elm, becauſe it was introduced from Holland at the beginning of king William's reign, is chiefly remarkable for its quick growth, and fungous rough bark. The leaves are very large and harſh on both ſides, not ſo unequal at the baſe as the others. The flowers according to Schkuhr and Willdenow, have only four ſtamens. Native of Europe. The wood is of very inferior quality.

3. The broad-leaved Elm, called alſo the Wych Haſel, has the bark of the branchlets ſmooth and even. The leaves are wider than in the preceding, leſs harſh, and acuminate. The flowers are on longer peduncles, and ſpread out looſely. The fruit is roundiſh. The wood is leſs ſolid [f].

The trunk ſoon divides into long wide-ſpreading winged branches; and when at its full growth ſeldom riſes to above one-third of the height of the campeſtris. It flowers when even under thirty feet high, whilſt that ſeldom flowers till it has gained a much greater age and height. The branches are very brittle. Leaf-buds and flower-buds diſtant. Flowers ſcentleſs, from ſix to fifteen in a corymb, on long pedicels: clefts of the calyx five, ſix, and in one inſtance four and nine. Stamens five and ſix (according to Schkuhr eight.) Stigmas three [g]. This groweth, ſays Goodyer, to be a very great tree, and alſo very high, eſpecially in woods among other trees. The bark on the outſide is blacker than that of the firſt, and is alſo very tough, ſo that when there is plenty of ſap, it will ſtrip or peel from the wood of the boughs from the one end to the other, a dozen feet in length or more without breaking; whereof ropes are often made. The timber hereof is in colour near like the firſt: it is not ſo firm or ſtrong for naves, but will more eaſily cleave. The branches or young boughs are groſſer and bigger, and do ſpread themſelves broader, and hang more downwards. The ſeed is ſomewhat bigger. The leaves are much broader and longer than any of the kinds of Elm, uſually three or four inches broad, and five or ſix inches long, alſo harſh on both ſides, indented about the edges, near reſembling the leaves of the Haſel; the one ſide of them is moſt commonly longer than the other. This proſpereth and groweth naturally in any ſoil moiſt or dry, on high hills and in low vallies in good plenty in moſt places in Hampſhire, where it is commonly called Witch Haſell. Old men affirm, that when long bows were in uſe, there were very many made of the wood of this tree, for which purpoſe it is mentioned in the Engliſh Statutes by this name of Witch Haſell. It hath little affinity with Carpinus, which in Eſſex is called Witch Haſell [h].

It is found in ſhady lanes and the outſkirts of woods in moſt parts of England, and ſeems clearly to be indigenous. In Scotland and the north of England, it appears to prevail more peculiarly, from the ſcarcity of the campeſtris, which is found only near villages; whereas this is found in woods and brakes, as well as hedgerows [i].

Mr. Cook mentions a Witch Elm felled in Sir Walter Bagot's park in Staffordſhire, which lay forty yards in length; was at the ſtool ſeventeen feet diameter; broke in the fall fourteen load of wood, four eight load in the top; yielded eight pair of naves, eight thouſand ſix hundred and ſixty feet of boards and planks: the whole was eſteemed ninety-ſeven tuns [k].

A Wych Hazel, though it had loſt a conſiderable leading branch in the great ſtorm of 1703, yet when felled contained eight loads of timber, and being ſawn off at ſeven feet above the but, meaſured near eight feet in diameter. It was a planted tree [l].

The Wich Elm, ſays Mr. Gilpin, is perhaps generally more picturеſque than the common ſort, as it hangs more negligently; though at the ſame time with this negligence, it loſes, in a good degree, that happy ſurface for catching maſſes of light, which we admire in the common Elm. We obſerve alſo, when we ſee

[a] Planting, 2. 430. [b] Evelyn, b. 1. c. 5. and Withering, 278. note. Tranſ. Arts, 2. 157. [c] Woodville, 541. Withering. Med. tranſ. 2. 203. Med. mem. 152. [d] Foreſt ſcenery, 1. 39, 40. [e] Goodyer in Ger. emac. 1480. [f] Smith. [g] Ger. emac. 1481. [h] Stokes in Withering. [i] Evelyn, b. 3. c. 3. [k] White's Selburne.

this tree in company with that, its barkis ſomewhat of a lighter hue. The Wich Elm is found in Scotland, not only in the plains and vallies of the Lowlands; but is hardy enough to climb the ſteeps and flouriſh in the remoteſt Highlands, though it does not attain, in thoſe climates, the ſize to which it grows in England[1].

I have preſerved the various orthography of different authors, not knowing which is right. Old writers always ſpell it *Witch*, as Goodyer, Ray, Evelyn, &c. and it is ſo pronounced in ſome parts; but the prevailing mode of pronunciation and ſpelling ſeems now to be *Wych*, and this tree is commonly called by that name, without the adjunct of Elm or Haſel. Mr. Gilpin is ſingular in his mode of orthography.

This ſpecies being undoubtedly indigenous, and formerly much uſed for bows, if it could be proved that it was anciently known by the name of Elm, probably was the occaſion of Elm forming part of the appellation of ſo many villages, and not the campeſtris. It is certain however that in the Statutes it is called Witch Haſell.

The timber of this tree may be applied to the ſame uſes with the other, but it is inferior in toughneſs and ſtrength.

β. The ſmooth-leaved Elm is in bigneſs and height like the firſt, but the boughs grow as thoſe of the Witch Haſell do, hanging more downwards than thoſe of the common Elm. The bark is blacker than that of the firſt kind, but will alſo peel from the boughs. The flowers and ſeeds are like thoſe of the firſt. The leaves alſo, in form, are like that, but ſmooth in handling on both ſides. My worthy friend and excellent Herbariſt of happy memory, Mr. William Coys of Stubbers in the pariſh of Northokington in Eſſex, told me, that the wood of this kind was more deſired for naves of carts than that of the firſt. I obſerved it growing very plentifully as I rode between Rumford and the ſaid Stubbers, in the year 1620, intermixed with the firſt kind, but eaſily to be diſcerned apart. It is in thoſe parts uſually called Witch Elm[m]. Mr. James Sherard obſerved it in the road beyond Dartford in Kent. Ray remarks that it is very frequent in Cambridgeſhire. It is ſo ſtill, and I have ſometimes thought that it bids at leaſt as fair as the Dutch Elm to be taken for a diſtinct ſpecies. Dr. Plot ſpeaks of a variety of this with narrower and more acuminate leaves. *Miller, n.* 6.

Linnæus conſidered all the European Elms as making only one ſpecies; Goodyer, as we have ſeen, deſcribed four. Ray followed him. Our modern Botaniſts diſtinguiſh two ſpecies, and conſider each of the two others as forming a variety of theſe. The German botaniſts make the Dutch Elm a third ſpecies, not merely from the cork-like appearance of the bark on the twigs, but alſo becauſe the flowers have only four ſtamens; whereas the campeſtris has five, and the montana eight. But the number of ſtamens is too uncertain to form ſpecific characters upon them only.]

Mr. Miller has ſix ſpecies. 1. Ulmus campeſtris. The common rough, or broad-leaved Witch Elm. The Mountain Elm of Evelyn. The branches ſpread, and do not grow ſo erect as thoſe of the third ſort. The leaves about three inches long and two broad, on ſhort foot-ſtalks. The flowers come out in march upon the lateral twigs, in cluſters; they are of a deep red colour, and are ſucceeded by oval bordered capſules, containing one roundiſh compreſſed ſeed, which ripens in may. The leaves not coming out till late in the ſpring, few perſons plant this tree near their habitations.

2. Ulmus ſcabra. The Witch Hazel, or rough and very broad-leaved Elm; by ſome unſkilful perſons called the Britiſh Elm. (Ulmus montana, n. 3.) This grows naturally in the north of England where it is frequently called Witch Hazel, from the reſemblance of the young ſhoots and leaves to thoſe of Hazel. They are ſix inches long, and almoſt four broad. It grows to a great ſize: the bark of the young ſhoots is very ſmooth and tough, of a yellowiſh brown colour with ſpots of white. The flowers grow in cluſters towards the end of the twigs; they have long leafy calyxes of a green colour, and appear in the ſpring before the leaves: the ſeeds ripen at the end of may. The wood is inferior to that of the firſt ſort.

[This, ſays Mr. Evelyn, (ſilva, b. 1. c. 4. §. 5.) has a more ſcabrous harſh leaf, but very large, it becomes an hugh tree, and is diſtinguiſhed by the name of Witch Hazel in our Statute Books, as ſerving formerly to make long Bowes of. The timber is not ſo good as the firſt more vulgar; but the bark at time of year, will ſerve to make a coarſe baſt-rope with.

This ſort is not proper for hedge-rows, but for woods. There, being planted near each other, inſtead of throwing out their monſtrous arms, they will aſpire, and carry up a noble trunk to a vaſt height[n].]

3. Ulmus ſativa. Small-leaved or Engliſh Elm; (by ſome called Corniſh Elm.) The flowers are of a purpliſh red colour, and generally appear the beginning of march; but Mr. Miller ſays that he could never obſerve any ſeeds upon this ſort. It is a variety of the firſt.

4. Ulmus glabra. Smooth-leaved Witch Elm. (called by Evelyn the French Elm. U. montana β. n. 3.) It is very common in ſeveral parts of Hertfordſhire, Eſſex and other north-eaſt counties: grows to a large tree and is much eſteemed. The branches ſpread out like thoſe of the firſt ſort. The leaves are ovate, ſharply ſerrate, ſmoother than the other ſorts, and do not appear till the middle or end of may; for which reaſon it is ſeldom planted near habitations.

[Mr. Evelyn ſays, the leaves are thicker and more florid, glabrous and ſmooth, delighting in lower and moiſter grounds, where it will ſometimes riſe to above an hundred feet in height, and a prodigious growth, in leſs than an age; myſelf having ſeen one planted by the hand of a counteſs living not long ſince, which was near twelve feet in compaſs, and of an height proportionable[o].]

5. Ulmus hollandica. The Dutch Elm. (U. ſuberoſa, n. 2.) It was brought from Holland in the beginning of king William's reign; was for ſome time a faſhionable tree, and was recommended for its quick growth. It was in great requeſt for forming hedges in gardens, for which purpoſe it was one of the moſt improper trees that could be choſen, on account of its very ſtrong irregular ſhoots, which are diſtant from each other. The leaves are very large and rough, and the branches being covered with a fungous bark, when the hedges were ſheared, they appeared naked the whole ſummer after. The wood of this tree being good for nothing, it is almoſt baniſhed this country.

6. Ulmus minor. The ſmooth narrow-leaved Elm; by ſome called the Upright Elm; by others the Iriſh Elm. The branches have a ſmooth grayiſh bark, and grow erect. The leaves are narrower and more pointed than thoſe of the Engliſh Elm, and are ſmoother: they are later in coming out in the ſpring, but continue longer in autumn. It is found in hedge-rows in ſeveral parts of England: [and ſeems to be a variety of the ſmooth-leaved Elm, n. 3. β.

Mr. Hanbury enumerates ſeven ſorts of the European Elm. 1. The true Engliſh Elm. 2. The narrow-leaved Corniſh Elm. 3. The Dutch Elm. 4. The black Worceſterſhire Elm. 5. The narrow-leaved Wych Elm. 6. The Broad-leaved Wych Elm. 7. The upright Wych Elm.

He obſerves however that it would be endleſs to enumerate all the ſorts, (or rather varieties), having counted more than twenty in woods and hedges.

Upon which Mr. Marſhall juſtly remarks, that although we ſee, among cultivated Elms, individuals widely different from each other, yet every man who has attended cloſely to theſe trees as they grow in different ſoils and ſituations, muſt have obſerved ſuch a chain of intermediate varieties, as renders it very difficult to diſtinguiſh them ſpecifically; and muſt frequently have met with an individual, which he was puzzled to find a name for. He allows however that we cannot deſcribe more than two obviouſly diſtant varieties, (or ſpecies as our modern Engliſh botaniſts think them to be.) Theſe he calls 1. The Coarſe-

[1] Foreſt ſcenery, 1. 41. [m] Goodyer in Ger. emac. 1482. [n] Hunter on Evel. ſilva. [o] Silva, b. 1. c. 4.

leaved Elm; the Cheſnut-leaved, the broad-leaved, the Wych Elm, or the North-country Elm. (Our Ulmus montana.)

2. The Fine-leaved Elm; the Hazel-leaved, Narrow-leaved, or South-country Elm, (Our Ulmus campeſtris.)

If we examine, he ſays, the extremes of the chain of varieties, we ſhall find two very different in their general appearance, and ſufficiently diſtinct to be conſidered as diſtinct ſpecies. The leaf of the one is nearly oval, with an obtuſe lance-like point; that of the other is nearly circular, ſaving a narrow ſlender point, growing as it were out of the periphery of the circle. The membrane of the one is groſs and rigid, of the other comparatively thin, delicate and ſupple: when held againſt a ſtrong light, the former appears opake; the latter comparatively tranſparent. The nerves of that are ſtronger, ſet cloſer, and run more parallel: of this more ſlender, fewer in number, and dividing more into branches. That, in its general appearance, bears ſome reſemblance to the leaf of the Cheſnut; this, a very ſtrong one to that of the Hazell. The branches of the Coarſe-leaved ſort are clear, ſtraight and ſlender, with a ſilvery bark: thoſe of the fine-leaved are more divided, run ſhorter lengths, and are covered with a leſs delicate bark. The general tendency of the latter is more upright, being eaſily trained to a greater length of ſtem: that of the former is to divide into ſpreading arms, and when attempted to be trained up with a tall ſtraight ſtem, generally grows ſtooping with a nodding head like the panicle of an oat. The Coarſe-leaved Elm matures its ſeed in this iſland, and is probably a native: the Fine-leaved ſeldom if ever perfects its ſeed with us, and is probably an exotic.

The Coarſe-leaved Elm will grow to a very great ſize. Mr. Marſham mentions a Wych Elm by Bradley Church in Suffolk, which in 1754, at five feet high, meaſured twenty-five feet five inches and a half round, and in 1767, twenty-ſix feet three inches.

The general appearance of this tree ſometimes comes near to that of the Oak: but in general it is liable to be ragged, rather than irregular, and in point of ornament is frequently exceeded by the Lime, the Beech and the Fine-leaved Elm.

The whole tribe of Elms have a peculiar excellency by which they ſtand alone, and are rendered in a great meaſure independent of other woods; namely, their tenacity or adheſive quality, being leſs liable to be ſplit than other woods: this renders them ſingularly uſeful for many important purpoſes. The keels of ſhips are now almoſt univerſally laid with Elm; and ſometimes the gunwales, eſpecially of ſhips of war, are made of this wood; it being leſs liable to ſplinter off in action even than Engliſh Oak; as keels made of this wood are leſs apt to ſplit in taking the ground. Another very important uſe of Elm is for naves of carriage wheels, both of uſe and pleaſure. There is a ſort in Yorkſhire peculiarly adapted to this purpoſe, which goes by the name of the Nave Elm. It is of the coarſe-leaved kind.

The Fine-leaved Elm will alſo grow to a great height and conſiderable bulk. Notwithſtanding we are accuſtomed to ſee the hedge-row Elms trimmed up to mere may-poles, or at beſt with cloſe aſpiring heads; yet, if planted ſingly, and ſuffered to form their own heads, they will take an outline equal to that of the Beech or Lime: and where an immediate object or ſkreen is wanted the Elm has two advantages; it may be removed when of a great ſize, and its growth is quicker than that of any other tree which is equally ornamental. The uſes of it are ſimilar to thoſe of the Coarſe-leaved kind [9].

We now turn to the American Elms, which are not noticed by Mr. Miller, though they were cultivated by Mr. James Gordon in 1752; that is ſixteen years before the laſt folio edition of the Dictionary was publiſhed.

4. Three varieties of the American Elm are mentioned in the catalogue of the Royal Botanic Garden at Kew.

1. The Red or Canada Elm, which grows in its native country to a vaſt ſize. The leaves are ovate, wrinkled and ſcabrous, broader than thoſe of our Dutch or Wych Elms, ſmoother and of a much more lively green. The branches are red, whence it has the name of Red Elm. It grows very faſt here [1]. Gronovius diſtinguiſhes it from the White, not only by the leaves, but by its not attaining ſo great a height or thickneſs.

2. The White Elm is ſo named from the whiteneſs of the branches. The leaves are ſcabrous, but oblong. Gronovius deſcribes it as having narrower leaves than the red, and the trunk beſet at intervals with twigs cloſely cluſtered together below the boughs. Boats are made from the bark of it. Kalm deſcribes the method of making them very particularly. He ſays that the White and Red Elm are ſo called from the colour of the wood [2].

3. The Drooping or Weeping Elm; diſtinguiſhed by its oblong ſmoothiſh leaves, and its pendent branches.

The American differs from the European Elm in having the leaves equally, or as Gronovius expreſſes it quite ſimply or ſingly ſerrate.

Gærtner deſcribes the fruit as a ſuperior, leafy-compreſſed, obovate capſule, attenuated into the peduncle which is guarded by the permanent calyx, one-celled, valveleſs: cell in the centre of the capſule, ſpongy on the outſide, very ſmooth within, compreſſed like a lens. Seed ovate, pointed at the end, compreſſed like a lens, of a greeniſh bay colour; faſtened by a thread which ſprings from the top of the cell, and adheres to one margin of the ſeed to the very baſe.

Native of the foreſts of Virginia and other parts of North America.

5. The Hornbeam-leaved Elm is alſo a native of North America; and was cultivated by Mr. James Gordon in 1760.

6. In ſouthern Ruſſia, the Ulmus pumila often contends with the Oak in ſtature. The branches are more ſlender than in the other ſpecies, divaricating, and of a grayiſh aſh-colour. Leaves alternate, ſome ſimply, others unequally, others again doubly ſerrate, ſmoother than in U. lævis, (our campeſtris β); equal or unequal at the baſe, leſs ſo however than in the others, and the petioles a little longer: both petioles and twigs are ſmooth. Stipules ruſt-coloured, membranaceous-briſtle-ſhaped. Seeds on ſhort peduncles, collected into ſeſſile globular umbels; the ſurrounding membrane is almoſt orbicular, cut but not acuminate, with the teeth of the cut very ſhortly curved in; it is ſmooth, very tender, and finely veined, pale gray: the ſeed itſelf is alſo gray; and ripens in may, if not ſooner.

Wood very hard, and tough, gray, remarkably waved with tranſverſe lines of a deeper colour, larger fibred, and when expoſed to the air becomes yellower than Oak, and is preferable to it. The aſhes exported from Riga under the name of *Waidoſche* are made entirely from the wood of this and other Elms, burnt in brick furnaces. The root is beautifully variegated and fit for the uſe of the turner, &c. The bark does not readily peel off, and therefore is not uſed for making ropes.

A variety of this is common, with both young and old branches winged and rendered irregular with compreſſed fungous excreſcences of the bark, [illegible] interrupted.

Beyond the lake Baikal, on the banks of the lake it differs leſs, but in the mountains very much, from the Ruſſian. The branches are ſlender, wand-like, whitiſh-gray, divaricating. Leaves frequent, ſmall, lanceolate, equal at the baſe, uniformly ſerrate, the ſerratures very ſeldom cut. Petioles longiſh, ſcarcely pubeſcent. Stipules membranaceous-ſetaceous. Seeds ſmaller and whiter, on very ſhort peduncles, almoſt orbicular, except the notch, and the linear proceſs by which they are inſerted into the calyx. They ripen in june.

In mountain rocks there is a variety with ſhorter, thicker branches, winged with fungous excreſcences of the bark. When Pallas obſerved it in the middle of may, it was in flower without leaves: the flowers duſky purple.

[9] Planting, vol. 2. p. 434. ed. 2.

[1] Hunter on Evelyn and Ait. kew. [2] Travels, vol. 2. p. 298. Engl. edit.

purple, pubeſcent, ſeſſile, in ſubſeſſile little balls; with large, twin, pale anthers, edged with red.

In ſandy lands on the contrary the trees are ſmall, very finely branched, with ſmall leaves, full of bladders formed by the Chermes.

The leaves, in this part of Ruſſia, are ſometimes uſed as a ſuccedaneum for Tea.

Beſides this, Pallas has our ſmall-leaved Elm, (U. campeſtris β), which he names Ulmus lævis.—Ulmus campeſtris, our common Elm, n. 1.—And U. hollandica; which he thinks may be a degenerate variety of the campeſtris [1]; and in that I cannot but agree with him.

7. Trunk ſtraight and high. Bark a little ſcabrous, of a dirty-gray colour. Branches numerous, ſpreading ſo as to form a large ſhady head. Leaves alternate, two-faced, ſhort-petioled, ovate (ſometimes cordate); entire, ſmooth, ſhining; from three to five inches long, and about two broad. Stipules lanceolate, falling. Flowers hermaphrodite and male mixed, from little gems over the naked branchlets. Calyx four, five or ſix-leaved: leaflets ſpreading, ſmall, oval, falling. Filaments ſeven, eight, or nine, exceedingly ſhort. Anthers linear, erect, two-lobed. Germ ſuperior, obovate, emarginate, compreſſed. Styles two, ſhort, incurved, permanent. Stigmas acute, woolly. Capſule pedicelled, orbicular, leafy, compreſſed, emarginate, one-celled, one-valved, not opening. Seed one. The male flowers are the ſame, except that there is no rudiment of a piſtil.

The firſt parts of the flower that appear, are the anthers, which are then reddiſh; next the calyx increaſes, and becomes viſible to the naked eye, but is at all times ſmall, and if not looked for, may paſs unperceived.

This whole leaved Elm is a very large timber tree, a native of the Circar mountains; called by the Telingas *Naulie*. It flowers during the cold ſeaſon, and caſts its leaves about the cloſe of the wet ſeaſon; but theſe come out again in march. The wood is by the natives reckoned of a good quality, and employed for a variety of uſes [2].]

PROPAGATION AND CULTURE.

All the ſorts of *Elm* may be either propagated by layers or ſuckers taken from the roots of the old trees, the latter of which is generally practiſed by the nurſery gardeners; but as theſe are often cut up with indifferent roots, they often miſcarry, and render the ſucceſs doubtful; whereas thoſe which are propagated by layers are in no hazard, and always make better roots, and come on faſter than the other, and do not ſend out ſuckers from their roots in ſuch plenty, for which reaſon this method ſhould be more univerſally practiſed. And ſince a ſmall compaſs of ground filled with ſtools of theſe plants will be ſufficient to furniſh a nurſery of a conſiderable extent, annually, with layers to be tranſplanted, it is richly worth every perſon's while, who would cultivate theſe trees, to allot a ſpot of ground for this purpoſe.

The beſt ſoil for ſuch a nurſery is a freſh Hazel loam, neither too light and dry, nor over moiſt and heavy; this ground ſhould be well trenched, and if a little rotten dung is buried therein, it will be of ſervice; in doing of this great care ſhould be taken to pick out all the roots of pernicious weeds, which, if left in the ground, would be very injurious to the layers, and cannot afterwards be ſo eaſily rooted out; then having laid the ground level, the plants muſt be planted at about eight feet aſunder each way. The beſt ſeaſon for this work is in autumn, as ſoon as the leaves begin to decay, that they may take root before the dry weather in the ſpring comes on, whereby a great expence of watering them will be ſaved; for if they are well ſettled in the ground before the dry weather, they will require little more than to mulch their roots to keep the earth from drying.

Theſe plants ſhould be permitted to grow rude two years, during which time the ground between ſhould be carefully cleaned and dug every ſpring, by which time they will be well rooted and have made pretty ſtrong ſhoots, ſo that they may be laid in the ground. The manner of performing this being already deſcribed in the article LAYING, I ſhall forbear repeating it in this place.

When theſe layers are well rooted, which will be in one year, they ſhould be taken off, and tranſplanted out into a nurſery, which ſhould be upon a good ſoil, and well prepared, (as before for the ſtools.) The plants ſhould be planted in rows about four feet aſunder, and two feet diſtance plant from plant in the rows. This ſhould be done in autumn as ſoon as the leaves begin to decay, and if there is ſome mulch laid upon the ſurface of the ground about their roots, it will preſerve them from being hurt by froſt in winter, and from drying winds in ſpring, and thereby ſecure them from all hazard.

The following ſummer the ground between them ſhould be conſtantly kept clean from weeds, and in autumn they ſhould be pruned up, cutting off all ſtrong lateral branches, which, if left on, would impede their upright growth; but there muſt be ſome of the ſmaller ſhoots left on to detain the ſap, in order to augment the ſtems of the trees; for where they are pruned up too naked, they are apt to grow up too ſlender to ſupport themſelves, ſo that their heads will recline to the ground, and cauſe their ſtems to grow crooked.

In this nurſery they may remain four or five years, obſerving conſtantly to dig the ground between them every ſpring, and to trim them as before directed, which will promote their growth, and render them ſtrong enough to tranſplant out where they are to remain, in the time before mentioned.

All ſorts of Elms, the Wych excepted, on account of the large arms which it throws out, are very proper to plant in hedge-rows, upon the borders of fields, where they will thrive much better than when planted in a wood, or cloſe plantation, and their ſhade will not be very injurious to whatever grows under them; but when theſe trees are tranſplanted out upon banks after this manner, the banks ſhould be well wrought, and cleared from all other roots, otherwiſe the plants, being taken from a better ſoil, will not make much progreſs in theſe places. About michaelmas will be a good time for this work, for the reaſons before aſſigned; but when they are planted, there ſhould be ſome ſtakes fixed in by them, to which they ſhould be faſtened to prevent their being diſplaced by the winds, and part of their heads ſhould be taken off before they are planted, which will alſo be of uſe in preventing their being eaſily overturned by winds; but by no means ſhould their leading ſhoot be ſtopped, nor the branches too cloſely cut off; for if there are not ſome ſhoots left on to draw and attract the ſap, they will be in danger of miſcarrying.

Theſe trees are alſo proper to plant at a diſtance from a garden or building to break the violence of winds, for which purpoſe there is not any tree more uſeful, for they may be trained up in form of a hedge, keeping them cut every year, which will cauſe them to grow very cloſe and handſome to the height of forty or fifty feet, and be a great protection againſt the fury of winds; but they ſhould not be planted too near a garden, where fruit trees or other plants are placed, becauſe the roots of the Elms run ſuperficially near the top of the ground to a great diſtance, and will intermix with the roots of the other trees, and deprive them of nouriſhment; nor ſhould they be planted near gravel or graſs walks, which are deſigned to be well kept, becauſe the roots will run into them, and ſend forth ſuckers in great plenty, which will deface the walks, and render them unſightly.

But for large gardens, where ſhade is required, there is ſcarcely any tree ſo proper for that purpoſe, being eaſy to remove when grown to a conſiderable ſize, ſo that a perſon who is willing to have his plantations for ſhade in a ſhort time, may procure trees of near one foot circumference in their trunk, which will be in little danger of ſucceeding, provided they are removed with care. And theſe will take root, and grow very well, though not ſo well as young plants, which is what few other ſorts of trees will do; but then they ſhould be ſuch trees as have been thus regularly trained up in a nurſery, and have good roots, and not ſuch

[1] Flora Roſſica. [2] Roxburgh.

as are taken out of hedge-rows (as is by ſome practiſed,) which ſeldom riſe with any tolerable roots and conſequently often miſcarry; and this has been the occaſion of ſo many plantations of theſe trees failing, for although ſome of them may live a few years, yet few of them are of long duration, and they rarely increaſe much in their ſtems, but frequently grow hollow, their heart decaying firſt, ſo that they are ſupported only by their bark or ſhell, for a few years, and the firſt ſevere winter, or very dry ſummer, they are generally deſtroyed.

But although I have ſaid, that Elms which are trained up in a nurſery may be removed with ſafety, at a larger ſize than moſt other trees, yet I would not have it underſtood that by this I would recommend the planting of them when large, for if people would have a little patience when they plant, and never plant any of theſe trees which are more than four or five inches in the girt of their ſtems, they will in a few years become better trees than any of thoſe which are tranſplanted of a much larger growth, and they will always grow to a much larger ſize; beſides, they are much more eaſily removed, and do not require to be ſo ſtrongly ſupported, nor is there much danger of the young trees miſcarrying; therefore it is much more eligible to make choice of young thriving trees (but not out of a better ſoil than that where they are to be planted,) and never to plant any large trees, unleſs where a ſmall number may be wanted for an immediate ſhade, and in ſuch caſes it is always proper to plant ſome young trees amongſt the large ones, to ſucceed them when they fail.

In planting of theſe trees great care muſt be taken not to bury their roots too deep, which is very injurious to them, eſpecially if they are planted on a moiſt loam or clay; in which caſe, if the clay is near the ſurface, it will be the beſt way to raiſe the ground, in a hill, where each tree is to be planted, which will advance their roots above the ſurface of the ground, ſo that they will not be in danger of rotting in winter with moiſture.

When theſe trees are propagated by ſuckers taken from the foot of old trees, they are commonly laid into the ground in rows pretty cloſe together in beds, where in dry weather, they may be frequently watered to encourage their putting out roots. In theſe beds they are left commonly two years, by which time thoſe that live will be rooted (though a great many of them generally die;) they then are tranſplanted into the nurſery, and managed as has been directed for the layers.

There are ſome who raiſe the Witch Elm from ſeeds which it generally produces in great plenty, and they are ripe in may; theſe ſhould be ſown upon a bed of freſh loamy earth, and gently covered. In dry weather they ſhould be watered, and if the bed is ſhaded from the violent heat of the ſun, it will be of great ſervice to the ſeeds (for I always obſerve the plants to come up better in the ſhade, than when expoſed to the ſun.) When the plants come up, they ſhould be carefully cleared from weeds, and after they have ſtood two years in the ſeed-bed, they will be fit to plant out into the nurſery, where they muſt be managed as the former.

When we view many of the late plantations which have been made in parks and gardens within forty years paſt, at a very great expence, and obſerve the little progreſs they have made, it is enough to deter others from attempting to make plantations of this tree; for, as great part of the trees have been taken out of hedge-rows and from places where they have ſprung up from the roots of old trees, they had but few roots, and thoſe not furniſhed with fibres, ſo ſuch of the trees as ſurvived their removal have made ſcarce any progreſs; and I have ſeen many plantations which had been growing ten, twelve, or more years, almoſt totally deſtroyed in a ſevere winter, and ſometimes by a very dry ſummer; for, as their roots had not extended far in the ground, the trees were weak, and though they kept alive, yet were not able to reſiſt a ſevere froſt, or a great drought; but the planters were in a hurry, and wanted immediate ſhade and proſpect, ſo in order to obtain theſe, purſued a method in which they could never hope to have either, in any degree of perfection; whereas if they had planted trees no bigger in their ſtems than a man's thumb, in ten or twelve years time they would have had both, with the pleaſure of ſeeing an annual progreſs of their trees, at a time when their large-planted trees are decaying.

I have ſeen ſome expenſive plantations of this kind, which have ſeemed to ſucceed for two or three years, by making ſtrong ſhoots moſt part of the length of their ſtems, which has greatly deceived their planters, who did not doubt but their trees were out of danger, but in a few years after, they found moſt of their tops decay, and their hearts were rotting apace, ſo became hollow; and although they continued to put out lateral ſhoots, yet their ſtems never increaſed in ſize.

In ſome plantations made in the ſame place a few years after, with trees not a tenth part ſo large as the former, they are now more than double the ſize of the large ones, and in a moſt thriving ſtate, whereas the others do little more than juſt keep alive; therefore I adviſe every perſon, who wiſhes to have his trees thrive and become large, to plant them young, which may be performed for a very ſmall ſum, when compared with that of the other.

Another piece of advice may be alſo neceſſary here, which is not to top or cut the trees, as is too much practiſed near London, which not only impedes their growth, but occaſions their decaying ſoon.

[In order to raiſe the Elm from ſeed, gather the ſeeds at the beginning of june; ſpread them in a dry place for a few days. Mark out beds four feet wide, with alleys between them a foot and half or two feet broad. Sow the ſeeds thinly over the beds, and cover them with thin mould near half an inch thick. Hoop the beds in order to cover them with mats occaſionally in hot weather; when they muſt alſo be ſometimes refreſhed with water. In about a month many of the young plants will appear, and the reſt the ſpring following. Uncover the beds in cloudy or ſhowery weather; and take the mats wholly away about the end of auguſt, that the plants may be hardened againſt winter. In october or the ſpring following, the plants may be taken out of the ſeed-bed, and planted in a nurſery in rows three feet aſunder, and each plant at eighteen inches diſtance, there to remain, with the uſual care of digging and hoeing, till planted out where they are to remain, which may be done at almoſt any age, eſpecially if they are removed every two or three years [a].

Mr. Boutcher recommends the ſeeds to be well dried and kept in bags, and not to be ſown till the february following. But I have found them to riſe very readily, when ſown in a ſhady border, as ſoon as they are ripe; without any particular attention, except keeping the border clean.

All ſorts of Elms may alſo be increaſed by grafting upon the broad-leaved Wych Elm. Theſe may be raiſed from ſeed, and when they have been two years in the nurſery will be of proper ſize to receive the graft. The beginning of march is the beſt time for the work, (Mr. Hanbury ſays the laſt week in january;) and they are to be grafted only two inches above the root, ſo that the clay may be wholly covered, to guard againſt froſt. This is ſuppoſed to be a valuable improvement of the Engliſh Elm, which will thus arrive at timber many years ſooner than trees raiſed by layers, and grow to a greater ſize; the Wych Elm being the largeſt ſort, and growing the faſteſt [b]. Mr. Hanbury has given a very detailed account of the mode of performing this operation. Mr. Boutcher recommends theſe grafted trees for walks, lawns or avenues; becauſe they produce few or no ſuckers. He alſo remarks, that the variegated varieties may be grafted on the plain ones, or may be propagated from layers; but that in order to preſerve the variegation, they ſhould be planted on a poor light ſoil.

Mr. Marſhall obſerves, that an error prevails reſpecting the Elm, that it will not flouriſh in cloſe plantations. Whereas how often do we ſee two Elms ſtanding cloſe together, both equally well ſtemmed.

[a] Hanbury and Hunter. [b] Hunter and Hanbury.

Indeed the ſhoots of the Elm will interweave with each other in a manner we ſeldom ſee in any other ſort of tree. In groups and cloſe groves we ſee them thrive abundantly. We muſt remark however, that their ſtems then running up clean, and in a great meaſure free from ſide ſhoots, the timber is different from that which is raiſed in more expoſed ſituations; where the lateral ſhoots being numerous and lopped off from time to time, the ſtems become knotty; by which means the natural tenacity, in which the peculiar excellence of Elm timber conſiſts, is conſiderably increaſed [7].

The American Elms produce plenty of ſeeds in their native country; but they ſeldom arrive freſh; the readieſt way therefore to propagate them here is from layers. They may alſo be grafted on Engliſh, Wych or Dutch ſtocks [8].

The time for ſelling the Elm is from november and december to february.

ULMUS. See *Celtis*.

ULVA.

Lin. gen. Schreb. n. 1670. *Dill. gen.*

Claſſ. 24. 5. Cryptogamia Algæ.

GENERIC CHARACTER.

Fructifications are ſmall globules diſperſed through a pellucid membranaceous or gelatinous ſubſtance, or frond. See *Woodward, in Linn. tranſ.* 3. 48.

SPECIES.

Fourteen ſpecies are enumerated in Murray's edition of Syſtema Vegetabilium. Withering has twenty-ſix britiſh ſpecies: two of them he has figured; and he has deſcribed them all. For what is new ſince Dillenius and Hudſon, we are much indebted to Mr. Stackhouſe, Major Velley, and Mr. Woodward.

U. pruniformis a ſingular ſpecies, is figured in Engliſh botany, t. 968. It grows on aquatic plants under water, and is of various ſizes from a pea to a bullace plum, of a dull olive green: the ſkin is fleſhy or gelatinous, enveloping a maſs of pale ſoft pulp, in which Linneus obſerved the minute ſeeds. He has deſcribed it well in Flora Suecica. Mr. Stackhouſe is of opinion, that neither this nor the piſiformis properly belong to this genus.

U. diaphana, figured in the ſame work, t. 263, is another ſingular production, with the appearance of pale barley-ſugar. The whole ſubſtance abounds with minute ſeeds.

U. atomaria is deſcribed by Mr. Woodward in the Tranſactions of the Linnæan Society; and figured in Engliſh Botany, t. 419. It ſpreads out like a fan, and is divided like a hand, not down to the baſe; of an olive brown. The ſeeds are very minute, of a darker colour, and diſpoſed ſomewhat irregularly in numerous tranſverſe concentric lines or ſtripes.—This is not in Withering.

U. ligulata, alſo deſcribed by Mr. Woodward, and figured in Engliſh Botany, t. 420. The fronds are five or ſix inches high, flat and branched; branches dilated ſomewhat forked with obtuſe angles; terminated and fringed with ligulate or ſtrap-ſhaped ſegments. The ſubſtance is ſemipellucid, of a brightiſh red. Seeds very minute, ſcattered ſeparately, throughout the ſubſtance of the frond; which diſtinguiſhes it from Fucus ciliatus and palmatus.

U. Lactuca is well known under the name of Oyſter-green. It is thin, pellucid, and of a fine green.

U. palmata is the Dulleſh of the Iriſh; Dills of the Scotch; Dulls or Dulſe in Northumberland. Variouſly cut like a hand expanded: it is thin, pellucid, green or reddiſh. Being ſoaked in freſh water, it is eaten either boiled or dried, and in the latter ſtate has ſomething of a violet flavour. It is ſold in the ſtreets of Dublin, being dried, and is ſaid to ſweeten the breath and kill worms. The poor in the north of Ireland eat it boiled.

U. incraſſata figured in Engliſh botany, t. 967. Gelatinous and ſlippery, graſs-green. Found on Hypnum riparium, and the ſtalks of Horſe-tail in ponds and ditches.

U. ſiſtuloſa and purpuraſcens are both figured in Engliſh Botany, t. 642 and 641. and are deſcribed by Mr. Woodward in the Linnæan Tranſactions, vol. 3.

A ſufficient idea of this genus may be obtained from the above hints and references. Moſt of the ſpecies are maritime plants; but ſome are found in freſh waters, and a few on land. For more complete information, See Woodward in Linn. tranſ. 3. 46.

UMARI. See *Geoffroya*.

UMBELLIFERA. See *Peucedanum* & *Cicuta*.

UMBILICUS. See *Cotyledon*.

UMBRELLA TREE. See *Magnolia*.

UNCARIA. *(So named from the hooked prickles on the ſtem, in the ſecond ſpecies.)*

Lin. gen. Schreb. n. 311. Ourouparia. *Aubl. t.* 68. v. *Juſſ.* 209.

Claſſ. 5. 1. Pentandria Monogynia.

GENERIC CHARACTER.

CAL. *Perianth* one-leafed, tubular, widened at top, five-toothed; *teeth* ſharpiſh, equal.

COR. one-petalled, ſalver-ſhaped: *tube* narrow, longer than the calyx: *border* five-cleft: *ſegments* roundiſh, villoſe without.

STAM. *Filaments* five, very ſhort; inſerted into the tube below the orifice. *Anthers* oblong, in the mouth of the tube.

PIST. *Germ* roundiſh, faſtened to the bottom of the calyx, crowned with a gland. *Style* capillary, longer than the corolla. *Stigma* oblong two-grooved.

PER. two-celled.

SEEDS numerous, faſtened to the partition.

ESSENTIAL CHARACTER.

Cor. ſalver-ſhaped. *Germ* crowned with a gland. *Stigma* two-grooved. *Peric.* two-celled, many-ſeeded.

SPECIES.

1. Uncaria inermis.
   Willd. in Uſteri delect. 2. 199. *t.* 3.
   Nauclea africana. *Willd. ſpec.* 1. 929.
   Leaves oblong-ovate acuminate, ſtem unarmed.
2. Uncaria aculeata.
   Willd. in Uſt. delect. 2. 200.
   U. guianenſis. *Gmel. ſyſt.* 370.
   Nauclea aculeata. *Willd. ſpec.* 1. 929.
   Ourouparia guianenſis. *Aubl. guian.* 1. 177. *t.* 68.
   Leaves ovate acute, ſtem prickly.

DESCRIPTIONS, &c.

1. On a more accurate examination of this plant, ſays Willdenow, I perceived that the receptacle is hairy, and the germ inferior. It differs from Nauclea parvifolia, which it reſembles very much, in having wider leaves, more ovate, and acuminate; the calyx dilated, obſcurely five-toothed, the teeth roundiſh, not ſharpiſh; the ſtamens longer than the tube of the corolla, reflexed and hanging down: and in the heads being ſubſeſſile. Native of Guinea.

2. Stem four-cornered, beſet with large oppoſite prickles, which are recurve-hooked, and compreſſed. The germ is truly inferior. Native of the foreſts of Guiana [9].

This genus is now merged in that of Nauclea: and that according to Willdenow, ſcarcely differs from Cephalanthus, except in the number of parts in the fructification.

UNEDO. See *Arbutus*.

UNGUIS CATI. See *Mimoſa*.

UNIFOLIUM. See *Convallaria*.

UNIOLA. *(Dimin. from the union of the glumes.)*

Lin. gen. n. 85. *Reich. n.* 91. *Schreb. n* 116. *Juſſ.* 32.

Claſſ. 3. 2. Triandria Digynia.

Nat. Order of *Gramina*. *Graminæ* Juſſ.

GENERIC CHARACTER.

CAL. *Glume* many-flowered, many-valved: *valves* imbricate in a double row, awl-ſhaped, compreſſed, navicular, keeled, one cloſed over the other: the laſt pair many-flowered, containing an ovate flatted *Spikelet*, ſharp at the edge.

COR. two-valved: *valves* lanceolate-compreſſed, like

[7] Planting, vol. 1. p. 147. Woodlands. [8] Boutcher. [9] Willdenow.

those of the calyx; the inner valve surpassing the other a little.

STAM. *Filaments* three, capillary. *Anthers* oblong, linear.

PIST. *Germ* conical. *Styles* two, erect, simple. *Stigmas* pubescent.

PER. none. *Corolla* incloses the seed.

SEED one, ovate-oblong.

ESSENTIAL CHARACTER.

Cal. many-valved. *Spikelet* ovate keeled.

SPECIES.

1. Uniola paniculata.
   Lin. spec. 103. *Reich.* 1. 195. *Willd.* 1. 406. *hort. cliff.* 23. *Gron. virg.* 136.
   Gramen myloicophorum oxyphyllon carolinianum. *Pluk. phyt. t.* 32. *f.* 6. *Catesb. car.* 1. *t.* 32.
   Panicled, spikelets ovate.
2. Uniola mucronata.
   Lin. spec. 104. *Reich.* 1. 196. *Willd.* 1. 406.
   Spike distich, spikelets ovate, calyxes somewhat awned.
3. Uniola spicata.
   Lin. spec. 104. *Reich.* 1. 196. *Willd.* 1. 406.
   Gramen parvum maritimum spicatum, foliis anguſtis rigidis. *Clayt.* 507.
   Subspiked, leaves rolled in rigid.

DESCRIPTIONS, *&c.*

1. Native of Virginia and Carolina. Called there Sea-side Oat.

2. Culm a foot high, even. Leaves narrow, smooth, with striated sheaths. Spike composed of eleven or twelve alternate, distich, subsessile, ovate, smooth flowers, each having seven florets. Calyx mucronate almost into an awn. Native of the East Indies.

3. Culm a span high, with alternate rigid leaves, rolled in and mucronate. Panicle very small, squeezed so close that there is scarcely any sign of pedicels, all directed one way. Calyx and glumes keeled, with four florets. Native of North America on the coast[b].

UNIOLA. See *Briza* and *Poa*.

UNONA *(So named from the union of the anthers upon the germ.)*
Lin. gen. Schreb. n. 947. *Suppl.* 44. *Juss.* 283.
Class. 13. 7. Polyandria Polygynia.
Nat. Order of *Coadunatæ*. *Anonæ* Juss.

GENERIC CHARACTER.

CAL. *Perianth* three-leaved, very small, acute, pressed close.

COR. *Petals* six, lanceolate, sessile, gibbous at the base on the outside, at the same time excavated within into the shape of a pitcher.

STAM. *Filaments* none. *Anthers* very numerous, oblong, collected into a ball within the pitcher of the corolla.

PIST. *Germs* many, sessile. *Styles* about ten, bristle-shaped, approximating, rather longer than the anthers. *Stigma.*

PER. *Berries* many, pedicelled, ovate, gibbous, jointed like a necklace.

SEEDS two or three, ovate, very smooth, one above the other.

OBS. *Very nearly allied to Xylopia and Annona, Linn. also to Uvaria, to which it is united by Swartz. But Willdenow keeps them separate.*

ESSENTIAL CHARACTER.

Cal. three-leaved. *Pet.* 6. *Berries* two or three-seeded, jointed like a necklace.

SPECIES.

1. Unona discreta.
   Lin. syst. 509. *Willd.* 2. 1271. *Suppl.* 270. *Vahl. symb.* 2. 63.
   Leaves lanceolate silky beneath.
2. Unona tomentosa.
   Lin. spec. ed. Willd. 2. 1271.
   Desmos cochinchinensis. *Lour. cochinch.* 352. *ed. Willd.* 431.
   Leaves lanceolate tomentose.
3. Unona discolor.
   Lin. spec. ed. Willd. 2. 1271. *Vahl. symb.* 2. 63. *t.* 36.

[b] Linn. spec.

Desmos chinensis. *Lour. cochinch.* 352. *ed. Will.* 431.
Leaves ovate-oblong smooth on both sides.

4. Unona concolor.
   Lin. spec. ed. Willd. 2. 1271.
   Uvaria zeylanica. *Aubl. guian.* 1. 605. *t.* 243.
   Leaves oblong acuminate smooth on both sides concolor, peduncles two-flowered.

DESCRIPTIONS, *&c.*

1. This is a tree with wand-like narrow flexile branches. Leaves two-faced alternate resembling those of the Privet, smooth quite entire a finger's length, on very short petioles. Pedicels of the berries within the corolla umbelled. Flower of Annona, but the fruit is different purple sapid aromatic, which distinguishes the genus as in Theobroma and Abroma[c].

Branches pubescent. Leaves an inch and half long, very much attenuated narrow resembling those of the Willow scarcely petioled[d].

Native of Surinam, where it was found by Dalberg.

2. This is a shrub five feet in height, with an upright stem, and weak reclining branches. Leaves alternate, quite entire, petioled. Flowers yellow-green, terminating, solitary, hanging down by a very long peduncle. Berries red-green, subsessile, adhering to a hemispherical receptacle. Native of Cochinchina[e].

Father Loureiro has named this *Desmos*, from the berries being joined like the links of a chain.

3. This is a tree with round purplish smooth branches, scarcely villose at the end. Leaves alternate, three inches long, and two inches wide, rounded at the base a little acuminate at the tip, bluntish, quite entire, membranaceous, nerved, somewhat veined and glaucous underneath, also silky when young. Petioles very short, villose. Peduncles lateral, below the leaves, an inch and half long, a little thicker at top, having a blunt lanceolate leaflet in the middle, one-flowered, solitary. Calyx-leaves ovate, villose. Petals coriaceous, tomentose, lanceolate; the three inner ones narrower. Fruits pedicelled, umbelled, two or three-jointed: joints globular, a little smaller than a pea, the end ones mucronate and smooth. Receptacle globular, the size of a pea, somewhat villose. Native of the East Indies, where it was found by Koenig[f].

Willdenow suspects that the Desmos chinensis, which Loureiro found near Canton, may be the same plant. —He describes it as an upright branching shrub, six feet high, with ovate-lanceolate smooth leaves, and the corolla spreading; in other respects agreeing with the preceding, of which he thinks it may be a variety.

4. Native of Guiana.

UNXIA. (*From* ungo, unxi, *to smear or anoint.*)
Lin. gen. Schreb. 1288. *Suppl.* 56. *Juss.* 186.
Class. 19. 2. Syngenesia Polygamia Superflua.
Nat. Order of *Compositæ Discoideæ*. *Corymbiferæ* Juss.

GENERIC CHARACTER.

CAL. *Common* roundish, five-leaved: *leaflets* ovate.

COR. *Compound*, radiate: *ray* indistinct. *Corollets hermaphrodite* five in the disk; *Females* as many in the ray.

Proper to the *hermaphrodites* funnel-form, five-cleft; to the *females* ovate, small.

STAM. in the Hermaphrodites. *Filaments* five. *Anther* cylindric, tubular.

PIST. to each. *Germ* ovate. *Style* simple. *Stigma* bifid.

PER. none. *Calyx* unchanged.

SEEDS to all ovate, hard, naked.

REC. naked.

ESSENTIAL CHARACTER.

Cal. five-leaved, leaflets ovate. *Florets* of both disk and ray five. *Seed down* none. *Recept.* naked.

SPECIES.

1. Unxia camphorata.
   Lin. syst. 774. *Suppl.* 368. *Gærtn. fruct.* 2. 421.

DESCRIPTION, *&c.*

Stem herbaceous, filiform, dichotomous, two feet high. Leaves opposite at the divisions, sessile, lanceolate, five-nerved, hirsute, soft. Flowers solitary from the divisions, subpeduncled, the size of a pea. Ray of the corolla spreading small. The plant has a strong

[c] Linn. suppl. [d] Vahl. [e] Loureiro. [f] Vahl.

smell

ſmell of plaſter or Camphor. A decoction of it in water is eſteemed an admirable ſudorific, and of great efficacy in the obſtinate Lumbago of the inhabitants of Surinam. The dried herb is uſed externally, when the tranſpiration is ſuppoſed to be impeded. Native of Surinam, where it is called Camphor-plant. Communicated by Dalberg[s]. Gærtner remarks, that if the androgynous florets are barren, as there is reaſon to ſuſpect from what Juſſieu has ſaid, this genus ought to be placed next to Milleria.

VOCHY. See *Cucullaria.*]

VOLKAMERIA. (*So named by Linneus in memory of John George Volkamer, phyſician at Nuremberg. Author of* Flora Noribergenſis, 1700.)

Lin. gen. n. 788. *Reich. n.* 851. *Schreb. n.* 1056. *Gærtn. t.* 56. *Juſſ.* 107. Douglaſſia *Rel. Houſt. t.* 13.

Claſſ. 14. 2. Didynamia Angioſpermia.

Nat. Order of *Perſonatæ. Vitices* Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* one-leafed, turbinate, five-cleft, nearly equal, acute.

COR. monopetalous, ringent: *tube* cylindric, twice as long as the calyx: *border* five-parted, nearly equal, flat: *ſegments* reflexed to one ſide, gaping chiefly on the upper ſide.

STAM. *Filaments* four, filiform, very long, on the gaping ſide of the corolla. *Anthers* ſimple.

PIST. *Germ* four-cornered. *Style* filiform, length of the ſtamens. *Stigma* bifid; one of the ſegments acute, the other indiſtinct.

PER. *Berry* (Drupe) roundiſh two-celled, four-grooved.

SEED. *Nut* ſolitary, two-celled, grooved.

OBS. *The fruit is called by ſome a* Berry; *by others a* Drupe; *and by others again a* Capſule.

ESSENTIAL CHARACTER.

Cal. five-cleft. *Cor.* ſegments directed the ſame way. *Drupe* two-ſeeded. *Nuts* two-celled.

SPECIES.

1. Volkameria aculeata. *Prickly Volkameria.*
   Lin. ſpec. 889. *fyſt.* 577. *Reich.* 3. 196. *Willd.* 3. 383. *Gærtn. fruct.* 1. 267. *Jacqu. amer.* 185. *t.* 117. *pict.* 91. *t.* 177. *Brown. jam.* 262. *t.* 20. *f.* 2. (Clerodendrum.)
   Liguſtroides. *Lin. hort. cliff.* 489.
   Liguſtrum aculeatum, fructu teſticulato. *Plum. ſpec.* 17. *ic.* 164. *f.* 1.
   Duglaſſia ſpinoſa, liguſtri folio. *Amm. herb.* 576.
   Douglaſſia. *Rel. houſt.* 6. *t.* 13.
   Paliuro affinis liguſtrifolia, &c. *Sloan. jam.* 2. 25 *t.* 166. *f.* 2, 3. *Rait dendr.* 95. *Pluk. phyt. t.* 352. *f.* 2.
   Leaves oblong acute quite entire, ſpines from the rudiments of the petioles.
2. Volkameria liguſtrina. *Long-leaved ſmooth Volkameria.*
   Lin. ſpec. ed. Willd. 3. 383. *Jacqu. collect. ſuppl.* 118. *t.* 5. *f.* 1.
   V. inermis β. *Ait. kew.* 2. 364.
   Leaves oblong-lanceolate quite entire, petioles, peduncles, and calyxes hirſute.
3. Volkameria inermis. *Ovate-leaved ſmooth Volkameria.*
   Lin. ſpec. 889. *fyſt.* 577. *Reich.* 3. 197. *Willd.* 3. 383. *ſ. zeyl. n.* 231. *Jacqu. collect. ſuppl.* 117. *t.* 4. *f.* 1. *Pluk. phyt. t.* 211. *f.* 4. (Periclymeni ſimilis.) *Pet. gaz. t.* 42. *f.* 7. (Jaſmini flore frutex, &c.) Clerodendrum inerme. *Gærtn. fruct.* 1. 271. *t.* 57. Jaſminum litoreum. *Rumph. amb.* 5. 86. *t.* 46. Nir-notsjit. *Rheed. malab.* 5. 97. *t.* 49.
   Leaves ovate quite entire ſhining, petioles, peduncles and calyxes ſmooth.
[4. Volkameria capitata. *Headed Volkameria.*
   Lin. ſpec. ed. Willd. 3. 384.
   Leaves ovate quite entire ſcabrous, flowers in terminating heads, calyx leafy.
5. Volkameria ſerrata. *Serrate-leaved Volkameria.*
   Lin. fyſt. 578. *Reich.* 3. 197. *Willd.* 3. 384. *mant.* 90.
   Leaves bread-lanceolate ſerrate ſubſeſſile.
6. Volkameria ſcandens. *Climbing Volkameria.*
   Lin. fyſt. 578. *ed. Willd.* 3. 384. *ſuppl.* 292.
   Leaves petioled cordate ovate quite entire, panicle corymbed terminating, branchlets dichotomous.
7. Volkameria japonica. *Japoneſe Volkameria.*
   Lin. fyſt. 578. *ed. Willd.* 3. 385. *Thunb. jap.* 255.
   Unarmed, leaves cordate ovate acute toothed, racemes directed one way.
8. Volkameria Kæmpferi. *Kæmpfer's Volkameria.*
   Lin. ſpec. ed. Willd. 3. 385. *Jacqu. collect.* 3. 207: *ic. rar.* 3. *t.* 500. *Kæmpf. ic. feloſt. t.* 58.
   Leaves cordate pubeſcent toothletted, panicle terminating divaricate on coloured peduncles.

DESCRIPTIONS, &c.

1. This is a ſhrub five or ſix feet high, branched, upright, the whole loaded with white flowers, which have no ſcent. Stamens moſt commonly five, but ſometimes ſix, purple. Fruit brown[h]. Gærtner deſcribes it to be a roundiſh juiceleſs berry, ſwelling into four little bumps at top, four-grooved, ſhining, conſiſting of two parts, and opening two ways. Stones (or nuts) two, cartilaginous, obcordate, convex on one ſide, marked with a groove along the middle, flat on the other, ſmoothiſh, two-celled. One ſeed in each, ovate-oblong, convex on one ſide, ſomewhat angular on the other, faſtened to the baſe of the cells.—According to Houſtoun, the fruit is roundiſh, divided into two parts, each of which contains a ſhell, having two ſeeds in it, contained in as many cavities.]

Miller ſays, that it riſes in the Weſt Indies to the height of twenty feet, (but Jacquin and Browne aſſign only five or ſix feet to it.) The branches are pliable and much diffuſed, covered with a light ſmooth bark. Leaves oppoſite, lucid. The flowers come out from the ſide of the ſtalk, five or ſix on the ſame peduncle, almoſt in form of an umbel, in ſhape ſomewhat like thoſe of the common Jaſmine, but with a curved tube.

[According to Sir Hans Sloane it has ſeveral ſmall ſtems, ten or twelve feet long, inclining their heads downwards and covered with a whitiſh-gray ſmooth bark. Towards the ends of the branches are many ſhort crooked prickles, oppoſite at half an inch diſtance; and many leaves likewiſe oppoſite, two inches long, and half an inch broad in the middle, on petioles half an inch in length.

Native of the Weſt Indies. Browne ſays it is one of the moſt common plants in the Lowlands of Jamaica, in a dry gravelly ſoil; and is abundant in moſt of the other ſugar iſlands.—It was cultivated in 1739 by Mr. Miller[i]. It is ſingular that he has omitted this and the inermis in the later folio editions of his Dictionary, and yet has inſerted them in the Abridgments in quarto.

2. This differs from the inermis which it reſembles very much, in having oblong-lanceolate leaves, the branches, &c. hirſute, the tube of the corolla only three times (not ſix times) as long as the calyx, the filaments white not purple, the anthers brown not violet. Native of the iſland of Mauritius.

3. Leaves oppoſite, annual, petioled, bluntiſh. Peduncles from the upper axils, oppoſite, ſolitary, a little ſhorter than the leaf, three-cleft, three-flowered, more ſeldom ſimple and one-flowered. It ſo reſembles the firſt, that if that were deprived of its ſpines, they would ſcarcely be diſtinguiſhed[k].]

This riſes higher than the firſt ſort, the ſtem and branches are ſtronger and grow more erect; the bark is very white, the leaves frequently grow round the branches in cluſters or whorls. Flowers on long axillary peduncles, ſupporting ſeveral flowers, which generally ſtand erect.

[Gærtner makes this ſhrub a Clerodendrum, and deſcribes the fruit as a turbinate berry, ſwelling into four bumps at top, four-parted, and the parts ſeparable when ripe. Fleſh thickiſh, corky, growing to the back of the parts or ſhells; which are coriaceous cruſtaceous, whitiſh, remarkably acuminated downwards, roundiſh-gibbous at top, one-celled. Seeds correſponding with the cavity of the ſhells or ſtones.

[s] Linn. ſuppl.

[h] Jacqui.

[i] Hort. kew.

[k] Linn. zeyl.

Native of the East Indies. Cultivated in 1692 at the Royal Garden, Hampton Court [1].

Willdenow informs us, that he has seen a variety with smaller and very blunt leaves.

4. Branches bluntly quadrangular hoary smooth, tubercled with the blunt prominent rudiments of the petioles. Leaves opposite, remote, oblong-ovate, acuminate with a blunt mucronate point, quite entire, veined, somewhat scabrous on both sides with distant hairs. Flowers white in a terminating head, which is shortly peduncled and five-flowered. Calyx bell-shaped, with a three-parted border, the segments very large, oblong, leafy, mucronate, netted-veined, ciliate. Tube of the corolla filiform two inches long and more; border five-parted unequal, with oblong blunt segments. The stamens reach very far beyond the flower. Fruit unknown. Native of Guinea [m].

5. Branches roundish. Leaves naked on both sides. Panicle brachiate. Berries composed of four. Calyxes bell-shaped, undivided, scarcely toothed. Native of the East Indies [n].

6. This is a scandent tree, with very long flexuose four-cornered branches, tomentose at the top. Leaves large, very smooth, opposite, obtuse. Panicle tomentose. Flowers not long as in V. inermis. Calyxes blunt tomentose. Capsule oblong, conical. It climbs up the highest trees, crowning them with its snow-white flowers. Native of the vast forests of Ceylon [o].

7. This is a vast lofty tree, smooth and branched. Branches compressed, panicled at the end. Leaves alternate, deeply cordate, acuminate and veined, paler and smooth underneath; the lower ones a span wide and a foot long, the upper ones gradually less and blunter. Petioles to the larger leaves a span long, in the smaller ones half an inch. Flowers at the end of the branchlets in racemes. Bractes under each peduncle, awl-shaped, solitary, shorter than the peduncle. Peduncle simple, one-flowered, erect. Calyx brownish, five-parted, with the segments divaricate at the base, concave, lanceolate, awned. Tube of the corolla purple: border shorter than the tube. Capsule ovate, the size of a plum, four-valved, two-celled, opening transversely. Native of Japan [p].

A small tree is cultivated in some of the European gardens, under the name of Volkameria japonica, with double flowers, the plant resembling that which is figured in Kæmpfer's select plates edited by Sir Joseph Banks. On account of the flowers being double, it cannot with certainty be reduced to its proper genus; but it differs in many respects from Volkameria japonica [q].

8. Leaves opposite, deeply cordate, roundish, shortly acuminate, very finely and remotely toothletted. Panicle wide, composed of opposite two-parted racemes. The peduncles of the whole panicle, the floral leaves, the calyxes and corollas scarlet. Drupe black, the size of a Currant, shorter than the calyx, two-celled. Nuts two-celled. Native of China and Japan [r].]

PROPAGATION AND CULTURE.

The plants are propagated in Europe by cuttings, which readily put out roots, when they are planted in pots, and plunged into a moderate hot-bed, covering them close with hand glasses. The cuttings may be planted any time from the middle of may to the end of july when they have put out roots; separate the plants carefully and put each into a separate small pot: plunge the pots into a gentle hot-bed, till they get fresh roots: then inure them to the open air, if the weather be warm; and continue them abroad in a sheltered situation until the nights begin to be cold; when they must be removed into the house. There they require some warmth; they should be placed therefore in a moderate stove. In too much heat they are subject to shoot and grow weak; but they will not survive the winter in a common greenhouse.

VOLKAMERIA. See *Clerodendrum* & *Clethra*.

VOLUBILIS. See *Dioscorea*, *Epidendrum*, *Ipomæa*, *Polygonum*.

VOLVULUS. See *Convolvulus*.

VOTOMITA. See *Glossoma*.

VOUAPA. See *Macrolobium*.

VOYRIA. See *Lita*.

UPUDALI. See *Ruellia*.

URAGOGA. See *Myginda*.

URANIA. (*The name of one of the Muses.*)

Lin. gen. Schreb. n. 539. Ravenala. *Adans*, 67. *Juss.* 62. *Sonnerat ind.* 2. *t.* 124—126.

Class. 6. 1. Hexandria Monogynia.

Nat. Order of *Musæ* Juss.

GENERIC CHARACTER.

CAL. *Spathes Common* alternate, ovate-lanceolate, concave, many-flowered. *Partial* two-valved, lanceolate-linear, long, channelled, coloured, acuminate, erect, permanent. *Perianth* none.

COR. *Petals* three, oblong, channelled, erect, acute, equal. *Nectary* two-leaved, one of them bifid.

STAM. *Filaments* six, filiform. *Anthers* linear, long, erect, inclined at the tip.

PIST. *Germ* inferior, oblong. *Style* a little longer than the stamens. *Stigma* six-cleft, converging.

PER. *Capsule* oblong, truncate, three-sided, three-celled, three-valved at the tip.

SEEDS numerous, oblong, in two rows, covered with succulent laciniate arils.

ESSENTIAL CHARACTER.

Cal. none. *Cor.* three-petalled. *Nect.* two-leaved, with one of the leaves bifid. *Capf.* inferior three-celled, many-seeded. *Seeds* in two rows, covered with an aril.

SPECIES.

1. Urania speciosa.
Willd. spec. 2. 7.
Ravenalia madagascariensis. *Sonn. it. ind. ed. germ.* 2. 175. *t.* 124—126. *Jacqu. hort. Schoenbr.* 1. 47. *t.* 93.

DESCRIPTION, &c.

This is a very lofty tree with the appearance of Musa or Heliconia. Trunk undivided. Leaves distich, like those of Heliconia on petioles two feet in length. Spadix axillary, erect, shorter than the leaves. Spathes distich ovate concave as in the Heliconias many-flowered. Native of Madagascar in marshy places [s].

URED0 Frumenti. Figured in Sowerby's Fungi. 2. *t.* 140. A small Fungus, occasioning the Blight in Wheat. See Linn. trans. 4. 193. & 5. 122.]

URENA. (*From* Uren *the vernacular name in Malabar.*

Lin. gen. n. 844. *Reich. n.* 909. *Schreb. n.* 1137. *Dill. elth. t.* 319. *Cavan. diff.* 6. 334. *Gærtn. t.* 135. *Juss.* 272.

Class. 16. 6. Monadelphia Polyandria.

Nat. Order of *Columniferæ*. *Malvaceæ* Juss.

GENERIC CHARACTER.

CAL. *Perianth* double: *outer* one-leafed, five-cleft: *segments* wider: *inner* five-leaved; *leaflets* narrow, angular, permanent.

COR. *Petals* five, oblong, wider at the tip, blunt with a point, narrower at the base, growing to the tube of stamens.

STAM. *Filaments* numerous, united at bottom into a tube, at top free. *Anthers* roundish.

PIST. *Germ* roundish, five-cornered. *Style* simple, length of the stamens, ten-cleft. *Stigmas* headed, hairy, reflexed.

PER. *Capsule* roundish, echinate, five-cornered, five-celled, or soluble into five close cells.

SEEDS solitary, on one side roundish, on the other angular-compressed.

ESSENTIAL CHARACTER.

Cal. double; outer five-cleft. *Capf.* five-cleft, divisible into five parts, with the cells closed and one seed in each.

SPECIES.

1. Urena lobata. *Angular-leaved Urena.*
Lin. spec. 974. *Jacq.* 627. *Reich.* 3. 354. *Willd.* 3. 800. *hort. cliff.* 348. *ups.* 200. *fl. zeyl. n.* 256.

[1] Hort. kew. [m] Willdenow. [n] Linn. mant.
[o] Linn. suppl. [p] Thunberg. [q] Willdenow. [r] Idem.
[s] Willdenow.

Cavan.

Cavan. diſſ. 6. 336. *t.* 185. *f.* 1. *Gærtn. fruct.* 2. 252. *Lour. cochinch.* 416. *ed. Willd.* 507. *Forſt. prodr. n.* 258.

U. ſinica, xanthii facie. *Dill. elth.* 340. *t.* 319. *f.* 412.

Trifolio affinis Indiæ orientalis, xanthii facie. *Breyn. cent.* 82. *t.* 35.

Lappago amboinica. *Rumph. amb.* 6. 59. *t.* 25. *Burm. ind.* 149.

Leaves roundiſh-cordate angular, three-glanded underneath.

[2. Urena reticulata. *Netted-leaved Urena.*

Willd. ſpec. 3. 801. *Cavan. diſſ.* 6. 335. *t.* 183. *f.* 2.

Leaves one-glanded underneath, lower ones three-lobed, upper ones panduriform.

3. Urena tricuſpis. *Three-pointed Urena.*

Willd. ſpec. 801. *Cavan. diſſ.* 6. 334. *t.* 183. *f.* 1.

Leaves one-glanded underneath, three-lobed acuminate, ſtem rough-haired.

4. Urena americana. *American Urena.*

Lin. ſyſt. 627. *Willd.* 3. 801. *ſuppl.* 308. *Sloan. jam.* 1. 37. *t.* 11. *f.* 2. (Malva).

Leaves trifid entire at the baſe.]

5. Urena ſinuata. *Cut-leaved Urena.*

Lin. ſpec. 974. *ſyſt.* 627. *Reich.* 3. 354. *Willd.* 3. 802. *fl. zeyl. n.* 257. *Cavan. diſſ.* 6. 336. *t.* 185. *f.* 2. *Burm. ind.* 149. *Lour. cochinch.* 417. *ed. Willd.* 507. *Pluk. phyt. t.* 74. *f.* 1. *et t.* 5. *f.* 3. (Alcea). *Burm. zeyl. t.* 69. *f.* 2. (Malvinda.)

Uren. *Rheed. malab.* 10. 3. *t.* 2.

Leaves three-glanded underneath ſinuate-five-lobed, lobes angular toothletted obtuſe.

[6. Urena multifida.

Willd. ſpec. 3. 802. *Cavan. diſſ.* 6. 336. *t.* 184. *f.* 2.

Leaves one-glanded underneath hirſute five-lobed, lobes oblong acuminate gaſh-toothed.

7. Urena procumbens. *Trailing Urena.*

Lin. ſpec. 975. *ſyſt.* 627. *Reich.* 3. 355. *Willd.* 3. 802. *Lour. cochinch.* 417. *ed. Willd.* 507.

Leaves oblong ſinuate ſerrate, ſtem procumbent.

8. Urena viminea.

Willd. ſpec. 3. 803. *Cavan. diſſ.* 6. 335. *t.* 184. *f.* 1.

U. monopetala. *Lour. cochinch. ed. Willd.* 508?

Leaves one-glanded ſomewhat rhombed toothed.]

DESCRIPTIONS, &c.

1. This riſes with an upright ſtalk upwards of two feet high, which becomes woody towards the autumn. It ſends out a few ſide branches which are taper, ſtiff, and have a dark-green bark. Leaves about two inches and a quarter broad, dark green above and pale green beneath, upon pretty long footſtalks. Flowers axillary, ſolitary, ſeſſile, ſhaped like thoſe of the Mallow, but ſmall and of a deep bluſh colour. Capſules roundiſh, armed with prickly hairs.

[Stem round, hairy. Leaves three-lobed ſerrate, hairy, alternate[a]. Loureiro remarks, that Rumphius's plant has the leaves laciniated. The leaves have a glandular pore on three intermediate ribs underneath[b]. Capſules five, united into a ſubglobular rounded-pentagon fruit, they are coriaceous; on one ſide convex, and echinated with hooked briſtles; on the other wedgeform-angular, unarmed; one-celled, not opening. Seed one in each cell, kidney-ſhaped, very thick on the back, very finely ſtriated, aſh-coloured. In the centre of the fruit is a ſubulate-pentagon receptacle; and each ſeed is faſtened by a very ſhort umbilical cord reaching from the middle of the central angle to the middle of the ſeed[c].

Native of China and Cochinchina. Forſter ſays, every where within the tropics. Cultivated by James Sherard, M. D. in 1732. It flowers here in july and auguſt[d]. Dillenius reports, that the ſeeds came from China by an Oſtend ſhip, and were communicated by Egmont van Nyenborg, a noble Fleming.

2. Leaves underneath whitiſh, tomentoſe, netted-nerved, all-toothed, the uppermoſt lanceolate. Native of South America.

3. Leaves unequally toothed; the lobes of the lower leaves angular. It differs from the preceding, in having the ſtem rough with hairs, not tomentoſe, and all the leaves three-lobed. Native of the iſlands of Mauritius and Bourbon[e].

4. Stem ſrutеſcent, round, ſcarcely ſcabrous. Leaves petioled, half-three-lobed, with the ſinuſes obtuſe, nothollowed out roundiſh, ſerrate except at the baſe, bluntiſh, the middle lobe a little larger than the others, the outer ones more diſtant: under the nap is a ſingle nectareous pore, at the baſe of the middle nerve on the lower ſurface. Calyx and fruit as in the other ſpecies, but the corolla ſmaller. Obſerved in Surinam by Dalberg[a]: and in Barbadoes by Sloane. Swartz is of opinion, that it is ſcarcely more than a variety of the next ſpecies which frequently varies with the upper leaves trifid[b].]

5. Mr. Miller makes two ſpecies of this, aculeata, n. 2. and ſinuata, n. 3. The aculeata, he ſays, riſes with a woody ſtalk three feet high, dividing into four or five branches, and has a grayiſh bark. Lower leaves angular, an inch and half long, and about the ſame breadth: thoſe above are cut ſome into three, others into five angular obtuſe lobes: they are dark green above, but pale beneath, ſharply ſerrate, on long footſtalks. Flowers axillary, ſolitary, larger than thoſe of the firſt ſpecies; the petals narrower at their baſe, with deep-red bottoms. U. ſinuata has hairy ſtalks, dividing into many branches, and riſing about two feet high. Leaves oblong, divided into three obtuſe lobes to the midrib: lobes indented in ſeveral parts, light green on both ſides and hairy. Flowers axillary, ſoftary, ſeſſile, pale bluſh-coloured with a deep-red bottom.

[Stem ſuffruticoſe, upright, three feet high, with aſcending branches. Leaves ſinuate-palmate with obtuſe ſinuſes, ſerrate, rough, alternate, petioled, having a ſingle glandular pore on the middle rib underneath. Flowers roſe-coloured, ſmall, ſubſolitary, axillary: both calyxes five-cleft. Arils five, ovate, echinate[c].

Stem ſhrubby from one to two feet high, branched, upright, round, pubeſcent. Branches nearly ſimple, erect, round. Leaves petioled, alternate: lower roundiſh, five-cornered, ſubſerrate: middle cordate-five-cornered, with the corners blunt, ſerrate-toothletted: upper ſinuate, five-lobed, tooth-ſinuate, nerved, hirſute, hoary underneath, having a glandular pore in the middle nerve. Petioles longiſh, round, erect, pubeſcent. Flowers axillary, on very ſhort peduncles, blood-red, the ſame ſize as in Malva ſylveſtris. Outer calyx five-leaved, linear, erect, blunt: inner five-parted, with erect lanceolate ſegments the length of the outer. Petals five, contiguous at the baſe, oblong, obtuſe, entire. Capſules five, cloſe, connected, echinate. Seeds oblong, compreſſed, even[d].

Native of the Eaſt Indies. Cultivated in 1759, by Mr. Miller[e]. Loureiro ſays it grows wild in Cochinchina. According to Swartz, it ought not to be ſeparated from the Eaſt Indian ſpecies, and is found in Jamaica, in dry paſtures. Accordingly he gives the ſynonym of Sloane, which may be found here under the preceding ſpecies. Alſo the ſecond Urena of Browne, which he ſays is remarkable for the lobed form of the leaves, and the compreſſed make of its rugged capſules.

Willdenow thinks that the ſinuata of Swartz is a different ſpecies from this. I have therefore kept his deſcription diſtinct, and ſhould rather refer it to the preceding.

6. The whole plant is rough-haired. It has the appearance of the preceding, but the leaves are one-glanded, and the lobes acuminate, gaſh-toothed. Native of the iſland of Mauritius[f].

7. Stem ſrutеſcent, procumbent, creeping, very much branched. Leaves the ſame ſize as in Origanum, ſubcordate, entire not lobed, even, ſharply ſerrate. Flowers larger than the leaves. Found in China by Oſbeck[g]; who ſays that it has a very low ſtem, with the boughs hanging round about on the ground.

According to Loureiro, it is found in ſandy places in Cochinchina as well as China. He deſcribes the

[a] Loureiro. [b] Linn. ſyſt. [c] Gærtner. [d] Hort. kew. [e] Willdenow. [f] Linn. ſuppl. [g] Obſ. 265. [b] Loureiro. [c] Swartz. [d] Hort. kew. [e] Willdenow. [f] Linn. ſpec.

ſtem as ſuffruticoſe, three feet high, procumbent, round, reddiſh, branched. The leaves haſtate, unequally and deeply ſerrate, rough, alternate. Flowers ſaffron-coloured, axillary, cluſtered. Both calyxes five-cleft. Stamens ten. Capſule round, echinate, four-celled.

8. Lower leaves roundiſh-ovate, acute, angular, toothed, the reſt roundiſh-rhombed, toothed, except the uppermoſt which are lanceolate. Outer calyx longer than the inner. Native of Braſil [e].

Loureiro has a Cochinchineſe ſpecies, which he names U. monopetala. Willdenow ſuſpects that it may be the ſame with the viminea of Cavanilles. Loureiro thus deſcribes it. Stem ſuffruticoſe, two feet high, erect, branched. Leaves ovate-lanceolate, entire, ſerrate, veined, tomentoſe, alternate. Flowers violet, axillary, ſolitary. Outer calyx five-leaved, ſhorter. Corolla one-petalled; tube equal to the calyx; border ſpreading, five-parted, with the upper ſegment larger and emarginate. Capſule roundiſh, muricate, five-celled.

He has another ſpecies, which he entitles U. polyſtora, found near Canton in China. But Willdenow ſuſpects this to belong to the genus Malachra.]

PROPAGATION AND CULTURE.

Theſe plants are propagated by ſeeds, which ſhould be ſown on a hot-bed early in the ſpring; and when the plants are fit to remove, they ſhould be tranſplanted into pots, and plunged into a freſh hot-bed to bring them forward, and afterward they muſt be treated in the ſame manner as has been directed for the tender ſorts of Hibiſcus. If the plants are brought forward in the ſpring, and afterward placed in the ſtove, or under a deep frame, they will ripen ſeeds the firſt ſeaſon; but if they ſhould not, they may be preſerved through the winter in the ſtove, and will ripen their ſeeds the following ſeaſon, after which the plants ſeldom continue.

[URENA. See *Hibiſcus*, and *Pavonia*.

URINARIA. See *Phyllanthus*.]

URTICA. (*Of Pliny*; ab urendo, *from its ſtinging when touched.*)

Lin. gen. n. 1054. *Reich. n.* 1149. *Schreb. n.* 1422. *Tournef. t.* 308. *Juſſ.* 403. *Gærtn. t.* 119.

Claſſ. 21. 4. Monoecia Tetrandria.

Nat. Order of *Scabridæ*. *Urticæ* Juſſ.

GENERIC CHARACTER.

* *Male Flowers.*

CAL. *Perianth* four-leaved: *leaflets* roundiſh, concave, obtuſe.

COR. *Petals* none.

Nectary in the centre of the flower, cup-ſhaped, entire, narrower below, very ſmall.

STAM. *Filaments* four, awl-ſhaped, length of the calyx, ſpreading, each within each calyx-leaf. *Anthers* two-celled.

* *Female Flowers* either on the ſame or a diſtinct plant.

CAL. *Perianth* two-valved, ovate, concave, erect, permanent.

COR. none.

PIST. *Germ* ovate. *Style* none. *Stigma* villoſe.

PER. none. *Calyx* converging.

SEED one, ovate, blunt, compreſſed, ſhining.

ESSENTIAL CHARACTER.

MALE. *Cal.* four-leaved. *Cor.* none. *Nect.* (Rudiment of a germ) central, cup-ſhaped.

FEM. *Cal.* two-leaved. *Cor.* none. *Seed* one, ſuperior, ſhining.

SPECIES.

* *Oppoſite-leaved.*

1. Urtica pilulifera. *Roman Nettle.*

Lin. ſpec. 1395. *fyſt.* 849. *Reich.* 4. 128. *hort. cliff.* 440. *upſ.* 282. *mat. med.* 200. *Hudſ. angl.* 417. *Wither. arr. ed.* 3. 202. *Smith brit.* 1014. *engl. bot. t.* 143. *Sauv. monſp.* 307. *Villars dauph.* 2. 344. *Allion. pedem. n.* 2025. *Deſfont. atlant.* 2. 341. *Mill. illuſtr. t.* 79. *Berg. phyt.* 2. 227.

Urtica 1. *Matth.* 1125. 2. 469. *Camer. epit.* 861.

U. urens prior. *Dod. pempt.* 151. 1.

U. romana. *Fuchſ. biſt.* 106. *Tabern. ic.* 534. *Ger.* 570. 1. *emac.* 706. 1. *Park. theat.* 440. 1. *Raii biſt.* 161. *Blackw. t.* 321. 1. *Petiv. brit. t.* 1. *f.* 11.

U. rom. ſ. mas cum globulis. *Baub. biſt.* 3. 445. 1.

U. rom. et U. ſylveſtris, ſemine Lini. *Lob. ic.* 1. 522. 1. *obſ.* 281. 2.

U. urens pilulas ferens 1 Dioſcoridis, ſemine Lini. *Bauh. pin.* 232. *Mor. biſt. ſ.* 11. *t.* 25. *f.* 5. *Tournef. inſt.* 535. *Dodart. ic.*

U. pilulifera, folio profundius Urticæ majoris in modum ſerrato, ſemine magno lini. *Raii ſyn.* 140.

Leaves oppoſite ovate ſerrate, female flowers in round balls or heads.

2. Urtica balearica.

Lin. ſpec. 1395. *Reich.* 4. 129. *Murr. prodr.* 185. *Blackw. t.* 321. *Hall. helv. ed.* 1. 27.

Leaves oppoſite cordate ſerrate, female flowers in round heads.

3. Urtica Dodartii. *Pellitory-leaved Nettle.*

Lin. ſpec. 1395. *Reich.* 4. 129. *Blackw. t.* 321. *f.* 2. *Dod. mem.* 4. 323. *Mor. biſt.* 3. 435. *n.* 5.

Leaves oppoſite ovate almoſt quite entire, female flowers in round heads.

[4. Urtica pumila. *Dwarf Nettle.*

Lin. ſpec. 1395. *Reich.* 4. 129. *Gron. virg.* 114. 145.

Leaves oppoſite ovate, racemes two-parted very ſhort.

5. Urtica grandifolia. *Great-leaved Nettle.*

Lin. ſpec. 1396. *Reich.* 4. 129. *Houſt. cat.* 357. *Brown. jam.* 337. 6. *Sloan. jam.* 1. 124. *t.* 83. *f.* 2.

Leaves oppoſite ovate, ſtipules cordate undivided, racemes panicled length of the leaves.

6. Urtica verticillata. *Whorled Nettle.*

Vahl. ſymb. 1. 76. *Forſk. deſcr.* 160.

Leaves oppoſite ovate ſerrate, flowers numerous axillary ſeſſile.

7. Urtica reticulata. *Netted-leaved Nettle.*

Swartz prodr. 35. *act. holm.* 6. 1. 30. *et* 8. 1. 70. *deſcr.* 286.

Leaves oppoſite oblong acute netted underneath, ſtipules ovate entire, racemes panicled, leaves ſhorter.]

8. Urtica urens. *Small Nettle.*

Lin. ſpec. 1396. *fyſt.* 849. *Reich.* 4. 130. *hort. cliff.* 440. *ſ. lapp. n.* 375. *ſuec. n.* 862. *Hudſ. angl.* 417. *Wither. arr. ed.* 3. 202. *Smith brit.* 1015. *engl. bot. t.* 1236. *Hull* 210. *Lightf. ſcot.* 578. *Curt. lond.* 6. *t.* 70. *Relh. cant. ed.* 2. *n.* 783. *Sibth. oxon. n.* 194. *Abbot bedf. n.* 683. *Fl. dan. t.* 739. *Hall. helv. n.* 1615. *Pollich pal. n.* 900. *Neck. gallob.* 383. *Villars dauph.* 2. 344. *Allion. pedem. n.* 2026. *Gmel. ſib.* 3. 30. *n.* 18. *Deſfont. atlant.* 2. 341. *Berg. phyt.* 2. 69.

U. urens minor. *Bauh. pin.* 232. *Mor. biſt. ſ.* 11. *t.* 25. *f.* 4. *Tournef. inſt.* 535.

U. urens minima. *Dod. pempt.* 152.

U. minor. *Brunf. herb.* 1. 154. *Fuchſ. biſt.* 108. *Tabern. ic.* 535. *Ger.* 570. 3. *emac.* 707. *Park. theat.* 441. 4. *Raii biſt.* 161. *ſyn.* 140. *Petiv. brit. t.* 1. *f.* 10.

U. minor annua. *Bauh. biſt.* 3. 446.

U. minor acrior. *Lob. ic.* 1. 522. 2. *obſ.* 282. 1.

U. 3. *Matth.* 1127. 2. 471.

Leaves oppoſite elliptic three or five-nerved, racemes almoſt ſimple.

[9. Urtica laxa. *Looſe-ſtalked Nettle.*

Swartz prodr. 35. *deſcr.* 288. *act. holm.* 8. 1. 58.

Leaves oppoſite ovate acuminate ſerrate, flowers dioecious, males peduncled crowded, females in racemes, ſtem lax.

10. Urtica betulæfolia. *Birch-leaved Nettle.*

Swartz prodr. 35. *deſcr.* 291. *act. holm.* 8. 1. 59.

Leaves oppoſite cordate-roundiſh ſerrate, ſtipules entire, flowers in racemes, ſtem proſtrate aſcending.

11. Urtica diffuſa. *Diffuſed Nettle.*

Swartz prodr. 35. *deſcr.* 290. *act. holm.* 6. 1. 30.

Leaves oppoſite ovate acutely ſerrate biſpid, ſtipules rolled back, racemes panicled longer than the leaf, ſtems procumbent.

12. Urtica ruſa.

[e] Willdenow.

Swartz prodr. 35. *deſcr.* 292. *act. holm.* 8. 1. 59.
Entirely hirſute, leaves oppoſite oblong ſerrate, ſtipules roundiſh permanent, racemes terminating, ſtem ſuffrutescent branched.]

13. Urtica dioica. *Great Nettle.*
Lin. ſpec. 1396 *ſyſt.* 849. *Reich.* 4. 130. *hort. cliff.* 440. *fl. lapp. n.* 374. *ſuec. n.* 863. *mat. med.* 201. *Woodv. med. bot.* 396. *t.* 146. *Gærtn. fruct.* 2. 183. *Hudſ. angl.* 417. *Wither. arr. ed.* 3. 201. *Smith brit.* 1016. *Hull* 210. *Lightf. ſcot.* 578. *Curt. lond.* 6. *t.* 69. *Relh. cant. ed.* 2. *n.* 784. *Sibth. oxon. n.* 195. *Abbot beſf. n.* 684. *Fl. dan. t.* 746. *Hall helv. n.* 1614. *Pollich pal. n.* 901. *Neck. gallob.* 383. *Villars dauph.* 2. 345. *Allion. pedem. n.* 2027. *Gmel. ſib.* 3. 30. *n.* 19. *Deſfont. atlant.* 2. 340. *Thunb. jap.* 69. *Blackw. t.* 12. *Berg. phyt.* 2. 225. *Regnault. bot.*
U. urens. *Ger.* 570. 2. *emac.* 706. 2.—*item* rubra. *Ger.* 570. 4.—altera. *Dod. pempt.* 151. 2.
U. urens maxima. *Baub. pin.* 282. *Mor. hiſt. ſ.* 11. *t.* 25. *f.* 1. *Tournef. inſt.* 534.
U. major. *Bruns. herb.* 1. 151. *Fuchſ. hiſt.* 107. *Tabern ic.* 534. *Petiv. brit. t.* 1. *f.* 9.
U. vulgaris major. *Baub. hiſt.* 3. 445. 2. *Raii hiſt.* 160.—et media ſylveſtris. *Park. theat.* 440. 2. *et* 441. 3.
U. ſylveſtris aſperior, ſ. U. communis. *Lob. ic.* 1. 521. 2. *obſ.* 281. 1.
U. 2. *Matth.* 1126. 2. 470.
U. racemifera major perennis. *Raii ſyn.* 139.
Leaves oppoſite cordate, racemes very much branching in pairs, moſtly dioecious.

[14. Urtica caudata.
Vahl ſymb. 2. 96.
U. dubia. *Forſk. arab.* 121. *n.* 544.
U. dioica β. *Lin. ſpec.* 1396.
U. Ægypti maxima. *Haſſelqu. it.* 486.
U. annua longius candata vulgatiſſima luſitanica & africana. *Griſl. in Raii ſyll. ext.* 392.
Leaves oppoſite cordate, racemes in pairs quite ſimple and very long.

15. Urtica membranacea.
Deſfont. atlant. 2. 340. *Poiret encyl.* 4. 638.
Leaves on long petioles, male racemes filiform membranaceous naked underneath, females ſeſſile.

16. Urtica rugoſa.
Swartz prodr. 35. *deſcr.* 293. *act. holm.* 8. 1. 60.
Leaves oppoſite oblong ſerrate nerved wrinkled, racemelets terminating, dioecious, ſtem ſimple erect.

17. Urtica repens.
Swartz prodr. 35. *deſcr.* 294. *act. holm.* 8. 1. 61.
Leaves oppoſite oval, racemes monoecious, ſtem ſimple creeping.]

18. Urtica cannabina. *Hemp-leaved Nettle.*
Lin. ſpec. 1396. *Reich.* 4. 131. *hort. upſ.* 282. *Gmel. ſib.* 3. 31. *n.* 20. *Willich in nov. act. nat. cur.* 4. 105. *Kniph. cent.* 1. *n.* 93.
U. foliis profunde laciniatis, ſemine lini. *Amm. ruth.* 249. *t.* 25. *Tezzet. opp.* 185.
Leaves oppoſite three-parted gaſhed.

[19. Urtica gracilis. *Slender-ſtalked Nettle.*
Ait. kew. 3. 341.
Leaves oppoſite ovate-lanceolate almoſt naked, ſtem and petioles hairy, racemes in pairs.

20. Urtica alienata.
Lin. ſyſt. 849. *Reich.* 4 131.
Parietaria zeylanica. *Lin. ſpec.* 1492. *fl. zeyl. n.* 371.
Leaves oppoſite ovate quite entire marked with lines.

21. Urtica nudicaulis. *Naked-ſtalked Nettle.*
Swartz prodr. 35. *deſcr.* 311. *act. holm.* 6. 1. 36. *et* 8. 1. 71.
Leaves ſubterminating oppoſite oblong acuminate entire three-nerved, ſtem angular naked below, racemes, flowers dioecious.

22. Urtica ſtolonifera.
Swartz prodr. 36. *deſcr.* 296. *act. holm.* 8. 1. 62.
Subcauleſcent, leaves oppoſite oblong ſubſerrate, flowers dioecious, runners radical.

23. Urtica Parietaria.
Lin. ſpec. 1397. *Reich.* 4. 131. *Swartz obſ.* 357. *Sloan. jam.* 1. 144. *t.* 93. *f.* 1. (Parietaria)
Leaves oppoſite lanceolate quite entire narrower on one ſide.

24. Urtica ciliata.
Swartz prodr. 36. *deſcr.* 298. *act. holm.* 6. 1. 32.
Leaves oppoſite ovate ciliate ſerrate, flowers terminating aggregate ſubpeduncled monoecious, ſtem divaricate.

25. Urtica radicans.
Swartz prodr. 36. *deſcr.* 299. *act. holm.* 6. 1. 29. *et* 8. 1. 71.
Leaves oppoſite cuneate-ovate crenate ſhining, flowers axillary ſubſeſſile, ſtem and branches radicant.

26. Urtica ciliaris.
Lin. ſpec. 1396. *ſyſt.* 850. *Reich.* 4. 132.
Parietaria racemoſa, foliis ad oras villoſis. *Plum. ſpec.* 10. *ic.* 120. *f.* 2.
Leaves oppoſite ovate ciliate, racemes divaricate.

27. Urtica nummularifolia.
Swartz prodr. 36. *deſcr.* 301. *act. holm.* 8. 1. 63. *t.* 1. *f.* 2. *Sloan. jam.* 1. 206. *t.* 131. *f.* 4. (Nummularia).
Leaves oppoſite orbicular crenate hirſute, flowers terminating cluſtered monoecious, ſtem filiform ſimple creeping.

28. Urtica depreſſa.
Swartz prodr. 36. *deſcr.* 303. *act. holm.* 8. 1. 64.
Leaves oppoſite roundiſh crenate ſmooth, flowers terminating cluſtered, ſtem creeping ſubdivided.

29. Urtica herniarioides.
Swartz prodr. 36. *deſcr.* 309. *act. holm.* 8. 1. 64. *t.* 2. *f.* 1.
Leaves oppoſite roundiſh entire terminating in fours, flowers monoecious diſtinct, ſtem filiform diffuſed.

30. Urtica ſerrulata.
Swartz prodr. 36. *deſcr.* 313. *act. holm.* 8. 1. 65.
Leaves oppoſite lanceolate ſerrate ſmooth, peduncles axillary ſhorter than the leaves, flowers in little heads monoecious, ſtem fruteſcent four-cornered.

31. Urtica lucida.
Swartz prodr. 36. *deſcr.* 315. *act. holm.* 6. 1. 31. 8. 1. 70.
Leaves oppoſite ſemipinnate ſhining, peduncles axillary longer than the leaf, flowers in little heads, ſtem fruteſcent angular.

32. Urtica microphylla.
Swartz prodr. 37. *deſcr.* 305. *Brown. jam.* 336. 4.
Parietaria microphylla. *Linn. ſpec.* 1492. *amoen.* 5. 412. *act. holm.* 8. 1. 60.
Leaves ovate acute quite entire, with ſmaller ones ovate oppoſite and intermixed, flowers dioecious, ſtems almoſt ſimple aſcending.

33. Urtica trianthemoides.
Swartz prodr. 37. *deſcr.* 307. *act. holm.* 8. 1. 68.
Leaves oppoſite oblong quite entire, the alternate ones greater, flowers monoecious, ſtem erect branched.

34. Urtica cuneifolia.
Swartz prodr. 37. *deſcr.* 319.
U. crenulata. *Act. holm.* 6. 1. 35. *et* 8. 1. 70.
Leaves oppoſite cuneate obovate toothed at the top, the alternate ones larger, racemelets peduncled, flowers monoecious.

35. Urtica ſpicata.
Lin. ſyſt. 850. *Thunb. jap.* 69.
U. japonica. *Lin. ſuppl.* 48.
Leaves oppoſite ovate acute ſerrate ſmooth, ſpikes capillary interrupted.

36. Urtica macrophylla.
Lin. ſyſt. 850. *Thunb. jap.* 69.
Leaves oppoſite roundiſh doubly-ſerrate flowers panicled.

37. Urtica rhombea.
Lin. ſyſt. 850. *ſuppl.* 417.
Leaves oppoſite quite entire ſubrhombed three-nerved.

38. Urtica virgata.
Forſt. prodr. n. 345.
Leaves oppoſite ovate ſerrate three-nerved, ſpikes axillary ſolitary interrupted.

39. Urtica ferox.
Forſt. prodr. n. 346.
Leaves oppoſite haſtate cordate briſtly-ſerrate, racemes in pairs divaricate, ſtipules cordate.

** *Alternate-leaved.*

40. Urtica ſappulacea.
Swartz prodr. 37. *deſcr.* 317.
U. humilis. *Act. holm.* 6. 1. 34. & 8. 1. 69. *t.* 2. *f.* 2.

Leaves

Leaves alternate ovate ſomewhat ſcabrous, flowers terminating ſubſeſſile monoecious, ſeeds three-cornered, ſtem diffuſe.

41. Urtica ſeſſiliflora.
Swartz prodr. 37. *deſcr.* 321. *act. holm.* 6. 1. 33.
Leaves alternate lanceolate-ovate crenate, racemes very ſhort axillary, flowers monoecious diſtinct, ſtem erect.

42. Urtica elata.
Swartz prodr. 37. *deſcr.* 322.
Leaves alternate ovate acute ſerrate, ſtem arboreous, branches almoſt naked racemiferous, flowers dioecious.

43. Urtica æſtuans.
Lin. ſpec. 1397. *Reich.* 4. 132. *Forſt. prodr. n.* 342.
Rameum majus. *Rumph. amb.* 5. 214. *t.* 79. *f.* 1?
Pino ſ. Urtica. *Piſon. braſ.* 235.
Leaves alternate cordate, racemes dichotomous, fruits orbicular-corymbed.

44. Urtica argentea.
Forſt. prodr. n. 343.
Leaves alternate elliptic-lanceolate entire glaucous underneath, ſpikes axillary ſolitary interrupted.

45. Urtica ruderalis.
Forſt. prodr. n. 344.
Leaves alternate cordate-ovate bluntly ſerrate, panicles axillary divaricate-corymbed.

46. Urtica heterophylla.
Vahl. ſymb. 1. 76.
U. palmata. *Forſk. deſcr.* 159.
U. urens racemifera major. *Pluk. alm.* 393.
Ana-ſchorigenam. *Rheed. mal.* 2. 77. *t.* 41.
Leaves ovate entire and three-lobed ſerrate-toothed.

47. Urtica capitata.
Lin. ſpec. 1397. *Reich.* 4. 132.
Leaves alternate cordate, glomerules in ſpikes.

48. Urtica divaricata.
Lin. ſpec. 1397. *Reich.* 4. 132. *Forſk. ægypt. cent.* 6. 160. *Pluk. phyt. t.* 237. *f.* 2.
Leaves alternate ovate, racemes compound divaricate.]

49. Urtica canadenſis. *Canada Nettle.*
Lin. ſpec. 1397. *Reich.* 4. 133. *hort. cliff.* 441. *Gron. virg.* 145. *Gouan. monſp.* 485. *Mor. hiſt.* 3. 434. *ſ.* 11. *t.* 25. *f.* 2.
Leaves alternate cordate-ovate, aments branched diſtich erect.

[50. Urtica hirſuta.
Vahl. ſymb. 1. 77.
U. divaricata. *Forſk. deſcr.* 160.
Leaves alternate cordate-ovate ſerrate, racemes compound, ſtem and petioles rough-haired.

51. Urtica interrupta.
Lin. ſpec. 1398. *ſyſt.* 850. *Reich.* 4. 133. *ſ. zeyl. n.* 336. *Leur. cochinch.* 557. *ed. Willd.* 682. *Rumph. amb.* 6. *t.* 20. *Burm. zeyl.* 231. 232. *t.* 110. *f.* 1, 2. *Pluk. phyt. t.* 201. *f.* 5.
Batti-ſchorigeram. *Rheed. mal.* 1. 75. *t.* 40.
Leaves alternate ovate-cordate ſerrate ſomewhat ſhorter than the petiole, ſpikes ſolitary interrupted.]

52. Urtica nivea. *Chineſe* or *White-leaved Nettle.*
Lin. ſpec. 1398. *ſyſt.* 850. *Reich.* 4. 133. *hort. cliff.* 441. *Jacq. hort.* 2. 78. *t.* 166. *Thunb. jap.* 1. *Lour. cochinch.* 558. *ed. Willd.* 683. *Pluk. amalth.* 212. *Burm. ind.* 197.
Rameum majus. *Rumph. amb.* 5. 214. *t.* 79. *f.* 1. *v. n.* 44.
Leaves alternate ſuborbicular ſharp at both ends tomentoſe beneath.

53. Urtica baccifera.
Lin. ſpec. 1398. *Reich.* 4. 133. *Swartz obſ.* 358. *Brown. jam.* 337. *Plum. ſpec.* 11. *ic.* 260.
Leaves alternate cordate toothed prickly, ſtem ſhrubby, female calyxes berried.

54. Urtica capenſis.
Lin. ſyſt. 850. *ſuppl.* 417.
Leaves alternate cordate inert pubeſcent underneath, ſpikes interrupted.

55. Urtica fruteſcens.
Lin. ſyſt. 851. *Thunb. jap.* 70.
U. ſuticoſa. *Lin. ſuppl.* 417.
Leaves alternate oblong cuſped ſnow-white underneath.

56. Urtica ſtimulans.
Lin. ſyſt. 851. *ſuppl.* 418.
Leaves alternate oblong attenuated towards the baſe entire, panicles axillary.

57. Urtica japonica.
Lin. ſyſt. 851. *Thunb. jap.* 70.
Leaves alternate cordate villoſe, flowers glomerate-headed.

58. Urtica muralis.
Vahl. ſymb. 1. 77.
U. paraſitica. *Forſk. deſcr.* 160.
Leaves alternate ovate three-nerved pubeſcent ſerrate, heads axillary ſeſſile.

59. Urtica villoſa.
Lin. ſyſt. 851. *Thunb. jap.* 70.
Leaves alternate cordate rough-haired, globules ſeſſile.

DESCRIPTIONS, &c.

1. Stem from eighteen inches to two feet in height. Leaves on long footſtalks, varying in ſhape, moſt frequently cordate, but often ovate, ſurrounded with very deep ſerratures except near the inſertion of the footſtalk, where they are entire. Flowers axillary, pedunculed; thoſe of the males branched, longer and more ſlender than thoſe of the females, which are ſimple, about half an inch long, each bearing one ball, three or four lines in diameter, when in ſeed pendent. The whole plant is thick ſet with ſtinging hairs, more pungent than the two common Nettles[k].

Dr. Smith ſays it is an annual of very luxuriant growth; the ſtem obtuſely angular, often purple. Leaves ovate, ſometimes heart-ſhaped, pointed, very ſtrongly ſerrate, paler beneath. Flower-ſtalks moſtly in pairs, thoſe of the male flowers panicled. The ſuppoſed nectary is an obſolete concave tubercle, which ſeems rather to be the rudiment of a germen, and the ſtamens ſurround it. The calyx is of four equal leaves; whereas that of the female flowers, (which are in a round head), has two hemiſpherical valves cloſely embracing the germ, and holding the ſeed till it is quite ripe. Seed dark-brown, highly poliſhed.

Dr. Smith farther remarks, that his ſpecimens ſeem intermediate between thoſe of the pilulifera and balearica in the Linnean herbarium, and notwithſtanding the opinion of Profeſſor Murray, he believes theſe ſpecies not to be diſtinct.

Mr. Woodward alſo ſuppoſes, that our ſpecies includes both. The only ſpecific difference given by Linneus conſiſts in the words *ovatis* and *cordatis*: but from frequent obſervations, he can ſee no reaſon to think this difference in the leaves to be any thing more than accident and ſcarcely worthy to be noticed as varieties. If the plant grows very cloſe to a wall, it is frequently taller and more ſlender, the leaves are then generally ſmall and ovate, and the ſerratures very ſhallow: when more diſtant from the wall, the plant is ſhorter and ſtronger, the leaves larger and heart-ſhaped, and the ſerratures very deep. He cannot perceive any difference in the fruitſtalks or balls of flowers.

Native of the ſouth of Europe, the eaſt coaſt of England, and about Tunis in Barbary. Ray found it plentifully at Yarmouth in Norfolk near the quay, as alſo about Aldborough in Suffolk, and elſewhere on that coaſt. It has ſince been obſerved about Lowe-ſtoft and Bungay in Suffolk. Parkinſon ſays it has been found growing time out of mind at Lidde by Romney in Kent, and in the ſtreets of Romney itſelf. He conjectures, that the Roman ſoldiers, who came with Julius Cæſar, ſowed it there. Mr. Dillwyn informs us, that it is extinct at old Romney, but that it ſtill grows plentifully a little ſouth of Lyd churchyard[l]. Gerarde affirms that it is a ſtranger to England, and Johnſon does not correct the error. It is commonly found among rubbiſh and ſtones, and flowers in June and July.

2. Linneus allows this to be too nearly allied to the preceding, and thinks it may be a variety or a daughter of that. The leaves are cordate and wrinkled; Murray remarks, that the leaves at the baſe are ſo oblique, that they are more prominent on one ſide; that they are entire towards the baſe and top, but in other parts ſerrate with obtuſe ſinuſes; and that in thoſe which are far advanced the margin is contracted, ſo that they ap-

[k] Woodw. Mſſ. [l] Linn. tranſ. 6. 182.

pear

pear to be convex. In his ſpecimens, he ſays, ſome of the leaves are ovate, others cordate; ſome of the ſtems and petioles purple, others not. He had the ſeeds from Oeder, who doubted whether it is a diſtinct ſpecies. They ſeem to compare it with U. Dodartii, which is diſtinct: but it is probably a variety of U. pilulifera, as Linneus ſuggeſted, and as Woodward and Smith aſſert.] Miller ſays, it differs from that in having narrower leaves and globular katkins; but being ſomewhat like it, is not often diſtinguiſhed from it. It was diſcovered in the Balearic Iſlands (Majorca and Minorca) by Mr. Salvadore, an apothecary in Barcelona, who ſent the ſeeds to many botanic gardens. By miſtake, Linneus has ſet it down as a native of India, though he names it balearica.

3. Root annual. Stems much more ſlender than thoſe of the former, and ſeldom branching. Leaves upon very ſlender footſtalks, for the moſt part entire. Male and female flowers axillary, ſhaped like thoſe of the former. The whole plant is armed with ſtinging hairs.

[Linneus ſays, it is too nearly allied to the two preceding, the male flowers being alſo placed below; but the leaves are ſcarcely ſerrate. According to Dr. Smith, it appears different enough from both.

Native of the ſouth of Europe (Miller ſays Spain and Italy.) Cultivated here in 1713. It flowers in july and auguſt [a].

4. Root fibrous. Stem the height of a finger, ſimple. Leaves three-nerved, naked, ſerrate, on petioles almoſt a finger's length. Racemes axillary, two-parted, or even dichotomous, length of the petioles [b]: or ſhorter according to Gronovius. Native of Canada, in watery places.

5. Root ſmall, brown, fibrous. Stem a foot and half high. Leaves four inches long, and three inches broad in the middle, rough, of a freſh green colour, a little indented about the edges, having three ribs running from the end of the footſtalk, with ſeveral tranſverſe ones. Flowers at top in a bunch together, browniſh, very ſmall, muſcoſe, reticulated [c].

It varies from a foot in height to four feet, with leaves to a ſpan in length, with ſmaller racemes to very large diffuſed ones, often bigger than the leaves, and white, green and red flowers; both ſexes on the ſame plant. Native of the Weſt Indies in ſhady moiſtiſh places: on dry ground it is a lower plant. It flowers in the middle of ſummer [d].

6. Stem a foot high, erect, tender, hairy, eſpecially towards the top, branched at bottom. Branches ſhorter than the ſtem. Leaves bluntly ſerrate, with the laſt ſerrature elongated, quite entire at the baſe, ſomewhat hairy, paler underneath, an inch long, on a filiform hairy petiole, the length of the leaf. Flowers in a ſort of whorl, hairy.

7. Native of Jamaica.

8. The ſmall Nettle is diſtinguiſhed from the great one (U. dioica) by its humbler ſize, being ſcarcely one-third of the height of that; its annual, white, fibrous root, its brighter green colour, and elliptical leaves, much ſmaller and rounder, three or five-nerved and ſcabrous. The ſtalks are much branched, the ſtipules ſmall and reflexed, the racemes androgynous, nearly ſimple, commonly ſhorter than the petioles. Female calyx ovate, compreſſed a little [e].

Native of Europe, Siberia and Barbary. It is a common weed in cultivated ground, eſpecially on a light ſoil, and is a great peſt of gardens, where it often ſeeds abundantly twice in one ſeaſon.

9. 10. Natives of Hiſpaniola.

11. 12. Natives of Jamaica [f].

13. Root perennial, creeping, tough, yelloviſh, ſending down from the joints ſome pretty large fibres. Stems many, three feet (or from two to four feet) high, upright very little branched, bluntly quadrangular, each ſide furrowed. The whole plant is pubeſcent, and clothed with ſtinging briſtles. Leaves cordate-ovate, acuminate, widely ſerrate, petioled; the upper ſide wrinkled and veiny. Stipules in fours, ovate, acute, erect, membranaceous, (ſpreading, linear, bluntiſh, the under ſide compreſſed and channelled, *Curtis*). Racemes in pairs on each ſide, or four together at a joint, branching and ſpreading very much, many-flowered. Flowers diſperſed in ſmall cluſters, commonly dioecious, but often monoecious [g]. The ſeed is ſmall, of an attenuated ovate ſhape, compreſſed like a lens, of a pale whitiſh colour; the two calyx-leaves ſerve it inſtead of a pericarp [h].

The great common Stinging-Nettle grows all over Europe, in Barbary, Siberia and Japan, in hedges, neglected fields, gardens and paſtures, flowering from june to ſeptember.

In this numerous genus all the ſpecies do not ſting, as the three ſorts which are natives of this country are well known to do. The ſmall projecting prickles or briſtles with which they are covered are tubular, and ſtand on a bag filled with a poiſonous juice; they are perforated at the point, and when they are gently preſſed vertically, the preſſure at once forces the poiſon to aſcend the tube, and enables the point to lodge it in the ſkin.

Nettle-tops in the ſpring are gathered by many of the poorer people as a pot-herb, and are put into diet-drinks to purify the blood. In Arran and other Scottiſh Iſles a renner is made of a ſtrong decoction of Nettles; a quart of ſalt is put to three pints of the decoction and boiled up for uſe: a common ſpoonful of this liquor will coagulate a large bowl of milk very readily and agreeably [i].

The ſtalk of the Nettle is found to have a texture ſomewhat like that of Hemp, and to be capable of being manufactured into cloth, ropes and paper.

The Nettle is refuſed by quadrupeds in general, except the Aſs. Cows however will eat it, when it is cut and lies to wither a little. Haller ſays it affords excellent food for milch kine, and that it has even been cultivated advantageouſly in Sweden, for that purpoſe. The leaves are chopped ſmall to mix with the food of young turkeys and other poultry. The nettle is the only food of the caterpillars of three of our moſt beautiful butterflies, *Atalanta*, *Paphia*, and *Urticæ*; the principal food of the *Io*; and the occaſional food of the *Comma album*: the caterpillars alſo of the *urticata* and *verticalis* moths feed on it: a great number of other indiſcriminate feeders devour its foliage; and the baſe of the leaves in autumn are frequently diſfigured by tubercles, which contain ſmall maggots, probably producing Muſca Urticæ [k].

As a ſtyptic the Nettle was formerly much uſed; and we are told of various hæmorrhagic affections in which it was ſucceſsfully employed. Dr. Withering ſays, a leaf put upon the tongue, and then preſſed againſt the roof of the mouth, is efficacious in ſtopping a bleeding at the noſe. It is alſo ſaid to manifeſt a diuretic character, and to be uſeful in calculous complaints, ſcurvy, gout, jaundice, &c. But theſe accounts have now little credit.

The ſharp briſtles readily entering the ſkin, and thereby producing conſiderable irritation and inflammation, have been employed as a rubifacient, a practice which was termed urtication, and found of advantage, in reſtoring excitement in paralytic limbs, or in other caſes of torpor or lethargy [l].

The juice of the Dock, or even of the Nettle plant itſelf, is a ſpeedy remedy for the ſting [m].

14. This in habit and various circumſtances is ſufficiently allied to the preceding; but it differs at firſt ſight, in having the racemes a ſpan long, quite ſimple, erect; the leaves much wider; and the ſtipules ovate not linear-lanceolate as in the common Nettle. If it be a variety, which it ſcarcely ſeems to be, it is certainly very worthy of remark [n].

Vahl found it growing very abundantly about Tunis, where he never obſerved our common Nettle. Haſſelquiſt found it in Egypt, and remarks, that the Arabians call it Curcis. It is in Forſkahl's catalogue of Arabian plants.

15. This alſo has the appearance of the common Nettle, but the hairs are ſcattered thinly over it. Stem branched. Leaves ovate, toothed, on long petioles. Bractes lanceolate, acute. Flowers monoecious: the

[a] Hort. kew. [b] Linn. ſpec. [c] Sloane. [d] Swartz. [e] Smith brit. and engl. bot. Curt. lond. [f] Swartz. [g] Curtis lond. and Smith brit. [h] Gærtner. [i] Curtis. [k] Lightfoot. [l] Curtis, Withering. [m] Woodville. [n] Engl. bot. [o] Vahl.

males from the top of the branches in ſpikes, which are in pairs, axillary, filiform, ſimple, directed one way, ſeſſile on a widiſh rachis, membranaceous on each ſide: the females below collected into ſhort axillary racemelets. Barbary near la Calle [a].

16. 17. Natives of Hiſpaniola [b].]

18. Root perennial. Stems five or ſix feet high. Leaves oblong, deeply cut into three lobes, which are acutely indented on their edges; and placed on long petioles. Flowers axillary in long cylindrical katkins: males on the lower part, females on the upper. Seeds like thoſe of flax, incloſed in the three-cornered calyx. The ſtem and leaves are armed with ſtinging hairs.

Native of Siberia, whence the ſeeds were brought to the Imperial garden at Peterſburgh, and diſperſed to moſt parts of Europe. It flowers in july, and the ſeeds ripen in autumn. [Cultivated by Mr. Miller in 1752.

19. Native of Hudſon's Bay. Introduced by the Hudſon's Bay Company, in 1782. It flowers from june to auguſt [c].

20. Stem ſhrubby, rugged, round, ſtiffiſh, nearly upright: branches oppoſite, horizontal, diffuſed. Leaves petioled, nodding, rugged eſpecially on the edge. Two ſtipules on each ſide. Flowers axillary, ſeſſile: males in pairs, with a four-parted calyx, and four white ſtamens: a female flower ſits cloſe to the males, with one long pubeſcent white ſtyle. Fruit ovate, emarginate, grooved with eight ſwellings. Seed very ſmooth, ovate, black with a white baſe. It is a little evergreen plant. From its male flowers it is an Urtica; but from its female flowers and fruit, a Parietaria: therefore between both [d]. Native of Ceylon.

21. Native of Jamaica.

22. Native of Hiſpaniola [e].

23. Roots numerous, long thready. Stem herbaceous, ſuffrutеſcent at bottom, from two to eight feet in height, branching very much, erect, angular, four-ſided, ſtriated. Branches long, ſubdivided, quadrangular, red: branchlets filiform, oppoſite to the leaves, looſe, ſmooth. Leaves three-nerved, veined, ciliate at the edge. Leaflets of the ſame ſhape, but twice or four times ſmaller. Petioles long, ſpreading, red. Racemes axillary, terminating, oppoſite. Peduncles longer than the petioles, filiform, coloured, four-ſided, erect, ſmooth. Flowers dioecious: females very ſmall on panicled racemelets. Seed very ſmall, black and ſhining. Native of the Weſt Indies, on high mountains; flowering all the year [f].

24. 25. Natives of Jamaica [g].

26. Native of South America [h].

27. 28. Natives of Jamaica.

29. Native of Hiſpaniola.

30. 31. 32. Natives of Jamaica.

33. Native of Hiſpaniola.

34. Native of Jamaica [i].

35. Stem round, purple, ſmooth. Branches filiform, hiſpid at the baſe. Leaves three-nerved, rugged, on capillary petioles ſhorter than the leaf. Flowers in axillary capillary ſolitary ſpikes, a finger's length, interrupted.

Native of Japan, near Nagaſaki and in the mountains of Koſido; flowering from july to october.

36. Stem four-cornered, grooved, purpliſh. The whole plant very finely pubeſcent. Leaves not at all cordate, acute, deeply and doubly gaſh-ſerrate, three-nerved, hairy and ſcabrous, on petioles ſhorter than the leaf. Flowers axillary panicled. Native of Japan, in the ſame places [k].

37. Stem herbaceous, a foot high, erect. Leaves rhomb-ovate, unarmed, an inch long, bluntiſh, on petioles the length of the leaves. Racemes branched, axillary, length of the petals. Found in Mexico by Mutis [l].

38. Native of the Society iſles.

39. Native of New Zealand [m].

40. 41. 42. Natives of Jamaica; the firſt of St. Domingo alſo [n].

[a] Deſfontaines. [b] Swartz. [c] Hort. kew. [d] Linn. ſyſt. [e] Swartz prodr. [f] Swartz obſ. [g] Swartz prodr. [h] Linn. ſpec. [i] Swartz prodr. [k] Thunberg. [l] Linn. ſuppl. [m] Forſter. [n] Swartz prodr.

All theſe Nettles from the Weſt Indies are particularly deſcribed by Swartz, in his Flora Indiæ Occidentalis aucta atque illuſtrata: ſcil. n. 7. 9. 10. 11. 12. 16. 17. 21. 22. 24. 25. 27. 28. 29. 30. 31. 32. 33. 34. 40. 41. 42.

43. Stem ſimple, a foot high, rough, with unarmed prickles. Lower leaves oppoſite, the reſt alternate, cordate with the lobes of the baſe approximating, ſerrate, three-nerved, petioled, rough-haired. A branch and a peduncle from each axil. Raceme horizontal, lateral, ſpreading. Male flowers ſolitary from each diviſion, with ſnow-white anthers. Female flowers minute. Seeds drooping in a ring [a].

Native of Surinam, and the Society iſles.

44. 45. Natives of the Society iſles [b].

46. Stem herbaceous, ſimple, grooved, villoſe with awl-ſhaped ſcattered white ſhining briſtles. Leaves alternate, the lower ones entire, the upper trifid, groſsly and bluntly ſerrate, the laſt ſerrature elongated, ſomewhat villoſe, paler underneath, having a few briſtles ſcattered along the nerves, two inches long, on a petiole hiſpid with briſtles, ſhorter than the leaf. Flowers axillary: males above in globular ſpikes; females below. Fruiting rachis branched dichotomouſly, hiſpid [c].

Native of the Eaſt Indies.

47. Stem upright, angular, naked. Leaves acuminate, equally ſerrate, naked twice as long as the petioles, three-nerved. Raceme glomerate, many, diſpoſed in a ſimple ſeſſile ſolitary ſpike. It differs from dioica in having wider alternate leaves. Native of Canada, where it was found by Kalm [d].

48. Native of Virginia and Canada [e].

49. Root perennial. Stems two feet high. Flowers in axillary branching aments; appearing towards autumn, but ſeldom followed by ſeeds in this country.

[The plant is at firſt male only, but afterwards male and female flowers are produced on the ſame plant. Native of Canada and Virginia [f]. Cultivated here in 1713 [g].

50. Stem herbaceous, a foot high, flexuoſe, grooved, rough-haired eſpecially at top. Leaves acute, paler underneath, villoſe along the nerves, an inch long on rough-haired petioles, the length of the leaf. Stipules lanceolate-linear. Racemes axillary, ſolitary, ſpreading, compound, longer than the leaf; racemelets ſmall, ſomewhat branched, remotiſh, hairy, ſpreading: flowers glomerate. At firſt view it approaches to the next ſpecies, but differs in its ſhagginеſs, the leaves ſerrate not entire at the baſe, ſharp at the end but not acuminate, and in having branched ſpikes.—It recedes from the preceding ſpecies in having ſmaller leaves ſerrate at the baſe, in its ſhagginеſs, and the racemes being longer than the leaf, not ſuperdecompound [h].

51. Stem herbaceous, annual, two feet high, roundiſh, hiſpid, red, ſometimes creeping. Leaves hiſpid on both ſides. Flowers reddiſh, in long ſpikes; male and female in diſtinct ſpikes: calyx in the males often five-leaved than four-leaved: ſtamens alſo commonly five. Native of China and Cochinchina [i].]

52. This is a perennial plant, ſending up many ſtalks from the root, which riſe three or four feet high. Leaves four inches long, and two inches and a half broad, ſerrate, of a deep green on their upper ſide, but very white on their under; having five longitudinal veins; they ſtand upon very long footſtalks. Flowers axillary in looſe aments, and not ſucceeded by ſeeds in England.

[Stem herbaceous, biennial, erect, round, five feet high. Leaves attenuated at the apex, but not at the baſe, with a ſlender point, crenate, above of a duſky green colour, hiſpid, underneath tomentoſe, white. Flowers in many ſmall lateral racemes, male and female in the ſame racemes, the females at the tip. Calyx of the male four-leaved: filaments four, awl ſhaped, flexuoſe, three times as long as the calyx. The females have neither calyx nor corolla; germ roundiſh, ſurrounded with many barren filaments; ſtigmas two, oblong, villoſe [k].

[a] Linn. ſpec. [b] Forſter. [c] Vahl. [d] Linn. ſpec. [e] Reich. ex Fabric. helm. [f] Hort. kew. [g] Vahl. [h] Loureiro. [i] Idem.

Native

Native of the Eaſt Indies, China, Cochinchina and Japan. Cultivated in 1739, by Mr. Miller. It flowers here in auguſt and ſeptember.

Thread and cordage even of the thicker kind which might ſerve on board ſhips, are made of Nettles in Japan. Different ſorts grow wild on the hills there, and frequently attain a conſiderable ſize. The ſpecies moſtly uſed are this and the japonica. The bark of theſe, properly prepared, produce ſtrong cordage, and alſo threads ſo fine, that even linnen is made of them. From the ſeeds of the nivea an oil is expreſſed [a].

Loureiro informs us that it is cultivated abundantly in China and Cochinchina, and that it affords an admirable ſtrong thread for ropes of all kinds, and for very durable nets.

Of the bark of one ſpecies of Nettle, they make, at Otaheite, the beſt fiſhing lines in the world, which will hold the ſtrongeſt and moſt active fiſh. They call it Erowa [b].

53. This is a ſmall tree from ſixteen to eighteen feet high, ſimple except at the top where it is ſubdivided, ſcabrous, prickly. Prickles thick, ſhortiſh, ſtanding out, occupying the ſtem longitudinally. Branches herbaceous, prickly, ſtinging very powerfully. Leaves large, a ſpan long, petioled, cordate-ovate, ſerrate, nerved, ſmooth: the nerves underneath and the petioles prickly: the upper ſide of the leaves has convex points terminated by a prickle ſcattered over them. Racemes cauline, many-parted prickly, red. Flowers at the end of the branchlets of the racemes, ſeſſile, dioecious. Calyx of the males one-leafed five-cleft, convex: border ſpreading, little reflexed, with lanceolate, red ſegments: nectary, the bottom of the calyx cup-ſhaped, white. Filaments five, thicker at the baſe, attenuated at the top, twice as long as the ſegments of the calyx, inſerted below the diviſions of it. Anthers three-celled, roundiſh, whitiſh. The rudiment of a piſtil in the middle. Calyx of the female flowers four-lobed, two of the lobes a little bigger. Germ ovate, acute, compreſſed, green. Stigma villoſe, purple. Calyx berried, enlarging, at firſt embracing the germ to the middle but afterwards becoming like a berry, oblong, blunt at the end, four-lobed incloſing the ſeed, white, pellucid. Seed ſmall, black.

Native of the Weſt Indies, on loſty mountains and in ſhady places; flowering in the ſpring [c].

54. Stem erect, round, ſcarcely pubeſcent, harmleſs. Leaves petioled, ſerrate. Spikes lateral, two or three, on a weak rachis, erect. Flowers at remote points, few, heaped. Native of the Cape of Good Hope; found by Thunberg [d].

55. Stem ſuffruticoſe, erect, purple. Branches alternate, from erect ſpreading, reſembling the ſtem. Leaves petioled, rounded-attenuated towards the baſe, entire, having a lanceolate entire cuſp at the end an inch long, ſerrate; above ſcabrous, ſmooth; underneath white-tomentoſe, three-nerved, veiny, unequal, from an inch to a finger's length. Native of Japan [e].

56. This is a little tree or ſhrub, with large leaves, which ſting like our common Nettles, but much more violently, and to ſuch a degree as to cauſe an inflammation in the ſkin. On every vein they have ſharp-pointed tranſparent prickles, containing a fluid, which cauſes this irritation. The Javaneſe are well acquainted with it, and call it Kamadu: the Dutch coloniſts have named it Buffelblad, or Buffalo's leaf. It is cuſtomary with the Javaneſe princes on holidays, by way of diverſion, to turn out a Tiger and a Buffalo to fight, in an area fenced in with planks. If the Buffalo ſhould prove tardy in attacking his adverſary, they flog him with this plant, which cauſes ſuch an heat and inflammation in his ſkin, that he at length becomes quite wild and outrageous. When any one is ſtung with this Nettle-tree, they anoint the part with oil, or with rice boiled to a ſoft conſiſtence; waſhing with water would only render the pain more intolerable. Native of Java [f].

57. Stem four-cornered, grooved, erect, pubeſcent. Leaves cordate-ovate, acuminate, unequally ſerrate, villoſe-ſcabrous, green above, pale beneath, an inch and half long, on petioles ſhorter by half than the leaves. Flowers axillary, glomerate; the glomerules peduncled, round. It differs from the capitata, in having a pubeſcent ſtem, hairy leaves unequally ſerrate, and ſubglobular little balls of flowers. Native of Japan about Nagaſaki; flowering in ſeptember and october. Thick ropes or cables for ſhips are made of the bark of this Nettle [g].

58. Stem round, pubeſcent, hoary at top. Leaves acutely ſerrate, acuminate, ſoftly villoſe, eſpecially the upper ones, quite entire at the baſe and point, an inch and half long, on a ſpreading petiole ſhorter than the leaf. Stipule on each ſide lanceolate acuminate. Balls of flowers axillary, ſeſſile, villoſe, hoary: diſtinguiſhed from the preceding by having the leaves equally ſerrate and even, and the balls of flowers ſeſſile [h].

59. Stem herbaceous, round, ſcarcely a ſpan high. Branches alternate, ſpreading very much. Leaves on very ſhort petioles, obtuſe, ſerrate-crenulate, unequal, ſmall. Globules of flowers ſcattered over the branches, ſmall, ſeſſile. Native of Japan, on the iſland Nipon [i].

Linneus has ſubdivided the numerous ſpecies of this genus into two ſections from the leaves, which from one to thirty-nine incluſive are oppoſite, and in the reſt alternate. We may add, that moſt of the ſpecies are perennial, and ſome of theſe ſhrubby: a few however are annual as *n.* 1. 2. 3. 8. 17. and 43; perhaps 4. 5. 6. and 9. Linneus has rightly placed this genus in the claſs Monoecia; for although ſome of the ſpecies are Dioecious, as 9. 13. 16. 21. 22. 23. 28. 32. 42, yet it is certain that female flowers are found among the males in ſome, and it is probable that a more minute examination will inform us that the caſe is the ſame in all. Ray, who had juſter notions of the ſexes in plants than moſt other botaniſts of his time, remarks, that Nettles have not only male and female flowers on ſeparate plants, but that they are alſo androgynous, having barren and fertile flowers on the ſame plant, but remote from each other [k].]

PROPAGATION AND CULTURE.

1, 2, 3, &c. Sow the ſeeds in march, upon a bed of rich light earth. When the plants are come up tranſplant them into beds, or the borders of the pleaſure-garden. In july they will flower, and the ſeeds will ripen in autumn. If theſe are permitted to ſhed, they will come up the following ſpring, and flouriſh without farther care.

8. This is a common weed in gardens, and if ſuffered to ſtand, will fill the ground with ſeeds; but as it is an annual, it may be eaſily extirpated by the hoe.

13. The great Stinging Nettle is a formidable root-weed upon the ſides of banks and ditches, in hedges, in uncultivated places in general, and in paſtures; the roots ſpread very much, and it cannot be extirpated without the rooting-iron: pieces of the roots that are left in the ground will grow again.

18. This is eaſily propagated either by ſeeds or parting the roots, and will thrive in moſt ſoils and ſituations.

49. This may be increaſed by parting the roots in the ſpring. It may be planted in almoſt any ſoil or ſituation, and will endure the ſevereſt cold of this climate in the open air.

52. This alſo may be increaſed by parting the roots in may. The plants muſt be ſet in pots filled with light earth. They muſt be houſed in winter, and expoſed to the open air only for three months in the heat of ſummer.

[URTICA. See *Acalypha*, *Axyris*, *Parietaria*, *Tragia*.

——— iners. See *Galeopſis* and *Lamium*.

Urticæ folio. See *Ayenia*.

URUCU. See *Bixa*.

USNEA. See *Lichen*.

USTERIA. (*So named by Willdenow, in honour of* Paulus Uſter, *author of* Annalen der Botanik, *Zurich*, 1792 *to* 1797, 8°.—Delectus opuſculorum botanicorum. *Argent. vol.* 1. 2. 1790. 1793. 8°.)

Lin. gen. Schreb. n. 1704. *p.* 782. *Willd. act. ſoc. Berol.* 10. 52. *t.* 2.

Claſſ. 1. 1. Monandria Monogynia.

[a] Thunb. voy. 3. 63. engl. ed. [b] Hawkeſw. voy. 2. 218. [c] Swartz obſ. [d] Linn. ſuppl. [e] Thunb. jap. [f] Thunb. trav. 4. 140. engl. ed. [g] Thunb. jap. [h] Vahl. [i] Thunb. jap. [k] Hiſt. 1370.

GENERIC CHARACTER.

CAL. *Perianth* one-leafed, four-toothed, permanent: *segments* four, obtuſe, three of them very ſmall, the fourth much larger, lanceolate.

COR. one-petalled, funnel-form: *tube* narrow, longer than the calyx: *border* four-toothed, acute, erect.

STAM. *Filament* one, ſhort, placed on the tube. *Anther* oblong.

PIST. *Germ* oblong, ſuperior. *Style* capillary, ſhorter than the corolla. *Stigma* bifid.

PER. *Capſule* oblong, compreſſed, two-grooved, one-celled, two-valved.

SEEDS two, oblong, clothed with a thin membranaceous aril.

ESSENTIAL CHARACTER.

Cal. four-toothed, with one ſegment much larger than the reſt. *Cor.* funnel-form, four-toothed. *Capſ.* one-celled, two-ſeeded. *Seeds* arilled.

SPECIES.

1. Uſteria guineenſis.
Willd. ſpec. 1. 18. *act. ſoc. Berol.* 10. 52. *t.* 2.
Monodynamis Iſerti. *Gmel. ſyſt.* 10.

DESCRIPTION, *&c.*

This is a ſhrub with oppoſite branches. Leaves oppoſite, roundiſh-ovate, quite entire. Flowers in terminating panicles. Native of Guinea [b].

USUBIS. See *Schmidelia.*

UTRICARIA. See *Nepenthes.*

UTRICULARIA. (*Dimin. from* uter, *a bottle.* Utriculus, *a little bottle. So called from the ſmall appendages to the root.*)
Lin. gen. n. 31. *Reich. n.* 34. *Schreb. n.* 41. *Juſſ.* 98. Lentibularia. *Vaill. act. gall.* 1719. *Dill. gen.* 6.
Claſſ. 2. 1. Diandria Monogynia.
Nat. Order of *Corydales. Lyſimachiæ* Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* two-leaved: *leaflets* ovate, concave, very ſmall, equal, deciduous.

COR. one-petalled, ringent: *upper lip* flat, obtuſe, erect; *lower* bigger, flat, entire. *Palate* heart-ſhaped, prominent between the lips. *Nectary* horned, produced from the baſe of the petal.

STAM. *Filaments* two, very ſhort, curved in. *Anthers* ſmall, cohering.

PIST. *Germ* globular, large, one-celled. *Style* filiform, length of the calyx. *Stigma* conical.

PER. *Capſule* globular, large, one-celled.

SEEDS numerous.

ESSENTIAL CHARACTER.

Cor. ringent, ſpurred. *Cal.* two-leaved, equal. *Capſ.* one-celled.

SPECIES.

1. Utricularia alpina.
Lin. ſpec. 25. *ſyſt.* 65. *Reich.* 1. 50. *Willd.* 1. 111. *Jacqu. amer.* 7. *t.* 6. *pict.* 9. *t.* 8.
Nectary awl-ſhaped, leaves ovate quite entire.
2. Utricularia foliola.
Lin. ſpec. 26. *Reich.* 1. 50. *Willd.* 1. 111. *Læſt. it.* 281.
Linaria paluſtris, fœniculi folio. *Plum. ſpec.* 6. *ic.* 165. *f.* 2.
Nectary conical, fruits drooping, radicles deſtitute of appendages.
3. Utricularia vulgaris. *Common Bladder-wort* or *Hooded Milfoil.*
Lin. ſpec. 26. *ſyſt.* 65. *Reich.* 1. 51. *Willd.* 1. 112. *fl. lapp. n.* 14. *ſuec. n.* 28. *fl. zeyl. n.* 22. *Hudſ. angl.* 8. *Wither. arr. ed.* 3. 19. *Smith brit.* 28. *engl. bot. t.* 253. *Lightf. ſcot.* 77. *Relh. cant. ed.* 2. *n.* 21. *Sibth. oxon. n.* 18. *Abbot bedf. n.* 16. *Fl. dan. t.* 138. *Hall. helv. n.* 290. *Roth. germ.* 1. 10. 2. 27. *Hoffm. germ.* 8. *Pollich pal. n.* 24. *Krock. ſiles. n.* 38. *Villars dauph.* 2. 446. *Allion. pedem. n.* 197. *Berg. phyt.* 2. 101.
Lentibularia. *Rivin. mon.* 78. *Raii ſyn.* * 286.
Milleſolium paluſtre galericulatum. *Ger. emac.* 828. 5. *Raii hiſt.* 1322.

[a] Willdenow. 9

M. aquaticum flore luteo galericulato. *Bauh. hiſt.* 3. 783. 3. *Park. theat.* 1258. 9.
M. aquat. lenticulatum. *Bauh. pin.* 141.
Great Bladder-ſnout. *Petiv. brit. t.* 36. *f.* 11.
Nectary conical, ſcape few-flowered.
4. Utricularia minor. *Small Bladderwort* or *Hooded Milfoil.*
Lin. ſpec. 26. *ſyſt.* 65. *Reich.* 1. 51. *Willd.* 1. 112. *fl. ſuec. n.* 29. *Hudſ. angl.* 9. *Wither. arr. ed.* 3. 20. *Smith brit.* 28. *engl. bot. t.* 254. *Lightf. ſcot.* 78. *Relh. cant. ed.* 2. *n.* 22. *Abbot bedf. n.* 17. *Fl. dan. t.* 128. *Hall. helv. n.* 291. *Roth. germ.* 1. 11. 2. 28. *Hoffm. germ.* 8. *Pollich pal. n.* 25. *Villars dauph.* 2. 446. *Berg. phyt. t.* 103. *Schmidel. ic. t.* 21. *f.* 1.
Lentibularia minor. *Vaill. act. gall.* 1719. *Raii ſyn.* * 286.
Milleſolium aquaticum minus. *Park. theat.* 1256. 3. *Raii hiſt.* 1322.
M. paluſtre galericulatum minus. *Pluk. phyt. t.* 99. *f.* 6.
Aparine aquis innatans trevirana, foliis perchepier caprelis donata. *Bocc. muſ.* 1. 23. *t.* 4.
Small Bladder-ſnout. *Petiv. brit. t.* 36. *f.* 12.
Nectary keeled very ſhort obtuſe.
5. Utricularia obtuſa. *Blunt-horned Bladder-wort.*
Lin. ſpec. ed. Willd. 1. 112. *Swartz prodr.* 14. *deſcr.* 1. 41. *Brown. jam.* 119. 1.
Nectary bent in obtuſe ſubemarginate.
6. Utricularia ſubulata. *Awl-ſhaped Bladder-wort.*
Lin. ſpec. 26. *ſyſt.* 65. *Reich.* 1. 51. *Willd.* 1. 113. *Gron. virg.* 6.
Nectary awl-ſhaped.
7. Utricularia gibba. *Gibbous Bladder-wort.*
Lin. ſpec. 26. *Reich.* 1. 51 *Willd.* 1. 113. *Gron. virg.* 129.
Nectary gibbous.
8. Utricularia bifida. *Cloven Bladder-wort.*
Lin. ſpec. 26. *Reich.* 1. 51. *Willd.* 1. 113. *Oſb. it.* 243. *t.* 3. *f.* 2. *vel.* 2. *p.* 1. *ed. angl.*
Scape naked bifid.
9. Utricularia capillacea. *Hair-like Bladder-wort.*
Lin. ſpec. ed. Willd. 1. 113.
Scape naked capillary three-flowered, flowers nodding, capſule awl-ſhaped.
10. Utricularia cœrulea. *Blue Bladder-wort.*
Lin. ſpec. 26. *Reich.* 1. 52. *Willd.* 1. 113. *fl. zeyl. n.* 23.
Nelipu. *Rheed. mal.* 9. 137. *t.* 70.
Scape naked, ſcales alternate wandering awl-ſhaped.
11. Utricularia ſtellaris. *Starry Bladder-wort.*
Lin. ſyſt. 65. *Willd.* 1. 113. *ſuppl.* 86. *Vahl. ſymb.* 1. 6.
U. inflexa. *Forſk. deſcr.* 9. *n.* 26.
Bladdery whorl of the bracteæ ciliary.
12. Utricularia recurva. *Recurved Bladder-wort.*
Lour. cochinch. 26. *ed. Willd.* 32.
Leafleſs, nectary recurved, ſpike ſimple.
13. Utricularia aurea. *Golden Bladder-wort.*
Lour. cochinch. 26. *ed. Willd.* 32.
Leafleſs, nectary conical-compreſſed, flowers in racemes.

DESCRIPTIONS, *&c.*

1. Roots fibrous, aſh-coloured, with ſmall round tubercles as in the Potato. Scape ſimple, leafleſs, one or two-flowered, ſmooth, erect, half a foot high. Leaves radical, two, obovate, attenuated at the baſe into the petiole, acute, ſhining, thickiſh, veinleſs, convex, oppoſite, an inch and half long. Flowers elegant, very large, white with the calyx and nectary ſlightly tinged with yellow. Native of Martinico, in the higheſt mountains, on a wet open meadow; flowering in february [c].

2. This reſembles our common ſort very much, but the root is creeping. Flowers on the ſcape many, from ſix to ten. It has no bladders at the roots. Native of South America [d].

3. The fibrous floating roots, ſlightly attached to the mud, are ſuppoſed to be perennial. The ſtem likewiſe floats horizontally under water alternately divided

[c] Jacquin. [d] Linn. ſpec.

into

into capillary branches, with briſtly leaves bearing little compreſſed curved bladders, open, and bearded at the tip, containing a bubble of air, and a drop of watery fluid, in which, when highly magnified appears a quantity of extremely minute ſolid particles. Aquatic inſects frequently take up their lodging in theſe bladders. The ſtalk riſes erect only a few inches above the water, and is rendered conſpicuous by its ſpike of large handſome alternate flowers (3 to 8): the peduncle and calyx reddiſh or purple; the corolla of one irregular labiate petal, the ſpur conical and recurved, the mouth cloſed, the palate prominent and orange-coloured. Stamens thick and ſhort. Germ ſuperior; ſtyle ſhort; ſtigma concave and bearded [a]. Stem cylindrical, ſcaly towards the top; one ſcale ſerves as a bracte to each flower, and is lanceolate. Calyx permanent; its lower leaf very ſlightly notched at the end. Corolla full yellow, with purpliſh-red ſtreaks. Nectary blunt, lined with minute ſhining globular glands. Filaments thick, fleſhy, crooked, fixed to the baſe of the germ. Stigma two-lipped; one lip very ſmall, the other broad, flat, thin, fringed at the edge: after the impregnation of the germ, this larger lip cloſes the aperture of the ſtyle [b].

Native of Europe, in ditches and ſtagnant waters; flowering after midſummer. It is perfectly an aquatic, and not extremely common in Britain.

4. Roots capillaceous, very tender, floating, loaded with very ſmall membranaceous bladders. Scape length of the finger, ſimple, very ſlender, dividing towards the top into three peduncles, having a bracte under each. Leaves radical, pinnate, capillaceous, with very few equal pinnas. Lower leaflet of the calyx reflexed. Upper lip of the corolla horizontal, cordate, perforated at the baſe, inſerted into the receptacle: lower cordate, bent back at the ſides, at the baſe underneath gibbous, prominent, keeled not horned: throat open, without any prominent palate. Filaments converging, reſembling a ring, narrower below: anthers roundiſh. Germ ovate: ſtyle ſimple, ſhort: ſtigma ovate, tongue-ſhaped [c].

It differs from the preceding in having a ſhort blunt nectary, which projects ſo little, that Linnæus calls it carinated, not conical or awl-ſhaped; the palate not ſo prominent as to cloſe the orifice of the corolla; the upper lip blunt; and the corolla of a paler colour. It has alſo fewer flowers, and the plant is only about half the ſize of the other. They agree however in habit and ſtructure [d].

Native of Europe; flowering at the ſame time with the other. On Hounſlow heath, in the river. Hinton, Teverſham, Fulbourn, Sawſton and Chippenham moors, and Gamlingay bogs in Cambridgeſhire. At Cawſton decoy, near Yarmouth, and on St. Faith's bogs near Norwich. Ampthill, and Potton marſhes in Bedfordſhire. Near Glaſtenbury, Somerſetſhire. On turfy bogs in Weſtmoreland and Cumberland. In ditches adjoining Outerthwaite near Flookbury in Cartmell. In a bog at Coryattachan in Skie, and other places in Scotland, but more rarely than the other.

5. Roots capillary, branched, whitiſh. Leaves floating, furniſhed with ſmall ovate bladders. Scape from two to three inches long, filiform, erect, ſimple, ſometimes divided at top, naked, ſmooth. Flowers terminating, alternate, three or four, ſmall, yellow, on long one-flowered peduncles. Tube of the corolla very ſhort, cylindrical: upper lip ovate, convex, entire; lower a little ſmaller, ovate, the orifice cloſed: nectary ſcarcely longer than the lip, conical: palate orange ſtreaked with purple. Filaments inſerted at the aperture of the tube, ſabre-ſhaped; anthers roundiſh, growing to the inner ſide of the filaments, one-celled. Germ roundiſh: ſtyle very ſhort and thick: ſtigma funnel-form, oblique, one-lipped. Capſule roundiſh. Seeds compreſſed, membranaceous at the ſide. It reſembles the preceding ſort very much; but is diſtinct from it, in having a blunt ſubemarginate nectary. Native of Jamaica, in marſhy rivulets; flowering the whole ſummer [e].

6. Leaves capillaceous. Flowers white [f]. Native of Virginia.

7. This alſo is a native of Virginia.

8. Stem filiform, a finger's length, bifid or with a double raceme. Flowers alternate, yellow, with the upper lip ſharp at the ſides [g].—Oſbeck adds, that it is very like the vulgaris, but ſomewhat leſs: the calyx-leaf permanent: the nectary conical: the capſule ovate. The plant is a hand's breadth in length; the root fibrous and branched; the bractes very ſmall and ovate; peduncles alternate, compreſſed; flowers ſmall, yellow. Native of China: found by Oſbeck in low ſwampy ground, not under water.

9. Plant ſcarcely an inch high, with a naked root ſomewhat branching. Peduncles nodding, ſupported by a very ſmall ovate ſeſſile bracte. Capſule awl-ſhaped, covered by the permanent calyx. Native of the Eaſt Indies [h].

10. Scape half a foot high, filiform, erect. Flowers few, terminating, ſubſeſſile, with a ſpur the length of the flower. Herman ſays that the colour of the corolla is blue. Native of Ceylon [i], and Malabar.

11. Roots capillary, branched, whorled, floating as in vulgaris, but without bladders. Scape a finger's length, filiform, naked, racemed at the top. In the middle of the ſcape and at the ſurface of the water are from four to ſix ſeſſile ovate ciliate two-celled follicles in whorls, in order to ſupport the ſcape in the water. The corolla has no ſpur; only the lower lip is bagged. Native of the Eaſt Indies, in rice fields, where the water is deepeſt [k]: found by Koenig.—It was alſo found by Forſkahl in Egypt. This differs from the Indian in having oblong bladders at the baſe of the ſcape, inſtead of ovate ones in the middle, but in all other reſpects they are very much alike. There are frequently radical fibres at the top of the bladders of the ſcape [l].

12. Root fibrous, ſhort, without bladders. Stem four inches high, ſlender, quite ſimple, erect. Leaves none. Calyx-leaves large, round-compreſſed. Corolla yellow, with a conical nectary, curved back and almoſt equal to the petal. Capſule lens-ſhaped, protected by the cloſed calyx. In Hon-mo river, near the capital of Cochinchina.

13. Stem ſlender, very long, branched, fluctuating. Root fibrous, capillary, green, branched, having bladders. Scape round, erect, three inches high. Calyx-leaves lanceolate, curved in. Corolla golden-coloured, with a convex emarginate throat, and a conical compreſſed nectary. Native of Cochinchina, in ſlow-flowing rivers [m].

UVA CRISPA. See *Ribes*.

UVA MARINA. See *Ephedra*.

UVARIA. (*From the figure of the fruit like a bunch of grapes.*)

Lin. gen. n. 692. *Reich. n.* 750. *Schreb. n.* 944. *Gærtn. t.* 114. *Juſſ.* 284. *Roxb. corom.* 1. *t.* 33—36.

Claſs. 13. 7. Polyandria Polygynia.

Nat. Order of *Coadunatæ*. *Anonæ* Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* three-leaved, flat: *leaflets* ovate, acute, permanent.

COR. *Petals* ſix, lanceolate, ſeſſile, ſpreading, longer than the calyx.

STAM. *Filaments* none. *Anthers* numerous, truncate, oblong, covering the germ on which they are placed.

PIST. *Germ* ovate. *Styles* numerous, length of the anthers, terminating the head. *Stigmas* obtuſe.

PER. *Berries* numerous, diſtinct, globular, peduncled, faſtened to an oblong *Receptacle*.

SEEDS numerous.

ESSENTIAL CHARACTER.

Cal. three-leaved. *Pet.* ſix. *Berries* numerous, pendulous, four-ſeeded.

SPECIES.

1. Uvaria zeylanica.

Lin. ſpec. 756. *Reich.* 2. 627. *Willd.* 2. 1261. *mat. med.* 140. *fl. zeyl. n.* 224. *Gærtn. fruct.* 2. 155. *Lour. cochinch.* 348. *ed. Willd.* 426.

Funis muſarius. *Rumph. amb.* 4. 78. *t.* 42.

[a] Engl. bot. [b] Withering. [c] Linn. ſpec. [d] Linn. ſpec. and Engl. bot. [e] Swartz deſcr. [f] Linn. ſyſt

[g] Linn. ſpec. [h] Willdenow. [i] Linn. zeyl. [k] Vahl. [l] Loureiro.

Narum-panel. *Rheed. mal.* 2. 11. *t.* 9. *Raii hiſt.* 1636.

Leaves lanceolate acuminate, peduncle one-flowered ſolitary, petals roundiſh obtuſe equal.

2. Uvaria lanceolata. *Lance-wood Uvaria.*
Lin. ſpec. ed. Willd. 2. 1261. *Swartz prodr.* 87. *Browne jam.* 370.

Leaves lanceolate quite entire, flowers axillary ſolitary, branches wand-like.

3. Uvaria ceraſoides. *Cherry-fruited Uvaria.*
Lin ſpec. ed. Willd. 2. 1261. *Roxb. corom.* 1. 30. *t.* 33.

Leaves lanceolate acute pubeſcent beneath, peduncles one-flowered ſolitary, petals ovate acute equal.

4. Uvaria ſuberoſa. *Cork-barked Uvaria.*
Lin. ſpec. ed. Willd. 2. 1261. *Roxb. corom.* 1. 31. *t.* 34.

Leaves oblong acute ſmooth, peduncles one-flowered ſolitary, the three inner petals lanceolate.

5. Uvaria tomentoſa. *Downy-leaved Uvaria.*
Lin. ſpec. ed. Willd. 2. 1262. *Roxb. corom.* 1. 31. *t.* 35.

Leaves oblong acute tomentoſe, peduncles one-flowered ſolitary, the three inner petals ovate.

6. Uvaria odorata. *Sweet-ſmelling Uvaria.*
Lin ſpec. ed. Willd. 2. 1262. *Lamarck encycl.* 1. 589.
Cananga. *Rumph. amb.* 2. 195. *t.* 65.

Leaves ovate-lanceolate, peduncles one-flowered ſolitary, petals linear-lanceolate very long.

7. Uvaria monoſperma. *Capſuled Uvaria.*
Lin. ſpec. ed. Willd. 2. 1262. *Lamarck encycl.* 1. 590.
Cananga Ouregou. *Aubl. guian.* 1. 608. *t.* 244.

Leaves elliptic acuminate ferruginous beneath, peduncles one-flowered aggregate, petals ovate acute.

8. Uvaria lutea.
Lin. ſpec. ed. Willd. 2. 1262. *Roxb. corom.* 1. 32. *t.* 36.
U. coriacea. *Vahl. ſymb.* 3. 72.

Leaves oblong acute ſhining, peduncles three-flowered ſolitary, petals ovate obtuſe.

9. Uvaria ligularis.
Lin. ſpec. ed. Willd. 2. 1263. *Lamarck encycl.* 1. 590.
Cananga ſylveſtris anguſtifolia. *Rumph. amb.* 2. 198. *t.* 66. *f.* 2.

Leaves ovate acute, peduncles many-flowered ſolitary, petals linear acute very long.

10. Uvaria longifolia.
Lin. ſpec. ed. Willd. 2. 1263. *Vahl. ſymb.* 3. 72. *Lamarck encycl.* 1. 590. *Sonnerat itin.* 2. 233. *t.* 131.

Leaves lanceolate waved at the edge, peduncles umbelled, petals lanceolate acute.

11. Uvaria japonica.
Lin. ſpec. 756. *Retzius.* 2. 628. *Willd.* 2. 1263. *Thunb. jap.* 237. *Kæmpf. amoen.* 476. *t.* 477.

Leaves oblong acuminate ſeratè, peduncles one-flowered ſolitary, petals roundiſh.

DESCRIPTIONS, *&c.*

1. This is a climbing ſhrub, by means of a long unarmed branching ſtem, but without tendrils. Leaves alternate, quite entire, ſmooth, on ſhort petioles. Flowers ſcattered, on long peduncles. Calyx ſhort, ſpreading. Corolla duſky red. Anthers ſeſſile, longiſh, compreſſed, placed on a large hemiſpherical receptacle. Germs many, oblong, on the centre of the ſame receptacle. Stigmas as many as the germs, ſcarcely longer than the ſtamens[a]. Berries diſpoſed in a ſimple, rounded, pendulous raceme, formed of the receptacle which is elongated in ripening: they are oblong or cylindric-ovate, knobbed where the ſeeds are, and on the other ſide marked with an indiſtinct groove, pedunclled, whitiſh aſh-coloured, (Loureiro ſays black, ſmooth, juicy, acid.) Divided internally into as many horizontal cells as there are ſeeds, and in a double row: partitions membranaceous, very thin. Seeds one in each cell, twelve or fewer, ſemicircular, flat on both ſides, very ſmooth and ſhining, cheſtnut-coloured except the umbilicus, with a white callous margin; faſtened longitudinally to the grooved ſide of the berry[a].

Native of the Eaſt Indies.

Gærtner has two other ſpecies. 1. Uvaria trifoliata, which he refers to Cananga ſylveſtris prima ſ. trifolia of Rumphius, 2. 197. *t.* 66. *f.* 1. though he ſays that the ſpecimen he examined did not quite agree with Rumphius's deſcription. It is however clearly a different ſpecies from the zeylanica.—2. U. moniliſera; which he thinks may poſſibly be the ſame with Unona diſcreta. Linn. ſuppl. 44 & 270.

Loureiro alſo has a ſpecies which he names Uvaria uncata, becauſe it agrees in habit with Funis uncatus of Rumphius; the flower of that however is different, and it ſeems to belong to Cephalanthus. U. uncata is found about Canton, where it is uſed as a beautiful covering to walls, and is extended and put up without violence.

2. Leaves ſmooth. Flowers in umbels: umbellets ſcattered. Berries ſmall, ſoft, one-celled, containing only one ſeed. Native of Jamaica, and pretty common in the woods of Portland; reckoned one of the beſt timber trees in the iſland, eſpecially where ſtrength or elaſticity is required; but it ſeldom grows to any conſiderable ſize[a]. It is imported under the name of Lance-wood, and is uſed for the ſhafts of very light carriages.

3. Trunk erect, long, and perfectly ſtraight. Branches ſpreading, horizontal: branchlets two-faced. Leaves alternate, two-faced, ſhort-petioled, lanceolate or oblong, entire, about four inches long, and an inch and half broad. Stipules none. Peduncles axillary, ſimple, bowing, bracted near the baſe, round, downy, about an inch long. Filaments very numerous, ſhort, clubbed, grooved, fleſhy, aſcending, placed ſo very cloſe as to preſs upon one another, inſerted into a globular fleſhy receptacle. Anthers four or five-ſided, truncate, a little concave in the centre. Germs about forty, occupying the diſk or centre, oblong, ſeſſile, hairy: ſtyles ſhort: ſtigmas large, purple. Berries many, pedicelled, diverging, in a ſort of umbel, globular, ſize of a ſmall cherry, and very like one when ripe, (dark red,) one-celled. Seed one, round like the berry. *Duduga* of the Telingas.

It is a large tree, a native of the mountainous inland parts of the Circars. It does not caſt its leaves, and flowers during the hot ſeaſon. The wood is employed for many purpoſes by the natives. The berries are eaten by them when ripe, and are pretty good, but rather too aſtringent.

4. Trunk remarkably ſtraight, with a ſcabrous bark, very deeply ſplit in various directions. Branches horizontal, two-faced. Leaves alternate, two-faced, ſhort-petioled, waved, ſmooth on both ſides, of a deep ſhining green, from two to three inches long, and one inch or an inch and half broad. Peduncles oppoſite to a leaf, bowing. Calyx may be ſaid to be ſix-leaved, and corolla three-petalled, as only the three interior of the nine are coloured, coral-like. Stamens as in the preceding. Berries numerous, as in the former, only when ripe black. Seed one, ſhaped as the berry.

This is much more common than the former; ſeldom acquiring the ſize of a tree, except among the mountains. It is in flower and fruit all the year, and does not caſt its leaves. The wood is more uſeful than that of the former; is of a chocolate colour, durable, and very elaſtic.

5. Trunk ſtraight, of conſiderable height and ſize. Branches numerous, horizontal, forming a very large ſhady head. Branchlets two-faced alternate. Leaves alternate, two-faced, ſhort-petioled, oblong or oval, very downy, ſoft, entire, from two to three inches long, by one or two broad. Stipules none. Peduncles ſcattered, generally ſingle, bowing, ſlender, woolly, half the length of the leaf. Calyx and corolla as in U. ſuberoſa. Filaments numerous, very ſhort, not clubbed. Anthers oblong, twin. Germs as in the other, glutinous. Berries ſize of a large nutmeg, round, downy, pulpy, dark purple when ripe. Seeds generally four, nidulant, kidney-form, ſize of a kidney-bean.

It is a large tree, native of the Circar mountains; and flowers during the hot ſeaſon[a].

6. Leaves acuminate, quite entire. Petals flat, acute,

[a] Loureiro.

[a] Gærtner and Loureiro. [a] Browne. [a] Roxburgh.

and

and remarkable for their length. Native of Java and China.

7. Leaves quite entire. Fruit a capſule, (not a berry), one-ſeeded, elliptic, allied to Xylopia, but the capſule is neither four-cornered or two-valved. Native of Guinea, in remote woods[f].

8. Trunk remarkably ſtraight, with the bark dark-coloured and pretty ſmooth. Leaves horizontal, two-faced, ſhort-petioled, oblong or oval, very ſmooth and ſhining, firm, waved, entire, about three inches long and an inch and half broad. Peduncle generally oppoſed to a leaf, very ſhort, from one to ſix-flowered. Flowers dirty, greeniſh, ruſt-coloured, ſhort-pedicelled. Calyx ſmall. Corolla four or five times larger than the calyx. Filaments very ſhort. Anthers oblong, pointed. Germs from four to ſix. Berries the ſame, ſhort-pedicelled, placed in form of a ſtar round their receptacle for a common centre, ſize of a partridge's egg, oval, ſmooth, pulpy, when ripe of a bright yellow. Seeds about ſix, kidney-form, midulant.

This is alſo a pretty large tree, and grows only among the mountains. Its flowering time is in the hot ſeaſon; and it does not caſt its leaves[g].

9. This approaches to U. odorata in the form of the petals. Native of Amboina[h].

10. Branches ſmooth, with a purple bark, a little flexuoſe at the top. Leaves alternate, a ſpan long, membranaceous, veined, ſmooth on both ſides, gradually attenuated, acute, quite entire. Petiole ſhort, wrinkled beneath. Peduncles lateral, very ſhort, tomentoſe: pedicels ſix or ſeven, ſubumbelled, an inch long, villoſe, a little thicker at top, having a ſmall ovate downy leaflet in the middle. Calyx-leaves ovate, downy, four times ſhorter than the petals. Receptacle the ſize of a Coriander ſeed, downy. Native of the Eaſt Indies[i].

11. Stem fruteſcent, twining and decumbent, tubercled with ſcars, nodding at the top, naked, ruſeſcent. Branches alternate, like the ſtem, almoſt naked, nodding, branchletted. Branchlets ſhort, leafy, like the branches, two inches long. Leaves ſcattered, toothed from the middle to the tip, very finely nerved, thickiſh, ſmooth, paler underneath, two inches long. Petioles ſemicylindric, ruſeſcent, ſhort. Flowers monoecious, ſcattered, pedunculed, axillary, drooping. Peduncle filiform, compreſſed, ſmooth, an inch long, curved, having a few ſmall bractes. Corolla ſubglobular, white; petals imbricate, ovate, obtuſe, entire with the margin thinner. Receptacle with the germs ſubglobular, ſtriated, purple, the ſize of a middling pea, incloſed by the calyx and corolla. Filaments two in each aperture between the germs, very ſhort. Anthers ſtanding out, twin, permanent but ſhrivelling, white. Germs numerous, ſmooth, increaſing, red. Berries ſeſſile on the receptacle, ovate, ſmooth, unequal, aggregate, ſucculent, red, one-celled, the ſize of a pea. Seeds two, kidney-form, white[k].

It is diſtinct from all the reſt, in having a twining ſtem, ſerrate leaves, and a large receptacle of the fruit[l].

Native of Japan, and growing very plentifully in ſeveral places round the harbour of Nagaſaki. It is remarkable on account of the great quantity of clear mucus which it contains. When the twigs are deprived of their outer bark, and placed in a glaſs of water, the mucus exſuding, expands itſelf round them for about the thickneſs of a line and upwards, and appears as clear as cryſtal. This mucus is ſometimes uſed for the manufacturing of paper, inſtead of that which they extract from Hibiſcus Manihot; the ladies likewiſe uſe it to render their hair ſmooth and gloſſy[m].

UVARIA. See *Aletris*.
UVA SPINA. See *Ribes*.]
UVA URSI. See *Arbutus* [and *Moſpilus*.
UVEDALIA. See *Polymnia*.
UVIFERA. See *Cocciloba*.]
VULNERARIA. See *Anthyllis*.
[VULVARIA. See *Chenopodium*.]

[f] Willdenow. [g] Roxburgh. [h] Willdenow. [i] Vahl. [k] Thunb. jap. [l] Willdenow. [m] Thunb. voy. 4. 12. engl. ed.

UVULARIA. (*From the form of the ovula in the inflorescence.*)

Lin. gen. n. 412. *Reich. n.* 445. *Schreb. n.* 560. *Juſſ.* 48.

Claſſ. 6. 1. Hexandria Monogynia.

Nat. Order of *Sarmentaceæ*. *Lilia* Juſſ.

GENERIC CHARACTER.

CAL. none.

COR. *Petals* ſix, oblong-lanceolate, acute, erect, very long. *Nectary* an oblong hollow in the baſe of each petal.

STAM. *Filaments* ſix, very ſhort, widiſh. *Anthers* long, erect, ſhorter by half than the corolla.

PIST. *Germ* roundiſh. *Style* three-cleft half way, longer than the ſtamens. *Stigmas* ſimple, reflex.

PER. *Capſule* ovate-oblong, triangular, three-celled, acute.

SEEDS many, roundiſh, compreſſed.

ESSENTIAL CHARACTER.

Cor. ſix-petalled, erect. *Nect.* a hollow at the baſe of each petal. *Filam.* very ſhort.

SPECIES.

1. Uvularia amplexifolia. *Heart-leaved Uvularia.*
Lin. ſpec. 436. *ſyſt.* 325. *Reich.* 2. 48. *Willd.* 2. 93. *Hall. helv. n.* 1237. *Krock. ſilef. n.* 520. *Villars dauph.* 2. 274. *Allion. pedem. n.* 1889. *Hoffm. germ.* 118.
Smilax perfoliata ramoſa, flore albo. *Barr. rar.* 58. *t.* 720. *et t.* 719.
Polygonatum latifolium ramoſum. *Boub. pin.* 303. *Boub. hiſt.* 3. 531. *Park. theat.* 696. 6. *Raii hiſt.* 665. *Mor. hiſt.* 3. 537. *ſ.* 13. *t.* 4. *f.* 11.
P. ramoſum. *Ger.* 756. 4. *emac.* 904. 4.
P. latif. 4. ramoſum. *Cluſ. hiſt.* 1. 276.
Laurus alexandrina. *Cauer. epit.* 936.
Leaves embracing, they and the ſtem ſmooth.

[2. Uvularia hirta. *Hairy Uvularia.*
Lin. ſyſt. 325. *Willd.* 2. 94. *Thunb. jap.* 136.
Leaves embracing rough-haired, ſtem villoſe.

3. Uvularia lanceolata. *Spear-leaved Uvularia.*
Ait. kew. 1. 434. *Willd. ſpec.* 2. 94.
Polygonatum ramoſum flore luteo minus. *Corn. canad.* 40. *t.* 41.
Leaves perfoliate ovate-lanceolate acuminate.]

4. Uvularia perfoliata. *Perfoliate Uvularia.*
Lin. ſpec. 437. *Reich.* 2. 48. *Willd.* 2. 94. *amoen.* 2. 337. *hort. cliff.* 121. *Gron. virg.* 37. *Cold. noveb.* 74.
Polygonum ramoſum, flore luteo majus. *Corn. canad.* 38. *Mor. hiſt.* 3. 538. *ſ.* 13. *t.* 4. *f.* 12. *Raii hiſt.* 666. 10.
Polygonatum latifolium perfoliatum braſilianum. *Baub. pin.* 303. *prodr.* 139.
Leaves perfoliate ovate.

[5. Uvularia ſeſſilifolia. *Seſſile-leaved Uvularia.*
Lin. ſpec. 437. *ſyſt.* 325. *Reich.* 2. 48. *Willd.* 2. 95. *Cold. noveb.* 73.
U. ſeſſilis. *Thunb. jap.* 135.
Leaves ſeſſile.

6. Uvularia cirrhoſa. *Tendril-leaved Uvularia.*
Lin. ſyſt. 325. *Willd.* 2. 95. *Thunb. jap.* 136.
Leaves ſeſſile cirrhoſe.]

DESCRIPTIONS, &c.

1. Root perennial. Stalk annual, riſing about two feet high, and ſending out one or two branches from the lower part. The flowers come out ſingly from the boſoms of the leaves upon long ſlender footſtalks; they are yellow, hang downwards, and appear at the latter end of april.

[The peduncle has a bent joint in it; and the corolla reſembles that of Medeola aſparagoides[a].

Native of Bohemia, Sileſia, Saxony, Switzerland, Dauphiné, Piedmont.—Cultivated in 1752, by Mr. Miller. It flowers in may[b].

2. Stem round, very hirſute with long denſe hairs,

[a] Linn. ſpec. and ſyſt. [b] Hort. kew.

erect, the thickneſs of a quill, a foot high. Leaves alternate, cordate, oblong, acuminate, ſeven-nerved, ſpreading, villoſe with very ſhort hairs, two inches long. Native of Japan near Jedo [b].

3. Native of North America. Introduced in 1785 by Mr. Archibald Menzies. It flowers in july [c].]

4. Root perennial, compoſed of many thick fleſhy fibres, from which ſpring up ſeveral annual ſtalks, which for the moſt part divide into two at a ſmall height from the ground; theſe ſpread aſunder, and have oblong, ſmooth, pointed leaves, broad at their baſe and ſurrounding the ſtem. Petals yellow, oblong, ending in acute points, and ſtanding upon ſlender peduncles, which riſe from the boſom of their leaves, and hang downward. Native of North America.

[Cultivated in 1734 by Peter Collinſon, Eſq [d].

5. This has the habit of the preceding. Stem bifid, one-flowered. Leaves lanceolate-ovate, alternate, but where the flower comes out there are two leaves. Peduncle naked. Native of Canada [e].

6. Stem round, jointed, ſtriated, ſmooth, ſimple, erect. Leaves from the ſame bud two, linear, entire, ſmooth, a finger's length. Flowers from the buds of the leaves, peduncled, drooping. Peduncle reflex, one-flowered, half an inch long. Petals oblong, yellow, about an inch long. Filaments inſerted into the germ, white, half the length of the corolla: anthers oblong, twin, included. Style a little ſhorter than the corolla; but longer than the ſtamens. Stigmas three, reflex. Native of Japan [f].]

PROPAGATION AND CULTURE.

1. 3. 4. 5. Theſe are very hardy plants, and will live in the full ground, but as the flowers have not much beauty, they are only cultivated for the ſake of variety. They are increaſed by parting their roots, the beſt ſeaſon for which is about michaelmas. They may be removed every third year; but if they are removed oftener the plants will not flower ſo ſtrong. They delight in a ſoil not too wet or too ſtiff, but in a gentle hazel loam.

W.

WACHENDORFIA. (*So named by Burman in honour of Everh. Joh. van Wachendorff, profeſſor of botany at Utrecht, author of* Hortus Ultra jeſtinus, 1747.)

Lin. gen. n. 61. *Reich. n.* 67. *Schreb. n.* 85. *Gærtn. t.* 15. *Juſſ.* 59.

Claſſ. 3. 1. Triandria Monogynia.

Nat. Order of *Enſatæ*. *Irides* Juſſ.

GENERIC CHARACTER.

CAL. *Spathes* two-valved.

COR. Six-petalled, unequal: *petals* oblong; the three upper ones more erect, three lower ſpreading. *Nectary* of two briſtles at the inner ſides of the upper petal.

STAM. *Filaments* three, filiform, declined, ſhorter than the corolla. *Anthers* incumbent.

PIST. *Germ* ſuperior, roundiſh, three-cornered. *Style* filiform, declined. *Stigma* ſimple.

PER. *Capſule* ſubovate, three-ſided, obtuſe, three-celled, three-valved.

SEEDS ſolitary, rough-haired.

ESSENTIAL CHARACTER.

Cor. ſix-petalled, unequal, inferior. *Capſ.* three-celled, ſuperior.

SPECIES.

1. Wachendorfia thyrſiflora. *Simple-ſtalked Wachendorfia.*

Lin. ſpec. 59. *Reich.* 1. 112. *Willd.* 1. 243. *Burm. monogr.* 2. *f.* 2. *nov. act. nat. cur.* 1. *obſ.* 50. *t.* 2. *f.* 1. *Gærtn. fruct.* 1. 50. *Thunb. prodr.* 12.

Scape almoſt ſimple, panicle contracted, leaves enſiform five-nerved plaited ſmooth.

2. Wachendorfia paniculata. *Panicled Wachendorfia.*

Lin. ſpec. 59. *ſyſt.* 94. *Reich.* 1. 112. *Willd.* 1. 248. *Thunb. prodr.* 12. *Smith ic. pict.* 1. *t.* 5. *Curt. magaz. t.* 616. *Burm. monogr.* 4. *f.* 1. *nov. act. nat. cur.* 1. *obſ.* 51. *t.* 2. *f.* 10. *Breyn. prodr.* 3. 22. *t.* 9. *f.* 1. (Aſphodelus). *Pluk. mant.* 70. (Erythrobulbus.)

Scape many-cluſtered, panicle ſpreading, leaves enſiform three-nerved plaited ſmooth.

[3. Wachendorfia hirſuta. *Hairy Wachendorfia.*

Lin. ſpec. ed. Willd. 1. 249. *Thunb. prodr.* 12. *Curt. magaz. t.* 614.

Siſyrinchium ramoſum æthiopicum. *Breyn. cent.* 85. *t.* 37 [g]. *Rudb. elyſ.* 2. 13. *f.* 10 [h].

Scape many-cluſtered, panicle ſpreading, leaves enſiform three-nerved plaited villoſe.

4. Wachendorfia tenella. *Delicate Wachendorfia.*

Lin. ſpec. ed. Willd. 1. 249. *Thunb. prodr.* 12.

Scape many-cluſtered, panicle ſpreading, leaves linear three-nerved ſmooth.

5. Wachendorfia graminea. *Graſs-leaved Wachendorfia.*

Lin. ſpec. ed. Willd. 1. 249. *Thunb. prodr.* 12. W. graminifolia. *Lin. ſyſt.* 94. *ſuppl.* 101.

Scape many-cluſtered, panicle ſpreading, leaves enſiform channelled ſmooth.]

DESCRIPTIONS, *&c.*

1. Root thick, tuberous, reed-like, of a deep-red colour, ſending out many perpendicular fibres of the ſame colour, and ſpreading into ſeveral offsets. The leaves which riſe immediately from the root are large, with five plaited folds. The biggeſt are two feet long, and three inches broad, of a deep green-colour. The flower ſtalk riſes from the centre of the heads between the leaves to the height of three or four feet, with leaves of the ſame form with thoſe below, but narrower, and ranged alternately, embracing the ſtalk half round with their baſe. The flowers, when young, are incloſed in ſheaths, which, after ſome time, open and make way for the flowers to come out; then they wither and dry, but remain upon the ſtalk like thoſe of the yellow Aſphodel. They form a looſe ſpike, and there are ſeveral upon one common peduncle, which open one after the other. The upper flowers ſtand almoſt upright, but the lower nod; they are hairy and of a ſaffron colour on the outſide, but ſmooth and yellow within. Sometimes the lower petal of the ſix is wanting, but then the place is occupied by the piſtil. [Capſule ſuperior, roundiſh, ſharply three-cornered, three-celled, three-valved: valves bearing the partition in the middle, and ſtriated on the outſide with a few tranſverſe nerves. Seeds in each cell one, flatted a little, obovate or narrowed downwards and ending in a beaked baſe, hirſute all over with ſoft chaffy briſtles, of a brown-black colour; flattened to the baſe of the cells near the axis [i].

Native of the Cape of Good Hope. Cultivated by Mr. Miller in 1759 [k].

2. Plant when in flower a foot high. Root perennial, a little creeping; furniſhed with oblong cylindrical and nearly perpendicular tubercles. Leaves radical, two-ranked, ſeſſile, equitant, vertical, ſpreading, dilated on the inner ſide at the baſe, channelled, linear-lanceolate, pointed, entire, nerved, bright green, very like thoſe of thyrſiflora, but only one-third of the ſize, dying ſoon after the plant has done flowering, and not appearing again for ſome months. Stalk erect, cylindrical, bearing one or two ſmall leaves, branched, many-flowered. General flower-ſtalks alternate, ſpreading, racemoſe, bearing from three to five flowers, cylindrical, downy: partial ones ſhort, downy, all directed upwards, ſingle-flowered. Bractes ſolitary at the baſe of each of the flower-ſtalks, oblong, pointed, membranaceous, externally downy, ſoon withering, the uppermoſt gradually ſmaller. Petals ſomewhat irregular, obovate, pointed, ſpreading, yellow, externally downy and reddiſh, the three uppermoſt ſtanding neareſt to-

[b] Thunberg. [c] Hort. kew. [d] Idem. [e] Linn. ſpec. [f] Thunb. jap. [g] Gærtner. [h] Hort. kew.

gether

gether, and marked near the base with a purple or greenish semilunar spot, common to them all. Filaments length of the corolla, cylindrical, bent, curved upwards, smooth, yellow. Anthers versatile, reddish. Germ small, roundish. Style pointing upwards, length of the stamens, red towards the top. Stigma marked with a hollow depression, smooth, small. Capsule invested with the decayed corolla. Seeds roundish, rough.

Native of the Cape of Good Hope, where it was gathered in a sandy soil by Mr. Francis Masson [r].—Introduced in 1767, by Mr. William Malcolm [s]. This is not the paniculata of Miller, Burman, and Acta nat. cur [t].

3. This seems chiefly to differ from the preceding in having hairy leaves, a more slender and taller stem, reddish-brown and not green as in that, its branches more divaricate, the two upper lateral petals more contiguous, and its flowers when closed form a slenderer and more compact column; the incumbent anthers seem also to be shorter and rounder. Root-leaves oblong lanceolate three or four, about three or four inches high. Stem about three times their length. Segments traversed longitudinally on the outside by a brown hairy fillet; outer upper one wholly brown and pubescent outwards. Flowers scentless, opening in succession, closing towards evening: they expand in the month of july.

Native of the Cape of Good Hope; whence it was introduced by Mr. Williams, nursery-man at Turnham Green, who received the bulbs about the year 1799 or 1800.

Burman's figure comes nearer to this than to paniculata. The synonyms of Breynius and Rudbeck belong to a species named by Solander, Wachendorfia brevifolia [u].

4. 5. Both these are also natives of the Cape of Good Hope.]

PROPAGATION AND CULTURE.

These plants may be increased by offsets, which are sent out from the main head, after the same manner as some of the flag-leaved Irises. Take them off at the end of august or the beginning of september, and plant them in pots filled with soft loamy earth mixed with a little sea sand; and if the season prove hot and dry, place the pots where they may have only the morning sun, until the offsets have put out new roots; then they may be placed in a sheltered situation, where they may enjoy the full sun. Here they may remain until there is danger of frosty mornings: then they should be placed in a frame with Ixias, &c. and treated in the manner directed for them.

[The paniculata is impatient of cold, and rarely flowers in England; whereas the thyrsiflora frequently does. The latter always appears covered with luxuriant leaves in the open air; the former even in a greenhouse loses its leaves soon after flowering, and does not recover them till the end of winter [x].

WACHENDORFIA. See *Dilatris*.

WADAPU. See *Gomphrena*.

WÆMBU. See *Acorus*.

WAKE-ROBIN. See *Arum*.

WALDSCHMIDIA. See *Menyanthes*.

WALKERIA. (*So named from the Rev. Richard Walker, D. D. Vice-Master of Trinity College, and Founder of the Botanic Garden at Cambridge.*)

Lin. gen. Schreb. n. 378. Mecsia *Gærtn. t.* 70.

GENERIC CHARACTER.

CAL. *Perianth* five-parted inferior: *segments* lanceolate, acute, spreading, permanent.

COR. *Petals* five, lanceolate, acute, spreading, a little longer than the calyx.

STAM. *Filaments* five, capillary, ascending, shorter by half than the petals. *Anthers* roundish.

PIST. *Germ* globular, five-cleft. *Style* setaceous, erect, height of the stamens. *Stigma* simple.

PER. *Drupes* five, obovate-reniform, one-celled.

SEEDS solitary, reniform, inclosed in a kind of bony shell.

ESSENTIAL CHARACTER.

Cal. five-parted, inferior. *Cor.* five-petalled. *Drupes* five, one-seeded. *Nuts* reniform.

SPECIES.

1. Walkeria serrata.
   Lin. spec. ed. Willd. 1. 1145.
   Mecsia serrata. *Gærtn. fruct.* 1. 344. *t.* 70. *f.* 6.
   Tsjocatti. *Rheed. mal.* 5. 95. *t.* 48.

DESCRIPTION, *&c.*

This is a small tree, about twelve feet high. Leaves alternate petioled oblong acuminate serrate ribbed. Corymbs terminating. Flowers small, yellow, inodorous [y]. Fruit berried drupes, distant, erect, red, finally brown and somewhat wrinkled: pulp thin, drying up with age into a leathery cruft: shell of the same form with the drupe, somewhat bony, one-celled, valveless. Common receptacle small, conical, obtuse, fungous, emarginate at the edge for the insertion of the drupes. Proper receptacle, a very short thread from the base of the shell and inserted into the middle of the seed within side. Seed softish to the touch [z].

Native of the East Indies.

WALKERIA. See *Nolana*.]

WALKS are made either of gravel, sand, or grass; these three sorts of Walks are the most common in England, but where gravel or sand cannot be procured, they are sometimes laid with powdered coal, sea-coal ashes, and sometimes powdered brick, but these are rarely used, when either gravel or sand can be procured; however, where sea-coal ashes can be had, it is preferable to the powdered coal or bricks, because they bind very hard and never stick to the feet in frosty weather, which is a good quality; but the darkness of its colour has been an objection to the use of it in gardens, however for the wilderness Walks I think it is preferable to most other materials; but I shall proceed to give directions for the making of the several sorts of Walks, and first of the gravel Walks. In order to the laying of Walks in gardens, when they are marked out, the earth should be taken away to a certain depth, that the bottom of them be filled with some lime rubbish, or coarse gravel, flint-stones, or other rocky materials, which will be serviceable to prevent weeds from growing through the gravel, and also to keep away worm-casts. This bottom should be laid ten inches or a foot thick, over which the coat of gravel should be six or eight inches, which gravel should be very fine, but yet not screened, because that spoils it. This should be laid on a heap, rounding, that the larger rough stones may run down on the sides, which being every now and then raked off, the gravel by that means will be sufficiently fine. After the gravel has been laid to the thickness abovementioned, then the Walks must be exactly levelled, and raked true from all great drips, as well as little holes. By this means most of the stones of the Walks will be raked under your feet, which should rather be gently sprinkled back again, over the last length that is raked, than buried (as is the practice of many gardeners;) by this means the Walk will lie much harder, and the coarsest stones will very much contribute to its firmness.

There is also a great fault committed frequently, in laying Walks too round, and some to that degree, that they cannot be walked on with that ease and pleasure that ought to be; and besides, this too great rounding takes off much from the seeming breadth and beauty of the Walk.

The common allowance for a gravel Walk of five feet breadth, is an inch rise in the crown; so that if a Walk be twenty feet wide, according to this proportion, it will be four inches higher in the middle than on each side; and a Walk of twenty-five feet will be five inches, one of thirty feet six inches, and so on. When a Walk has been thus carefully laid, trodden down, and raked, or rather, after every length or part of it (which commonly is about fifteen feet each,) then it should be rolled well, both in length and also cross-ways. The person who rolls it should wear shoes

[r] Smith. [s] Hort. kew. [t] Cart. magaz. [u] Idem. [x] Smith. [y] Willdenow. [z] Gærtner.

with flat heels that he may not make holes in the Walks, for when theſe are once made in a new Walk, it will not be eaſy to roll them out again.

In order to lay gravel Walks firm, it will be neceſſary to give them three or four water rollings, that is, they muſt be rolled when it rains ſo very faſt, that the Walks ſwim with water; this will cauſe the gravel to bind, ſo that when the Walks come to be dry, they will be as hard as terrace.

Iron-mould gravel is accounted the beſt for binding, or gravel with a little binding loam amongſt it; which latter, though it be apt to ſtick to the heels of ſhoes in wet weather, yet nothing binds better in dry weather.

When the gravel is over-ſandy or ſharp, loam is frequently mixed with it, which, if they be caſt together in heaps, and well mixed, will bind like a rock; whereas looſe gravel is as uncomfortable and uneaſy to walk on, as any other fault in a walk can render it.

The beſt gravel for Walks is ſuch as abounds with ſmooth pebbles (as is that dug at Black-heath,) which, being mixed with a due proportion of loam, will bind like a rock, and is never injured by wet or dry weather, and the pebbles being ſmooth, are not liable to be turned up and looſened by the feet in walking, as are thoſe which are angular and rough; for where Walks are laid with ſuch gravel as is full of irregular ſtones, they appear unſightly in a day's time after rolling, becauſe the ſtones will riſe upon the ſurface whenever they are walked upon, but the ſmooth pebbles will remain handſome two or three days without rolling.

Gravel Walks are not only very neceſſary near the houſe, but there ſhould always be one carried quite round the garden, becauſe being ſoon dry after rain, they are proper for walking on in all ſeaſons; but then theſe ſhould be but few, and thoſe adjoining to the houſe ought to be large and magnificent, proportionable to the grandeur of the houſe and garden. The principal of theſe walks ſhould be elevated and carried parallel with the houſe, ſo as to form a terrace; this ſhould extend itſelf each way, in proportion to the width of the garden, ſo that from this there may be a communication with the ſide Walks, without going on the graſs, that there may be a dry Walk continued quite through the gardens; but there is not a more ridiculous ſight than that of a ſtraight gravel Walk, leading to the front of the houſe, interſecting the graſs, ſo as to make it appear like the ſtiff formal graſs plats frequently made in little court yards by perſons of low taſte.

Graſs Walks in gardens were formerly in great eſteem, and looked upon as neceſſary ornaments to a garden, but of late years they have juſtly been baniſhed by every perſon of true taſte; for thoſe narrow ſlips of graſs were very unſightly, and far from being ornamental, and for the moſt part uſeleſs, being generally too damp for perſons of tender conſtitutions to walk upon; and whenever they were conſtantly uſed, they became bare in the places frequently trodden, ſo were rendered more unſightly; and as the intention of Walks in gardens is to have at all ſeaſons a dry communication throughout the garden, for exerciſe and recreation, graſs Walks were very improper, becauſe every ſhower of rain made them ſo wet, as not to be fit for uſe a conſiderable time, and the dews rendered them too damp for uſe either in the morning or evening; and if the graſs of Walks is not very fine and ſhort like that of the downs, it will be very troubleſome to walk upon; beſides, whenever the ground is ſo dry, as that perſons may with ſafety walk upon graſs, the lawns and other parts of verdure in gardens are better adapted for uſe than any of thoſe formal ſtiff walks which were ſo much eſteemed in the laſt age.

Having given directions for the making of gravel Walks, I ſhall come next to treat of ſand Walks, which are now very frequently made in gardens, as being leſs expenſive in the making, and alſo in keeping, than the former; and in very large irregular gardens, which are ſuch as moſt perſons eſteem, this is a very great article; for as the greateſt part of the Walks which are made in gardens are carried about in an irregular manner, it would be very difficult to keep them handſome, if they were laid with gravel, eſpecially where they are ſhaded by trees; for the dripping of the water from their branches, in hard rains, is apt to waſh the gravel in holes, and render the Walks very unſightly; and when theſe wood Walks are of graſs, they do not appear ſightly, nor are they very proper for walking on; for after rain they continue ſo long damp as to render them unfit for uſe, and the graſs generally grows ſpiry and weak for want of air, and by the continual dropping of the trees, will by degrees be deſtroyed; therefore it is much better to lay theſe Walks with ſand, which will be dry and wholeſome; and whenever they appear moſſy, or any weeds begin to grow on them, if they are ſcuffled over with a Dutch hoe in dry weather, and then raked ſmooth, it will deſtroy the weeds and moſs, and make the Walks appear as freſh and handſome as if they had been new laid.

In the modern way of laying out gardens, the Walks are carried through woods and plantations, ſo that theſe are ſhady and convenient for walking in the middle of the day. Theſe are uſually carried about, winding as much as the ground will admit of, ſo as to leave a ſufficient thickneſs of wood to make the Walks private; and that the perſons who are walking in one part of them may not be ſeen by thoſe who are in any of the other parts. Where theſe Walks are contrived with judgment a ſmall extent of ground will admit of a great many turns, ſo that a perſon may walk ſome miles in a ſmall garden. But theſe turns ſhould be made as natural as poſſible, ſo as not to appear too much like a work of art, which will never pleaſe ſo long as the former.

The breadth of theſe Walks ſhould be proportioned to the ſize of the ground, which in a large extent may be twelve or fourteen feet wide, but in ſmall gardens five or ſix feet will be ſufficient. There are ſome perſons who allow a much greater breadth to their Walks than what I have aſſigned to the largeſt gardens, but as theſe Walks are ſuppoſed to be ſhaded by trees, ſo when they are made too broad, the trees muſt be planted cloſe to the ſides of the Walks; and then it will be a long time before they will afford a ſufficient ſhade, if the trees are young. Therefore I imagine, the width here allowed will by moſt people be thought ſufficient, eſpecially as the walks are deſigned to wind as much as the ground will allow, becauſe the wider they are, the greater muſt be the turns, otherwiſe the Walks will not be private for any ſmall diſtance. Beſides, as it will be proper to line the ſides of theſe Walks with Honeyſuckles, Sweetbriar, Roſes, and many other ſweet flowering ſhrubs, ſo the tall trees ſhould be placed at leaſt five or ſix feet from the Walk, to allow room for theſe. But as I ſhall particularly treat of the method of laying out Wilderneſſes, and planting of them, in ſuch a manner as to render them as nearly reſembling a natural wood as poſſible, under its proper head, I ſhall add nothing more in this place, except a few common directions for making of theſe ſand Walks.

When the ground is traced out in the manner as the Walks are deſigned, the earth ſhould be taken out of the Walks, and laid in the quarters. The depth of this muſt be proportioned to the nature of the ſoil; for where the ground is dry, the Walks need not be elevated much above the quarters, ſo the earth ſhould be taken out four or five inches deep in ſuch places; but where the ground is wet, the bottom of the Walks need not be more than two inches below the ſurface, that the Walks may be raiſed ſo high as to throw off the wet into the quarters, which will render them more dry and healthy to walk on.

After the earth is taken out to the intended depth, the bottom of the walks ſhould be laid with rubbiſh, coarſe gravel, or whatever of the like nature can be moſt readily procured. This ſhould be laid four, five, or ſix inches thick, and beaten down as cloſe as poſſible, to prevent the worms from working through it; then the ſand ſhould be laid upon this about three or four inches thick, and after treading it down as cloſe

as poſſible, it ſhould be raked over, to level and ſmooth the ſurface. In doing of this, the whole ſhould be laid a little rounded to throw off the wet, but there will be no neceſſity of obſerving any exactneſs therein; for as the whole ground is to have as little appearance of art as poſſible, the rounding of theſe Walks ſhould be as natural, and only ſo contrived, as that the water may have free paſſage from them.

The ſand with which theſe Walks are laid, ſhould be ſuch as will bind, otherwiſe it will be very troubleſome to walk on them in dry weather; for if the ſand be of a looſe nature, it will be moved with ſtrong gales of wind, and in dry weather will ſlide from under the feet. If after theſe Walks are laid, they are well rolled two or three times, it will ſettle them, and cauſe them to be firm. If the ſand is too much inclinable to loam, it will alſo be attended with as ill conſequence as that which is too looſe, for this will ſtick to the feet after every rain; ſo that where ſand can be obtained of a middle nature, it ſhould always be preferred.

In ſome countries where ſand cannot be eaſily procured, theſe Walks may be laid with ſea ſhells well pounded, ſo as to reduce them to a powder, which will bind extremely well, provided they are rolled now and then; but where neither of theſe can be eaſily procured, ſea-coal aſhes, or whatever elſe can be gotten, which will bind, and will be dry to the feet, may be uſed for this purpoſe; and where any of theſe can only be had in ſmall quantities, the Walks ſhould have a greater ſhare of rubbiſh laid in their bottom, and theſe ſpread thinly over them; and in moſt places rubbiſh, rough ſtones, or coarſe gravel, may be eaſily procured.

WALLS are abſolutely neceſſary in gardens, for the ripening of all ſuch fruits as are too delicate to be perfected in this country without ſuch aſſiſtance. Theſe are built with different materials; in ſome countries they are built of ſtone, in others with brick, according as the materials can be procured beſt and cheapeſt.

Of all materials proper for building Walls for fruit-trees, brick is the beſt; in that it is not only the handſomeſt, but the warmeſt and kindeſt for the ripening of fruit; beſides that, it affords the beſt conveniency of nailing, for ſmaller nails will ſerve in them than in ſtone Walls, where the joints are larger; and brick Walls, with copings of free-ſtone, and ſtone pilaſters or columns, at proper diſtances, to ſeparate the trees and break off the force of the winds, make not only the moſt beautiful, but the moſt profitable Walls.

In ſome parts of England there are Walls built both of brick and ſtone, which are very commodious. The bricks of ſome places are not of themſelves ſubſtantial enough for Walls, nor are they any where ſo durable as ſtone; and therefore ſome perſons, that they might have Walls both ſubſtantial and handſome, have built double ones, the outſide being of ſtone, and the inſide of brick, or a ſtone Wall lined with brick; but when theſe are built, there muſt be great care taken to bind the bricks well into the ſtone, otherwiſe they are very apt to ſeparate one from the other, eſpecially when froſt comes after much wet, which ſwells the mortar, and frequently throws down the bricks when the Walls are only faced with them, and not well tied into the ſtone.

Where the Walls are built entirely of ſtone, there ſhould be trelliſſes fixed up againſt them, for the more convenient faſtening the branches of the trees: the timbers of theſe eſpaliers need not be more than an inch and a half thick, and about two inches and a half broad; theſe ſhould be fixed croſs each other, at about four inches diſtance; for if they are at a much greater diſtance, it will be difficult to faſten the ſhoots of the trees properly. As this trellis will be laid cloſe to the Wall, the branches of the trees will lie about two inches from the Wall, in which poſition the fruit will ripen better than when it lies quite cloſe to the Wall; ſo that where ſtone Walls are built, there ſhould always be theſe eſpaliers framed againſt them, which will render theſe Walls very good for fruit trees, which, without the eſpaliers, ſeldom are found to anſwer the purpoſe of ripening the fruits well, beſides the inconvenience of having no good faſtening for the branches of the trees.

There have been ſeveral trials made of Walls built in different forms; ſome of them having been built ſemicircular, others in angles of various forms, and projecting more towards the north, to ſcreen off the cold winds; but there has not been any method as yet which has ſucceeded near ſo well, as that of making the Walls ſtraight, and building them upright.

The fareſt trial which I have ſeen made of circular Walls, was at Goodwood in Suſſex, the ſeat of the Duke of Richmond, where, in the middle of two ſouth Walls, there were two large ſegments of circles, in which were the ſame ſorts of fruit-trees planted, as againſt the ſtraight parts of the Walls; but there never was any fruit upon the trees in the circular part of the Walls, which came to maturity; nor were the trees of long continuance, being blighted every ſpring, and in a few years were totally deſtroyed; and when the branches of thoſe trees which grew upon the ſtraight parts of the Walls, had extended themſelves ſo far, as to admit of their being led into the circular parts of the Walls, they were conſtantly blighted and killed.

When the trees which had been planted in the circular parts were deſtroyed, the Walls were filled with Vines; but the Grapes of the ſame ſort were a full month later than thoſe growing againſt the ſtraight parts of the Walls, ſo that they rarely ripened, which occaſioned their being rooted out, and Figs were afterwards planted, but the fruit of theſe ſucceeded little better; nor can it be ſuppoſed that any trees or plants will thrive ſo well in theſe circles, where there is a conſtant draught of air round them, which renders the ſituation much colder than the open free air.

I have alſo ſeen at Mr. Le Cour's garden in Holland, ſome Walls built in angles of different forms, but theſe ſucceeded no better than the circles before-mentioned; for I did not find one tree in health againſt the Walls, nor did they produce fruit.

There are ſeveral other ſchemes which have been propoſed by different perſons, for the building of Walls to accelerate the ripening of fruits, among which there was a very ingenious book written ſome years ago, intitled, Fruit Walls improved, by inclining them to the horizon; in which the author has ſhewn by calculation that there will be a much greater number of the rays of the ſun fall upon ſuch Walls, than upon thoſe which are built perpendicular; and from thence he has drawn calculations, that Walls ſo built will be of great ſervice in the accelerating of fruit; and he has taken the trouble of calculating the different inclinations which ſuch Walls ſhould have in the different climates, in order to receive the greateſt number of the ſun's rays. This theory ſeems to have all the demonſtration neceſſary for its ſupport, but upon trial they have not ſucceeded in the leaſt; for as theſe Walls muſt be built againſt banks of earth, the damps which ariſe from the ground overbalance the advantage of the ſun's rays; beſides, theſe ſloping Walls being more expoſed to the cold dews in the night, the fruit will be much more chilled thereby; and in the ſpring the morning froſts will prove much more deſtructive to the tender bloſſoms of the fruit-trees, as they will be more expoſed to them, than againſt an upright Wall; add to this, their being much more expoſed to the winds and the rain; and it will be found, by comparing the advantages propoſed from theſe Walls, with the diſadvantages to which the fruit-trees will be expoſed, that upright Walls will have the preference; for it is not the ſtrongeſt rays of the ſun in the heat of ſummer, which are ſo much wanting for ripening of fruit, as the continuance of a moderate ſhare of warmth; and above all, the having of the ſun in a morning, to dry off the cold dews of the night early, is of the greateſt uſe; and in this reſpect the upright Walls are much preferable to the ſloping, as they will have the direct rays of the ſun in the morning, which will be oblique on the other, and renders thoſe Walls which are built inclining to the eaſt preferable to

ſouth Wales, as the fruit will always ripen earlier againſt them.

There are ſome perſons who recommend the painting of Walls black, or of a dark colour, as they ſuppoſe the dark colour will imbibe more of the ſun's rays, ſo will retain the warmth longer; this alſo anſwers better in theory than in practice; for although it muſt be allowed that a black Wall is warmer to the touch than a common brick Wall, yet, as the fruit generally is ſituated at a ſmall diſtance from the Wall, it receives no benefit from the warmth of the Wall, and it is the reflected heat which accelerates the ripening of fruit; therefore I would adviſe every one to make fair trials of theſe things, before they put them in practice, and not to take upon truſt what they may be told by perſons who are too ſanguine in recommending to others ſchemes which they have adopted upon very ſlight principles, or perhaps upon a ſingle trial; this painting of the Walls is recommended by the ſame perſon who wrote upon inclining Walls, and he has propoſed this upon the ſame principles; but the introducing of theſe ſchemes ſhould be avoided, until there have been ſufficient trials made to warrant their uſe.

Where perſons are willing to be at the expence, in the building of their Walls ſubſtantial, they will find it anſwer much better than thoſe which are ſlightly built, not only in their duration, but alſo in their warmth; therefore a wall two bricks thick, will be found to anſwer better than one brick and a half; and if in the building of garden walls they are grouted with ſoft mortar, to fill and cloſe all the joints, the Walls will be much ſtronger, and the air will not ſo eaſily penetrate through them, as it does through thoſe which are built in the common way.

According to the modern taſte in gardening, there are very few Walls built round gardens, which is certainly very right, not only with regard to the pleaſure of viewing the neighbouring country from the garden, but alſo in regard to the expence, 1. Of building theſe Walls; 2. If they are planted with fruit, as is frequently practiſed, to maintain them will be a conſtant charge, without receiving much profit or pleaſure; for when there is too much Walling planted with fruit-trees, they are ſeldom taken much care of; ſo that the quantity of fruit produced will be ſmall, and that ill-nouriſhed and bad taſted, therefore the quantity of Walling ſhould be proportioned to the fruit conſumed in the family; but as it will be neceſſary to incloſe the kitchen-garden for the ſecurity of the garden ſtuff, ſo if that be walled round, it will contain as much fruit as will uſually be wanted in the family; becauſe the kitchen-garden is always proportioned to the number of perſons maintained; but if the quantity of Walling which ſurrounds the kitchen-garden ſhould be judged too little for the ſupply of fruit, there may be a croſs Wall built through the middle of the kitchen garden; or, where the ſize of the garden will admit, there may be two croſs Walls built; but this muſt not be done where there is not room to place the Walls at leaſt eighty or one hundred feet aſunder; and if they are allowed a much greater diſtance it will be better; and as the kitchen-garden ſhould always be placed out of ſight from the houſe, the Walls may be hid by plantations of trees, at ſome little diſtance, which will be of uſe in ſheltering the fruit.

The beſt aſpect for Walls in England is, to have one point to the eaſtward of the ſouth, for theſe will enjoy the benefit of the morning ſun, and will be leſs expoſed to the weſt and ſouth-weſt winds (which are very injurious to fruits in England) than thoſe Walls which are built due ſouth. I know there are many perſons who object to the turning of Walls the leaſt point to the eaſt, on account of the blights which they ſay come from that quarter in the ſpring; but from many years experience and obſervation I can affirm that blights as often attack thoſe Walls which are open to the ſouth-weſt, as thoſe which are built to any other aſpect; and I believe, whoever will be at the trouble to obſerve for ſeven years, which aſpected Walls ſuffer moſt from blights, will find thoſe which are built with a point to the eaſtward of the ſouth, as ſeldom blighted, as thoſe which are turned to any other aſpect; therefore, in the contrivance of a kitchen-garden, there ſhould be as great length of theſe Walls built, as the ſituation of the ground will admit.

The next beſt aſpect is due ſouth, and the next to that ſouth-eaſt, which is preferable to the ſouth-weſt, for the reaſons before aſſigned; but as there will, for the moſt part, be ſouth-weſt, and weſt Walls in every garden, theſe may be planted with ſome ſorts of fruit, which do not require ſo much heat to ripen them, as thoſe deſigned for the beſt Walls; but wherever there are north Walls, thoſe will only be proper for baking Pears, Plumbs and Morello Cherries for preſerving, or ſome Duke Cherries may be planted againſt theſe Walls, to continue them longer in the ſeaſon, which will be found uſeful in ſupplying the table till Peaches, Nectarines, and Plums, are ripe.

Where perſons are very curious to have good fruit, they erect a trellis againſt their Walls, which projects about two inches from them, to which they faſten their trees; which is an excellent method, becauſe the fruit will be at a proper diſtance from the Walls ſo as not to be injured by them, and will have all the advantage of their heat; and by this method the Walls will not be injured by driving nails into their joints, which by every year being drawn out, draws out the mortar from between the bricks, and thereby makes holes, in which ſnails and other vermin will harbour and deſtroy the fruit, and the Walls will be alſo greatly impaired.

Theſe trelliſſes may be contrived according to the ſorts of fruit which are planted againſt them. Thoſe which are deſigned for Peaches, Nectarines, and Apricots (which, of the moſt part, produce their fruit on the young wood) ſhould have their rails three, or at moſt four inches aſunder every way; but for the other ſorts of fruit, which continue bearing on the old wood, they may be five or ſix inches apart, and thoſe for Vines may be eight or nine inches diſtance. For as the ſhoots of Vines are always trained at a much greater diſtance than thoſe of any other ſort of fruit, the trelliſſes for theſe need not be near ſo cloſe, eſpecially as thoſe muſt for Peaches and Nectarines, whoſe ſhoots are generally ſhortened to about five or ſix inches or leſs; ſo that if the rails are not pretty cloſe, many of the ſhort branches cannot be faſtened to them.

Theſe trelliſſes may be made of any ſort of timber, according to the expence which the owner is willing to beſtow; but Fir is moſt commonly uſed for this purpoſe, which if made of yellow deal, well dried and painted, will laſt many years; but if any perſon will go to the expence of Oak, it will laſt ſound much longer, eſpecially if the trees are fallen in winter. And if any one is unwilling to be at the expence of either, then a trellis may be made of Aſh poles, in the ſame manner as is practiſed in making eſpaliers for counter borders, with this difference only, that every fourth upright rail or poſt ſhould be very ſtrong, and faſtened with iron hooks to the Wall, which will ſupport the whole; and as theſe rails muſt be laid much cloſer together, than is generally practiſed for eſpaliers, theſe ſtrong upright rails or poſts ſhould not be farther diſtant than three, or at moſt four feet from each other. To theſe the croſs rails which are laid horizontally ſhould be well nailed, which will ſecure them from being diſplaced, and alſo ſtrengthen the trellis, but the other ſmaller upright poles need only be faſtened with wire. To theſe trelliſſes the ſhoots of the trees ſhould be faſtened with oſier twigs, rope-yarn, or any other ſoft bandage, for they muſt not be nailed to it, becauſe that will decay the wood-work.

Theſe trelliſſes need not be erected until the trees are well ſpread, and begin to bear fruit plentifully; before which time the young trees may be trained up againſt any ordinary low eſpaliers, made only of a few ſlender Aſh poles, or any other ſlender ſticks; by which contrivance the trelliſſes will be new when the trees come to bearing, and will laſt many years after the trees have overſpread them; whereas, when they are made before the trees are planted, they will be half decayed before the trees attain half their growth.

Where theſe trelliſſes are intended to be made againſt new Walls, it will be proper to faſten ſome ſtrong iron hooks into the Wall as it is built, at the diſtance which the upright poſts are intended to be placed; becauſe when theſe are afterwards driven into the Wall, they diſplace the mortar in the joints, and injure the Wall. In the building of the Walls round a kitchen-garden, the inſides which are deſigned to be planted with fruit-trees ſhould be made as plain as poſſible, ſo that the piers ſhould not project on thoſe ſides above four inches at moſt; and theſe ſhould be placed about fourteen feet aſunder, in ſuch Walls as are deſigned for Peach and Nectarine-trees; ſo that each tree may be planted exactly in the middle between the piers, which will render them more ſightly, and be better for the trees; but where Apricots, Plumbs, or Cherries are to be planted, the piers may be only ten feet aſunder; and againſt every other pier the trees ſhould be planted, which will allow them ſufficient room to ſpread; as the trellis will project as forward as the piers, the branches of the trees may be trained on a plain; but when the piers project no more on the inſide of the garden, they ſhould be built ſtronger on the outſide, for the better ſupporting of the Walls.

The uſual thickneſs which garden Walls are allowed, if built with bricks, is thirteen inches, which is one brick and a half, but this ſhould be proportionable to the height; for if they are built twelve or fourteen feet high or more, as is often practiſed, then the foundations of the Walls ſhould be at leaſt two bricks and a half thick, and brought up a foot or more above the level of the ſurface of the ground, of the ſame thickneſs; then they ſhould be ſet off two inches on each ſide, which will reduce them to two bricks; and five or ſix feet above the ſurface of the ground, they may be diminiſhed on each ſide, to reduce them to the thickneſs of a brick and a half; which muſt be continued to the top of the Walls, and the piers in theſe high Walls ſhould alſo be proportionably ſtronger than is commonly allowed to lower Walls; for as theſe will be much more expoſed to ſtrong gales of wind, if they are not well built, they will be in danger of being blown down; therefore the piers of theſe Walls ſhould be projected the length of a brick on their back-ſide, and the thickneſs of a brick on their front; and if theſe are built about ten or twelve feet aſunder, they will greatly ſtrengthen the Walls.

But there is no neceſſity for building Walls higher than nine or ten feet, unleſs it be for Pears, which, if properly managed, will ſpread over a great compaſs of walling; but as only ſome of the lateſt winter Pears require the aſſiſtance of a Wall, there need no more but that part of the Wall where theſe are deſigned to be built higher; for Peaches and Nectarines never require a Wall higher than nine or ten feet, provided they are rightly managed; becauſe whenever they are carried to a greater height, the lower part of the Wall is unfurniſhed with bearing branches; and although Apricots, Plums, and Cherries will frequently grow higher, yet if they are planted at a proper diſtance, and the branches trained horizontally from the bottom, they will not ſoon cover a Wall of this height; and Vines may be kept as low as any ſort of fruit, for when they are planted againſt low Walls, they muſt be treated ſomewhat after the ſame manner as thoſe in vineyards, which is, to cut out the greateſt part of the wood which produced fruit the preceding year, and train in new ſhoots for the next year's bearing, which are rarely left a yard in length, therefore will not require very high Walls.

If the Pears which are deſigned to be planted, are allowed a ſouth-weſt aſpect, on which they will ripen very well, then the Wall to this aſpect ſhould be built fourteen feet high or more; for as theſe trees ſpread very far when on free ſtocks, they ſhould not be ſhortened and ſtopped in their growth, which will prevent their bearing, by cauſing them to ſend out a great number of groſs luxuriant ſhoots, which will never produce fruit; therefore theſe ſhould never be planted amongſt other ſorts of fruit-trees which are of leſs growth, becauſe then the Walls muſt appear very unlightly in having ſome trees planted more than double the diſtance which the others require; ſo that there is no other ſort of fruit which requires the aſſiſtance of Walls to ripen their fruit, which need ſo great room for ſpreading as Pears, except it be Figs, a few trees of which may be planted againſt the ſame Walls where there is room: though theſe may be planted againſt the back Walls of offices or ſtables, where there is conveniency, becauſe this fruit is ſeldom coveted by ſervants; and being planted in places which are much frequented, they will not be in ſo much danger of being deſtroyed by birds, as thoſe which are in private places. But I ſhall now proceed to give ſome directions for the building of hot Walls, to accelerate the ripening of fruits, which is now pretty much practiſed in England.

In ſome places theſe Walls are built at a very great expence, and ſo contrived as to conſume a great quantity of fuel; but where they are judiciouſly built, the firſt expence will not be near ſo great, nor will the charge of fuel be very conſiderable, becauſe there will be no neceſſity of making fires more than three or four months, beginning about the middle or latter end of January, and ending by the end of may, when there will be no want of fires, if the glaſſes are cloſe ſhut every night, or in bad weather; for half an hour's ſun-ſhine on the glaſſes at that ſeaſon will ſufficiently warm the air incloſed in the glaſſes, for the growth of any of our European fruits.

There are ſome perſons who plant Vines, and other fruit-trees by the ſides of ſtoves, and draw ſome of their branches into the ſtove, in order to obtain early fruit; but this is by no means right, where the ſtove is deſigned for Ananas, becauſe the air muſt be kept much warmer for them than is required for any of the other fruits, ſo that they can never ſucceed well together; for when there is only a ſufficient quantity of air admitted for the growth of the other fruit, the Ananas are ſtarved for want of proper heat; and ſo on the contrary, when the ſtove is kept up to the proper heat for the Ananas, it will be too hot for other fruits; and it will alſo be proper to have the Vines on a particular Wall by themſelves, becauſe theſe require to have a greater ſhare of air admitted to them when they begin to ſhoot, than ſome other ſorts of fruit, ſo that it is by much the better method to have them ſeparate.

The ordinary height of thoſe hot Walls is about ten feet, which will be ſufficient for any of thoſe ſorts of fruits which are generally forced; for by forcing of the trees they are commonly weakened in their growth, ſo that they will not grow ſo vigorouſly as thoſe which are always expoſed to the open air; and where there is not a quantity of Walling planted ſufficient to let one part reſt every other year, the trees will never be very healthy, and will laſt but a few years. The quantity of Walling to produce early fruit for a middling family cannot be leſs than eighty or one hundred feet in length; therefore where a perſon is deſirous to have the fruit in perfection, and the trees to continue in a good condition many years, there ſhould be three times this quantity of Walling built; ſo that by dividing it into three parts, there will be two years for the trees to recover their vigour between the times of their being forced, whereby a greater quantity of bearing wood may be obtained, and the fruit will be fairer, and in larger quantities, than when they are forced every year, or every other year; and as the glaſſes may be contrived ſo as to move from one to the other, the expence of building the Walls ſo much longer, will not be very great, becauſe the frames and glaſſes will be the ſame as for one year's fruit.

The foundations of theſe Walls ſhould be made four bricks and a half thick, in order to ſupport the flues; otherwiſe, if part of them reſt on brick-work, and the other part on the ground, they will ſettle unequally, and ſoon be out of order; for wherever there happen any cracks in the flues, through which the ſmoke can make its eſcape, it will prevent their drawing, and if the ſmoke gets within the glaſſes, it will greatly injure the fruit, and give it a ſmoky taſte. This thickneſs of Wall need not be continued more

than ſix inches above the ground, where ſhould be the foundation or bottom of the firſt flue, which will be ſufficient to raiſe it above the damps of the earth; then the Walls may be ſet off four inches on each ſide, which will reduce it to the thickneſs of three bricks and a half, ſo that the back Wall may be two bricks thick, which is abſolutely neceſſary to throw the heat out more in front; for when the back Walls are built too thin, the heat will eſcape through them. The Wall in front next to the fruit, ſhould be only four inches thick, whereby there will be allowance of nine inches for the flues, which may be covered with twelve inch tiles; for if they have an inch and a half bearing on each ſide, it will be ſufficient. The ovens in which the fires are made, muſt be contrived on the backſide of the Walls, which ſhould be in number proportionable to the length of the Walls. The length uſually allowed for each fire to warm is forty feet, though they will do very well for fifty feet; but I would not adviſe the flues to be longer than this to each fire, becauſe when the ovens are made at a great diſtance, there is a neceſſity of making the fires ſo much ſtronger to warm the Walls, which will occaſion the heat to be too violent near the fires. Theſe ovens ſhould be ſhedded over to keep out the wind and rain, otherwiſe the fires will not burn equally. Some people make theſe ſheds of timber, but it is much better to build them of brick, and tile them over, becauſe the wooden ſheds will in a few years decay, and afterwards be a conſtant charge to keep them in repair; and beſides they may be in danger of firing, if great care is not conſtantly taken of the fires. As it is abſolutely neceſſary to have the ovens below the foundation of the firſt flues, there muſt be ſteps down into the ſheds, to come to the mouth of the ovens to ſupply the fuel, therefore the ſheds ſhould not be narrower than eight feet in the clear; for as the ſteps will require four feet ſpace, there ſhould be at leaſt four feet more for the perſon who attends the fire, to have room to turn himſelf to clear out the aſhes, and to put in the fuel. Where the length of Walling requires two ovens, it will be proper to have them in the middle included in one ſhed, which will ſave expence, and allow more room to attend the fires; for in this caſe the ſheds muſt be at leaſt ten feet long, and they need not be more than ſix in breadth. The ſteps down into theſe ſhould be at one end, ſo that the door opening into the ſheds will not be oppoſite to the mouths of the ovens, therefore the fires will burn more regular; for whenever the doors are contrived to front the mouth of the ovens, if the wind ſets directly againſt them, it will cauſe the fire to burn too fiercely, and the fuel will be ſoon conſumed.

Theſe ovens may be contrived in the ſame manner as thoſe which are already deſcribed for ſtoves, wherefore I ſhall not repeat it again in this place; but muſt obſerve, that when the two ovens are joined together, there ſhould be a partition Wall at leaſt three bricks thick between them, otherwiſe the fires will ſoon deſtroy it; and if there ſhould be the leaſt hole in the Wall, through which the ſmoke of the two fires can communicate, it will prevent their drawing.

The lower flue through which the ſmoke firſt paſſes from the fire, may be two feet and a half deep: therefore the back Wall ſhould be at leaſt two bricks and a half thick, as high as to the top of this flue; and then it may be ſet off to two bricks, which muſt be continued to the top of the Wall. The ſecond flue, which ſhould return over the firſt, may be made two feet, the third a foot and a half, and the fourth one foot deep; which four flues, with their coverings, will riſe near eight feet in height; ſo that there will be about two feet left for fixing of the frames at the top to ſupport the glaſſes, and for the coping of the Wall. And theſe four returns will be ſufficient to warm the air in the frames, for the ſmoke will have loſt its heat by the time it has paſſed thus far.

In the carrying up of theſe Walls, there ſhould be ſome ſtrong iron hooks faſtened at convenient diſtances which ſhould project about two inches from the Wall, to which the trellis muſt be faſtened which is to ſupport the trees. Theſe hooks ſhould be long enough to faſten into the back Wall, for the Wall in front being but four inches thick, will not be ſtrong enough to ſupport the trellis; but in placing of them care ſhould be taken not to lay them croſs the middle of the flues, becauſe they would obſtruct the clearing the flues of ſoot whenever there ſhould be occaſion; ſo that the beſt way is to lay them juſt under the tiles which cover each flue, at about three or four feet aſunder, which will be near enough, provided the hooks are made ſufficiently ſtrong. As the flues muſt be well pargetered with loam on their inſide, ſo likewiſe ſhould the loam be ſpread under the tiles which cover them, to the thickneſs of the hooks, that the flues may be very ſmooth, otherwiſe the ſoot will hang to the iron hooks and ſtop the ſmoke from paſſing. It will be very proper to cover theſe flues on the ſide next the trellis with hop-bags, or ſome ſuch coarſe cloth, in the manner as hath been directed for the ſtoves, which will make them ſo tight that no ſmoke will find its way into the frame, which, without this covering, it is very apt to do through the joints of Walls, eſpecially when they are ſo thin as theſe muſt be built; and this covering will alſo ſtrengthen the Wall of the flues, and join the whole work together. If at each end of theſe flues there are ſmall arches turned in the back Walls, in ſuch a manner that there may be holes opened to clean the flues of ſoot whenever there is a neceſſity for it, the trouble will be much leſs than to open the flues in front, by which there will be no damage done to the trees, nor will the flues be in the leaſt injured by this, which they muſt be, when they are opened in front.

The borders in front of theſe hot Walls ſhould be about four feet wide, which will make a ſufficient declivity for the ſloping glaſſes; and in theſe borders there may be a row of Dwarf Peas planted to come early, or a row of dwarf Kidney-beans, either of which will ſucceed very well; and if they are not planted too near the trees, will not do them much injury. On the outſide of theſe borders ſhould be low Walls erected, which ſhould riſe four or ſix inches above the level of the borders, upon which the plate of timber ſhould be laid, on which the ſloping glaſſes are to reſt; and this Wall will keep up the earth of the border, and alſo preſerve the wood from rotting.

The glaſſes which are deſigned to cover theſe Walls, muſt be divided into two ranges, for as they muſt reach from the ground-plate (juſt above the level of the border) to almoſt the top of the Wall, they will be more than twelve feet long, which will be too great a length for ſingle frames, which when they are much more than ſix feet long, are too heavy to move, eſpecially if the frames are made of a proper ſtrength to ſuſtain the glaſs. Theſe frames ſhould be contrived in ſuch a manner, as that the upper row may ſlide down; and by making on one ſide three ſmall holes in the wood-work which ſupports the frames, at about a foot diſtance, and having a ſmall iron pin to fix into them, the top glaſſes may be let down one, two, or three feet, according as there may be occaſion to admit air. The lower row of glaſſes may be contrived ſo as to take eaſily out; but as they muſt lie ſloping, and the upper row muſt bear on them, they cannot be contrived to ſlide upwards; nor indeed will there be any occaſion for their moving, becauſe it is much better to let the air in at the top, than in the front of the trees.

The ſloping timbers which are to ſupport the glaſs frames muſt be faſtened at bottom into the ground-plate in the front of the border, and at the top into ſtrong iron cramps fixed in the upper part of the Wall for that purpoſe. Theſe timbers ſhould be made of Fir, which will not twiſt, as Oak and ſome other wood will, where it is laid in ſuch poſition. They muſt be made ſubſtantial, otherwiſe they will not laſt many years, eſpecially as they are deſigned to be moveable. On the top of theſe ſhould be fixed a ſtrong board, under which the upper row of glaſſes ſhould ſlide. The uſe of this board is to ſecure the upper part of the glaſſes from being raiſed by the winds, and alſo to keep the wet from getting to the trees; therefore

therefore it ſhould be joined as cloſe as poſſible to the Wall, and ſhould project about two inches over the glaſs frames, which will be enough to throw the wet on the glaſſes, and likewiſe to ſecure them faſt down.

The breadth of theſe frames for the glaſſes may be about three feet or a little more, according as the diviſions of the length of the Wall will admit; for a ſmall matter in their width is of no conſequence, provided they are not too wide to be eaſily moved; for when they are wider than a man can eaſily reach his arms to manage, they will be very troubleſome to carry from one place to another. The bars of theſe frames, which are to ſupport the glaſs, ſhould be placed lengthwiſe of the frames; for when they are placed acroſs, they ſtop the moiſture which is lodged on the inſide of the glaſſes, and cauſe it to fall in drops on the borders at every bar, which will be very injurious to any plants which are put there; and if it falls on the trees will greatly damage them, eſpecially when they are in bloſſom. The lead into which the glaſſes of theſe frames are fixed, ſhould be very broad, and the joints well cemented, otherwiſe the wet will find an eaſy paſſage through, and do great damage to the fruit.

At each end of the range of glaſſes, there will be an angular ſpace between the glaſſes and the Wall, which muſt be cloſely ſtopped to prevent the air from getting in, which might greatly injure the fruit. Theſe are by ſome perſons cloſely boarded up; but if they are cloſed with glaſſes, ſo contrived as to open to let in air at proper times, it will be of great advantage; becauſe when the wind may be ſtrong againſt the front-glaſſes, one or both of theſe end-glaſſes may be opened, according to the warmth of the air incloſed, which will be often very uſeful to cool the air, and to admit a ſmall quantity of freſh air to the fruit.

The ſorts of fruit which are uſually planted for forcing, are Cherries, Plums, Peaches, Apricots, and Nectarines, but the laſt-mentioned rarely ſucceed well, nor will the trees continue long, ſo that they are ſcarce worth planting againſt hot Walls. As for the Vines, I would propoſe they ſhould be planted by themſelves againſt a particular Wall; for as they will require more air to be admitted to them when they begin to ſhoot, than any of the above-mentioned fruits, they will not all ſucceed if they are included in the ſame frame. As to the others, they will do very well in the ſame border, and will demand the ſame temperature of warmth. The beſt of theſe ſorts to plant againſt theſe hot Walls, are thoſe here mentioned:

Cherries.
The Early May, and May Duke.
Plums.
The Mirabelle.
The Early Black Damaſk, or Morocco.
The Great Damaſk Violet of Tours.
The Drap d'Or.
Peaches.
The Red Nutmeg.
The Red Magdelain.
The Montauban.
Early Newington.
Violet Hative.
Nectarines.
Fairchild's Early Nutmeg.
The Elruge.
Apricot.
The Maſculine.

Theſe being the ſorts which ripen early, are the moſt proper to plant againſt theſe Walls, although they are not ſo valuable as ſome other ſorts of theſe fruits; yet, as they naturally ripen three weeks or a month earlier in the ſeaſon, they will be very early ripe, when they are brought forward by artificial warmth.

In the preparing of the borders for planting theſe fruit-trees, there ſhould be the ſame care taken as for thoſe againſt open borders, which, being fully treated of in another part of this work, I ſhall not repeat here. There muſt alſo be the ſame care in training up the trees when they ſhoot; but the trelliſſes need not be made againſt theſe Walls till the trees are grown large enough to ſpread, and produce a quantity of fruit; till which time they may be ſupported by any low ordinary trellis, which will do very well till the time that the trees will have ſtrength enough to force, which will not be until the fourth or fifth year after planting, according to the progreſs they have made; for if they are forced too young, it will weaken them ſo much, as that they ſeldom make vigorous trees afterward; beſides the quantity of fruit which ſuch young trees produce, is not worth the expence and trouble of forcing; for the quantity of fuel uſed, and the trouble will be the ſame for ſmall trees, which are not capable of producing more than ſix or eight fruit each, as for thoſe trees, which may produce three or four dozen; ſo that the greater time the trees have to grow before they are forced, the better they will pay for the trouble and expence.

But it will be the beſt way not to have any of the frames made, nor the trellis, or any other of the wood-work, until the trees are ſtrong enough to force; for if theſe are done when the Walls are firſt built, as is by ſome perſons practiſed, they will be half decayed before there is any uſe for them; but then the perſons who are employed in making the trellis, muſt be very careful in putting it up, not to injure the trees.

When the trees have acquired ſtrength enough to produce a quantity of fruit, the part which is deſigned to be forced the following ſpring, ſhould be carefully pruned early in autumn, when the very weak ſhoots muſt be either entirely cut out, or pruned very ſhort, becauſe theſe, by being forced, will for the moſt part decay; and though ſome of them may be full of flower-buds, yet theſe ſhoots being weak cannot nouriſh them; ſo that the flowers having exhauſted all the ſap, the ſhoots will die ſoon after, and rarely produce any fruit, or at leaſt do not bring them to perfection. The other more vigorous ſhoots ſhould alſo be ſhortened to a proper length, after the ſame manner as is directed for thoſe trees in the open air, with this difference only, viz. that theſe which are deſigned for forcing, ſhould not have their ſhoots left ſo long, becauſe the forcing of them will weaken them; and conſequently, ſhould there be as great a length of branches, there will probably be a greater number of fruit on them; becauſe, as theſe will be ſcreened from the open air they will not be liable to blaſts, or the injuries of the froſt; and the having too many fruit on the trees will render them ſmall, and alſo too much weaken the trees; then the ſhoots ſhould be all regularly faſtened to the trellis, at a proper diſtance from each other, ſo that when the branches ſhoot the following ſpring, they may not over-hang each other. The reaſon for my adviſing theſe trees to be pruned ſo early in the ſeaſon, is, that thoſe branches which are left on, may enjoy the whole nouriſhment of the ſap, ſo that the buds will become very turgid during the winter ſeaſon, and will be prepared to open when the fires are let to work.

The time for beginning to make the fires is about the middle or latter end of january, according as the ſeaſon is more or leſs favourable; for if the trees are forced too early into flower, they will be in ſome danger of miſcarrying, if the weather ſhould prove ſevere; ſo that it is by much the ſureſt method to begin about the time here directed, becauſe there will be a neceſſity of admitting freſh air to the trees when they are in flower, which cannot be done ſafely when they flower in very bad weather. And thoſe trees which are forced into flower by the middle of february, will ripen their fruit as early as moſt people will deſire to eat them; for the Cherries will ripen early in april, and the Apricots by the beginning of may, and ſoon after the Plums, Peaches, and Nectarines, will be ripe.

There are ſome perſons who plant Strawberries in their borders before the fruit-trees, in order to have early fruit, which often ſucceed very well; but wherever this is practiſed, great care ſhould be taken to

keep them from ſpreading over the border, becauſe theſe plants will exhauſt the principal goodneſs of the earth, and thereby injure the trees; ſo that when it is deſigned to have Strawberries in theſe borders, I would adviſe, that the roots ſhould be either planted in pots, or ſingly at a good diſtance on a ſhady border of loamy earth, one year before they are deſigned to be forced; during which time the runners ſhould be diligently pulled off, to encourage the main roots for fruiting; and at Michaelmas theſe plants may be tranſplanted, with large balls of earth to their roots, into the borders, before the fruit-trees which are to be forced the following ſpring, ſo that they may have time to get new root before that ſeaſon; and if theſe plants are careſully watered when they begin to ſhew their flower-buds, they will produce a good quantity of fruit, which will ripen the latter end of april, or the beginning of may; but then I would alſo adviſe, that theſe plants be taken away as ſoon as they have done bearing, that they may not rob the trees of their nouriſhment.

Since I have mentioned this method of having early Strawberries, I ſhall take the liberty to inſert another method, which is often practiſed to obtain this fruit early in the ſpring, though it doth not ſo properly come under this article, which is to train up the plants either in pots or borders, after the manner before directed, for at leaſt one year or more; then in the beginning of februury there ſhould be a moderate hot-bed prepared, in length proportionable to the number of plants deſigned to be forced, and the breadth ſhould be proportionable to the width of the frames which are deſigned to cover them. Theſe frames may be ſuch as are uſed for common hot-beds, to raiſe early Cucumbers, &c. This hot-bed muſt be covered with freſh loamy earth about eight inches thick, into which the Strawberry plants ſhould be placed, with large balls of earth to the roots, as cloſe as they can conveniently be planted; (for as they muſt be kept clear from runners, they will not ſpread much during the time they remain in the bed, which will be no longer than until their fruit is gone.) Then they ſhould be gently watered to ſettle the earth to their roots, which muſt be frequently repeated as the earth becomes dry, otherwiſe they will produce no fruit. While the nights continue cold, the glaſſes of the hot-bed ſhould be covered with mats, to preſerve a kindly warmth in the beds; but in the day time, when the weather is favourable, the glaſſes ſhould be raiſed to admit freſh air to the plants; for if they are too much drawn, (eſpecially when they begin to flower) they will not produce much fruit. If the ſeaſon ſhould continue long cold, and the heat of the bed ſhould decline, it will be proper to lay ſome freſh hot dung round the ſides of the beds to renew their heat, being always careful not to make them too hot, for that will ſcorch their roots and prevent their fruiting. If the plants which are planted in theſe beds are ſtrong, and in a good condition for bearing, and care be taken in tranſplanting of them to preſerve good balls of earth to their roots, as alſo to keep a due temperature of warmth in the beds, they will produce ripe fruit by the end of april, or the beginning of may, in plenty, and will continue bearing, until ſome of thoſe in the open air come in to ſucceed them.

The beſt kinds of Strawberries to plant for forcing, are the Scarlet and Alpine, for the Hautboys grow too rampant for this purpoſe.

But to return to the ſubject of hot Walls; what I have here inſerted concerning the forcing of fruits, has been only to obtain theſe fruits earlier in the ſeaſon, than they would naturally ripen againſt common Walls. But in ſome parts of England, where moſt of our good kinds of fruits ſeldom ripen, it might be very well worth while to build ſome of theſe Walls, to obtain good fruit from the beſt kinds of Peaches, Plums, &c. eſpecially in ſuch places where fuel is plenty, becauſe there the expence will not be great after the firſt building the Walls. For I would not propoſe to have coverings of glaſs, excepting for a ſmall proportion of the Walls; the reſt may have frames of canvas, or oiled paper, to ſhut over them, in the ſame manner as the glaſſes are contrived, which will ſucceed very well where proper care is taken; for as there will not be occaſion to cover theſe trees until the beginning of march, at which time alſo the fires muſt be made, ſo before the trees are in flower, the weather may be frequently warm enough to open the covers to admit ſun and air to the trees in the middle of the day; for if theſe covers are kept too cloſely ſhut, the ſhoots of the trees will draw very weak, and their leaves will turn pale for want of light and air. And as the deſign of theſe contrivances is only to bring the trees into flower three, or at moſt four weeks earlier, than they would naturally come againſt common Walls, there will be no neceſſity of making very large fires, or keeping the covers too cloſely over the trees.

Inſtead of canvas for theſe covers, oiled papers may be uſed, which ſhould be done in the manner directed for raiſing of Melons, by paſting as many ſheets of paper together, as will fit the frames on which they are to be fixed; and when the paſte is dry, the paper ſhould be faſtened into the frames, and then the oil rubbed over on the outſide with a bruſh, which will ſoak through the paper, and when the paper is dry, the covers may be uſed. This paper will laſt very well one ſeaſon, and the expence of repairing it will not be very great; wherefore theſe are to be preferred to the canvas, becauſe all ſorts of plants will thrive much better under them, than they will under canvas, or any other cloſe covering, which will not admit the rays of the light ſo well through to the plants. The frames deſigned for either canvas or paper may be made much ſlighter than thoſe for glaſs, becauſe theſe being very light, will not require ſo much ſtrength to ſupport them; and if theſe are well painted, and every year when their uſe is over, carried into ſhelter, they will laſt a long time, for they will not be wanted abroad longer than three months, viz. from the beginning of march to the end of may; for after this time the fruit will not require any covering, the trees being then full of leaves, and the young ſhoots will by that time have made ſuch progreſs, as to become a good defence of the fruit; but theſe covers ſhould not be too ſuddenly taken away, but by degrees the trees ſhould be inured to the open air, otherwiſe the change will be too great, and may occaſion moſt of the fruit to fall off, eſpecially if cold nights ſhould follow.

By this method gentlemen may be ſupplied with moſt of the beſt kinds of fruit in the northern parts of England, where without ſome ſuch care, they cannot expect much good fruit in their gardens. And as coal is in great plenty in thoſe places, the expence will be very little; therefore I am ſurpriſed that moſt of the gentlemen who live in the north, do not put this method in practice. That there are ſome few of theſe Walls built in the north is well known, but then they are chiefly deſigned to produce a little early fruit, more for curioſity than any real uſe; and theſe Walls are, for the moſt part, ſo ill contrived, that four times the fuel is expended, as will be requiſite when the Walls are built after the manner here directed; and where the heat is not pretty equally diſtributed through every part of the Wall, ſome of the trees will have too much heat, while others will have little benefit from the fires.

There are ſome perſons who build their hot Walls in ſuch a manner, as to have the greateſt heat under the border, near the roots of the trees, ſuppoſing there is a neceſſity for heat to the roots, as well as the branches; but this is a great miſtake, for the fires muſt greatly injure the roots of the trees, by drying up the moiſture of the earth, as alſo in ſcorching the tender fibres of thoſe roots which lie near them; therefore this practice ſhould not be continued, for it is much the better method to elevate the firſt flue nine inches or a foot above the level of the border, according as the ground is dry or wet, than to place it the leaſt below ground, which will only dry the earth, and not warm the air about the trees, which is the only uſe of artificial heat; for it is very commonly practiſed to draw a branch of a Vine, or other

fruit-tree, into a ſtove, which branch will produce its fruit as early as if the whole tree had been forced; when at the ſame time, all the other branches of the ſame tree, which are expoſed to the open air, will not be the leaſt forwarded, though they are all nouriſhed by the ſame root; which is a plain proof, that there is no neceſſity for adding any warmth to the roots of fruit-trees, to have their fruit earlier or better ripened.

I have alſo heard of ſome Walls which have been built for forcing of fruit, with one continued chaſm from their bottoms to the top, ſo that they have been like double Walls, with places at proper diſtances to make the fires; but theſe can be of little uſe, for if the Walls are open at their tops to let out the ſmoke, the heat will alſo eſcape with it; becauſe if the ſmoke be not led about three or four times in flues in order to warm the bricks, the heat will paſs off at the top, without doing much ſervice to the trees.

Where the Walls are planted with the beſt kinds of fruit, which are deſigned to ripen them in perfection, if the autumns ſhould prove cold, or very wet, before the fruit is ripe, it will be proper to put the covers over the trees; and if there are ſome ſlow fires made to dry off the damps, it will be of great uſe to prevent the fruit from growing mouldy, and to haſten the ripening; but when this is practiſed, the covers ſhould be taken off, whenever the weather will admit of it, that the fruit may enjoy the benefit of the free air, without which it will be inſipid or ill-taſted. Although in the former directions for forcing trees in order to have early fruit, I have adviſed, that ſuch trees ſhould have one or two years reſt in order to recover vigour, yet that is not to be underſtood of theſe trees, which are only deſigned to be brought forward enough to produce their fruit in perfection; for as the fires are not deſigned to be made till the beginning of march, the trees will not be weakened thereby, becauſe they will be inured to the open air long before their fruit is ripe, and will have time to ripen their ſhoots, and form their buds for the next year's bearing; therefore theſe trees may be thus forced every year, without doing them much injury, provided they are carefully managed.

In forcing of fruit-trees people generally hang up thermometers under their glaſſes, for the better adjuſting the heat and regulating the fires; but when this is practiſed, they ſhould be hung where the ſun can never ſhine on them, for one hour's ſun-ſhine upon the ball or tube of the thermometer, in the ſpring of the year, will ſo much rarefy the ſpirits, that they will riſe to the top of the tube, when, at the ſame time, the circumambient air may not be much more than of a temperate heat; but as the principal uſe of theſe thermometers is to regulate the fires, they are ſeldom of much uſe in the day time; becauſe if there be only one hour's ſun-ſhine in the day on the glaſſes, it will warm the air ſufficiently for the production of European fruits, without any additional heat; wherefore there will rarely be occaſion for continuing of the fires in the day, unleſs the weather ſhould prove very bad. And if, by the fires in the night, the air is warmed to the temperate point marked on the botanic thermometers, the fruit will thrive much better than in greater heat.

There are ſome perſons near London, who make it their buſineſs to raiſe early fruit to ſupply the markets, which they perform by the heat of dung only, having no fire-walls in their gardens. The method which theſe people follow, is to have a good quantity of new dung laid in a heap to warm (after the ſame manner as is practiſed for making of hot-beds.) When this dung is in a proper temperature of heat, they lay it cloſe on the back ſide of their fruit Wall, about four feet thick at the bottom, and ſloping to about ten inches or a foot thick at the top. This dung ſhould be gently beat down with a fork to prevent the heat going off too ſoon, but it ſhould not be trodden down too hard, leſt that ſhould prevent its heating. The outſide of the dung ſhould be laid as ſmooth as poſſible, that the wet may run off more eaſily; and if there is a covering of thatch, as is ſometimes practiſed, it preſerves the dung from rotting too ſoon, whereby the heat is continued the longer. The time for laying this dung to the back of the Wall is ſomewhat later than for making the fires, i. e. about the middle of february. The firſt parcel of dung will continue warm about a month or five weeks, when there ſhould be a ſupply of new dung prepared, and the old taken quite away, or mixed up with this new dung, to renew the heat, which, if it works kindly, will be ſufficient to laſt the ſeaſon. Theſe Walls are covered with glaſſes or oiled paper, in the ſame manner as the fire Walls, and the trees muſt be treated in the ſame way; but there muſt be more care taken to open the glaſſes againſt theſe Walls, whenever the weather will permit, otherwiſe the ſteam of the dung will occaſion a great dampneſs through the Wall, which, if pent in about the trees, will be very pernicious to them, eſpecially at the time they are in flower.

By this method ſome gardeners have forced long Walls filled with old well-grown fruit-trees, which have produced great quantities of fruit annually, which has well anſwered their expenſe; but as, in many parts of England, it will be very difficult to procure a ſufficient quantity of new dung for this purpoſe, therefore fire Walls are moſt uſeful, and leaſt expenſive in ſuch places.

I have ſeen in ſome places long timber ſences erected to force fruit-trees, by laying new dung againſt the back ſide, in the ſame manner as is practiſed for the Walls, but theſe are by no means proper, becauſe the ſteam of the dung will eaſily get through every little crack or joint of the boards, to the great prejudice of the trees; beſides, theſe boards will continue very damp, as long as any moiſture remains in the dung, which will alſo be very injurious to them; and as theſe boards will in a few years decay, theſe will be more expenſive than Walls, if they are kept in repair for ſome years, and will never anſwer the deſign ſo well.

[WALL-CRESS. See *Arabis*.

WALLENIA. *(So named by Swartz, in honour of Matthew Wallen, Eſq. a native of Ireland, many years reſident in Jamaica, who cultivated both indigenous and exotic plants there at a conſiderable expenſe, and much aſſiſted Dr. Browne in his Natural Hiſtory of Jamaica.)*

Lin. gen. Schreb. n. 1722. p. 789. *Swartz prodr.* 31. Peteſioides *Jacqu. amer.* 17.

Claſs 4. 1. Tetrandria Monogynia.

GENERIC CHARACTER.

CAL. *Perianth* one-leafed, four-cleft, permanent: *ſegments* erect, obtuſe

COR. one-petalled, tubular: *tube* cylindrical, erect, longer than the calyx: *border* four-cleft; *ſegments* ovate, obtuſe, erect, converging, ſmall.

STAM. *Filaments* four, from the bottom of the corolla, wider at the baſe, erect, longer by half than the corolla, (above the border) diverging. *Anthers* ovate, erect.

PIST. *Germ* oblong, ſuperior. *Style* awl-ſhaped, ſhorter than the ſtamens and corolla, permanent. *Stigma* ſimple, obtuſe.

PER. *Berry* roundiſh, one-celled.

SEED. one, roundiſh, covered with a brittle cruſt.

ESSENTIAL CHARACTER.

CAL. four-cleft, inferior. *Cor.* tubular, four-cleft. *Berry* one-ſeeded.

SPECIES.

1. Wallenia laurifolia.

Lin. ſpec. ed. Willd. 1. 618. *Swartz prodr.* 31. *deſcr.* 1. 247.

Peteſioides laurifolium. *Jacqu. amer.* 17.

Bryonia nigra fruticoſa, foliis laurinis. *Sloan. jam.* 2. 234. *t.* 145. *f.* 5.

DESCRIPTION, *&c.*

This is a tree with a trunk from ten to twenty feet high, covered with an even unarmed bark. Branches long; branchlets round, warted by the fallen leaves. Leaves petioled, oblong, acuminate, with a blunt point, entire, ſlightly nerved, ſomewhat ſtriated, ſmooth and

ſhining, paler beneath, membranaceous and thickiſh. Petioles ſhort, round, ſmooth. Stipules none. Panicle terminating, ſpreading: branches alternate, ſubſaſtigiate, ſubdivided, branchlets alternate, ſubterminating; flowers pedicelled, yellow, inodorous. Calyx embracing the corolla, permanent, pale coloured. Berry ſcarlet.

The calyx, corolla, genitals, and fruit have dots or glandular orange-coloured atoms ſcattered over them. The fruit, when ripe, is ſubacid and aromatic, like the other parts of the fructification. The ſeed has the flavour of the Piperitæ. It flowers ſpring and autumn. There are ſometimes male flowers, which are barren, having no piſtil [1].

Jacquin deſcribes the leaves as alternate, greaſy to the touch, brittle, five inches long. Flowers in compound racemes, (which are thyrſe-ſhaped, and two inches long), numerous, extremely ſmall, with reddiſh calyxes, and white corollas. Style double the length of the corolla.

Native of Jamaica and Hiſpaniola; Jacquin ſays on the mountain above Cape Français in Domingo; flowering in november.]

WALL-FLOWER. See *Cheiranthus*.

[WALL-PENNYWORT. See *Cotyledon*.

WALL-PEPPER. See *Sedum*.

WALL-RUE. See *Aſplenium*.

WALL-WORT. See *Sambucus*.

WALNUT TREE. See *Juglans*.]

WALTHERIA. (*So named by Linneus, in honour of Auguſtin. Frider. Walther, profeſſor of medicine at Leipſic. Author of* Hortus proprius, 1735.)

Lin. gen. n. 827. *Reich. n.* 892. *Schreb. n.* 1108. *Juſſ.* 289. *Cavan. diſſ.* 6. 315. Monoſpermalthæa *Iſnard act. gall.* 1721.

Claſſ. 16. 2. Monadelphia Pentandria.

Nat. Order of *Columniferæ*. *Tiliaceæ* Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* (double: *outer* one-fided, three-leaved, deciduous; *Cav. inner*) one-leafed, half-five-cleft, acute, cup-ſhaped, permanent.

COR. *Petals* five, obcordate, ſpreading, faſtened at bottom to the tube of filaments.

STAM. *Filaments* five, united into a tube, free above, ſpreading, ſhort. *Anthers* ovate.

PIST. *Germ* ovate. *Style* filiform, longer than the ſtamens. *Stigmas* pencilled.

PER. *Capſule* obovate, one-celled, two-valved.

SEED one, obtuſe, wider above.

ESSENTIAL CHARACTER.

Cal. double: outer lateral three-leaved deciduous. *Petals* five. *Style* one. *Capſ.* one-celled, two-valved, one-ſeeded.

SPECIES.

1. Waltheria americana.

Lin. ſpec. 941. *Juſſ.* 610. *Reich.* 3. 301. *Willd.* 3. 586. *hort. cliff.* 342. *Swartz obſ.* 254. *Brown. jam.* 276. *Sloan. jam.* 2. 218. *Raii ſuppl.* 320. (Malva). *Herm. lugdb.* 2. 267. (Althææ ſimilis.) *Pluk. phyt. t.* 150. *f.* 6. (Betonica).

W. indica. *Jacqu. ic rar.* 1. *t.* 130. *miſc.* 2. 323.

Monoſpermalthæa arboreſcens villoſa, folio majore. *Iſnard act.* 1721. *p.* 562. *t.* 14.

Leaves oval plaited ſharply and unequally toothed tomentoſe, heads peduncled.

2. Waltheria indica.

Lin. ſpec. 941. *Juſſ.* 610. *Reich.* 3. 302. *Willd.* 3. 587. *hort. cliff.* 343. (Melochia). *Burm. zeyl.* 149. *t.* 68. *ind.* 142. (Malvinda). *Pluk. mant.* 31. (Betonica).

Leaves oval plaited bluntly toothed tomentoſe, head ſeſſile.

[3. Waltheria Lophanthus.

Lin. ſpec. ed. Will. 3. 587. *Forſt. prodr. n.* 252.

Lophanthus tomentoſus. *Forſt. gen. t.* 14. *p.* 27.

Leaves roundiſh-cordate ſerrate ſilky-tomentoſe petioled, heads peduncled imbricate-bracted.

4. Waltheria ovata.

Lin. ſpec. ed. Willd. 3. 588. *Cavan. diſſ.* 6. 317. *t.* 171. *f.* 1.

Leaves roundiſh-ovate unequally toothed tomentoſe, heads ſeſſile.]

Swartz deſcr.

5. Waltheria anguſtifolia.

Lin. ſpec. 941. *Reich.* 3. 301. *Willd.* 3. 588. *ſt. zeyl. n.* 244. *Pluk. phyt. t.* 150. *f.* 5. *Raii ſuppl.* 297. (Betonica).

W. microphylla. *Cavan. diſſ.* 6. 317. *t.* 170. *f.* 2.

Monoſpermalthæa arboreſcens villoſa, folio minore. *Iſnard act.* 1721. *p.* 278.

Leaves oblong obtuſe plaited toothed hoary, heads ſubſeſſile.

[6. Waltheria elliptica.

Lin. ſpec. ed. Willd. 3. 588. *Cavan. diſſ.* 6. 316. *t.* 171. *f.* 2.

Leaves lanceolate-oblong obtuſe plaited toothed tomentoſe, heads ſeſſile.]

DESCRIPTIONS, &c.

1. Stem ſoft, woody, about two feet high, ſending out two or three ſide branches. Leaves alternate, of a pale yellowiſh green colour, ſoft and hairy. Flowers collected in a cloſe thick ſpike at the top of the ſtem, having ſoft hairy calyxes. Petals connected at their baſe, ſmall, bright, yellow, ſpreading.

[Stem ſuffrutеſcent, branched, ſubdivided, round, hirſute. Leaves petioled, nerved, whitiſh beneath. Peduncles length of the leaves, axillary, ſolitary, erect, pubeſcent. Flowers aggregate, yellow [2].

Willdenow ſays, it reſembles the indica very much, but differs in having the teeth of the leaves ſharp and unequal, and the heads peduncled. The heads in that and the following are axillary or aggregate on a long common peduncle; in W. americana they are axillary but always peduncled, and in W. indica ſeſſile without any peduncle.

Native of South America, and the iſlands of the Weſt Indies, Braſil, Bahama, Berbices, Surinam, Jamaica, Domingo, &c.—Cultivated 1691, in the Royal Garden at Hampton Court [3].]

2. This riſes with a ſhrubby branching ſtalk to the height of eight or ten feet, and is covered with ſoft hairs. Leaves alternate, petioled, four inches long, and two inches broad in the middle, rounded at both ends, of a yellowiſh green colour, very hairy and ſoft, having ſeveral longitudinal veins. Heads axillary, ſeſſile, compoſed of cluſters of very ſmall yellow flowers, which juſt peep out of their ſoft yellow calyxes. Native of India.

3. Forſter made a diſtinct genus of this under the name of Lophanthus, from λοφος a creſt, and ανθος a flower; the flowers having under them a bracte reſembling a creſt. He allows it to be very nearly allied to this genus, and conſiders it as a ſpecies of Waltheria in his Prodromus. Native of the Marqueſas iſlands in the ſouth ſeas.

4. This is very diſtinct from the others in having roundiſh-ovate acuminate leaves, ſhaped almoſt like thoſe of the Haſell (Corylus Avellana). Heads ſeſſile, few-flowered, without bractes. Seems to be like the preceding. Native of Peru [4].]

5. Stalks woody, ſix or ſeven feet high, dividing into ſeveral branches, which are leſs hairy than thoſe of the ſecond ſort. Leaves about three inches and a half long, and an inch and half broad, of a yellowiſh green colour, not ſo ſoft as thoſe of W. indica, having many veins running from the midrib, ſtanding upon very long footſtalks. Flowers very ſmall, yellow, collected into round cluſters, ſtanding upon very ſhort peduncles, cloſe to the axils. They appear in june, july and auguſt, as the other ſorts do; and the ſeeds ripen in autumn.

[Willdenow remarks, that the whole plant is covered with a thin nap; that the leaves are ſmall, half an inch long, oblong, and blunt at each end; and that the heads are ſupported upon a very ſhort peduncle. Native of the Eaſt Indies. Mr. Miller ſays, that the ſeeds were ſent him from Campeachy.

6. This is allied to the preceding, but is more tomentoſe; the leaves are three times as long, but of the ſame breadth with the preceding; and the petals are obtuſe not retuſe. Native of the Eaſt Indies [5].]

[1] Swartz obſ. [2] Hort. kew. [3] Idem. [4] Willdenow. [5]

PROPAGATION AND CULTURE.

These plants are propagated by ſeeds, which muſt be ſown on a hot-bed; and when the plants are fit to tranſplant, they muſt be each planted into a ſeparate ſmall pot, and plunged into a freſh hot-bed, and afterward treated in the ſame manner as other tender plants of the ſame country, for they muſt be kept in the bark-ſtove, otherwiſe they will not thrive in England. The ſecond year the plants will flower and produce good ſeeds, but the plants may be continued three or four years if they are often ſhifted, and the roots pared, to keep them within compaſs; for if they are permitted to remain long undiſturbed in the tan-bed, their roots will run out through the holes in the bottom of the pots, and extend to a great diſtance in the tan; and when this happens, if their roots are torn, or cut off, the plants ſeldom ſurvive it. When the plants root into the tan, they grow very luxuriant, and cannot be kept within reaſonable compaſs; but on their roots being diſturbed, their branches will hang, and their leaves ſhrivel up and drop off; therefore, to keep theſe plants within bounds, they ſhould be drawn up out of the tan at leaſt once in ſix weeks, during the ſummer ſeaſon, and the plants ſhifted out of the pots once in two months; with this management the ſecond and fifth ſorts may be continued ſeveral years, but the firſt ſeldom lives longer than two years.

[WAR-ERA or WARNERIA. See *Hydraſtis*.
WARTWORT. See *Euphorbia*.
WATER ALOE. See *Stratiotes*.
—— Apple. See *Annona*.
—— Betony. See *Scrophularia*.
—— Caltrops. See *Potamogeton* and *Trapa*.
—— Chickweed. See *Montia*.
—— Creſs. See *Siſymbrium*.
—— Dock. See *Rumex*.
—— Dropwort. See *Oenanthe*.
—— Germander. See *Teucrium Scordium*.
—— Gladiole. See *Butomus* and *Lobelia Dortmanna*.
—— Hemlock. See *Cicuta virоſa*.
—— Hemp-Agrimony. See *Bidens*.
—— Horehound. See *Lycopus*.
—— Hyſſop. See *Gratiola*.
—— Leaf. See *Hydrophyllum*.
—— Lemon. See *Paſſiflora*.
—— Lily. See *Nymphaea*.
—— Melon. See *Cucurbita Citrullus*.
—— Millfoil. See *Myriophyllum*.
—— Mint. See *Mentha*.
—— Parſnep. See *Sium*.
—— Pepper. See *Polygonum Hydropiper*.
—— Pimpernel. See *Samolus*.
—— Plantain. See *Alisma*.
—— Purſlane. See *Peplis*.
—— Radiſh. See *Siſymbrium*.
—— Rocket. See *Siſymbrium ſylveſtre*.
—— Soldier. See *Stratiotes*.
—— Speedwell. See *Veronica*.
—— Tupelo. See *Nyſſa*.
—— Violet. See *Hottonia*.
WATERWORT. See *Elatine*.]

WATSONIA. (*So named by Mr. Miller, in honour of his learned friend William Watſon, M. D. F. R. S. whoſe knowledge in the ſcience of Botany, as Mr. Miller with good reaſon obſerves, juſtly demands this tribute.*) *Curt. magaz. t.* 533. 537. *Juſſ.* 58.

Claſs 3. 1. Triandria Monogynia.
Nat. Order of *Enſatae*. Irides *Juſſ.*

GENERIC CHARACTER.

CAL. *Spathes* preſſed cloſe, mortified at top, for the moſt part coloured.
COR. curved back: *tube* ſlender: *throat* cup-cylindric: *border* ſix-parted, the parts ſpreading-regular or ſubbilabiate, equal or nearly ſo in breadth, quite equal in length.
STAM. *Filaments* three, growing to the tube, but diſtinct from the throat.
PIST. *Germ* inferior, triangular-cylindric. *Style* ſimple, filiform, erect. *Stigmas* three, ſlender, bifid.
PER. *Capſule* ſtiff-leathery, triangular-cylindric, drawn to a point at each end.
SEEDS numerous, ſomewhat oblong.

OBS. *Throat many times ſhorter, or many times longer than the border, or equal to it. Coat of the ſeed much bigger than the nucleus, whitiſh, opaque, compreſſed into an unequal margin. Seeds often ſomewhat like thoſe of Pinus ſylveſtris.— In thoſe ſpecies which have a very ſhort throat, the margin of the ſeed is indiſtinct, the nucleus bigger than in Gladiolus.* Gawler.

ESSENTIAL CHARACTER.

Cor. ſix-parted, ſpreading or ſubbilabiate, equal. *Stigmas* three, bifid. *Capſ.* triangular-cylindric, attenuated at each end.

SPECIES.

[1. Watſonia aletroides. *Aletris-like Watſonia. Curt. magaz. t.* 533.
Antholyza aethroides. *Burm. cap. prodr.* 1. *Houtt. Lin. ſyſt.* 11. 77.
A. Merianella. *Ait. kew.* 1. 6. *Curt. mag. t.* 441.
A. tubuloſa. *Andrews bot. repoſ.* 174.
Gladiolus tubuloſus. *Jacqu. collect.* 4. 153. *ic. rar.* 2. 229.
Corollas ſomewhat drooping, tube nearly equal to the ſpathe, throat almoſt four times as long as the ſhort ovate equal ſegments of the border.
2. Watſonia roſeo-alba. *Long-tubed Watſonia. Curt. magaz. t.* 537.
Gladiolus roſeo-albus. *Jacqu. hort. Schoenbr.* 1. 7. *t.* 13.
Corolla regular, tube twice as long as the ſpathe throat or border, ſegments equal ſpread out flat acuminate, ſtamens equal to the throat.
3. Watſonia iridifolia. *Flag-leaved Watſonia. Curt. magaz.* 600.
α cinerea. *Aſh-coloured Flag-leaved Watſonia.*
Gladiolus iridifolius. *Jacqu. collect.* 4. 151. *ic. rar.* 2. *t.* 234. *Willd. ſpec.* 1. 215.
Leaves aſh-green, corolla dull ſcarlet.
β. fulgens. *Scarlet Flag-leaved Watſonia. Curt. magaz. t.* 600.
Antholyza fulgens. *Andrews bot. repoſ. t.* 192.
Gladiolus marginatus γ floribus ſanguineis. *Thunb. diſſ. n.* 20.
Leaves deep-green ſhining, corolla bright ſcarlet. Corolla refracted, tube erect longer than the ſpathe equal to the ſegments, which ſpread out very wide obliquely, indiſtinctly two-lipped, oval-oblong ſomewhat ſharp equal to the throat.
4. Watſonia brevifolia. *Short-leaved Watſonia. Curt. magaz.* 1. 601.
Gladiolus caryophylleus. *Houtt. Linn. ſyſt.* 11. 77. *t.* 79. *f.* 3.
G. marginatus β. *Thunb. diſſ. n.* 20?
Antholyza ſpicata. *Andr. bot. rep. t.* 56. *ejus recens.* 24. *app.* 41.
Leaves very low ſomewhat oblong ſhining, tube throat and border equal in length, ſegments regular-ſpreading, the inner ones wider, ſtamens refupine declined.
5. Watſonia marginata. *Long-ſpiked Watſonia. Curt. magaz. t.* 608.
Gladiolus marginatus. *Thunb. diſſ.* 20. α. *prodr.* 8. *ſuppl.* 95. *Dict. noſtr. n.* 23.
Leaves thick at the edge, ſpike elongated compoſed of cloſe-preſſed ſpikelets conſtantly continuous, border regular, throat ſhort ſix-toothed within, ſtamens erect looking three ways.]
6. Watſonia laccata. *Lake-coloured Watſonia. Curt. magaz. t.* 631.
W. humilis. *Mill. dict. n.* 2. *fig. t.* 297. *f.* 2.
W. erubeſcens. *Herb. banks.*
Gladiolus laccatus. *Jacqu. collect.* 4. 171. *ic. rar.* 2. *t.* 232. *Willd. ſpec.* 1. 215.
Antholyza Merianella. *Dict. noſtr. n.* 6.
Leaves narrower vertically enſiform ſtrict twiſted a little, ſpathe tube throat and border equal, piſtil nearly equal to the ſegments which are acute alike and regularly ſpreading.

DESCRIPTIONS, &c.

[The root in this elegant genus is tuberous-tunicated, hemiſpherical, toothed at the edge. Scape very ſtiff, frequently inclined to woody, ſimple, or little branched.

Leaves

Leaves enſiform, attenuated at each end, often ſhining. Flowers in looſe terminating ſpikes. Spathes one-flowered. All the ſpecies are natives of the Cape of Good Hope, and flower late in the ſummer, or in the autumn [1].

1. This is readily diſtinguiſhed from the other ſpecies by the form of the corolla, which ſtrongly reſembles ſome ſpecies of Aletris, Lachenalia, and Aloe: the alternate ſegments are interior. Bulb compreſſed and tunicated.

It is very ſubject to vary: having either a ſimple ſcape ſix or eight inches high, with three or four diſtant flowers, ſometimes one-ranked; or a three or four-branched ſtem two feet high, with a terminating ſpike of from twenty to thirty cloſely imbricated diſtich flowers, and appreſſed ſpikelets in proportion. The ſame bulb will one year produce pale pink, the next deep crimſon, and the following variegated or ſtriped corollas, always ſcentleſs. One of theſe varieties is figured in Curtis's Botanical Magazine, t. 441. under the name of Antholyza Merianella. But the real Antholyza Merianella of Linneus, or Gladiolus Merianellus of Thunberg is a different plant, having pubeſcent leaves, fewer in number, nearly ſheathing the whole ſtem; flowers differently formed, with larger and rounder ſegments; ſtigmas entire and complicate: in fact it is a Gladiolus, nearly allied to G. hirſutus in leaf, and to G. Watſonius in its tubular throat.

Jacquin has given a good figure of one of the varieties, but has erroneouſly deſcribed it as having a three-valved ſpathe.

This ſpecies was probably introduced in 1778.

2. Leaves linear-enſiform, ſmooth, ſhorter than the ſtem, and ſomewhat twiſted at the baſe. Scape rather flexuoſe, with two or three ancipital ſpathe-like leaves, and ſimple; but ſince all the plants of this order which have ſpathaceous ſtem-leaves are ſubject to branch, it may probably be ſometimes polyſtachyous. Spathes green, ſphacelate or mortified towards the point, keeled, and much ſhorter than the tube. Corolla about three inches long: tube widening gradually into the throat, and joined by a geniculate curvature: ſegments as long as the throat, margins of the alternate ones ſlightly revolute. Stamens cloſely accumbent: anthers deep blue. Style projecting nearly equal to the ſegments. Bulb ſmaller than in many of its congeners and roundiſh.

The length of the tube relative to the faux or throat, is the permanent ſpecific diſtinction; although Jacquin deſcribes the ſegments, faux, and tube, as of equal length, his own figure ſhows his miſtake. As ſome authors ſpeak of theſe flowers as having a double tube, it may not be amiſs to obſerve, that the part only to which the filaments are joined is called the tube; where theſe become free the faux or throat begins, and extends to the baſe of the ſegments of the limb or border. Imported by Meſſrs. Grimwood and Wykes, about 1800. Mr. Alderman Hibbert poſſeſſes a variety with deep purple flowers, but with the mouth always of a ſtill deeper colour within.

3. Bulb compreſſed, generally reniform. Radical leaves four to ſeven, enſiform, attenuated at each end, ſmooth, ſhining, ſlightly edged, equitant at the baſe, midrib prominent: ſtem-leaves conduplicate, gradually ſhorter. Stem two or three times longer than the leaves, ſomewhat woody, ſtrict, round, from three to ſix feet high, with ſeveral upright branches all ſpike-bearing. Spikes looſe, the primary one ten to twenty-flowered; flowers ſpringing from oppoſite ſides, when fully expanded inclining to the ſame front; colour (of β.) bright ſcarlet; ſcent none. Spathes green below, ſphacelate and red upwards, ſhorter than the tube, which is about the length of the throat, and that again of the border; ſegments nearly equal, narrowed at their baſes, ſomewhat ſharp, the alternate ones rather more ſo. Parts of fructification prominent, nearly equal to the corolla, and equal among themſelves. Anthers dark violet. It is the talleſt of the genus yet known to us. Blows freely towards the end of ſummer, with a ſucceſſion of bloom for a month or longer. It ſeeds and produces offſets in abundance. Both varieties are now common in the nurſeries about London. They agree in every thing except in the colour of the leaf and corolla.

Jacquin, in his Icones plant. rar. has united two very diſtinct ſpecies as varieties, namely variety α of the preſent ſpecies, figured in his 234th plate; and Gladiolus marginatus β of Thunberg (Watſonia roſea *Herb. banks.*) in his 235th plate.

4. Leaves four, oblong, enſiform, diſtich, very ſhort, ſmooth and ſhining, mucronate, with a filiform cartilaginous edging. Stem ſtraight, branched, from ſix inches to a foot high. Spathe green, broad, upright, conduplicate, embracing, at the end truncately ſubacute, ſphacelate, and coloured. Corolla recurved, regular, patent: faux or throat narrow-turbinate: ſegments nearly obovate, ſhortly pointed, the inner ones almoſt twice as broad as the others, flat, the outer ones laterally ſubrevolute. Parts of fructification declined, aſſurgent: Segments of the ſtigmas ſhort, revolute, extending rather beyond the anthers. Corolla micaceous, glittering very much in the ſun; its colour not to be repreſented by art. It flowers about may, and is ſcentleſs. Imported by Meſſrs. Kennedy and Lee.

5. Bulb compreſſed, ſubreniform. Leaves lanceolate, ſubcoriaceous, nerved, far ſhorter than the ſtem, edged with a very thick browniſh cartilage. Stem round, ſtrict, woody at the baſe, gracileſcent upwards appreſſedly polyſtachyous, from three to four feet high. Flowers numerous, cloſe ſet, diſtichly ſubimbricate, diffuſing a kernelly ſmell ſomething reſembling that of Heliotropium peruvianum. Spathes green at the baſe, ſphacelate upwards. Corolla ſalver-ſhaped, nodding: tube recurved: faux twice ſhorter than the tube; cyathiform-turbinate, with ſix lamellous appendicles on the inſide alternating with the ſtamens: ſegments elliptic, the interior ones ſomewhat broader. Filaments ſemicolumnar, upright: anthers ſagittate, yellow, ſurrounding the ſtyle, not parallel.

Thunberg enumerates four varieties—α white—β pale red—γ blood-coloured—δ purple. α ſeems to be this plant—β Watſonia brevifolia—γ W. iridifolia β—δ W. roſea. He found them on the ſummits of the Table and other high mountains, and on hills below the mountains from Cape Town to Houteniquas-Land, growing among the graſs in ſuch abundance, that whole hills appeared as if covered with a beautiful ſcarlet carpet.

Introduced into Kew garden by Mr. Maſſon in 1774. It flowers in july or auguſt, and is known among the nurſerymen under the name of Ixia Sceptrum. Owing to the intimate union of the ſpikelets with the main ſtem it appears as if it began to flower at the middle, but on examination, will be found to begin at the baſe of the primary ſpike, as is uſual with its congeners. For Thunberg's deſcription, ſee Gladiolus marginatus.

6. This is one of the ſmaller ſpecies, the Cape ſpecimens being from eight inches to a foot high, and the leaves about the third of an inch broad, linear and ſhorter than the ſtem. Corolla, of one uniform colour, recurved, in Jacquin's figure refracted. Spathe acute. Faux a complete cylinder. Segments quite regular, oblong-ovate, acute. Anthers above the faux below the ſtigmas. In the primary ſpike from four to ſix flowers. It differs from W. roſeo-alba in a proportionably ſhorter tube; from W. Meriana in a regularly and recurvedly ſpreading border; from W. iridifolia in a proportionably longer ſpathe, quite regular border, and equal ſegments. It flowers in may [m]. For Mr. Miller's deſcription, &c. ſee Antholyza Merianella; but this is not the A. Merianella of Linneus, See n. 1.

PROPAGATION AND CULTURE.

See ANTHOLYZA.

3. Requires a biggiſh and very deep pot, light earth, and plenty of water after it has ſhown the flowering ſtem. It produces ſeeds and offſets in abundance.

4. Is yet a rare plant, though it may be increaſed with the uſual facility of the genus.

[1] Gawler in Curt. mag. and Juſſ. gen.

[m] Curt. magaz.

5. This increaſes rapidly both by ſeeds and offſetts, and is now one of the commoneſt of its tribe. It requires a very deep pot [a].

WATSONIA. See *Antholyza, Gladiolus, Ixia.*

WATSONIA MERIANA. See *Antholyza Meriana.*

——— plantaginea. See *Gladiolus alopecuroides.*

——— ſpicata. See *Gladiolus ſpicatus.*

WATTA-TALI. See *Caturus.*

WAY-BREAD. See *Plantago.*

WAYFARING-TREE. See *Viburnum.*

WAY-THISTLE. See *Serratula arvenſis.*

WEBERA. (*So named by Schreber, in honour of George Henry Weber, author of* Spicilegium Floræ Goettingenſis, Gothæ. 1778. 8vo.)

Lin. gen. ed. Schreb. n. 1733. *p.* 794. Chomelia. *Lin. gen. ed.* 2. *n.* 167. Canthium *Lamarck encycl.* 1. 602. *Juſſ.* 204. *Roxb. corom. t.* 51.

Claſſ. 5. 1. Pentandria Monogynia.

GENERIC CHARACTER.

CAL. *Perianth* one-leafed, half-five-cleft, erect, acute, permanent.

COR. one-petalled, funnel-form: *tube* longer than the calyx: *border* five-cleft; *ſegments* ovate-oblong, recurved.

Nectary a fleſhy ring ſurrounding the baſe of the ſtyle.

STAM. *Filaments* five, very ſhort, placed upon the tube of the corolla. *Anthers* linear, incumbent, ſpreading.

PIST. *Germ* roundiſh, inferior. *Style* ſimple, longer than the tube of the corolla. *Stigma* club-ſhaped.

PER. *Berry* ſubglobular, two-celled, crowned with the calyx.

SEEDS ſolitary, orbicular, flattiſh on one ſide, convex on the other.

OBS. *Allied to Gardenia, but diſtinguiſhed by a two-celled berry. Are* Gardenia ſpinoſa, (Canthium *of Lamarck,*) micranthus *and* ſcandens *of Thunberg, of this genus?*

Chomelia *Linn. or* Rondeletia aſiatica *of ſpec. plant. ſupplied the above character: to which we may add, reſpecting this ſpecies, that the ſegments of the corolla from the middle downwards are villoſe: the anthers membranaceous at the tip, the cells opening in the upper ſide of each anther: the ſtyle round, ſtriated, ending in an obliquely club-ſhaped obtuſe ſtigma, angular with ten membranaceous narrow wings decreaſing towards the ſtyle, and finally paſſing into the raiſed lines of the ſtyle. Seeds faſtened to the centre of the flat ſide in the middle of the partition of the berry. Certainly not in fours, as Linnæus, from the Hortus Malabaricus, has made them, but ſolitary.*

ESSENTIAL CHARACTER.

Contorted. *Berry* inferior, two-celled, cells one-ſeeded. *Style* elevated. *Stigma* club-ſhaped. *Cal.* five-cleft.

SPECIES.

1. Webera corymboſa.
Lin. ſpec. ed. Willd. 1. 1224.
Rondeletia aſiatica. *Lin. ſpec.* 244. *Juſſ.* 212. *Reich.* 1. 474. *fl. zeyl. n.* 80.
Cupi *Rheed. mal.* 2. 37. *t.* 23. *Raii hiſt.* 1492.
Unarmed, leaves oblong acute, corymb terminating.

2. Webera cymoſa.
Lin. ſpec. ed. Willd. 1. 1224.
Unarmed, leaves ovate acuminate, cymes many-flowered axillary peduncled.

3. Webera tetrandra.
Lin. ſpec. ed. Willd. 1. 1224.
Canthium parviflorum. *Roxb. corom.* 1. 39. *t.* 51. *Lamarck encycl.* 1. 595.
Gmelinia coromandelica. *Burm. ind.* 132.
Lycium putatum, &c. *Pluk. phyt. t.* 97. *f.* 4.
Tsjerou-Kara. *Rheed. mal.* 5. 73. *t.* 37.
Spiny, leaves roundiſh, cymes few-flowered axillary peduncled, flowers four-ſtamened.

DESCRIPTIONS, &c.

1. This is a ſhrub of the human ſtature. Stems and branches round, aſh-coloured, knobbed; wood white, yellow towards the middle. Leaves or petioles an inch long, of a cloſe texture, flat, dark green and ſhining above, paler beneath; having a ſomewhat aſtringent bitter taſte and a pleaſant ſmell. Flowers whitiſh, becoming yellow with age. Segments of the corolla five or ſix. Berries ſmall, hard, round, reſembling thoſe of the Bay, black when ripe. Seeds about ſeven or eight, in two rows along the partition [a].

Native of Malabar and Ceylon.

2. This is a tree with round pubeſcent branches. Leaves oppoſite, petioled, obtuſe, quite entire and very ſmooth, ſhining above, ſtiff, ſimply veined. Cymes convex. Peduncles pubeſcent. Corolla twice as ſmall as in the preceding. Style much longer than the corolla. Stigma headed-two-lobed. Berry the ſame ſize as that of Juniper. Native of the Eaſt Indies [b].

3. Trunk ſcarcely any, but branches innumerable; the ſmall ones regularly croſs-armed, and ſpreading. Thorns ſimple, oppoſite, above the axils, ſpreading, croſs-armed, very ſtrong, and very ſharp: in luxuriant plants they are ſometimes three-cleft. Leaves on the young ſhoots oppoſite, on the elder branchlets faſcicled, ſhort-petioled, reflected, ovate, entire, ſmooth, various in ſize. Stipules connecting, awl-ſhaped. Umbellets (cymes) oppoſite, below the thorns, ſmall, about the length of the leaves. Peduncle and pedicels ſmooth, round. Flowers ſmall, yellow. Calyx four-toothed. Tube of the corolla bellied, ſhort; mouth downy; border four-parted; ſegments ovate, expanded. Stamens four in the mouth of the corolla: anthers ovate. Germ globular: ſtigma headed. Fruit an obcordate drupe, compreſſed a little, with a hollow on each ſide, ſize of a cherry, crowned with the remaining calyx, fleſhy, ſmooth, yellow, two-celled: in each cell one oblong, one-celled nut.

This is one of the moſt common ſcraggy thorny buſhes, on the coaſt of Coromandel, every ſoil and ſituation ſuiting it. Flowers in the hot ſeaſon, and makes excellent fences.

The ripe fruit is eaten by the natives; the leaves are eaten generally in curries: on both accounts this ſhrub has the additional name of Kura, which means eſculent. The Telingas call it Balluſoo-Kura [c].

WEBERA. See *Bryum* and *Buxbaumia.*

WEDELIA. (*From John Wolffg. Wedel, phyſician at Jena: author of* Tentamen Botanicum 1747 & 1749.)—See *Allionia* & *Polymnia.*

WEEDS, are all plants noxious in gardening or agriculture. Many plants which are uſeful, are Weeds in a relative ſenſe, becauſe they are out of their proper place, or occupy the room of ſtill better things.

A catalogue of the principal Weeds which infeſt gardens, arable lands and paſture grounds is here given; diſtinguiſhing the annual from the perennial, becauſe the methods of extirpation are different.

Annual Weeds infeſting Gardens and Arable Lands.

Veronica agreſtis. *Procumbent Speedwell,* or *Germander Chickweed.* April to ſeptember.

Veronica arvenſis. *Wall Speedwell,* or *Speedwell Chickweed.* May.

Veronica hederifolia. *Ivy-leaved Speedwell,* or *ſmall Henbit,* in Norfolk, *Winter-weed.* April to ſeptember.

The above are ſmall plants, ſeeding abundantly, but eaſily deſtroyed by the hoe.

Alopecurus agreſtis ſ. myoſuroides. *Slender* or *Field Fox-tail* or *Mouſe-tail Graſs.* July. Common in ſome arable lands, and eaſily known by its upright growth and very ſlender ſpike. I am not abſolutely certain that it is annual.

Agroſtis Spica venti. *Silky Bent-graſs.* June and july. Among corn in light moiſtiſh lands, but not very common.

Poa annua. *Annual Meadow-graſs.* An excellent ſweet Graſs in paſtures, but a troubleſome weed in gardens; flowering and ſeeding during a great part of the year.

Bromus arvenſis. *Field Brome-graſs.* July.

[a] Curt. magaz.

[b] Willdenow.

[c] Hort. malab. Rexbergh.

Bromus ſterilis. *Barren Brome-graſs.* June and july

Avena fatua. *Wild Oats* or *Haver.* Auguſt. Fallowing, hoeing and hand-weeding are the only means of extirpation.

Lolium temulentum. *Bearded* or *annual Darnel Graſs,* or *Droke.* July.

Hordeum murinum. *Wall Barley-graſs, Mouſe Barley-graſs, Way-Barley, Way Bennet,* or *Bent. Pick-purſe.* The whole ſummer.

Hordeum maritimum. *Sea Barley-graſs* or *Squirrel-tail Graſs.* June and july. Said to be notorious for ſticking in the gums of horſes.

Several other Graſſes are bad weeds in cultivated land. Some of theſe will be found among the Perennials.

Sherardia arvenſis. *Little Field Madder.* May through the ſummer.

Galium tricorne. *Corn Bedſtraw,* or *Three-flowered Gooſe Graſs.* Among Tares, &c. July.

Galium Aparine. *Gooſe-graſs,* or *Goſling-graſs, Cleavers, Catchweed,* or *Scratchweed, Hairof* or *Hair-rough.* May to auguſt.

Alchemilla arvenſis. *Field Ladies Mantle, Parſley Piert.* May through the ſummer.

Sagina apetala. *Small-flowered Pearlwort or Chickweed Breakſtone.* Common in ſandy ſoils on walls, walks, &c. May and june.—This ſmall weed in ſeſts gravel walks, and if ſuffered to ſeed will increaſe prodigiouſly and grow very troubleſome.

Sagina erecta. *Upright Pearlwort.* May. In paſtures and heaths among barren ſand and gravel.

Myoſotis ſcorpioides. *Mouſe-ear Scorpion-graſs.* The whole ſummer. Dry fields. A handſome large variety, that ſeems to be perennial, is common in water.

Lithoſpermum arvenſe. *Corn Gromill, Baſtard Alkanet, Baſtard Gromill* or *Gromwell* (Gray Millet), *Salfern,* or *Stony-bard.*

Lycopſis arvenſis. *Small Bugloſs.* June.

Anagallis arvenſis. *Pimpernel.* June.

Campanula hybrida. *Corn Bell-flower, wild Venus's Looking-glaſs,* or *codded Corn-Violet.*

Violatricolor. *Panſies* or *Heart's eaſe.* May to ſeptember.

Solanum nigrum. *Common* or *Garden Nightſhade.* June to ſeptember. In gardens and on dunghills.

Chenopodium urbicum—rubrum—album—ficifolium polyſpermum. The *Gooſefoots* flouriſh on dunghills, and hence have the name of *Muckweed.* From their ſucculency they are called *Fat-hen.* Mr. Marſhall ſays he has heard Red Gooſefoot called *Drought-weed.* July to ſeptember. Theſe and other ſucculent weeds are often ſuffered to occupy dunghills unmoleſted, and muſt exhauſt the dung very much.

Cuſcuta europæa. *Great Dodder.* On beans, hops, nettles, thiſtles, &c.

Cuſenta Epithymum. *Small Dodder.* On heaths, thyme, &c.

Theſe plants flower in auguſt, and are indifferently called *Hell-weed, Devil's Guts* and *Scald.*

The former frequently ſtrangles crops of beans. The latter killed much of my Lucern laſt year.

Bupleurum rotundifolium. *Thorow-wax.* July. Chalky fields.

Caucalis latifolia. *Great* or *broad Bur Parſley.* July.

Caucalis Anthriſcus. *Upright Hedge Parſley.* July. Hedges and Balks.

Caucalis infeſta. *Spreading Hedge Parſley.* July.

Caucalis nodoſa. *Knotted Stone Parſley.* May and june.

Siſon ſegetum. *Corn Honewort.* Auguſt.

Æthuſa Cynapium. *Small Hemlock, thin-leafed wild Hemlock* or *Fool's Parſley.* July and auguſt. Common in gardens.

Scandix Pecten Veneris. *Shepherd's Needle, Beggar's Needle, Crake-needle, Needleweed, Venus's Comb.*

Polygonum aviculare. *Knot-graſs, Hogweed.* From april to october. Remarkably full of ſeed, and propagates itſelf abundantly, both in graſs and arable fields, eſpecially where the ground is much trodden. Small birds are very fond of the ſeed, and hogs of the herb.

Polygonum Convolvulus. *Climbing Buckwheat, Corn-bind,* or *Black Bindweed.* June and july.

Saxifraga tridactylites. *Rue-leaved Saxifrage.* May.

Scleranthus annuus. *Annual Knawel* or *German Knot-graſs.* July. Sandy fields.

Stellaria ſ. Alſine media. *Common Chickweed.* The peſt of gardens, flowering and ſeeding almoſt all the year; ſupplying conſtant food to ſmall birds.

Arenaria rubra. *Purple Sandwort* or *Spurrey.* July and auguſt. In ſandy fields.

Agroſtemma Githago. *Cockle* or *Popple.* June and july.

Spergula arvenſis. *Corn Spurrey, Sandweed* or *Pick-purſe.* July and auguſt. Cultivated in ſandy ſoils on the Continent.

Euphorbia Peplus. *Petty Spurge.* July and auguſt.

Euphorbia exigua. *Dwarf Spurge.* July.

Euphorbia helioſcopia. *Sun Spurge, Wartwort* or *Wretwort.* July and auguſt. The firſt and laſt very common in gardens: the ſecond in corn.

Papaver Rhoeas. *Red Poppy, corn Poppy, corn Roſe, cup-Roſe, Redweed,* or *Cankerweed.* June and july.—Other Poppies, as P. Argemone or *Long rough-headed Poppy,* and P. dubium or *Long ſmooth headed Poppy,* are found among corn, but not ſo common. Their flowers are much ſmaller and paler.

Delphinium Conſolida. *Field Larkſpur.* This has increaſed ſo much in Cambridgeſhire, as to become one of the common weeds among corn. June and july.

Adonis autumnalis. *Corn Adonis-flower, Pheaſant's-eye, red Maithes, Red Morocco.* Frequent in ſome corn fields of Kent. May to october.

Ranunculus arvenſis. *Corn Crowfoot.* June. Very common among corn. Known by the paleneſs of its leaves and flowers, and the pricklineſs of the ſeeds; which do not uſually vegetate till the ſecond year after ſowing.

Lamium purpureum. *Red Archangel* or *Dead Nettle.* Common in gardens. May.

Lamium amplexicaule. *Henbit Archangel* or *Great Henbit.* February to june. Sandy fields.

Galeopſis Ladanum. *Red Hemp-Nettle.* Auguſt and ſeptember. Dry fields, eſpecially in a calcareous ſoil.

Galeopſis villoſa. *Downy Hemp-Nettle.* July and auguſt. Northern counties and Wales, ſandy fields.

Galeopſis Tetrahit. *Common Hemp-Nettle.* July and auguſt.—In Yorkſhire called *Dea-nettle.* Marſhall.

Galeopſis verſicolor. *Large-flowered Hemp-Nettle,* or *Bee-Nettle.* July and auguſt. Sandy fields in the north, and in Norfolk.

Stachys arvenſis. *Corn Woundwort* or *round Ironwort.* July and auguſt. Common in gravelly and calcareous ſoils.

Thymus Acinos. *Baſil Thyme* or *ſmall wild Baſil.* July and auguſt. Sandy or calcareous ſoils.

Antirrhinum ſpurium. *Round-leaved Fluellin.*

Antirrhinum Elatine. *Sharp-leaved Fluellin.* Both from july to ſeptember.

Antirrhinum minus. *Leaſt Snapdragon.* June to auguſt. Sandy fields.

Antirrhinum Orontium. *Leſſer Snapdragon.* July and auguſt. Sandy and calcareous fields.

Draba verna. *Common Whitlow-graſs.* March and april. A very ſmall weed, common in dry paſtures, walls, banks, gravel-walks, pavements, &c.

Alyſſum (or Myagrum) ſativum. *Gold of Pleaſure.* June. Among flax.

Thlaſpi arvenſe. *Penny Creſs* or *Smooth Mithridate Muſtard.* June and july.

Thlaſpi campeſtre. *Common Cow-creſs* or *Mithridate Muſtard.*

Thlaſpi Burſa Paſtoris. *Common Shepherd's Purſe.*

Sinapis nigra. *Common Muſtard.* In ſome diſtricts takes the place of the next.

Sinapis arvenſis. *Wild Muſtard, Charlock, Chadlock, Cadlock, Catlock,* or *Wild Rape.* May.—Sinapis alba and nigra, *White* and *Common Muſtard,* are alſo found wild among corn.

Raphanus Raphaniſtrum. *Wild Radiſh* or *jointed Charlock.* June and july. Diſtinguiſhed from the preceding by its pale yellow or white flowers, and by its round ſmooth jointed pod. The plant is covered with bent pellucid briſtles.—In Yorkſhire theſe weeds are called *Runſh.*

These two plants are a diſgrace to the ſpring crops in many parts of the country. Women and children are employed to hook them, but ineffectually; ſometimes a ſcythe is run over them to cut off the flowering top; and ſheep are frequently turned into the bean crop to eat the Charlock. The ſheep will ſometimes eat the beans, but upon the whole they do more good than harm.

Geranium diſſectum. *Jagged-leaved Crane's-bill.* May and june. On fallows.

Geranium columbinum. *Long-ſtalked Crane's-bill.* June and july. Gravelly and calcareous ſoil; not common.

Fumaria officinalis. *Common Fumitory.* April or may to auguſt.

Lathyrus Aphaca. *Yellow Vetchling.* June to auguſt. Not uncommon in the corn fields of Cambridgeſhire.

Ervum tetraſpermum. *Smooth Tare,* or *Tine Tare* with ſmooth pods. June.

Ervum hirſutum. *Hairy Tare, ſmall wild Tare,* or *Tine Tare.* June.

Triſolium officinale. *Common Melilot.* June and july. A bad weed among wheat.

Triſolium arvenſe. *Hare's-foot Trefoil.* July and auguſt. Sandy ſoils.

Sonchus oleraceus. *Common Sowthiſtle* or *Swinethiſtle,* both ſmooth and prickly; the latter is ſometimes called *Boarthiſtle.* July to ſeptember. Common in gardens.

Lapſana communis. *Nipplewort.* Common in gardens. June and july.

Carduus nutans. *Muſk Thiſtle.* July and auguſt. Common on fallows in gravelly and calcareous ſoils. Eaſily known by its handſome nodding heads, and the muſky ſmell of the flowers, like ſweet ſultan.

Gnaphalium germanicum. *Common Cudweed.* July and auguſt. In barren gravel.—G. gallicum or *Narrow-leaved Cudweed:* and G. minimum or *Leaſt Cudweed* are alſo found in the ſame ſort of ſoil.

Senecio vulgaris. *Common Groundſel* or *Simſon.* In flower almoſt all the year. No weed is more common in gardens and on fallows.

Chryſanthemum ſegetum. *Corn Marigold, Yellow Oxeye, Golden Corn-flower, Yellow Buddle.* June to auguſt. The peſt of light ſandy ſoils. It is ſaid not to be fond of dung; and that in Denmark there is a law for the extirpation of it.

Pyrethrum (or Chryſanthemum) inodorum. *Corn Feverfew* or *ſcentleſs Mayweed.* Auguſt and ſeptember. Chiefly in a gravelly ſoil.

Matricaria Chamomilla. *Wild Chamomile.* May to july. Common among corn and on dunghills about London.

Anthemis arvenſis. *Corn Chamomile.* Among corn, eſpecially in a gravelly ſoil. June and july. The herb has little ſcent, but the flowers are ſweet.

Anthemis Cotula. *Stinking Mayweed* or *Chamomile.* June and july. Too common among corn, known by the names of *Mayweed* or *Maithes,* and in Yorkſhire *Dog ſtoble.* Frequently confounded with the three preceding; but this is much the worſt weed, and is ſo acrimonious as to affect the hands of thoſe who pull it up.

Centaurea Cyanus. *Corn Blue-bottle, Boddle* or *Buddle,* which are merely corruptions of *Bottle. Blue-Bonnet.* July and auguſt.

Urtica urens. *Small Stinging Nettle.* June to october. Common in gardens.

Amaranthus Blitum. *Small Garden Blight* or *Wild Amaranth.* Auguſt. In gardens and on dunghills, but not very common.

Mercurialis annua. *Annual Mercury.* July to ſeptember. In gardens.

Atriplex patula. *Spreading Halbert-leaved Orache.* June to auguſt.

Atriplex anguſtifolia. *Spreading narrow-leaved Orache.* June to auguſt.

Theſe are found with the Chenopodiums or Gooſefoots in gardens and on dunghills.

More annual plants might have been added as Weeds, but they are either not common enough, or too inconſiderable to deſerve notice as ſuch. Several of the above can hardly be reputed as very noxious. Moſt of them may be deſtroyed eaſily, in gardens by hoeing, and in arable lands by ploughing. Wild Oats, Poppy, the Charlocks, and Mayweed, have ſo filled the ground of the ſloven, that they cannot be got rid of without aſſiduous culture, and frequent fallowing.

Annual Weeds in Meadows and Paſtures.

Jaſione montana. *Sheep's-bit* or *Sheep's Scabious.* June and july. Dry ſandy paſtures and heaths.

Chironia (or Gentiana) Centaurium. *Common Centaury.* July and auguſt. Dry paſtures.

Gentiana Amarella. *Autumnal Gentian.* Auguſt. In calcareous paſtures.

Gentiana campeſtris. *Field Gentian.* September. High Paſtures, in a gravelly or calcareous ſoil.

Linum catharticum. *Purging Flax* or *Mill Mountain.* June to auguſt. Dry paſtures.

Juncus buſonius. *Toad Ruſh.* Wet paſtures and marſhes. July and auguſt.

Peplis Portula. *Water Purſlane.* July and auguſt. Marſhes and wet heaths.

Polygonum aviculare. *Knot-graſs.* See Arable weeds.

Ceraſtium vulgatum. *Broad-leaved Mouſe-ear Chickweed.* April and may.

Ceraſtium viſcoſum. *Narrow-leaved Mouſe-ear Chickweed.* May to ſeptember.

Ceraſtium ſemidecandrum. *Little Mouſe-ear Chickweed.* March and april.

Bartſia (or Euphraſia) Odontites. *Red Bartſia* or *red Eyebright.* July and auguſt.

Rhinanthus Criſta-galli. *Yellow Rattle* or *Cock's-comb, Penny-graſs* or *Penny-weed.* In Yorkſhire *Hay-penny.* June. Moiſt meadows. This weed keeps its ground, for the ſeeds are ripe at the time of cutting graſs for hay.

Euphraſia officinalis. *Eyebright.* July to ſeptember. Dry paſtures and heaths.

Draba verna. *Common Whitlow-graſs.* Dry paſtures. See Arable weeds.

Geranium molle. *Dove's-foot, Crane's-bill.* April to auguſt.

Geranium rotundifolium. *Round-leaved Crane's-bill.* June and july.

Geranium diſſectum. *Jagged-leaved Crane's-bill.*

Lathyrus Niſſolia. *Crimſon Graſs-vetch.* May.

Ornithopus perpuſillus. *Common Bird's-foot.* May. Sandy paſtures.

Triſolium ſubterraneum. *Subterraneous Trefoil.* May. Barren paſtures and heaths.

Triſolium ſcabrum. *Rough-Trefoil.* May and june. Chalky and ſandy fields.

Triſolium glomeratum. *Round-headed Trefoil.* June. Gravelly paſtures; not common.

Triſolium ſtriatum. *Soft knotted Trefoil.* June. Dry barren paſtures.

Medicago polymorpha. *Heart Medick, Clover* or *Trefoil.* May and june.

Theſe five plants are hardly to be conſidered as weeds, for cattle will eat them, but they are not cultivated. The laſt ſpecies is found commonly mixed with Clover, particularly with black Medick, Trefoil or Noneſuch. Its prickly ſeeds make it not to be ſo good for cattle, if it ſhould ſtand long enough to produce them. It is eaſily diſtinguiſhed by the ſpots upon the leaves, as well as by its ſeeds.

Crepis tectorum. *Smooth Succory-Hawkweed.* June to ſeptember. Dry paſtures, walls and roofs.

Gnaphalium germanicum. *Common Cudweed.* July and auguſt. Barren gravelly paſtures.

Inula pulicaria. *Small Fleabane.* September. Sandy inundated meadows or heaths.

Centaurea Calcitrapa. *Star-thiſtle.* July and auguſt. Dry paſtures and by way ſides.

Annual weeds in paſtures are neither ſo numerous nor ſo deſtructive as thoſe on arable land; many of them are inſignificant, and many others are eaten by the cattle along with the herbage.

Biennial Weeds in Corn.

Echium vulgare. *Viper's Bugloſs* or *Cat's-tail.* June and

and july. It infeſts corn very much every third year *in ſome counties.*

Pieris hieracioides. Hawkweed Ox-tongue. July and auguſt.

Carduus lanceolatus. *Spear Thiſtle,* in ſome places *Boar-thiſtle,* or *Bur-thiſtle.* June to ſeptember.

Onopordum Acanthium. *Cotton Thiſtle.* July.

Theſe Thiſtles, with many other ſpecies, and various kinds of weeds with downy ſeeds, are ſuffered to remain untouched on banks, way-ſides and fallows, in order to ſerve as a nurſery for a conſtant ſupply of weeds. If the waſte places were to be run over with a ſcythe once a year, this evil would ſoon be prevented.

Biennial Weeds in Paſtures.

Daucus Carota. *Wild Carrot, Bird's-neſt* or *Bee's-neſt.* June and july.

Heracleum Sphondylium. *Cow Parſnep, Meadow Parſnep,* or *Madnep.* July.

Paſtinaca ſativa. *Wild Parſnep.* July. This grows chiefly in a calcareous ſoil. The flowers are yellow; thoſe of the preceding ſpecies are white, and that is a much larger plant.

Carum Carui. *Caraway.* June. This is commonly reputed to be biennial; but I have many plants which I ſowed in my garden, now in the fourth year of their life.

Tragopogon pratenſis. *Yellow Goat's-beard.* June.

Tragopogon porrifolius. *Purple Goat's-beard.* Moiſt Meadows. Not common. May and june.

Crepis fœtida. *Stinking Hawkweed* or *Hawk's-beard.* June and july. Dry chalky paſtures. Not common.

Crepis biennis. *Rough Succory-Hawkweed,* or *Rough Hawk's-beard.* Chalky paſtures. June and july.

Carduus paluſtris. *Marſh Thiſtle* or *Red-thiſtle.* July and auguſt. Common in wet meadows.

Carduus eriophorus. *Woolly-headed Thiſtle.* Auguſt. Calcareous ſoil.

Carlina vulgaris. *Common Carline Thiſtle.* June. Dry ſandy paſtures.

Conyza ſquarroſa. *Ploughman's Spikenard.* July and auguſt. Calcareous ſoil.

Erigeron acre. *Blue Flea-Bane.* July and auguſt. Gravelly and calcareous paſtures.

Perennial Weeds in Corn.

Agroſtis ſtoloniſera. *Creeping Bent-graſs,* or *running Quich* or *Twitch.* July and auguſt.

Holcus mollis. *Creeping Soft-graſs,* in Yorkſhire *Whitegraſs.* July and auguſt.

Feſtuca duriuſcula. *Hard Feſcue-graſs, Black Quich, Twitch* or *Couch.* Marſh. Gloc.

Triticum repens. *Creeping Wheat-graſs, Dog's-graſs, Quick, Quich, Twitch, Wicks, Couch.* June to ſeptember. As every bit of this deteſtable weed will grow, it is rather increaſed than checked by common ploughing and digging; nor is there any way of deſtroying it effectually, but by deep and frequent ploughings, picking it out and burning it.

Scabioſa arvenſis. *Field Scabious* or *Great Bluecaps.* July.

Convolvulus arvenſis. *Small Bindweed* or *Corn-bind.* June and july.—Its roots ſpread deep and wide, and every piece of them will grow; it is no eaſy matter to eradicate this pernicious plant.

Silene inflata ſ. Cucubalus Behen. *Bladder-Campion* or *Catchfly, White Corn Campion, Spatling Poppy* or *Frothy Poppy, White Bottle,* or *White Ben.* July.

Lychnis dioica. *Wild White Campion.* May to ſeptember. I never ſaw the Red Campion in a corn field.

Ceraſtium arvenſe. *Field Chickweed.* May to auguſt.

Rubus cæſius. *Small Bramble* or *Dewberry.* June and july.

Potentilla anſerina. *Silver-weed* or *wild Tanſy.* June and july; in moiſt furrows.

Mentha arvenſis. *Corn Mint.* June to ſeptember. It is ſaid that this herb will prevent milk from curdling, and that when hungry cows have been put into a field, after harveſt, where this plant abounds, it has been ſcarcely poſſible to turn the milk for cheeſe.

Glechoma hederacea. *Ground Ivy, Gill, Ale-hoof, Tunhoof.* April and may. On fallows, as well as among buſhes and under hedges.

Lamium album. *White Archangel* or *Dead Nettle, Dea Nettle.* In gardens, and under hedges, as well as in paſtures.

Orobanche elatior. *Tall Broom-rape.* July and auguſt.

Orobanche ramoſa. *Branched Broom-rape.* Auguſt and ſeptember.

Malva ſylveſtris. *Common Mallow.* May to auguſt.

Ononis arvenſis. *Corn Reſt-harrow* or *Cammock, Petty Whin* or *Ground Furze.* June to auguſt.—The roots matting together with great ſtrength, are very troubleſome where land is to be ploughed for corn. This property however makes it an excellent plant to ſet on ſea and fen banks, to keep them firm and compact.

Sonchus arvenſis. *Corn* or *Tree-Sowthiſtle* or *Swine-Thiſtle.* Auguſt.

Leontodon Taraxacum. *Common Dandelion.* April to july.

Carduus arvenſis. *Way Thiſtle, Corn Thiſtle* or *Creeping Thiſtle.* July. The only common Thiſtle that is perennial. The fallows in ſtrong lands, and the way ſides are commonly full of it. The downy ſeeds are carried a long way by the wind, and it is not eradicated without great difficulty.

Tuſſilago Farfara. *Colt's-foot.* March and april. On wet fallows.

Chryſanthemum Leucanthemum. *Great White Ox-eye.* June and july.

Centaurea Scabioſa. *Great Knapweed* or *Knob-weed, Great Horſe Knobs, Matfellon* or *Bulweed.*

Equiſetum arvenſe. *Corn Horſetail* or *Snake-pipe.* March and april. In a wet ſoil.

Perennial Weeds in Meadows and Paſtures.

Veronica officinalis. *Male* or *common Speedwell.* May and june. Dry paſtures and heaths.

Veronica ſerpyllifolia. *Smooth Speedwell* or *Paul's Betony.* May and june.

Veronica Chamædrys. *Germander Speedweed* or *wild Germander,* or *Bird's-eye.* May.

Salvia verbenaca. *Wild Engliſh Clary.* June to october.

Valeriana dioica. *Small* or *marſh Valerian.* June. Wet meadows and marſhes.

Valeriana officinalis. *Great wild Valerian.* June. Hedges and dry paſtures.

Schoenus compreſſus. *Compreſſed Bog-ruſh.* July. In ſpongy meadows as well as bogs.

Scirpus cæſpitoſus. *Scaly-ſtalked Club-ruſh.* July. Boggy heaths.

Scabioſa ſucciſa. *Devil's-bit Scabious* or *Blue caps.* Auguſt to october.

Scabioſa columbaria. *Small Scabious.* June and july. Gravelly and calcareous paſtures.

Aſperula cynanchica. *Squinancy-wort,* or *ſmall Woodruff.* June. Open calcareous paſtures.

Galium ſaxatile. *Smooth heath Bedſtraw.* July and auguſt. Heaths and mountain paſtures.

Galium uliginoſum. *Rough marſh Bedſtraw.* Auguſt. Wet meadows.

Galium erectum. *Upright marſh Bedſtraw.* June and july. Moiſt Meadows.

Galium verum. *Yellow Ladies Bedſtraw,* or *Cheeſe-rening.* July and auguſt. Common in dry paſtures. It does not ſeem that this plant will coagulate milk; it is probably put into rennet to give it a flavour.

Plantago major. *Great Plantain,* or *Way-Bread.* June through the ſummer.

Plantago media. *Hoary Plantain.* In a calcareous or gravelly ſoil.

Plantago lanceolata. *Ribwort Plantain, Cock's-heads,* or *fighting Cocks.*—Now cultivated under the name of *Rib-graſs.* June and july.

Sanguiſorba officinalis. *Great Burnet.* June and july. Moiſt calcareous paſtures.—A coarſe plant. For common Burnet ſee *Poterium Sanguiſorba.*

Alchemilla vulgaris. *Common Ladies Mantle.* June and july. High Paſtures.

Primula veris. *Cowſlips, Paigles* or *Pagils.* April.
Lyſimachia Nummularia. *Creeping Looſeſtrife, Money-wort,* or *Herb Twopence.* June and july. Moiſt meadows.
Campanula rotundifolia. *Round-leaved Bell-flower.* Auguſt and ſeptember. Dry paſtures and heaths.
Campanula glomerata. *Cluſtered Bell-flower, leſſer.*
Theſium linophyllum. *Baſtard Toad-flax.* July. In high chalky paſtures.
Bunium Bulbocaſtanum et flexuoſum. *Great* and *common Earth-nut* (corruptly *Yer-nut*) *Kipper-nut* or *Pig-nut.* May and june.
Peucedanum Silaus. *Meadow Sulphur-wort* or *Saxifrage.* Moiſt meadows. Auguſt.
Chærophyllum ſylveſtre. *Smooth Cow-paſley* or *Wild Chervill, Orchard-weed* or *Cicely.* April and may. Hedges abundandy, and frequently in the body of the paſture.
Pimpinella Saxifraga. *Common Burnet-Saxifrage.* July and auguſt.
Linum perenne, *Perennial Blue Flax.* June and july. Chalky paſtures.
Galanthus nivalis. February. *Snowdrop.* Meadows, orchards, and hedges.
Narciſſus Pſeudonarciſſus. *Common Daffodil.* March. Orchards and among buſhes.
Allium vineale. *Crow Garlick.* July. Dry paſtures. It gives milk and butter an inſufferable ſtrong taſte.
Allium urſinum. *Broad-leaved Garlick* or *Ramſons.* May and june. Moiſt Meadows and thickets.
Scilla nutans, or Hyacinthus non ſcriptus. *Wild Hyacinth* or *Hare-bell.* May. Hedges, thickets, paſtures.
Juncus glaucus. *Hard Ruſh,* or *Wire Ruſh.* July.
Juncus conglomeratus. *Comuon Ruſh.* July.
Juncus effuſus. *Soft Ruſh.*
Juncus ſquarroſus. *Moſs Ruſh* or *Gooſe Corn.* June and july. Barren ſandy heaths.
Juncus articulatus. *Jointed Ruſh.* June. Wet meadows.
Juncus uliginoſus. *Little Bulbous Ruſh.* June and july. Wet ſandy and boggy heaths.
Juncus campeſtris. *Hairy Field Ruſh.* April and may. Dry barren paſtures.—Ruſhes are called *Seawes* in Yorkſhire.
Rumex criſpus. *Curled Dock.* June and july.
Rumex acutus. *Sharp Dock.* July.
Rumex obtuſifolius. *Broad-leaved Dock.* July and auguſt.
Rumex Acetoſa. *Common Sorrel, Sour Docken,* or *Green Sauce.* June.
Rumex Acetoſella. *Sheep's Sorrel.* June and july. Barren paſtures.
Colchicum autumnale. *Meadow Saffron.* September.
Erica vulgaris. *Common Heath* or *Ling.* June and july.
Erica cinerea. *Fine-leaved Heath.* July and auguſt.
Polygonum Biſtorta. *Great Biſtort* or *Snakeweed.*
Saxifraga granulata. *White Saxifrage* or *Sengreen.* May. Dry paſtures.

From a want of ſufficient diſtinction in Engliſh names, much confuſion has ariſen between Meadow Saxifrage (Peucedanum Silaus), Burnet Saxifrage (Pimpinella Saxifraga), Burnet (Poterium Sanguiſorba), and this White Saxifrage.

Silene inflata. *Bladder Campion.* July.
Stellaria graminea. *Leſſer Stitchwort.* May.
Lychnis Flos cuculi. *Meadow Lychnis* or *Ragged Robin.* June. Wet Meadows.
Ceraſtium viſcoſum. *Narrow-leaved Mouſe-ear Chickweed.* May to ſeptember.
Agrimonia Eupatoria. *Common Agrimony.* June and july.
Spiræa Filipendula. *Common Dropwort.* July. In a calcareous or gravelly ſoil. Hogs are fond of the roots.
Spiræa Ulmaria. *Meadow-ſweet,* or *Queen of the Meadows.* June and july. Wet meadows.
Fragaria ſterilis. *Barren Strawberry.* March and april. Dry paſtures.
Potentilla anſerina. *Silver Weed, Wild Tanſey,* or *Gooſe Tanſey.* June and july. Wet meadows.
Potentilla repans. *Common creeping Cinquefoil.*
Tormentilla officinalis. *Common Tormentil* or *Septfoil.* June and july. Barren paſtures and heaths.
Ciſtus Helianthemum. *Common dwarf Ciſtus.* July and auguſt. Calcareous or gravelly high paſtures.
Anemone Pulſatilla. *Paſque-flower.* April and may. High calcareous paſtures.
Thalictrum flavum. *Common Meadow-Rue.* July. Moiſt meadows.
Ranunculus Ficaria. *Pilewort, Figwort,* or *leſſer Celandine.* April.
Ranunculus bulboſus. *Bulbous Crowfoot.*
Ranunculus repens. *Creeping Crowfoot.*
Ranunculus acris. *Upright Meadow Crowfoot.*

Theſe three plants fill good meadows with their flowers in the months of may, june and july. They are generally known and confounded under the names of *King-cup, Gold-knobs, Butter-cups, Butter-flowers, Crowfoot* and *Crowflower.* In Yorkſhire *Gowlans.* They are of a hot and acrid nature, eſpecially the laſt, and are not eaten in a green ſtate by cattle. The notion of their giving butter a yellow tincture, is a vulgar error.

Caltha paluſtris. *Marſh-Marigold.* May. Marſhy paſtures.
Ajuga reptans. *Common Bugle.* May. Moiſt paſtures.
Lamium album. *White Archangel* or *Dead-nettle.* May through the ſummer.
Prunella vulgaris. *Self heal, Hook-heal, Sicklewort, Carpenter's Herb.* It is a notion, but without foundation, that this herb is good to heal fleſh wounds. The ſame error obtains reſpecting Bugle, Stachys paluſtris, and other plants of this order.
Pedicularis paluſtris. *Marſh Louſewort.* June and july. Marſhy meadows.
Pedicularis ſylvatica. *Paſture Louſewort.* June and july.
Antirrhinum Linaria. *Common Yellow Toadflax.* June and july.
Cardamine pratenſis. *Common Ladies-ſmock,* or *Cuckow-flower.* April and may. Wet meadows.
Geranium pratenſe. *Crowfoot Cranesbill.* June and july. Wet meadows.
Polygala vulgaris. *Milkwort.* June and july. Dry paſtures.
Spartium ſcoparium. *Common Broom.* May and june. Sandy paſtures.
Geniſta tinctoria. *Dyer's Green-weed, Woodwaxen, Weedweſh* or *Yellows.* July and auguſt. Dry paſtures.
Geniſta piloſa. *Hairy Green-weed.* May. Heaths and high ſandy paſtures.
Geniſta anglica. *Needle furze* or *Green-weed, Petty Whin.* May and june. Wet ſpongy heaths.
Ulex europæus. *Common Furze, Whin* or *Gorſe.* May through the reſt of the year. Sandy heaths.
Ononis arvenſis. *Reſt-harrow, Reſt-plough, Cammock, Hen Gorſe, Ruſt-horn,* (that is *Reſt-bourn.*) June to auguſt. Barren paſtures.
Anthyllis Vulneraria. *Kidney-Vetch, Ladies-Finger.* June to auguſt. Chalky and ſandy paſtures.
Lathyrus pratenſis. *Yellow Lathyrus,* or *Meadow Vetchling.* July and auguſt.
Vicia Cracca. *Tufted Vetch.* July and auguſt.
Hippocrepis comoſa *Tufted Horſe-ſhoe Vetch.* May to auguſt. Chalky paſtures.
Hedyſarum Onobrychis. *Saint-foin.* June and july. Chalky hilly paſtures; in which this moſt uſeful plant is not uncommon.
Aſtragalus hypoglottis. *Purple mountain Milk Vetch.* June and july. High chalky and ſandy paſtures.
Trifolium ochroleucum. *Sulphur-coloured Trefoil.* June and july. Dry chalky and gravelly paſtures.
Trifolium fragiferum. *Strawberry-headed Trefoil.* July and auguſt. Moiſt paſtures.
Lotus corniculatus. *Common Bird's-foot Trefoil, Cheeſe-cake Graſs,* Yorkſhire. June to auguſt. Common in paſtures and on heaths.

There is a great variety of theſe leguminous plants in moſt paſtures, upon which cattle feed willingly. Moſt of the above, far from being noxious, form a wholeſome mixture with graſs for the food both of kine and ſheep: they cannot therefore be conſidered properly as weeds, unleſs they predominate over the

graſs above meaſure. Among ſome of them, as the Clovers, Saintfoin, and Lucerne, which are commonly ſown under the name of Artificial Graſſes, the Graſſes properly ſo called would be conſidered as weeds.

Leontodon Taraxacum. *Common Dandelion.* April to july.

Hedypnois hiſpida, or Leontodon hiſpidum. *Rough Dandelion.* In july. Chiefly in calcareous paſtures.

Hedypnois autumnalis, or Leontodon autumnale. *Autumnal* or *Dandelion Hawkweed.*

Hieracium Piloſella. *Mouſe-ear Hawkweed* or *Yellow Devil's-bit.* May to auguſt. Very common in dry paſtures.

Hypochæris radicata. *Long-rooted Hawkweed.* June to auguſt. Common.

Some of the above Syngeneſious plants are confounded in many places under the name of *Golds* or *Gowls*, from their bright golden-coloured flowers. In Norfolk, according to Mr. Marſhall, they are called *Dindles*, which may perhaps be a corruption of Dandelion.

Cichorium Intybus. *Wild Succory.* Common, chiefly by way-ſides, among graſs. July and auguſt. An improved variety is lately much cultivated, under the name *Chicory*, from the French.

Carduus heterophyllus. *Melancholy Thiſtle.* Moiſtiſh high paſtures. July and auguſt.

Carduus pratenſis. *Meadow Thiſtle.* June.

Carduus acaulis. *Dwarf Thiſtle*, or *ſmall purple Carline Thiſtle.* July and auguſt. Chiefly in a gravelly or calcareous ſoil. It ſpreads, cloſe to the ground, occupies much room, and pricks the mouths of the ſheep.

Gnaphalium dioicum. *Mountain Cudweed.* June and july. High dry paſtures.

Tuſſilago Farfara. *Colt's-foot, Fole-foot, Herſe-hoof*, or *Bull-foot.* Called *Clote* in Norfolk, according to Mr. Marſhall. March and april. In a wet calcareous ſoil.

Tuſſilago Petaſites. *Common Butter-bur*, or *Peſtilent-wort.* April. Moiſt meadows.

Senecio Jacobæa. *Common Ragwort, Ragweed, Staggerwort, Stanerwort, St. James's-wort, Seggrum* or *Seagrum:* in Norfolk *Canker-weed*, according to Mr. Marſhall. Nothing eats this large ſtrong weed, which is common in good paſtures. It flowers in july, before which it ſhould be pulled up by hand after rain.

Inula Helenium. *Elecampane.* July and auguſt. Not common.

Inula dyſenterica. *Common Fleabane.* Auguſt. In moiſt places.

Inula pulicaria. *Small Fleabane.* Meadows and ſandy heaths that are wet in winter. September.

Bellis perennis. *Common Daiſy*, in Yorkſhire *Bairnwort.* It flowers during the greater part of the year. No cattle ſeem to eat this plant, which occupies ſo large a ſhare of our paſtures.

Chryſanthemum Leucanthemum. *Great Daiſy, Ox-eye* or *Maudlin-wort.* May and june.

Anthemis nobilis. *Sweet Chamomile.* On dry heaths.

Achillea Millefolium. *Common Yarrow* or *Milfoil.* June to auguſt. A large creeping weed, lately recommended for cultivation.

Centaurea nigra. *Common, black*, or *leſſer Knapweed*, or *Knobweed, Matfellon, black Matfellon, Cockheads*, or *Bulweed.* June to auguſt. A hard pernicious weed, but too common.

Orchis pyramidalis. *Pyramidal Orebis.* July. Dry paſtures, eſpecially in chalk.

Orchis Morio. *Meadow Orchis.* May and june. Moiſt paſtures.

Orchis maſcula. *Early purple Orchis.* April and may.

Orchis latifolia. *Marſh Orchis.* May and june. Wet meadows.

Orchis maculata. *Spotted Palmate Orchis.* June and july.

Satyrium viride. *Frog Satyrion.* June and july.

Ophrys ovata. *Common Twayblade.* Chiefly among buſhes. June.

Ophrys ſpiralis. *Ladies Traces.* Auguſt and ſeptember. Chalk and gravel.

Other ſpecies of this ſingular and elegant tribe of plants are found among graſs, as Fly, Bee, and Spider Ophrys or Orchis, &c. But they are ſcarcely common enough to be reputed weeds.

Carex muricata. *Great Prickly Carex. Sedge* or *Segs* is the general name for theſe plants.

Carex palleſcens. *Pale Carex.*

Carex præcox. *Vernal Carex.* Dry paſtures.

Carex pilulifera. *Round-headed Carex.* Heaths.

Carex panicea. *Pink-leaved Carex.* Moiſt paſtures.

Carex acuta. *Slender-ſpiked Carex.* Wet meadows.

Carex hirta. *Hairy Carex.* Wet meadows. *Sharegraſs.* Marſhall.

The ſpecies of Carex are very numerous, and grow chiefly in fens and marſhes; the above however and ſome others abound in the fen paſtures and wet meadows. They are much harſher than the Graſſes, with which they are mowed to fodder cows in winter. Deſtroyed by draining.

Urtica dioica. *Great Stinging Nettle.* Sometimes creeps out of hedges into the body of the paſtures.

Poterium Sanguiſorba. *Common Burnet.* July. High calcareous paſtures. Cultivated.

Ophioglofſum vulgatum. *Common Adder's tongue.* May. Wet meadows.

Pteris aquilina. *Common Female Fern* or *Brakes.* Dry ſandy land. Spreading its roots deep and wide.

Moſſes of various ſorts, on old paſtures. Theſe may be checked by draining, and by being well dreſſed with coal aſhes, &c. If they cannot thus be reclaimed, they muſt be ploughed up, and kept under tillage for ſome years.

By the above liſt it appears, that by far the greater number of annual weeds infeſt arable lands, and that in graſs the perennials chiefly flouriſh. The reaſon is obvious: in the former, the roots of perennials are continually diſturbed and cut up by ploughing and other operations of agriculture; and the ſeeds of annuals find a ready entrance into land, where the parts are conſtantly undergoing a ſeparation: in the latter, the perennials are often made to ſpread by cutting or eating down the ſtems; and the ſeeds of annuals are not eaſily received into the cloſely compacted turf.

Mr. Marſhall has ſome Weeds which are not in the above liſts.

Corn Weeds.

Artemiſia vulgaris. *Mugwort.* Auguſt. Hedges.

Urtica dioica. *Great ſtinging Nettle.* Placed above among Paſture weeds.

Rumex obtuſifolius. *Broad-leaved Dock.* This alſo is among the Paſture weeds.

Polygonum Perſicaria. *Spotted Arſmart.* July and auguſt. Common in ditches and marſhes.—Polygonum lapathifolium, or *pale-flowered Arſmart*, called alſo *Smart-weed* and *Willow-weed*, is common on dunghills.—Polygonum Hydropiper or *biting Arſmart*, is frequent in ditches.

Ranunculus repens. *Creeping Crowfoot.* Among Paſture weeds.

Achillea Millefolium. *Common Yarrow* or *Milfoil.* Among Paſture weeds.

Agroſtis vulgaris. *Fine Bent-graſs.*

Holcus avenaceus or *Avena elatior. Tall Oat-graſs.*

Daucus carota. *Wild Carrot.* Among Paſture weeds.

Heracleum Sphondylium. *Cow Parſnep.* The ſame.

Carduus acanthoides. *Curled* or *waſted Thiſtle.*

Antirrhinum Linaria. *Yellow Toadflax.* See Paſture weeds.

Euphraſia or Bartſia Odontites. *Red eye-bright.* See the ſame.

Prunella vulgaris. *Self-heal.* The ſame.

Galium verum. *Yellow Bedſtraw.* The ſame.

Galium Mollugo. *Great Hedge Bedſtraw.* Hedges.

Malva rotundifolia. *Dwarf Mallow.*

Vicia Cracca. *Tufted Vetch.* See Paſture weeds.

Convolvulus ſepium. *Great* or *hedge Bindweed.*

Conium maculatum. *Hemlock.* Hedges.

Ballota nigra. *Stinking Horehound.* Hedges.

Eryſimum Alliaria. *Garlick-Creſs, Jack by the hedge*, or *Sauce alone.*

Arundo phragmites. *Common Reed.*

Paſture Weeds.

Betonica officinalis. *Wood Betony.* Among buſhes.
Aira cæſpitoſa. *Turfy Hair-graſs*, or *Haſſock-Graſs.* In Yorkſhire *Bull's-forehead.*
Cineraria paluſtris. *Marſh Fleabane.* Ditches and marſhes.
Achillea Ptarmica. *Sneeze-wort* or *Goose-tongue.* Chiefly in hedges and among buſhes.
Equiſetum paluſtre. *Marſh Horſe-tail*, or *Joint-graſs.*
Angelica ſylveſtris. *Wild* or *water Angelica.* Watery places and by rivulets.
Myoſotis ſcorpioides. *Mouſe-ear Scorpion-graſs.* See Arable weeds.
Carduus arvenſis. *Common Thiſtle.* See Arable weeds.
Carduus lanceolatus. *Spear Thiſtle.* See the ſame.

Buſhes or Shrubs in Paſtures.

Cratægus Oxyacantha. *Hawthorn* or *White-thorn.*
Prunus ſpinoſa. *Sloe* or *Black-thorn.*
Roſa arvenſis. *Field Briar.*
Rubus fruticoſus. *Common Bramble.*
Ulex europæus. *Furze, Whins* or *Gorſe.*
Ononis arvenſis. *Reſt-harrow, Hen-gorſe* or *Snn.*
Geniſta tinctoria. *Dyer's weed*, or *Yellows.*

Moſt of the above are found in hedges or among buſhes, but occaſionally ſteal into the field or paſture. More of the ſame ſort might have been added; but perhaps ſome readers may think there are already too many.

Fitzherbert, the father of Engliſh Huſbandry, mentions the following Weeds:

Thiſtles.
Kedlocks. *Sinapis arvenſis.*
Dockes.
Cockle.
Drake.
Darnolde; Darnell. *Lolium temulentum.*
Gouldes. *Chryſanthemum ſegetum.*
Haudoddes.
Dogfenell.
Mathes. See *Anthemis Cotula.*
Ter or Terre. Fumitory or Fumiterry. *Fumus terræ. Fumaria.*
Dee Nettyls. *Lamium album.*
Dodder. *Cuſcuta.*

Weeds mentioned by Tuſſer.

Mayweed.
Thiſtle.
Fitch, Vetch or Tare.
Brake. *Pteris aquilina.*
Cockle.
Boddle. See *Chryſanthemum ſegetum* and *Centaurea Cyanus.*
Muſtard.
Hemlock.
Burr.
Tine or Tine Tare.
Mallow.
Nettle.
Titters or Tine.

Weeds mentioned by Tull.

Crow-needles. *Scandix Pecten-Veneris.*
Red-weed.
Echium.
Couch-graſs.
Colt's-foot.
Melilot.
Fern.
Charlock.

For the deſcriptions of weeds, and the methods of extirpating the moſt noxious, ſee the ſeveral articles in the courſe of this work.

There are two ways of extirpating weeds from arable lands: by fallowing and by weeding.

By fallowing is meant repeated ploughings, harrowings, &c. between the crops. The continuance of a fallow, and the number of ploughings requiſite, depend on the ſeaſon, and on the number and nature of the weeds to be deſtroyed. If the ſpring ſeaſon be found inſufficient, take the ſummer, and even the autumn, the winter, and the enſuing ſpring, rather than crop an under-worked fallow. One ſtirring towards the cloſe is frequently more valuable than two or three ploughings at the outſet. To begin a fallow without continuing it until its intention be fully accompliſhed, is throwing away labour unprofitably.

By weeding is meant deſtroying or checking weeds whilſt the crop is growing; whether the operation be performed with the hoe, the ſpadle or ſpud, the hook, or the hand. Next to the plough and harrow, the hoe is the moſt deſtructive to ſeed weeds; but the hand ought to give the finiſh to weeding: the later this is done, provided the crop be not materially injured by treading, the greater will be its effect. The cloſe of this operation is ſimilar to that of the fallow. One additional weeding is given at a ſmall expenſe; and without it perhaps, thoſe which preceded were of little benefit. One weed left to ſpread its ſeeds this year may be the cauſe of an hundred the next.

The common perennial Way-Thiſtle or Corn Thiſtle, increaſes almoſt without bounds both by ſeeds and roots. Neither fallowing alone, nor weeding alone, will prevent its miſchief: their joint efforts are neceſſary to keep it within bounds: to work its total extirpation from a ſoil it affects, is ſcarcely poſſible. See *Serratula arvenſis.*

Obſerve of this and other ſucculent weeds, that when the ſeeds are impregnated, they will ripen after the plants are cut down or torn up by the roots; they ſhould therefore either be cut down as ſoon as they begin to flower, or elſe be raked into heaps and burnt.

Quich-graſs increaſes in arable lands entirely by roots, which in a looſe ſoil will diffuſe themſelves to an unlimited diſtance. Every joint requires only air and openneſs of ſoil to fit it for vegetation. To deſtroy it, break up the ſoil, ſo as to give it the greateſt ſurface. Then endeavour to deſtroy the young ſuckers whilſt they are yet in a delicate tender ſtate, before they have had time to eſtabliſh themſelves, or to ſend out freſh roots. In deſtroying the firſt crop of ſuckers, a ſecond expoſure of roots takes place, and to render the expoſure as ample as poſſible, the greateſt quantity of ſurface ſhould ſtill be preſerved. Hence it follows that the plough is the fitteſt implement for the deſtruction of Quich.

The common practice of harrowing out live roots, and burning them or carrying them off, is a waſte of labour, and an impoveriſhment of the ſoil.

To attempt to deſtroy it with the hoe, or any other implement of weeding, implies ignorance or folly in the extreme. See *Triticum repens.*

Docks. See *Rumex.*

Cleavers, Gooſe-graſs, or Hairough. *Galium Aparine*, is in ſome diſtricts conſidered as one of the worſt weeds which wheat can be infeſted with; the ſeeds being very difficult to ſeparate from wheat, and when ground with it, being hurtful to the flour.

This is an annual plant, with a very feeble root, and may eaſily be deſtroyed. When it is thick on the ground, and by climbing has gained the aſcendency of the corn, it may be dragged out with iron-toothed rakes with good effect and quick diſpatch. In vacancies, and whilſt the corn is low, a ſmall hoe may be uſed; but in general it is beſt to draw it with the hand. The ſeeds lie long in the ſoil without loſing their vegetative quality.

Spear Thiſtle and other biennial weeds may be deſtroyed with the ſpadle or ſpud, and with the ſmall hoe, taking off the crown of the root within the ſurface of the ground. See *Carduus lanceolatus.*

Creeping Crowfoot, Creeping Bent-graſs, Silver-weed, and other perennial creeping weeds, form a claſs of troubleſome enemies to corn land. The firſt and laſt ſend out runners like the ſtrawberry: the ſecond ſends out rootlets from the joints of the ſtem, which being feeble, falls to the ground as its length is extended and the weight of its top is increaſed. The parent roots are fibrous and eaſily deſtroyed.

If theſe weeds are taken in time, they are readily extirpated by weeding, but when once they have bound themſelves to the ſurface with innumerable ligatures, fallowing is the only means of deſtruction. The harrow may be uſed in the firſt ſtages of the fallow, provided

vided no other root-weeds are to be at the ſame time deſtroyed. Skimming the ſurface with the plough, ſhim, horſe-hoe, or paring-ſpade, is more effectual againſt theſe weeds than deep ploughing [1].

WEIGELIA. (*So named by Thunberg in honour of Chriſt. Ehrenfr. Weigel, author of* Flora Pomerano-Rugica, &c. Berol. 1769. 8°.)

Lin. gen. Schreb. n. 280. *Thunb. nov. gen.* 5. *ſ. jap.* 6. *Juſſ.* 421.

Claſſ. 5. 1. Pentandria Monogynia.

GENERIC CHARACTER.

CAL. *Perianth* five-leaved: *ſegments* awl-ſhaped, erect, equal.

COR. one-petalled, funnel-formed: *tube* villoſe internally, length of the calyx: *border* bell-ſhaped, half-five-cleft: *ſegments* ovate, obtuſe, from erect ſpreading.

STAM. *Filaments* five, inſerted into the tube, filiform, erect, almoſt the length of the corolla. *Anthers* erect, linear, bifid at the baſe, obtuſe at the tip.

PIST. *Germ* four-cornered, truncate, ſmooth, ſuperior. *Style* from the baſe of the germ, filiform, a little longer than the corolla. *Stigma* peltate, flat.

PER.

SEED naked?

ESSENTIAL CHARACTER.

Cal. five-leaved. *Cor.* funnel-form. *Style* from the baſe of the germ. *Stigma* peltate. *Seed* one.

SPECIES.

1. Weigelia japonica.
   Lin. ſpec. ed. Willd. 1. 836. *Thunb. jap.* 90. *t.* 16. *act. holm.* 137. *t.* 5. *Linn. tranſ.* 2. 331.
   Sima utſugi et Nippon utſugi. *Kæmpf. amoen.* 5. 855.
   Leaves ſeſſile ovate-lanceolate.
2. Weigelia coreensis.
   Lin. ſpec. ed. Willd. 1. 836. *Thunb. in Linn. tranſ.* 2. 331.
   Korei utſugi. *Kæmpf. amoen.* 5. 855. *ic. ſelect. t.* 45.
   Leaves petioled obovate.

DESCRIPTIONS, &c.

1. Stem ſhrubby: branches oppoſite, ſmooth, round, aſh-coloured. Leaves an inch long, without any petioles. Flowers on the branches and at the axils: pedicels three, one-flowered, bracted. Corolla purple. Native of Japan.

2. Branches decuſſated, ſmooth, aſh-coloured, from erect patulous. Leaves ſerrate, acuminate, a hand in length. Petioles embracing, about an inch long. Native of Japan [2].

WEINMANNIA. (*So named in honour of Joh. Wilh. Weinmann, apothecary at Ratiſbon, author of* Phytanthozoichnographia, 1735. *browne firſt named it* Windmannia, *which Linnæus altered to the true name.*)

Lin. gen. n. 493. *Reich. n.* 535. *Schreb. n.* 674. *Juſſ.* 309. Windmannia *Brown.* 212.

Claſſ. 8. 2. Octandria Digynia.

Nat. Order of *Saxifragæ* Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* four-leaved: *leaflets* ovate, patulous.

COR. *Petals* four, equal, bigger than the calyx.

STAM. *Filaments* eight, erect, ſhort. *Anthers* roundiſh.

PIST. *Germ* roundiſh. *Styles* two, length of the ſtamens. *Stigmas* acute.

PER. *Capſule* ovate, two-celled, two-beaked.

SEEDS about eight, roundiſh.

ESSENTIAL CHARACTER.

Cal. four-leaved. *Cor.* four-petalled. *Capſ.* two-celled, two-beaked.

SPECIES.

1. Weinmannia glabra.
   Lin. ſyſt. 375. *Willd.* 2. 436. *ſuppl.* 228. *Lamarck illuſtr. gen. t.* 313. *f.* 1. *Swartz obſ.* 151.
   W. pinnata. *Lin. ſpec.* 515. *Reich.* 2. 202.
   Leaves pinnate, leaflets obovate crenate even.
2. Weinmannia hirta.
   Lin. ſpec. ed. Willd. 2. 437. *Swartz prodr.* 63. *deſcr.* 2. 691. *Brown. jam.* 212.
   Leaves pinnate, leaflets ovate ſerrate-crenate, beneath and on the racemes hirſute.
3. Weinmannia tomentoſa.
   Lin. ſyſt. 376. *Willd.* 2. 437. *ſuppl.* 227.
   Leaves pinnate, leaflets ovate quite entire tomentoſe underneath, ſtipules caducous.
4. Weinmannia trifoliata.
   Lin. ſyſt. 376. *Willd.* 2. 438. *ſuppl.* 227. *Lamarck illuſtr. gen. t.* 313. *f.* 2. *Thunb. prodr.* 77.
   Leaves ternate, leaflets elliptic-lanceolate ſerrate very ſmooth, panicles compound.
5. Weinmannia racemoſa.
   Lin. ſyſt. 376. *Willd.* 2. 438. *ſuppl.* 227. *Forſt. prodr. n.* 173.
   Leaves ſimple obovate-elliptic obtuſe toothed, racemes ſmooth.
6. Weinmannia parviflora.
   Lin. ſpec. ed. Willd. 2. 438. *Forſt. prodr. n.* 174.
   Leaves ſimple oblong acuminate toothed, racemes rough-haired terminating paniculed.

DESCRIPTIONS, &c.

1. This is a ſmall tree with oppoſite branches, the laſt of which are ſubpubeſcent. Leaves oppoſite, unequally pinnate; the common petiole winged, with ſubovate joints: leaflets eleven or thirteen, ſmall, naked, blunt, oppoſite, ſeſſile, narrower on the inner ſide towards the baſe, having three or four ſerratures on each ſide. Stipules ovate, the ſize of the leaves, deciduous, ſolitary between the pairs of the petioles. Racemes terminating, ſolitary, peduncled, longer than the leaves, erect, ſimple. Flowers numerous, white, the ſame ſize as Tinnarella. Pedicels one-flowered, ſeveral from each point of the peduncle. Calyx-leaves oblong, white. Petals lanceolate three times as long as the calyx. Germ ovate, two-grooved. Styles white, filiform. Stigmas headed [3].—Swartz remarks, that it varies from the ſtature of a ſhrub to that of a tree forty feet in height. Native of Jamaica. Browne's plant is not this, but the next ſpecies.

2. This differs from the preceding in the pubeſcence of moſt of the parts; in having the joints of the common petiole ſubcordate, not obovate; the capſules oblong and ſhort, not roundiſh, and longer beaked [4]. Native of Jamaica, on the top of the blue mountains in the ſouthern parts of the iſland; alſo in Monſerrat. Browne ſays it riſes by a weakly ſlender ſtem, and ſhoots frequently to the height of ſix or ſeven feet; that the branches are few, ſlender, and oppoſite, as well as the ribs, which are always beautifully winged between the leaves, and that the flowers riſe in looſe bunches at the extremities of the branches.

3. This is a very branching leafy tree with a browniſh bark. Leaves oppoſite, unequally pinnate. Common petiole winged, with obovate joints. Leaflets eleven or thirteen, ſmall, thickiſh, regular, very downy beneath. Stipules one on each ſide, bigger than the leaflets, deciduous. Racemes towards the top very cloſe, like ſpikes, on very ſhort pedicels. Nectary bell-ſhaped, ſurrounding the ſtamens, quite entire, membranaceous. Found in New Granada by Mutis.

4. A very ſmooth ſhrub, not differing much in appearance from the Pteleas. Leaves oppoſite. Panicles axillary. Native of the Cape of Good Hope [5].

5. Branches and branchlets ſmooth [6]. Leaves oppoſite, petioled, ſmooth on both ſides, bluntly toothed as in Populus moniliſera. Racemes very long, axillary, ſolitary or in pairs, terminating. Native of New Zealand.

6. Branches round, ſmooth; branchlets pubeſcent. Leaves oppoſite, on ſhort petioles, ſmooth on both ſides, with remote ſharp teeth. Racemes three to ſix at the ends of the branches in panicles. It differs from the preceding in the form of the leaves, the pubeſcence of the racemes and branchlets, and in having the flowers four times ſmaller. Native of the iſland of Otaheite [7].

WEISSIA. (*From Frid. Guil. Weiſs, author of* Plantæ cryptogamicæ Floræ Gottingenſis, 1778. 8°. *There are ſeveral others of the ſame name.*)

[1] Marſhall, Yorkſhire, 1. 361—376. [2] Thunberg. [3] Lin. ſyſt. [4] Swartz. [5] Linn. ſuppl. [6] Willdenow. [7] Forſter.

A genus

A genus of Moſs. *Ehrh. beytr.* 1. 179.—Orthotrichum. *Hedw. muſc.* 2. 96. Bryum *Linn.*—*Schreb. gen. n.* 1648.

WEISSIA *Hedw.* See Grimmia. *Schreb. gen. n.* 1642.

WELD. See *Reſeda.*

WESTRINGIA. *(So named by J. E. Smith, M. D. in honour of John Peter Weſtring, author of a Diſſertation on the Lichen tribe, and their uſes in dyeing, printed in the Tranſactions of the Stockholm Academy for 1794.)* Smith monogr. in Tracts of Nat. Hiſt. 1798.

Claſſ. 14. 1. Didynamia Gymnoſpermia.

Nat. Order of *Verticillatæ*. *Labiatæ* Juſſ.

GENERIC CHARACTER.

CAL. one-leafed, permanent, tubular bell-ſhaped, with five ſides, and five prominent angles, without furrows or ſtreaks, divided about half way into five equal, erect, lanceolate, beardleſs ſegments.

COR. one-petalled, ringent, twice as long as the calyx, reverſed: *tube* length of the calyx, with a hairy orifice: *border* four-lobed: *upper-lip* a little longer, erect, cloven half way down: *lower-lip* in three deep equal ſegments, divaricating, and of a linear oblong form.

STAM. *Filaments* four, about half as long as the border, ſpreading: two lower ſhorter, and moſt frequently abortive. *Anthers* roundiſh, two-lobed, incumbent.

PIST. *Germ* four-lobed. *Style* filiform, length of the ſtamens. *Stigma* cloven, ſmall.

PER. none.

SEEDS four, naked, obovate.

ESSENTIAL CHARACTER.

Cal. half-five-cleft, five-ſided. *Cor.* reverſed, with four ſegments, the longeſt erect, cloven. *Stam.* diſtant; the two ſhorter or loweſt abortive.

SPECIES.

1. Weſtringia roſmariniformis.
Smith monogr. 282. *t.* 3.
Cunila fruticoſa. *Solandri. Willd. ſpec.* 1. 122.
C. fruteſcens. *Denn cat. cant.* 5.

DESCRIPTION, &c.

This is a ſhrub very much branched: the branches either oppoſite or four together, ſquare, ſilky, leafy. Leaves in fours, on very ſhort ſilky footſtalks, ſpreading, linear-lanceolate, entire, revolute, rather pointed; of a bright ſhining green above, and almoſt naked; clothed with white ſilky down beneath. Stipules none. Flowers from the upper part of the branches, axillary, ſolitary, on ſhort flower-ſtalks. At the baſe of the calyx a pair of linear ſhort ſilky bractes. Calyx ſilky, its ſegments naked with revolute margins. Corolla white, with purple ſpots about the orifice.

The leaves are ſlightly bitter, not aromatic; the flowers not inelegant, but without ſmell.

Native of New South Wales, near Port Jackſon, and has flowered ſeveral times in the Engliſh Greenhouſes*.

WHEAT. See *Triticum.*

———, Cow. See *Melampyrum.*

———, Indian. See *Zea.*

WHIN. See *Ulex.*

———, Petty. See *Geniſta.*

WHITE BEAM TREE. See *Cratægus Aria.*

WHITE HELLEBORE. See *Veratrum.*

WHITE HOREHOUND. See *Marrubium.*

WHITE LEAF TREE. See *Cratægus Aria.*

WHITE THORN. See *Cratægus Oxyacantha.*

WHITLOW-GRASS. See *Draba* and *Saxifraga tridactylites.*

WHORTLE-BERRY. See *Vaccinium.*

WIDOW-WAIL. See *Cneorum.*

WILD BASIL. See *Clinopodium.*

WILD BUGLOSS. See *Lycopſis.*

WILD CUMIN. See *Lagœcia.*

WILD GERMANDER. See *Veronica.*

WILD LIQUORICE. See *Abrus.*

WILD PLANTAIN. See *Heliconia.*

WILD ROCKET. See *Braſſica muralis.*

WILD ROSEMARY. See *Andromeda polifolia.*

WILD SERVICE. See *Cratægus torminalis.*

* Smith.

WILD TANSY. See *Potentilla Anſerina.*

WILLIAM, SWEET. See *Dianthus.*

WILLICHIA. *(So named by Mutis, in honour of Chriſt. Lud. Willich, phyſician at Nordheim, author of* Obſervationes botanicæ. Gott. 1747. 4°.—Obſervationes de plantis quibuſdam, Gott. 1762, 8°.—Illuſtrationes quædam botanicæ, ibid. 1766. 8°—Circa plantas quaſdam ſingularia aliqua notata, in nov. act. nat. cur. 4.—*Theſe Treatiſes are in* Reichardi Sylloge. Died 1776.*)* *Lin. gen. Reich. n.* 54. *Schreb. n.* 67. *mant.* 553. *Juſſ.* 418.

Claſſ. 3. 1. Triandria Monogynia.

GENERIC CHARACTER.

CAL. *Perianth* one-leafed, four-cleft, permanent: *ſegments* ovate, acute, ſpreading.

COR. one-petalled, wheel-ſhaped, twice as long as the calyx: *tube* ſcarcely any: *border* four-cleft, flat; ſegments roundiſh, convex.

STAM. *Filaments* three, inſerted into the diviſions of the border, except the loweſt, and ſhorter than it. *Anthers* roundiſh, erect, two-celled.

PIST. *Germ* ſuperior, roundiſh, compreſſed. *Style* filiform, length of the ſtamens, declined at the loweſt diviſion of the border. *Stigma* blunt.

PER. *Capſule* roundiſh, compreſſed with a ſharp edge, two-celled, two-valved: partition oppoſite.

SEEDS many, roundiſh, minute. *Receptacle* globular of two hemiſpheres.

ESSENTIAL CHARACTER.

Cal. four-cleft. *Cor.* four-cleft. *Capſ.* two-celled, many-ſeeded.

SPECIES.

1. Willichia repens.
Lin. ſyſt. 82. *Reich.* 1. 94. *Willd.* 1 189. *mant.* 558.

DESCRIPTION, &c.

1. Root annual, fibrous. Stem creeping, filiform, branched, herbaceous, hirſute, about two feet high. Leaves alternate, petioled, ſomewhat remote, orbicular, ſubpeltate, crenate, an inch long, hirſute, reddiſh beneath. Petioles very long, hirſute, thick. Peduncles axillary, in pairs, one-flowered, filiform, hirſute, length of the petioles. Flowers ſmall, roſe-coloured, with an hirſute calyx. Found in Mexico by Mutis*.

WILLOW. See *Salix.*

WILLOW-HERB. See *Lythrum.*

WILLUGHBEIA. *(So named in memory of Francis Willughby, Eſq. F. R. S. the friend and pupil of Ray. Author of* Ornithologia 1676, *and* Hiſtoria Piſcium 1678; *publiſhed by Ray with additions, after Willughby's death, which happened in* 1672, *when he was only* 37 *years of age.)*

Lin. gen. Schreb. n. 417. Ambelania *Aubl. t.* 104. Pacouria. *Aubl. t.* 105. *Juſſ.* 148.

Claſſ. 5. 1. Pentandria Monogynia.

Nat. Order of *Contortæ*. *Apocineæ* Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* one-leafed, five-parted, acute, fleſhy, very ſmall.

COR. one-petalled, ſalver-ſhaped: *tube* wider at the baſe, cylindrical: *border* five-parted, flat: *ſegments* oblique, acute, more gibbous on one ſide, waved, imbricate at the baſe.

STAM. *Filaments* five, very ſhort, inſerted into the tube above the baſe. *Anthers* ſagittate.

PIST. *Germ* roundiſh, ſuperior. *Style* four-cornered. *Stigma* thick, ovate-headed, ſtriated, two-cuſped, placed on a flat ring.

PER. *Berry* ovate, one or two-celled.

SEEDS numerous, angular, neſtling in pulp, or faſtened to the partition.

ESSENTIAL CHARACTER.

Contorted. *Cor.* ſalver-ſhaped. *Stigma* headed. *Fruit* a one or two-celled berry or pumpkin.

SPECIES.

1. Willughbeia acida.
Lin. ſpec. ed. Willd. 1. 1231.

* Linn. mant.

Ambelania acida. *Aubl. guian.* 1. 266. *t.* 104.
Stem erect, flowers axillary, fruit two-celled.

2. Willughbeia ſcandens.
Lin. ſpec. ed. Willd. 1. 1231.
Pacouria guianenſis. *Aubl. guian.* 1. 269. *t.* 105.
Stem climbing, racemes tendril-ſhaped, fruit one-celled.

DESCRIPTIONS, &c.

1. This is a tree ſeven or eight feet in height, and ſeven or eight inches in diameter, with a gray bark and a white looſe wood; it ſpreads at top into many ſtraight, knotted branches. Leaves oppoſite, ovate, oblong, ſmooth, quite entire, waved, on ſhort half-embracing petioles. Flowers in a ſubſeſſile corymb of three or four flowers, with a little ſcale at the baſe of the peduncle and of each flower. The whole plant abounds in a milky juice. The fruit macerated in water has a pleaſant acid flavour. Native of Cayenne and Guiana, in woods, flowering in ſeptember.

2. This is a ſhrub with many ſpreading knotty branches, ſpreading over neighbouring trees. Leaves ovate-acute, ſmooth, quite entire, waved, oppoſite, on ſhort embracing petioles. Flowers in axillary racemes, appearing in may. It abounds, like the other, in a viſcid milky juice. Native of Guiana [b].

WIND FLOWER. See *Anemone.*

WINDMANNIA. See *Weinmannia.*

WINTERA. *(So named by Murray from Captain William Winter, who brought the bark of this tree from the ſtraits of Magellan in* 1579.*)*
Lin. gen. Schreb. n. 929. Drimys. *Forſt. gen.* 42. *nov. act. upſ.* 3. 181. *Juſſ.* 280.
Claſſ. 13. 4. Polyandria Tetragynia.
Nat. Order of *Magnoliæ* Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* one-leafed, entire, gaping, inferior.
COR. *Petals* ſix, ovate, ſpreading.
STAM. *Filaments* numerous, cylindric, thicker at the tip, ſhort. *Anthers* oval, twin, the cells cohering at the very tip only, and faſtened to the tip of the filaments.
PIST. *Germs* four, obovate. *Styles* none. *Stigmas* flattened.
PER. *Berries* four, obovate, ſubpedicelled, four-ſeeded.
SEEDS four, ovate, ſubtriquetrous.
OBS. Drimys granadenſis *has twelve petals, eight germs and berries, each two-ſeeded.*

ESSENTIAL CHARACTER.

Cal. three-lobed. *Pet.* ſix or twelve. *Germs* club-ſhaped. *Styles* none. *Berries* four or eight, obovate.

SPECIES.

1. Wintera aromatica.
Lin. ſyſt. ed. 14. 507. *Willd. ſpec.* 2. 1239. *Forſt. comm. goett.* 9. 34. *t.* 7.
Drymis Winteri. *Lin. ſuppl.* 269. *Forſt. gen. n.* 42. *act. upſ.* 3. 181. *Medic. obſ.* 5. 41. *t.* 1. *Miller faſc.*
Periclymenum rectum foliis laurinis, cortice aromatico, acri. *Sloane in Act. angl.* 1693. *n.* 204. *p.* 922. *t.* 1.
Peduncles axillary aggregate ſubtriflorous flowers four-piſtilled.

2. Wintera granadenſis.
Lin. ſyſt. ed. 14. 507. *Willd. ſpec.* 2. 1239.
Drymis granadenſis. *Lin. ſuppl.* 269.
Peduncles axillary three-flowered elongated, flowers eight-piſtilled.

3. Winteria axillaris.
Willd. ſpec. 2. 1239. *Forſt. prodr. n.* 229.
Drymis axillaris. *Lin. ſuppl.* 270. *Forſt. gen. n.* 42. *act. upſ.* 3. 182.
Peduncles axillary heaped one-flowered, flowers four-piſtilled.

DESCRIPTIONS, &c.

1. This is an evergreen tree, higher and larger than an Apple Tree, ſpreading very much both in root and branches. Leaves of a light green, an inch and half long, and an inch broad in the middle, decreaſing to both ends, but terminating bluntly: footſtalks half an inch in length. Flowers axillary, two, three or more together, on peduncles a quarter of an inch long, ſomewhat like thoſe of the Honeyſuckle, five-petalled, milk white, and ſmelling like Jaſmine. Berries two, three, or more, on the ſame common footſtalk, of a light green colour with ſome black ſpots, containing ſeveral black aromatic ſeeds, ſomewhat like the ſtones in grapes.

Captain Winter who went out with Sir Francis Drake, when he went round the world, at his return brought the bark of this tree with him from the ſtraits of Magellan. He had found it to be very helpful to his ſhip's crew, both inſtead of other ſpices with their meat, and as a medicine very powerful againſt the ſcurvy. Cluſius, from the Captain's name, called it *Cortex Winteranus*, and the tree *Magellanica aromatica arbor.* The writer of the journal of the Dutch ſhips that went to the ſtraits of Magellan about 1599, called it *Lauro ſimilis arbor, licet procerior, cortice Piperis modo acri et mordenti.* And Sebald de Weert, who was there, ſays, that both leaves and bark were uſed with their meat and muſcles, to correct them in ſo cold a climate. Caſpar Bauhin called it *Laurifolia Magellanica cortice acri:* and Jonſton, *Arbor laurifolia Magellanica.*

Mr. George Handyſide brought home with him a ſpecimen of the leaves and flowers, and of the ſeed, (whence the figure in the Philoſophical Tranſactions was drawn.) He uſed the leaves, with other herbs, in fomentations, with very good ſucceſs: he alſo gave the bark inwardly, boiling half a dram of it with ſome carminative ſeeds, and giving it to thoſe of his crew who were much afflicted with the ſcurvy. It uſually ſweated them, and they were very much relieved. He likewiſe adminiſtered the ſame medicine to many of the crew who were very ill by eating of the Sea Lion; and they were much relieved by it, although they had loſt moſt of their ſkin, which peeled off in large pieces [c].

John Bauhin ſeems to be the firſt who confounded this bark with that of *Canella alba.* Profeſſor Murray, in the fourteenth edition of Syſtema Vegetabilium, was the firſt who made a diſtinct genus of Canella, and thus corrected the miſtake of Linneus, who had combined the two genera, under the name of *Laurus Winterana*; though he afterwards made the *Canella* a ſeparate genus, under the name of *Winterania* [d].

Forſter named Winter's bark *Drimys*, from the greek δριμυς, on account of its acrid pungent taſte, and it ſtands under this name in the ſupplement of the younger Linneus. But Forſter (in Comm. Gott.) afterwards corrected himſelf, and called it Wintera; and this name has been adopted by Murray and Willdenow. See *Canella alba.*

2. Branches longer than in the preceding. Leaves oblong, beneath more glaucous ſo as to be almoſt white; they are alſo longer. Peduncles one, two or three, filiform, elongated, yet ſhorter than the leaves, trifid above the middle. Pedicels one-flowered. Calyx as in the preceding. Petals as in that, but twelve, more oblong, whence the flowers are larger; the inner petals are ſmaller than the outer ones. Stamens as in the preceding. Germs eight, ſeldom varying from that number. Berries as many as there are piſtils. Seeds about two, ſhining. The flavour of the bark the ſame as in the preceding, of which perhaps it is only a variety owing to the heat of the climate. Found in New Granada by Mutis.

3. The flavour of the whole plant, and eſpecially of the bark, is very acrid and pungent. It flowers in november, and is nearly allied to Michelia. Native of New Zealand [e]. Forſter remarks, that it is ſingular that the younger Linneus ſhould have aſſigned one piſtil only to the flower of this plant.

WINTER ACONITE. See *Helleborus.*
WINTERANIA. See *Canella.*
WINTER BERRY. See *Prinos.*
WINTER CHERRY. See *Phyſalis.*
WINTER CRESS. See *Eryſimum.*
WINTER GREEN. See *Pyrola.*

[b] Aublet.
[c] Philoſ. tranſ.
[d] Woodville, 2. 319.
[e] Linn. ſuppl.

WITCH HAZEL. See *Ulmus*.

WITHERINGIA. *(So named by Monf. L'Heritier, in honour of William Withering, M.D. F.R.S. &c. Author of an Arrangement of Britiſh Plants, &c.)*
Lin. gen. Schreb. n. 1725. *p.* 791. *L'Herit. ſert.* 33. *t.* 1. *Juſſ.* 450.
Claſſ. 4. 1. Tetrandria Monogynia.
Nat. Order of *Luridæ*. *Solaneæ* Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* one-leafed, very ſhort, indiſtinctly four-toothed, permanent.
COR. one-petalled: *tube* ſubglobular: *border* four-parted; *ſegments* lanceolate, acute, recurved. *Nectary* four ſubmarginate excavations in the tube of the corolla.
STAM. *Filaments* four, erect, roundiſh, faſtened below to the tube of the corolla, and villoſe. *Anthers* ovate, converging, opening at the ſides.
PIST. *Germ* ſuperior, ovate. *Style* filiform, a little longer than the ſtamens. *Stigma* headed.
PER. *Berry* two-celled.
SEEDS numerous, inſerted into a two-parted receptacle.

ESSENTIAL CHARACTER.

Cor. ſubcampanulate, with four bumps in the tube. *Cal.* very ſmall, indiſtinctly four-toothed. *Per.* two-celled.

SPECIES.

1. Witheringia ſolanacea.
Willd. ſpec. 1. 622. *L'Herit. ſert.* 1. 33. *t.* 1. *Ait. kew.* 1. 149.

DESCRIPTION, &c.

Stem herbaceous, ſcarcely a foot high, round, but cornered with the decurrent ſides of the petioles, of a dirty red colour, and ſomewhat villoſe. Leaves alternate, in pairs, ovate-oblong, acute, quite entire, ſomewhat hairy, a hand in length. Petioles ſcarcely an inch long, ſcored above with two channels, red. Umbels many-flowered, axillary, ſeſſile. Peduncles round, ſmooth, half an inch long. Corolla pale yellow: tube ſomewhat pitcher-ſhaped, bluntly four-cornered with four protuberances, a line and half in diameter; ſegments of the border trilinear. Filaments whitiſh, ſmooth without, hirſute within. Native of South America. Cultivated before 1742, by Robert James Lord Petre. It flowers moſt part of the year[f].

WITSENIA. *(Nicholas Witſen, author of* Deſcriptions of ſhells found in the Eaſt Indies; *and of* Obſervations in New Holland: *both in Philoſophical Tranſactions, vol.* 17 *and* 20.*)*
Lin. gen. Schreb. n. 83. *Thunb. nov. gen.* 33. *Juſſ.* 59.
Claſſ. 3. 1. Triandria Monogynia.
Nat. Order of *Enſatæ*. *Irides* Juſſ.

GENERIC CHARACTER.

CAL. none.
COR. one-petalled, tubular: *tube* cylindrical, widening gradually: *border* ſix-parted, from upright ſpreading; *ſegments* oblong, obtuſe.
STAM. *Filaments* three, inſerted into the tube above, ſhort. *Anthers* oblong, upright.
PIST. *Germ* ſuperior. *Style* filiform, upright but drooping at the tip, longer than the corolla. *Stigma* emarginate.
PER.
SEED.

ESSENTIAL CHARACTER.

Cor. one-petalled, cylindrical, ſix-parted. *Stigma* emarginate. *Caps.* ſuperior.

SPECIES.

1. Witſenia maura.
Lin. ſyſt. 83. *Willd.* 1. 247. *Thunb. prodr.* 7. *nov. gen.* 2. 34. *cum. ic.*
Antholyza Maura. *Lin. mant.* 175.

DESCRIPTION, &c.

Stem two feet high, ancipital, covered with ſheaths of leaves. Leaves enſiform, alternate, approximating, ſtriated, narrow, the upper ones longer than the ſtem, with imbricate ſheaths. Spike compoſed of alternate, imbricate ſpikelets. Spathelets looſe, ſcarioſe, ſubbiflorous, lanceolate. Corolla funnel-form, of the ſame figure with Gladioluſ Meriana, the tube or neck altogether black; the border ſix-parted, equal, yellow; the three other ſegments tomentoſe on the outſide. Stamens erect, white. Style with a ſingle very ſlightly trifid ſtigma. Native of the Cape of Good Hope, flowering in may[g].

Root tuberous. Stem ſomewhat woody, ſingle or branched, covered at top with flat leaves ſheathing at the edge, imbricate in a double fan-like row: gems terminating or axillary alſo, ſeſſile ſubbiflorous compreſſed, with ſeven or eight imbricate diſtich ſcales, the two inner ones longer bifid: each flower having a ſhort ſpathe concealed within the inmoſt gem[h].

WOAD. See *Iſatis*.

——— Wild. See *Reſeda*.

WOLF'S-BANE. See *Aconitum*.]

WOODS and groves are the greateſt ornaments to a country ſeat, and every ſeat is greatly defective without them; Wood and water being abſolutely neceſſary to render a place agreeable and pleaſant. Where there are Woods already grown to a large ſize, ſo ſituated as to be taken into the garden or park, or ſo nearly adjoining, as that an eaſy communication may be made from the garden to the Wood; they may be ſo contrived by cutting winding walks through them, as to render them the moſt delightful and pleaſant parts of a ſeat (eſpecially in the heat of ſummer), when thoſe walks afford a goodly ſhade from the ſcorching heat of the ſun.

Where perſons have the convenience of grown Woods near their habitation, ſo as that there may be an eaſy communication from one to the other; there will be little occaſion for wilderneſſes in the garden; ſince the natural Woods may be ſo contrived as to render them much pleaſanter than any new plantation can poſſibly arrive to within the compaſs of twenty years, where the trees make the greateſt progreſs in their growth; and in ſuch places where their growth is ſlow, there cannot be expected ſhade equal to the grown Woods, in double that number of years; but there is not only the pleaſure of enjoying a preſent ſhade from theſe Woods, but alſo a great expenſe ſaved in the planting of wilderneſſes; which, if they are large, and the trees to be purchaſed, will amount to no ſmall ſum. If the Wood is ſo ſituated as that the garden may be contrived between the houſe and that, then the walk into the Wood ſhould be made as near to the houſe as poſſible that there may not be too much open ſpace to walk through in order to get into the ſhade; if the Wood is of ſmall extent, then there will be a neceſſity for twiſting the walks pretty much, ſo as to make as much walking as the compaſs of ground will admit; but there ſhould be care taken not to bring the turns ſo near each other, as that the two walks may be expoſed to each other, for want of a ſufficient thickneſs of Wood between; but where the Wood is large, the twiſts of the walks ſhould not approach nearer to each other than fifty or ſixty feet; in very large Woods, they ſhould be at a greater diſtance; becauſe when the under Wood is cut down, which will be every tenth or twelfth year, according to its growth, then the walks will be quite open, until the under Wood grows up again, unleſs a border of ſhrubs, intermixed with ſome evergreens, is planted by the ſides of the walks, which is what I would recommend, as this will greatly add to the pleaſure of theſe walks.

Theſe Wood walks ſhould not be leſs than eight or nine feet broad in ſmall Woods; but in large ones fifteen feet will not be too much; and on each ſide of the walks the border of ſhrubs and evergreens may be nine or ten feet broad; which may be ſo managed, as to ſhut out the view from one part of the walk to the other, at thoſe times when the under Wood is cut down, at which times there will be an abſolute occaſion for ſuch plantations; and at all times they will afford great pleaſure, by adding to the variety, as alſo by their fragrant odour.

[f] Hort. kew.

[g] Lin. mant.

[h] Juſſieu.

The former method which was practiſed in cutting theſe walks through Woods, was to have them as ſtraight as poſſible, ſo that there was much trouble to make ſights through the Woods, for direction how to cut them; but where this was practiſed, every tree which ſtood in the line, good and bad, was cut down, and many times boggy or bad ground was taken into the walks; ſo that an expenſe of draining and levelling was neceſſary to render them proper for walking on; beſides this, there were many other inconveniencies attending theſe ſtraight cuts through Woods, as, firſt, by letting in a great draught of air, which in windy weather renders the walks unpleaſant; and theſe cuts will alſo appear at a great diſtance from the Woods, which will have a very bad effect; therefore the modern practice of twiſting the walks through Woods, is to be preferred. In the cutting theſe walks, there ſhould be particular care taken to lead them over the ſmoothest and ſoundeſt part of the ground, as alſo to avoid cutting down the good trees; ſo that whenever theſe ſtand in the way, it will be better to lead the walk on one ſide, than to have the tree ſtand in the middle; for although ſome perſons may contend for the beauty of ſuch trees which are left ſtanding in walks, yet it muſt be allowed, that unleſs the walk is made much broader in thoſe places than in the others, the trees will occaſion obſtructions to the walkers, eſpecially when two or three perſons are walking together, ſo that it will be much better to have the walks entirely clear from trees; and where any large-ſpreading trees ſtand near the walk, to cut away the ſmall Wood, ſo as to make an opening round the trees, where there may be ſome ſeats placed, for perſons to reſt under the ſhade. The turns made in theſe walks ſhould be as eaſy and natural as poſſible; nor ſhould there be too many of them, for that will render the walking through them diſagreeable; therefore the great ſkill in making theſe walks, is to make the turns ſo eaſy as not to appear like a work of art, and yet not to extend them ſtraight to ſo great length, as that perſons who may be walking at a great diſtance, may be expoſed to the ſight of each other; both theſe extremes ſhould be avoided as much as poſſible, ſince they are equally diſagreeable to perſons of true taſte. When a Wood is properly managed in this way, and a few places properly left like an open grove, where there are ſome large trees ſo ſituated as to form them, there can be no greater ornament to a fine ſeat than ſuch a Wood.

We ſhall now treat of the culture of Woods for profit to the poſſeſſor, and for the public benefit of the nation. The great deſtruction of the Woods and foreſts which has been of late years made in this country, ſhould alarm every perſon who wiſhes well to it; ſince there is nothing which ſeems more fatally to threaten a weakening, if not a diſſolution, of the ſtrength of this once famous and flouriſhing nation, than the notorious decay of its timber; and as this devaſtation has ſpread through every part of the country, ſo unleſs ſome expedient be ſeriouſly and ſpeedily reſolved on, to put a ſtop to this deſtruction of the timber, and alſo for the future increaſe of it, one of the moſt glorious bulwarks of this nation will, in a few years, be wanting to it.

And as there are ſmall hopes of this being remedied by thoſe intruſted with the care of the public Woods: therefore, unleſs private perſons can be prevailed on to improve their eſtates, by encouraging the growth of timber, it is greatly to be feared, that in an age there will be a want of it for the ſupply of the navy.

It has been often urged, by perſons whoſe judgment in other affairs might be depended on, that the great plantations, which for ſeveral years paſt, have been carried on in ſeveral parts of this kingdom, will be of public benefit, by the propagation of timber; but in this they are greatly miſtaken; for in moſt of the plantations which have been made for years paſt, there has been little regard had to the propagation of timber; preſent ſhade and ſhelter have been principally conſidered; and in order to obtain theſe ſoon, great numbers of trees have been taken out of Woods, hedge rows, &c. which, if they had remained in their firſt ſituation, might in time have afforded good timber; but by being tranſplanted large, are abſolutely rendered unfit for any uſe but fuel; ſo that the great quantity of plantations which have been made, I fear, will rather prejudice than be of uſe, to the improvement of timber; nor is there any other method of increaſing the uſeful timber of this country, than by ſowing the ſeeds in the places where they are to remain; or in ſuch ſituations, where there are plenty of Oaks in the neighbourhood, if the ground is properly fenced, to keep out cattle and vermin, the Acorns which drop from thoſe trees will ſoon produce plenty of young trees; which, if properly taken care of, will ſoon grow to Woods.

The two moſt ſubſtantial timbers of this country are the Oak and Cheſtnut, though the latter has been of late years almoſt entirely deſtroyed in England, ſo that there are ſcarce any remains of trees of ſize in the Woods at preſent. But as I have already treated largely of the method of propagating both theſe trees for profit, under their reſpective titles, I ſhall not repeat it here. Next to theſe the Elm is eſteemed as a profitable timber; but of theſe there are few cultivated in Woods, eſpecially in the ſouth part of England, where they chiefly grow in hedge rows, or plantations near houſes; but in the north-weſt part of England, there are numbers of very large trees of the Witch-Elm growing in parks, and ſome in Woods, as if that tree was a native of this country, which has been much doubted; though as this tree propagates itſelf by ſeeds, it may be deemed an indigenous plant in England.

The Beech is another tree common in the Woods, eſpecially upon the chalky hills of Buckinghamſhire, Kent, Suſſex, and Hampſhire, where there are ſome very large Woods, entirely of this ſort; ſome of which have been of long ſtanding, as appears by the age of the trees; but whether this tree is a native of this country, has been a point often diſputed.

The Aſh is a very profitable tree, and of quick growth; ſo that in leſs than an age, the trees will arrive to a large ſize from the ſeeds; therefore a perſon may hope to reap the profits of his labour, who ſows the ſeeds; but this is not a beautiful tree to ſtand near a habitation, being late in the ſpring in putting out its leaves, and the firſt that ſheds them in autumn; nor is it a friendly tree to whatever grows near it, the roots drawing away all the nouriſhment of the ground, whereby the trees or plants which grow near are deprived of it; ſo that where the Aſh-tree grows in hedge rows, the hedge rows in a few years are entirely deſtroyed; and if they are in paſture grounds, and the cows browze on them, the butter made with their milk will be bad; for which reaſon the Aſh ſhould be ſown ſeparate in lands which are incloſed, where cattle are not permitted to come, and at a diſtance from the habitation.

Upon ſandy or rocky ſoils the Scotch Pine will thrive exceedingly, and turn to great advantage to the planter, provided the plants are planted young, and treated in the manner directed in the article Pinus, to which the reader is deſired to turn, to avoid repetition. There are alſo ſeveral aquatic trees, which are very profitable to thoſe who have low marſhy lands, where the harder kinds of timber will not thrive; theſe are the Poplars of ſeveral ſorts, the Willow, Alder, &c. but as theſe, and all the other kinds of trees have been fully treated of, both as to their propagation and uſes, and alſo an account of the different ſoils in which each will thrive beſt, under their reſpective titles, the reader is referred to them for farther information; and I ſhall next treat of the general management of Woods, of whatever kinds of trees they are compoſed.

Where there are young Woods, great care muſt be taken of the fences; for if cattle ſhould get in among the trees, eſpecially while they are young, they will in a ſhort time do infinite damage to them, by browzing on the branches, or barking the trees; ſo that during the firſt twenty years of their growth, they ſhould be ſecured from them, and alſo from hares and rabbets, otherwiſe in ſevere froſt, or when the ground is covered with ſnow, whereby they are deprived of other food,

they get into the Woods, and eat off the bark from the young trees, and gnaw all the branches within their reach; ſo that in a few days, where there are plenty of theſe animals, there may be ſuch deſtruction made among the young trees, as cannot be retrieved, but by cutting them down to the ground, which will be a loſs of ſeveral years: therefore thoſe perſons who have the care of young Woods, ſhould be very diligent in froſty weather, in looking over the trees, and ſtopping the holes in the fences, to keep out all vermin.

Another care to be taken of young Woods, is the thinning the trees from time to time, as they increaſe in their growth; but in doing this, there muſt be great caution uſed; for it ſhould be gradually performed ſo as not to open the trees too much, to let in the cold air among them, which will greatly retard their growth; nor ſhould the trees be left ſo cloſe, as to draw each other up like May-poles, but rather obſerve a medium in this work, cutting down a few each year according as there may be neceſſity for it, being careful not to permit thoſe to ſtand, which may ſpoil the growth of the neighbouring trees, always obſerving to leave thoſe trees which are the moſt promiſing.

The young trees in theſe Woods ſhould not be lopped or pruned, for the more they are cut, the leſs they will increaſe in bulk; every branch which is cut off, will rob the tree of its nouriſhment, in proportion to the ſize of the branch; therefore the hatchet ſhould not be ſuffered to come into young Woods, unleſs in the hands of ſkilful perſons.

Where perſons have more regard to the future welfare of the timber than their immediate profit, the under Wood ſhould be grubbed up as the trees advance, that the roots may have the whole benefit of the ſoil, and their ſtems enjoy the free air; without which, their ſtems are generally covered with Moſs, and their growth greatly ſtinted; as may be obſerved in all ſuch Woods, where there is any quantity of underwood remaining; in which places it is rarely found, that the trees do ever grow to a large ſize; therefore where large timber is deſired, the trees muſt have room to extend their roots and branches, without which it cannot be expected; but from a covetous temper, many people let their underwood remain as long as it will live; for as the timber increaſes, the underwood will be gradually decaying, by the ſhade and drip of the large trees; ſo that by this method the timber ſuffers more in a few years, than the value of the underwood; therefore by endeavouring to have both, neither of them can be ſo good, as where they are ſeparately preſerved.

If perſons who have eſtates would be careful to nurſe up trees in their hedge rows, it would in time become a fortune to their ſucceſſors, as hereby the timber growing in the hedges may be worth more than the freehold of the eſtate, which has often been the caſe with eſtates from which their poſſeſſors have cut down timber for fortunes for their younger children; the frequency of this ſhould encourage perſons to be a little more attentive to the growth and preſervation of young Woods, ſince the expence and trouble is not great, and the future profit very certain; beſides, the pleaſure of ſeeing trees of a man's own ſowing make yearly advances, muſt be very great to thoſe who have any reliſh for country amuſements.

There are ſeveral perſons who plant copſes for cutting every ten or twelve years, according to their growth. Theſe are uſually planted in autumn, either with ſtools or young plants, which are drawn out of the Woods; the latter ſhould always be preferred to the former. Theſe copſes are commonly planted with ſeveral ſorts of trees, as Oak, Beech, Cheſtnut, Aſh, Birch, Willow, &c. but the Aſh and Cheſtnut are the moſt profitable, where they grow kindly, becauſe the poles are very valuable; theſe alſo are good for hoops, ſo that there is no danger of having ſale for theſe copſe Woods when they are fit for cutting; but where the copſes are intended to remain, there ſhould be no ſtandard-trees left for timber; becauſe as the heads of the trees ſpread, and overtop the under Wood, it will cauſe that to decay; and where the ſtandards are left upon the ſtumps of the copſe Wood, they will never grow to a large ſize, nor will the timber be ſo valuable as that produced immediately from a young root; and whoever will make the experiment, will be convinced, that it is more for the advantage of both to keep them in diſtinct Woods.

But where perſons plant copſes upon land free from trees, it will be the better method to ſow the ſeeds, eſpecially if Cheſtnut, Oak or Beech, are the trees intended; for although it is a prevailing opinion with the generality of perſons, that by planting they ſave time, yet I am ſure of the contrary; for if the ſeedling plants are kept clear from weeds, they will in eight or ten years out-grow thoſe which are planted, and theſe unmoved copſes will continue much longer in vigour than the other; ſo that for either timber or copſe Wood, the beſt method is to prepare the ground well, and ſecure the fences, and ſow the ſeeds, which is ſo far from loſing, that in twenty years it will be found to gain time, which is what every planter wiſhes to do.

The uſual time of felling timber is from november to february, at which time the ſap in the trees is hardened; for when the ſap is flowing in the trees, if they are cut down, the worm will take the timber, and cauſe it to decay very ſoon; therefore if the durableneſs of the timber is conſidered, the trees ſhould always be cut in the winter months; but as the bark of the Oak is ſo valuable for tanning leather, there has been a law paſſed, to oblige perſons to cut theſe trees during the ſpring ſeaſon, when the bark will readily peel off; by which the timber is rendered unfit for building either ſhips or houſes, as it will be very ſubject to caſt, rift, or twiſt, and the worm will ſoon take it; therefore it would be more for the public benefit, if a law were enacted to oblige every perſon to ſtrip off the bark of ſuch trees as are deſigned to be cut down in the ſpring, leaving the trees with their branches ſtanding till the following winter, which will be found to anſwer both purpoſes well.

[*Directions for planting Woods by Mr. Boutcher.*

Where the ſoil is looſe and ſandy, the trees muſt be planted in holes: all other ſoils muſt be fallowed and pulverized by frequent plowings and harrowings; grounds of a middling quality after graſs, will require a ſummer and winter's labour at leaſt, an obſtinate clay not leſs than two. The common nurſe for the better kinds of foreſt trees in expoſed ſituations is the Scotch Fir: the different kinds of Poplars, and the great Maple or Sycomore, are very fit for this purpoſe, as they are of quicker growth than Firs, and may be planted of large ſizes on the pooreſt lands with ſafety. The beſt ſeaſon for planting light grounds, is as ſoon as poſſible after the beginning of october; for the moiſt and heavy, february and march.

Let every quarter of your Wood be bounded by a row of Poplars at two or two and a half feet aſunder; in the heavieſt and wetteſt places, let them be of the Lombardy ſort; in thinner and lighter, of the white. Theſe ſhould be either rooted, or cuttings four or five feet high. If the whole ground is to be planted, without being divided by ridings or walks, having firſt gone round it, let lines of Poplars running from ſouth to north be planted at one hundred, or in very expoſed ſituations at eighty feet aſunder.

In order moſt effectually to promote the growth of the more valuable trees, every ſecond line may be of Sycomores; not next the Poplars, but among the trees intended for a longer continuance.

The diſtance of the trees in the Wood, at a medium, ought to be five feet every way; for plants may be too much crowded or drawn, as well as too much expoſed.

Having planted half your intended Wood with Sycomores, in rows ten feet aſunder and five in the row; proceed to plant, in the moſt generous deep but dry ſoils the Walnut, with Engliſh, Scotch and Cornith Elms; in the moiſt and heavy, the Dutch Elm; in coarſe and ſtony the Cheſtnut and Aſh; in light and ſandy the Larch and Beech; and in clays of all qualities, though ſwampy and muſſy, the Oak. If a little orna-

ment and variety is wiſhed, a ſmall mixture of the hardy American trees may be added.

Where the ground is various, and the trees thus adapted to the different ſoils; the groups of different trees in the ſeveral quarters will appear far more chearful and picturesque than one uniform Wood of the ſame kind.

In mountainous rocky ſituations Firs are the greateſt improvement, planted not above three years old, when after two years growth Oaks and other trees may be interſperſed wherever the land will receive them.

Some adviſe that the beſt manner of raiſing Woods is by ſowing the ſeeds on the ſpot. But of this I cannot approve, becauſe, firſt, it is a very tedious practice, allowing it to ſucceed, which on many occaſions it will not. 2. Becauſe the ground muſt be as well prepared and kept as clear of weeds as in the nurſery; the land as regularly dug about the plants, and in all reſpects as well cultivated as theſe. 3. It is a ſmall proportion of the ſeeds ſown that can remain in the Wood to make trees, and theſe are generally much injured from the others ſtanding cloſe together about them. 4. The expenſe is much greater in the end, than at once making a handſome finiſhed plantation. I am therefore againſt raiſing a Wood after this manner, except with the Walnut, Cheſtnut, evergreen Oak, and a few of the other nut-bearing trees, that do not eaſily remove, or grow freely after it.

Others argue for planting ſeedlings two years old, as the moſt hardy, and likely to ſucceed in cold barren ſoils; but ſuch having a downright tap-root, with few ſmall roots, or fibres, being young and tender from a warm ſeed-bed, and immediately expoſed to a bleak ſituation and a cold ſoil, cannot be likely to thrive ſo well as plants that have been inured gradually to the inclemency of the ſeaſons, and coarſer fare. Having then planted your nurſing trees, and rejected both the ſowing of ſeeds and planting of ſeedlings, let your plants be four or five years old: ſuch will be able to get the better of all weeds, except the large-growing ſorts. When theſe plants have ſtood four years, take away every ſecond Sycomore, and in two years more, the remainder, with every ſecond tree of the other kinds, which will leave the whole plantation at ten feet aſunder. The trees which are taken away may be planted on the farms in hedge-rows, &c.

In eighteen or twenty years three-fourths more of the remaining trees, and all the Poplars muſt be taken away, which reduces them to twenty feet aſunder.

It has been an almoſt univerſally received opinion that trees ought to be raiſed in the nurſery on a poorer ſoil than that to which they are afterwards to be tranſplanted. On the contrary it is neceſſary to promote their vigorous growth at firſt, in order to their becoming ſtately and handſome; nor can this be effected by any other means than being early nurſed in a generous ſoil; for if they are barely ſupported in meagre ground, they will never after become ſtrong, when removed to that which is rich. From their harſh and unfriendly food they get bad roots, are hide-bound, and have weak crooked branches. But though trees ſhould be raiſed on good land, yet it muſt be ſuch as is naturally ſo, not what has been forced and pampered with dung.

Dr. Hunter, of York, has made the following obſervations on raiſing Woods from ſeed.

In Scotland and ſome of our northern counties, the practice of raiſing Woods in waſte lands, by ſowing acorns, cheſtnuts, beechmaſt, fir-ſeeds, aſh-keys, &c. is much recommended. The expenſe attending it is trifling, when compared with that of planting. Charles Turner, Eſq. of Kirkleatham, in the county of York, has within theſe few years ſown upwards of four hundred acres of waſte and moor land, with the various ſeeds of foreſt trees. In the neighbourhood of coal and lead mines, and iron forges, ſuch Woods will become highly profitable at an early period. Mr. Turner's eſtate at Kildale may ſerve as an example to ſuch gentlemen as wiſh to bring their weak, rocky and moor lands into the moſt profitable cultivation. Here the turf was taken up with a paring ſpade, the earth was ſtirred, the ſeeds were put in and covered. In ſome places ſeedling Firs, Larches, and Oaks were ſet inſtead of ſeeds. Such work ſhould be performed early in the ſpring; and in lands that ſwell after froſts, the turf ſhould be removed and the ſoil ſtirred the autumn before. Moor earth, being very looſe, ſhould be well ſtirred, the plants put in very early, and care taken to preſs the earth well to their roots.

When a large tract of land is deſigned for Wood, eſpecially if it be of an indifferent quality, it may be thus managed; plough it in october or november, and in the following ſpring plough and harrow ſo as effectually to deſtroy the turf. Sow it with turnip-ſeed about the third week in june; hoe the crop well, and if poſſible let it be fed off with ſheep. If another crop of turneps be taken the ſucceeding year, the land will be in excellent condition for receiving the ſeeds of Foreſt-trees. Some ſow them with oats, and others take a crop of ſpring rie with acorns. Certain it is that trees raiſed thus from ſeed will make better timber, and come ſooner to maturity, than when they are drawn from a nurſery.

As much depends on keeping the ſeedling plants clean, drill ſowing is much preferable to broad-caſt, becauſe they may thus be horſe-hoed at a ſmall expenſe.

Such as plant on a great ſcale, will find much inſtruction in the account of the plantations made on the Duke of Portland's eſtates in Nottingham Foreſt, by Mr. Speechly, his grace's gardener.

The ground is a continuation of hills and dales; the ſoil chiefly gravel on the former, and ſand in the latter. The Woods are planted on the hills.

When the part intended to be planted is fixed upon, ſome well-ſituated valley is choſen as near the centre as may be, for a nurſery. Here a piece of ground of a proper ſize is fenced ſo as to keep out all noxious animals, a carriage road is left through the middle, with boarded gates at each end. The reſt of the ground is trenched about twenty inches deep, which may be done for three pounds ten ſhillings or four pounds an acre: this work is beſt done in ſpring, when the planting ſeaſon is over. If after trenching, two or three chaldrons of lime be laid on an acre, the land will produce a crop of cabbages or turneps, which being eaten off by ſheep, will make the land in fine order, and it will require nothing more than a common digging.

If an Oak Wood is intended to be raiſed, draw drills a foot from each other, after every fifth row leaving a ſpace of two feet for the alleys. In theſe ſow the acorns ſo thick as nearly to touch each other. When the tops of the rows meet, take away one row on each ſide the middlemoſt, which leaves the remaining three rows the ſame diſtance apart as the breadth of the alleys. In taking them up do not injure the roots. When the tops meet again, take up every other row, leaving the reſt four feet aſunder, till they arrive to the height of about five feet, which is as large as they ſhould ever be planted. In taking up theſe, dig a trench at the end of each row full two feet deep; then undermine the plants and let them fall into the trench with their roots entire, much of their future ſucceſs depending on their being well taken up.

Go over the nurſeries every winter to ſhorten the ſtrong ſide ſhoots, and to take off one of all ſuch as have double heads.

The ground intended for Woods ſhould be fenced at leaſt a year before it is wanted; and got into order for a crop of turneps; two chaldrons of lime ſhould be laid on an acre, which will bind the land and make it fall heavy, if it is ſo light as to be liable to be blown from the roots of the young trees. Part of the turneps ſhould be eaten off early in the autumn, forward planting generally ſucceeding the beſt.

This being done, plough the ground with a double-furrow trenching plough to the depth of twelve or thirteen inches; which will be of great ſervice to the plants, and ſave much trouble in making the holes.

The planting ſeaſon being arrived, as ſoon as the plants are taken up, dig a trench at leaſt fifteen inches deep, and ſet the young trees in it with their tops aſlant, covering

covering their roots as you go along, and almoſt half way up the ſtem, with the earth that comes out of a ſecond trench, whith fill in like manner, and ſo on, till you have about a load in a heap. In light ſoil this trouble is but little, and the plants are always ſecure from the roots drying or freezing. A low-wheeled waggon will carry them from the heaps to the pruners, who ſhould have a portable ſhed to work under; which is alſo convenient to ſhelter the other men in ſtormy weather. Cut off all the branches cloſe to the ſtem to about half the height of the plant, ſhortening the reſt of the top to a conical form in proportion to the ſize of the plant: in pruning the roots only cut off the extreme parts that have been bruiſed by taking up, or ſuch as have been damaged by accident; planting with as much root as can be had.

As ſoon as they are pruned, let them be taken to the planters by the carriers, who are generally a ſet of boys, with ſome of the worſt of the labourers. The planters go in pairs, one making the holes, the other ſetting and treading the plants faſt, which work they commonly do by turns. In making the holes throw out all the bad ſoil that comes from the bottom; if the planting be on the ſide of a hill, throw this on the lower ſide of the hole, ſo as to form a kind of baſin, in order to ſtop the rains. Make the holes ſufficiently large, throw a few ſpadefuls of the top ſoil into the hole, ſetting the plant with its top rather inclining to the weſt; then fill up the hole with the beſt top ſoil, taking care that it cloſes well with the roots. When the hole is well filled up, let one of the planters tread and faſten the tree firmly with his foot, while his partner proceeds to make the next hole. This faſtening is much to be attended to, for if the tree once becomes looſe, the motion occaſioned by the wind will deſtroy the fibres as faſt as they are produced: and it is to guard againſt this, that ſo much of the top is taken off.

Three or four hundred Birches of a large ſize may be planted on an acre, with nearly the ſame number of the firſt ſized Oaks; and here and there a Beech, Larch, Spaniſh Cheſtnut, &c. beſides patches of Hollies, Laurels, Yews, Junipers, &c. on the outſides of the Woods, intermixed with Tulip-trees and other rare trees, and Cedars of Lebanon at good diſtances: and within, other patches of Beech, Larch and Spaniſh Cheſtnut; altogether producing a good effect on unequal ground by a diverſity of tints and ſhades. After this a quantity of ſmaller ſized Oaks may be planted; and laſtly a conſiderable number of ſmall Birches; which may be removed to ſucceeding plantations after five or ſix years. Thus upwards of two thouſand plants of different kinds of trees are ſet upon an acre of land in an irregular manner.

After the whole planting is finiſhed, ſow acorns all over the plantation, except in the patches, in ſhort drills of about a foot in length; theſe probably at laſt will make the beſt trees.

The planting ſhould, if poſſible, be finiſhed by the end of february.

Towards the end of april, when the ground is moiſt, go over the whole, and faſten all ſuch trees as are become looſe. In june cut off all tall-growing weeds with the hoe; but in very light lands, the ſooner the ground is covered with graſs the better. On ſome lands it is certainly better to plant in rows, and to keep the ground clean hoed; but in light ſands, the ſoil by this method will frequently be carried by the winds into the vallies, and the plant will be apt to miſcarry in a dry ſeaſon. Nay it is no bad way on ſuch lands to ſow furze, as ſoon as the planting is done[1].

Cut down the tall-growing weeds two or three times the firſt ſummer, and once the next. The winter after planting, fill up the places with freſh plants where they have miſcarried: after which there is little to be done till the fourth or fifth year; by which time the ſmall-ſized Birch, and ſeedling Oaks will be grown to a proper ſize for tranſplanting: too many muſt not be taken away in one ſeaſon, but by proper management there will be a ſupply of plants for at leaſt half a dozen years to come.

[1] This is recommended by Evelyn, chap. 2.

About the time that the ſmaller Birches want thinning, the large ones will require to have their lower branches taken off, to keep them from injuring the Oaks: and this is the firſt profit of the plantations, the Birch-twigs being readily bought up by the broom-makers. Continue this pruning till the Birches are grown large enough for fencing rails, then cut them down.

By this time the Oaks will be grown to the height of twelve or fourteen feet, and will draw up very faſt. They muſt then be thinned from time to time, and their dead branches cut off: but the thinning muſt be done with caution, and they may be left very cloſe for the firſt fifty years. In twenty-eight years the Oaks will be twenty-five or twenty-ſix feet in height, and in girth eighteen inches: in fifty years they will be ſixty feet in height and upwards, and above three feet in girt: from their cloſeneſs, theſe trees will be fifty feet in the bole.

The Earl of Fife's plantations were begun about the year 1757. They conſiſt of about ſeven thouſand acres of bleak and barren moor in the counties of Aberdeen, Bamff, and Moray. He began firſt with incloſing his park at Duffhouſe in the county of Bamff, where there was not a tree, and it was generally believed that no Wood could thrive ſo near the ſea coaſt: he has however now every kind of foreſt trees in it, from thirty years old, in a moſt thriving ſtate.

In planting his barren moors, where there are ſtones, he incloſes with a ſtone wall five feet high, coped with two turfs, which coſts about fifteen ſhillings every ſcotch chain of twenty-four ells; and where there are no ſtones, he incloſes with a fence of turf, five feet high, four feet wide at the foundation, and twenty two inches at top, at four ſhillings the ſcotch chain. He finds theſe to anſwer as well as the ſtone, there being many of them above twenty years old, as good as at firſt.

He plants in every acre about one thouſand two hundred trees. He uſed to plant above three thouſand, but by experience he finds it better not to plant ſo thick, making them up, if neceſſary, the third year. The greateſt number of the trees are Scotch Firs, raiſed by himſelf, or purchaſed at tenpence the thouſand, planted from the ſeed-bed at three years old. He only conſiders theſe as nurſes to his other trees, and regularly cuts them out, when they have done their duty, and are profitable for firing, or uſeful in agriculture. He plants every other ſpecies of foreſt trees intermixed with the firs.

He orders different pieces of the moor to be trenched where the ſoil is beſt; and moſt ſheltered, a little lime and dung to be laid on, and ſeeds of trees to be ſown there for a nurſery. He alſo plants in beds, year-old trees of different kinds, taken from his other nurſeries; and after they have been there three years, diſperſes them all over his plantations: this he finds very beneficial, as they are raiſed in the ſame ſoil.

When he is filling up the plantation, the Firs are then, for the firſt time, cut down; or they are tranſplanted, being raiſed with balls of earth, when the moor is wet with rain, which is very eaſily done, and they are carried to incloſures of ten or twelve acres, where from a deſire of forward woods, he plants trees more advanced. —They are planted in pits about forty feet diſtance, ſeldom or ever fail, and anſwer a ſecond time as nurſes.

A ſmall allowance to a few labourers ſerves to guard the incloſures againſt injury from cattle; and if the fences are properly executed, they require very little repair.

The moſt regular attention muſt be had to weeding the plantation, the value and proſperity of the Wood depending upon this being done at all ages, in the moſt exact manner. In order to facilitate this, roads are made through all the plantations, according to the ſituation, but never in a ſtraight line, ſo as to draw violent winds: theſe roads make agreeable rides through fine Woods, formerly a bleak moor, and anſwer both for filling up vacant ſpaces, and carrying away the weeds.

He begins to plant in october, and continues till april: if the weather is froſty and not fit for planting, all the people are employed in weeding.

Weedings of Aſh, Oak, Elm, and Beech, from twenty to thirty years growth, are worth there

from ſeven ſhillings to ten ſhillings a tree. The number of trees to be left, ſhould entirely depend on their not touching each other, ſo as to bruiſe the branches.

With proper management the weedings may not only pay the expenſe for thirty years, but more than any yearly rent; and the timber then ſtanding, will be of great value, increaſing every year, and ſo much gained: but all this depends on judgment in weeding, and not over pruning, ſo as not to have too many trees ſtanding with amputated limbs.

Every kind of tree thrives in the moors, when ſheltered by Scotch Firs: where there are hollow or loamy ſandy places, Oak, Beech, Aſh, Elm and Larch mixed may be planted, without the Firs being ſo thick as on harder ground. The Firs afford both ſhelter and moiſture, advancing the other trees greatly, only they muſt not be allowed to overtop them, ſo as to keep them from air: they are alſo the beſt nurſes, becauſe where they are pruned they never put out another branch; and when cut down, the roots die, and do not rob the ground by any farther growth.

A mixture of trees is beſt in any ſoil, and when any fail, they can be filled up with trees that are found to thrive beſt. The Larch and Silver Fir, planted about three years old, thrive better than any tree, and grow to a great ſize. Where ground is unequal, the hills may be covered with Larch, the hollows with Silver Firs, and the flat with different mixed trees.

Plantations ſhould be thinned, whenever the branches touch. The principal object is early weeding (thinning). Many perſons, inſtead of this, prune their trees; but this I think ruinous, as the vigor of trees depends on the limbs.

In plantations about twenty years old, it may be neceſſary ſometimes to grub the roots of trees that are too near; but if they are regularly thinned, this will not be often required, as the large trees, with vigorous branches, will keep the underwood down.

Planting all kinds of trees, that are intended to ſtand, is better than ſowing them: for trees from ſeeds ſown never grow ſo well as when they are properly mixed, and planted in ſoils which they thrive beſt in.

When ground is better than in the moors, and the extent not ſo great, it ſhould firſt be ploughed, and then a kind of fallow given it with the break-harrow, to deſtroy the couch, and make it as clean as poſſible. A little lime is of great ſervice. When the ground is in good order, plant it with ſuch trees as you chooſe from four to ſix feet high, at eight or ten feet diſtance. The whole muſt be hoed three or four times a year, during ſix or ſeven years. In that time, ſuch trees as can be ſpared may be removed to other plantations, where they are ſheltered; and in about ſeven years the plantations will ſhade the ground, and prevent the couch from doing any injury. You will then have only to tranſplant or cut where the trees are ſo thick as to interfere.

Trees planted among furze or broom receive no injury from them, but, if they thrive, ſoon get the better of them, particularly Firs. Wet places ſhould always have drains to carry off the water; for although moiſt ground may be good for ſome trees, yet ſtagnated water always injures; and the couch, ruſhes, &c. where water is not conveyed away, are deſtructive.

Nothing is more dangerous than improper pruning of trees that are intended to ſtand for timber. No Fir-tree ſhould ever be pruned, unleſs to cut off the branches near the ground: all other trees ſhould be pruned with a friendly hand; and only the branches taken away that rival the growth of the trunk; in general, theſe branches are near the ground.

Autumn is to be preferred to the ſpring for ſowing, but ſo as that the froſts may be over before the plants appear above ground. The earth is the beſt preſerver of ſeeds; every ſeed which has a bark, is beſt preſerved in that: others may be kept in bags or boxes, always taking care not to exclude them too much from air.

Cattle ſhould not be permitted to paſture in plantations, ſo long as the branches of the timber trees are within reach, or any advantage is to be got from the underwood[k].

[k] Yeang's Annals, 9. 107. and 10. 529.

Mr. Marſhall is copious upon the article Woodlands[l]. For the purpoſe of raiſing timber for ſhipbuilding, where crookedneſs is required, he recommends open Woods. He might have added that hedge-row timber will alſo anſwer that purpoſe: and though crooked timber is wanted for knees, yet much clean ſtraight ſtuff is required for beams, plank, &c. Where ſtraightneſs and length of ſtem, and cleanneſs of grain are wanting, cloſe Woods or Groves are more eligible; and where ſtub-wood is the principal object, coppices unincumbered with trees, are moſt adviſeable.

Mr. Marſhall reconciles the diſpute about ſowing or planting, in order to raiſe Woods in the following manner. Where the ſtrength of the land lies in the ſubſtratum, whilſt the ſurface ſoil is ungenial, by all means ſow, that the roots may ſtrike deep: but on the contrary, when the top ſoil is good, and the bottom of an oppoſite quality, plant, or elſe ſow and tap the young plants as they ſtand, to check their downward tendency, and ſtrengthen their horizontal roots. How far this theory may anſwer in practice I know not, but I muſt own that I have a predilection for ſowing, or ſetting the acorn itſelf, in order to raiſe good large timber for ſhipbuilding and other great purpoſes. In foreſts, the buſhes and fern may be made uſe of ſucceſsfully for rearing trees from the falling acorns and maſt; or nature may be aſſiſted by inſerting acorns among the buſhes in proper places.

As to the comparative expenſe of ſowing and planting, Mr. Marſhall obſerves that two things are to be conſidered: the actual expenſe of labour and other contingent matters, and the loſs of time in the land occupied. With reſpect to the former, ſowing is beyond compariſon the cheapeſt method; but in regard to the latter, planting may ſeem to have a preference; for the ſeed-bed is ſmall compared with the ground to be planted, and whilſt that is rearing the ſeedling plants, this continues to be applied to the purpoſes of huſbandry. However if we conſider the check which plants in general receive in tranſplantation, and if the void ſpaces of an infant Wood may, for ſeveral years after ſowing, be ſtill cultivated to advantage, the preference is evidently on the ſide of ſowing.

As to the arrangement of the wood plants, againſt ſteep hangs, where the plough cannot conveniently be uſed, the ſeeds may be ſown at random, or if plants be put in, the quincunx manner will be preferable to any: but in more level ſituations the drill method is the moſt eligible, for the ſake of keeping the infant Wood clean at the leaſt expenſe.

Where a conſiderable tract is intended to be converted into Woodland, the whole quantity of land ſhould be aſcertained, and divided into annual ſowings, to be regulated by the uſes to which the underwood is to be put, in order to produce a regular ſucceſſion of annual falls. Theſe muſt be fenced, not only againſt cattle and ſheep, but hares and rabbets. The ſort of fence muſt be determined by the materials which the country affords.

If the ſoil be ſtiff, it ſhould receive a whole year's fallow, as for wheat; if light, a crop of turneps may be taken: at all events, it muſt be made perfectly clean, particularly from perennial root-weeds, before the tree-ſeeds are ſown. If the ſituation be moiſt, the ſoil ſhould be gathered into wide lands, not high, but ſufficiently round to prevent ſurface water from lodging upon them.

October and november are the fitteſt months for the autumnal, and march for the ſpring ſowing: but attention ſhould be paid to the ſeaſon, and the ſtate of the ſoil.

The land being in fine order, and the ſeaſon favourable, the whole ſurface ſhould be ſown with corn or pulſe adapted to the ſeaſon; as wheat or rie in autumn, beans or oats in ſpring. The quantity of ſeed ſhould be leſs than what is commonly ſown for a crop, in order to give a free admiſſion of air.

The tree-ſeeds muſt then immediately be ſown in lines or drills acroſs the lands: acorns and nuts ſhould be dibbled in, whilſt keys and berries ſhould be ſcattered in drills, as garden peas are uſually ſown.

[l] Planting, vol. 1. 120. ed. 2. 1796.

The diſtance between the rows may be a quarter of a ſtatute rod, that is four feet one inch and half. Stakes being driven at the ends of theſe, a line is ſtretched to dibble or draw the drills by. If the plot be extenſive, glades for the purpoſe of roads, ſhould be left at convenient diſtances.

The ſpecies of underwood muſt be determined by the conſumption or demand. The moſt proper tree for theſe open Woods is the Oak. The uſual ſpace allowed to timber trees among underwood is thirty feet; two rods or thirty-three feet will not be found too great a diſtance.

The Oak and Hazel riſing the firſt year will be viſible at harveſt; but Aſh keys lying two and ſometimes three years, their drills muſt have ſome mark to diſtinguiſh them, to prevent their being diſturbed in ploughing the intervals. If beans be the crop, a few oats may be ſcattered among the keys for this purpoſe, or the contrary.

The crop ſhould be reaped, not mown, and carried off with all convenient care.

The ſecond year's crop may be potatoes, cabbages or turneps, according to the ſoil. Or, if the firſt was corn, this may be beans, and the contrary.

The tree-drills muſt be kept perfectly clean by weeding and hand-hoeing.

In the ſpring of the third year, look over the drills of Oak and Hazel, and fill up vacancies from the parts where plants are ſuperfluous: deferring thoſe of the Aſh to the fourth year.

If ſeedlings be wanting for laying into hedges, and filling up corners, or if they ſhould be ſaleable in the country, the ſuperfluous ones may be drawn out in the ſpring of the third and fourth year, and tranſplanted into ſome vacant ground.

The firſt cutting ſhould be timed by the plants themſelves. Whenever the rows of Oaks intended for timber, are in danger of being drawn up too much, the whole muſt be cut down to within a hand-breadth of the ground, except the Oaks intended for ſtands, which ſhould now be ſet out at their proper diſtances, as near in a quincunx order as the beſt plants will allow.

The young ſtands will require to be more or leſs pruned: the lower ſide ſhoots muſt be taken off, and their heads reduced, ſo as to prevent them from being top-heavy. But if the firſt fall is made in due time, their heads will want little pruning. In tranſplanting, the roots have freſh fibres to make; but here they are fully prepared to ſend up the neceſſary ſupplies, and the more top there is to promote the aſcent, the quicker progreſs the plants will be enabled to make.

The firſt fall therefore muſt by no means be deferred until the plants be drawn up too ſlender to bear a well-ſized top; for they will then be apt to ſtoop under the weight of their own leaves, and to be bowed to the ground by a ſhower of ſnow.

The ſecond fall ſhould be timed according to the ware which the country calls for: only the timber trees muſt not be injured by being crowded by the underwood: rather than this ſhould be the caſe, the coppice wood muſt be felled, even though it ſhould not have reached its moſt profitable ſtate.

After the ſecond and every ſucceeding fall of underwood, the timber ſtands ſhould be gone over, their leaders kept ſingle, and their heads ſet up, until the ſtems have reached the height of fifteen or twenty feet; when their heads ſhould be permitted to ſpread, and take their own natural form.

In raiſing a Wood againſt a hang too ſteep to be cultivated with the common plough, after the wood-ſeeds are ſown; but which may be fallowed and brought into proper tilth by the turn-wreſt plough: the planter has his choice, to ſow, to put in ſeedlings, or tranſplanted trees. In the firſt, the expenſe of cleaning by hand will fall heavy; and in the laſt, the labour of the nurſery will not be leſs burdenſome. The middle path therefore is moſt adviſeable.

The ſeedling plants may remain until the third year in the ſeed-bed; by which time they will have acquired ſufficient ſtrength to ſtruggle with the lower order of weeds. They may be ſet irregularly or in drills: and acorns may be dibbled in among them to inſure ſucceſs.

If the hang is ſo very ſteep or ſo ſtrong, that even the turn-wreſt plough cannot be uſed, ſeedling plants, and acorns or other tree-ſeeds may be put in, without any previous preparation, except that of clearing away buſhes, and burning off the weeds and rough graſs. In this caſe, the number of plants, and the quantity of acorns, ſhould be greater than when the ground has been prepared by a fallow.

In the ſouthern counties, Mr. Marſhall ſays, he has ſeen the Oak riſe fortuitouſly, or with little aſſiſtance of the woodman, to timber of the firſt quality. In the midland counties, he has examined Oak Woods of different ages, which were propagated by ſowing acorns with arable crops, or by ſetting them in the turf of graſs land, and leaving the young plants to nature; and this with good ſucceſs. In the Highlands of Scotland, he has obſerved mountainous diſtricts covered with planted trees of various ages and ſpecies; and this too with a ſucceſs, which, ſeeing the inaccurate manner in which they are frequently put in, and the neglect they afterwards experience, is almoſt incredible. Nevertheleſs he ſtill remains an advocate for the practice of treating young Woods as nurſery grounds; becauſe by keeping the ſoil in a ſtate of tilth, and free from weeds, much time is gained in their early growth, and a ſtrong vigorous habit is given to the youthful plants; and becauſe a favourable opportunity is thus obtained for removing ſupernumerary plants for ſale, or for other plots of planting, or for filling up vacancies in parts too thinly ſtocked.

In planting Woods without underwood, which Mr. Marſhall calls Timber Groves, not only the Oak, but any other trees adapted to the ſoil may be introduced, as the Cheſtnut, the Walnut, the Aſh, the Elm, the Beech, the Cherry, the Larch; and of aquatics, the Poplars, the Willow and the Alder.

The Elm, Cheſtnut, Walnut and Cherry require a good ſoil and mild ſituation; the aquatics of courſe will be confined to moiſt low grounds; the Beech and Larch will thrive in bleak barren places; whilſt the Oak and Aſh can accommodate themſelves to almoſt any ſoil or ſituation; though they ſeldom riſe to profit on bleak and barren ſites.

The Scotch Fir is properly a mountain tree, and ought only to be planted on bleak and barren heights, and even there the Larch is found to outbrave it. In better ſoils and milder ſituations, the wood is worth little, and it is unfit to be aſſociated with other timber trees: it ſhould therefore only be introduced in ornamental ſcenery, or as a nurſe for more valuable timber.

Mr. Lambert, in his elaborate and ſplendid work on the genus Pinus, ſays, it is ſurprizing that this ſpecies is not more cultivated in waſte grounds, as the few planted on Bagſhot and Hounſlow heaths, &c. ſucceed ſo well. Mr. Davis, in the ſame book, affirms that the Scotch Fir raiſed in England is equal to the foreign in weight and durability, but is ſeldom ſo fine in the grain, and has a greater quantity of ſap owing to its rapid growth, occaſioned either by the ſuperior ſtrength of the land, or by being planted at greater diſtances, or both. But the quality is ſufficiently ſimilar to aſcertain that they are the ſame ſpecies. A foot ſquare of this wood, engliſh growth, and moderately dry, will weigh fifty-one; and a foot of Oak not much more than ſixty-one. A tree one hundred years old may meaſure four loads, or two hundred feet, and is fairly worth fifteen pounds. Land planted with Scotch Firs eight feet and a quarter apart, or ſix hundred and forty to an acre, will pay ten per cent compound intereſt, ſuppoſing very poor land at three ſhillings an acre, worth about four pounds in fee, and the planting to coſt ſix pounds more. In twenty-eight years ten pounds at compound intereſt will be forty pounds, and in that period the trees, at only two and ſixpence each, will be worth eighty pounds.

Spruce Firs, according to Mr. Davis are perhaps next in value to Scotch Fir, and what is remarkable, thoſe grown in England are ſuperior to any imported. Not being hurt by knots, it is the better for rapid growth, and the deal is the handſomer. It does not grow well in expoſed ſituations, but loſes its ſide

branches, becomes moſſy, and dies: if planted too cloſe, it never riſes to any ſize. Mr. Miller ſays they ſhould be ſet eighteen or twenty feet aſunder. Nothing can be more pleaſing to the eye than fine lofty Spruce Firs, feathered down to the ground, ſcattered over a carpet of graſs cropped cloſe by ſheep; as may be ſeen in ſome parts of Switzerland.

The Silver Fir, the moſt beautiful in external appearance of all the genus, either young or old, grows much faſter than either of the above. At one hundred years old it is frequently above one hundred feet high, twelve or thirteen feet round, and contains at leaſt ſix loads of timber, worth about fifteen pounds. The Wood is more open than the Spruce, and therefore ſhould be uſed in large ſcantlings, where its ſtrength and toughneſs render it a valuable wood, particularly for beams; only great care muſt be taken that the ends are dry and acceſſible to air. I have experienced what Miller ſays to be true, that the young ſhoots are often killed by ſpring froſts.

The Weymouth Pine is ſtill lighter and more open in the grain. Its principal uſe is for maſts of ſhips, for which its toughneſs makes it proper. It will, in ſtrong land well ſheltered, get to four or five loads in one hundred years, worth eight or ten pounds. In America this tree attains two hundred feet in height. It does beſt here in ſheltered crevices and receſſes of mountains.

Mr. Davis remarks, that it is a miſtake to ſuppoſe that Fir trees ſhould be cut in ſummer, becauſe the ſap is then aſloat; whereas they ſhould always be cut when the ſap is ſtagnant, namely in winter. Fir cut in ſummer will become full of muſhrooms in twelve months after.

Mr. Davis does not ſeem to have been fully aware of the value of Larch, which is now generally acknowledged. *See our article* PINUS LARIX.

The Oak, Aſh, coarſe-leaved Elm, Beech, Cheſtnut, Walnut and Cherry, may be raiſed in drills, in the manner already preſcribed, except in the method of training. The Pines being of a hazardous nature, when in their infant ſtate, it is adviſeable to raiſe them in ſeed-beds, and ſet them out as ſeedling plants. The fine-leaved Elm muſt be raiſed from layers, and the aquatics from ſets or cuttings.

When Grove-timber is raiſed by ſowing in drills; if ſeedling plants be wanted, the rows may be thinned the third and fourth years, until the remaining plants ſtand from twelve to eighteen inches apart. This done, nothing will be requiſite, until ſome kind of ware can be cut out, as edders, hoops, ſtakes, &c.

In this ſtage of growth, the rows ſhould be gone over every winter, and all the underling plants cut out, within the ground, if practicable, which will in general kill the roots, and ſave the expenſe of grubbing. If the remaining plants are not already too much crouded, thoſe which yet ſtruggle for the light ought to be left, to aſſiſt in drawing up, with greater certainty, thoſe which have gained the aſcendancy.

This conduct ſhould be obſerved, from the time of the firſt cutting, until the trees are ſet out, at diſtances beſt ſuited to their reſpective natures, and according to the accidental tendency which they happened to take in riſing.

The thinning of a timber Grove ſhould be directed by the ſtrength of the plants, and the uniformity of the canopy, taken jointly. The woodman's eye ought therefore to be directed towards the tops, rather than to the roots of his trees.

If the Grove be thinned too faſt, its upward growth will be checked, and the length of the ſtem curtailed: if on the other hand the thinning be neglected, or be performed too leiſurely, the plants will be rendered too ſlender, and thereby become liable to laſh each other with every blaſt of wind. This evil is called whipping of tops, and many fine Groves have been very materially injured by it. Whenever two trees are ſeen to be engaged in this conflict, one of them ſhould be taken down without loſs of time.

If the thinning be conducted with judgement, little pruning will be neceſſary; ſome however will be found requiſite: ſtrong maſter plants are liable to throw out ſide branches, to the annoyance of their neighbours: they ſhould be taken off in time, and all dead branches removed, eſpecially thoſe of the Pine tribe; otherwiſe the heart of the timber will be rendered coarſe, knotty, and of a bad quality. The leaders ſhould alſo have due attention paid to them; particularly if a group of foul-headed plants happen to fall together; for in this caſe, if nature be not aſſiſted, a timber tree will, in the end, be wanted.

This method of training holds good, whether the Grove be raiſed from ſeeds, or from ſeedling or other plants: and whether theſe be arranged in drills, or ſet promiſcuouſly; provided the body of the Grove be formed of one ſort of timber tree.

With regard to miſcellaneous Groves, ſo many evil effects ariſe from injudicious mixtures of timber trees, that it ſeems beſt to condemn them at once. It may be ſaid, however, that by aſſociating trees of different natures, the ſoil will be made the moſt of; that the Aſh, for inſtance, will thrive after the Oak, and the Oak after the Aſh, in a more profitable manner than either would, if propagated repeatedly upon the ſame ſpot.

This leads to an improvement in the method of raiſing a Grove of Oaks; and the ſame method is applicable to any other ſpecies of tree. Inſtead of ſowing every drill with acorns, let every ſecond drill be ſown with the ſeeds of ſome other tree, Aſh for inſtance: its ſeeds are eaſily procured, and as underwood, no tree is applicable to ſo many uſeful purpoſes.

In this caſe, the method of training is nearly the ſame as that already deſcribed, except that the Aſh muſt be made ſubſervient to the Oak: if the former ſhould riſe too faſt, it muſt be cut down to the ſtub, as underwood; if aſhen ſtands be left to draw up the young Oaks, they muſt be lopt, or taken down, the moment they aſpire to a ſuperiority, or give the neighbouring plants an improper tendency.

When the Oaks have acquired a ſufficient length of ſtem, and have made good their canopy, the aſſiſtance of the Aſhes will be no longer wanted; nor will they be any longer valuable as underwood; they ought therefore to be entirely removed: and if their roots be grubbed up, the Oaks will receive at once a freſh ſupply of air and paſturage.

In bleak ſituations a quicker growing and better feathered plant than the Aſh, affords more valuable protection: the Scotch Fir, kept under due ſubjection, is eligible in this caſe. Furze is ſometimes made uſe of for this purpoſe; but the broom is better, as being leſs offenſive, and at the ſame time more efficacious. Its ſeeds are readily procured; its growth is rapid; it will brave the bleakeſt aſpect; and the natural ſoftneſs of its foliage renders it inoffenſive to work among.

There is one circumſtance obſervable in raiſing Oaks from ſeed: that it ſhould not be attempted when acorns are not abundant, becauſe it will then be difficult to preſerve them from vermin. In a plentiful year, when every Wood and hedge-row is ſtrewed with acorns, thoſe which are lodged in the ſoil are leſs liable to their ravages. The greater quantity alſo there is ſown, the leſs will be the hazard: and for a ſimilar reaſon it may be prudent to ſow the margins of the field thicker than the area, where fewer enemies may be expected.

In raiſing a COPPICE, the firſt buſineſs is to ſet out the plants of proper diſtances, where they are too thick, and to fill up the vacant ſpaces with the ſupernumerary plants.

Something may alſo be afterwards done by judicious thinning. Where the demand of the country calls for the larger articles of coppice ware, many ſtakes, binding-rods, &c. may be cut out, with advantage to the free-ſhooting plants, left to grow up, to ſupply the markets of the diſtrict; which will ever determine the ſpecies of coppice wood.

The Kentiſh coppices, particularly about Maidſtone, being raiſed for the purpoſe of hop-poles, are chiefly of Aſh and Cheſtnut. They are generally cultivated in rows; the intervals, to keep them free from weeds and the ſoil mellow, are thickly covered with hop-binds, which when they are ſufficiently tender, are dug under as manure. Furze, broom or rough buſhes might be uſed for the ſame purpoſe *.

* Marſhall's Planting, v. 128—182.

The

The decreaſe of Wood in this iſland has lately excited a conſiderable alarm, from the fear eſpecially that there will ſoon be a great ſcarcity of large Oak timber for naval purpoſes.

Britain, like every other country capable of producing trees, is deſcribed in the earlieſt account of it, to have been covered with wood: and even when domeſday book was compiled, the woods were ſo numerous and extenſive, as to be valued, not by the quantity of timber, but by the number of ſwine which the acorns and maſt could maintain.

Four hundred years after this, in the time of king Edward the fourth, an eminent writer ſays, that England was even then an overgrown country *.

The firſt attack made upon foreſt trees, of any material conſequence, was in the twenty-ſeventh year of the reign of king Henry the eighth, when that monarch ſeized upon the church lands. But this did not bring with it any pernicious conſequences, the whole kingdom being then ſtocked with all kinds of timber trees, eſpecially the Oak *.

From the time of Henry the eighth, the conſumption of Oak timber was continually increaſing, not only in conſequence of the extenſion of commerce, and of great additions to the royal navy, but becauſe it was made more uſe of in building houſes.

Holinſhed, who lived in the reign of queen Eliſabeth, ſays, that in times paſt, men were contented to dwell in houſes builded of Sallow, Willow, &c. ſo that the uſe of Oak was, in a manner, dedicated wholly unto churches, religious houſes, princes' palaces, navigation, &c. but now nothing but Oak is any where regarded.

After this, in the reign of king James the firſt, it appears that there was great ſtore of timber, more than proportioned to the demand. For on a ſurvey of the royal foreſts, &c. in 1608, we find that a great part of what was then intended to be ſold, remained a conſiderable time undiſpoſed of *.

During the civil war in the time of king Charles the firſt, and all the time of the interregnum, the royal Foreſts, as well as the Woods of the nobility and gentry, ſuffered much, ſo that many extenſive foreſts had, in a few years, hardly any memorial left of their exiſtence but their names. From that period to the preſent there is reaſon to apprehend, that the perſons appointed to the ſuperintendance of the royal foreſts and chaſes have not always ſtrictly attended to their charge. But if they had, the various rights claimed by numerous perſons upon them, have made it next to impoſſible that there ſhould be a proper ſucceſſion of good large timber fit for naval purpoſes. This loſs would not have operated ſo ſeverely, had the principal nobility and gentry been as ſolicitous to plant with judgement, as to cut down their Woods. This reflection indeed ſhould be made with ſome limitation: the publication of Mr. Evelyn's Silva in 1664, raiſed a great ſpirit of planting, and in his dedication to king Charles the ſecond in 1678, that gentleman obſerves, that he needs not acquaint the king, how many millions of timber trees have been planted in his dominions, at the inſtigation, and by the ſole direction of that work. The government at that time, alarmed by the devaſtation which had been committed during the civil war, gave great attention to the increaſe and preſervation of timber in the royal foreſts, particularly the foreſt of Dean; and as it is generally allowed that Oak trees, to grow to a ſize fit for the navy, require from eighty to a hundred and fifty years, according to the quality of the ſoil, it is probable that the vaſt quantities of great timber conſumed by our navy, during the preſent reign, were in great part the produce of theſe plantations, or private property in many parts of England, as well as in the royal foreſts. Unfortunately the ſpirit and attention which then prevailed did not continue; and that ſource being now nearly exhauſted, the quantity of timber required for the ſupply of our navy will not be eaſily be found in this country *.

Several thouſand acres indeed of waſte land have, within thirty or forty years been planted for the benefit of the riſing generation. The Society of Arts, &c. eſtabliſhed in 1753, have greatly contributed, by their honorary and pecuniary rewards, to reſtore the ſpirit for planting. The republication of Mr. Evelyn's Silva, in a ſplendid manner by Dr. Hunter, has doubtleſs contributed to that deſireable end.

The following ſketch from the eleventh report of the commiſſioners appointed to inquire into the ſtate and condition of the woods, foreſts, &c. of the crown, publiſhed in 1792 from the Tranſactions of the Society inſtituted at London, for the Encouragement of Arts, Manufactures and Commerce; and from the reports or general view of the ſeveral counties of Great Britain, drawn up for the conſideration of the Board of Agriculture from 1793 to 1797, will give ſome idea of the ſtate of our Woods and timber, both preſent and in expectation, at the end of the eighteenth century.

By the anſwers to queſtions ſent by the commiſſioners of the land revenue to the chairmen of the general quarter ſeſſions of the ſeveral counties in England and Wales, it appears, that the quantity of large Oak timber fit for the uſe of the navy is every where diminiſhed within memory, and very much ſo in many places, both in Woods and hedge-rows: that much more land has been grubbed and converted to tillage, than has been newly planted; that few of the plantations which have been lately made are of Oak, or likely to become of any uſe to the navy; but of Larch, Fir, and mixt trees, preferred for their quick growth, or planted rather for ornament than uſe; that on waſte and commonable lands there is little timber of any value, and that where there is any, great depredations and waſte are committed on them.

It will be a pleaſure to record the names of many patriotic perſons, both among the nobility and gentry, who have ſtrenuouſly exerted themſelves to remedy in ſome degree the increaſing ſcarcity of timber.

Bedfordshire.

There are many Woods, chiefly of Oak, mixed with underwood in this county, but of no very great extent; there is however a ſufficient ſupply of timber for the common wants of the neighbourhood, deal being now ſo generally uſed in building; but underwood becomes rather ſcarce: perhaps as there have been ſo many incloſures lately, in twenty years they may ſupply in ſome meaſure that deficiency. There ſeems to be a prejudice againſt planting trees in the hedge-rows of new incloſures. I have planted many, and ſome thouſands of various trees, as belts, and in corners for ſhelters. The duke of Bedford and lord Oſſory have many fine trees; but I do not know of any conſiderable plantations in this county; where indeed almoſt all the land is well adapted either to corn or paſture. The earl of Upper Oſſory has planted ſixty acres of ſandy heath with Oaks, Cheſtnut, Beech, Hornbeam, Birch, Sycamore, Larch, Spruce, Aſh, Poplar, Alder, and Willow. Francis Moore, Eſq. planted two acres at Aſpley Guiſe with Firs, and twenty acres at Wavendon in Bucks, which ſee. Large plantations of Firs, &c. have been made about Sandy.

Berkshire.

The Woods in this county have not yet been ſo far cleared in the diſtant parts, but that there is ſtill timber to ſupply domeſtic wants. Edward Loveden Loveden, Eſq. made a plantation of ſixty-three thouſand Aſh trees, on upwards of ſeven acres, at Buſcot, near Farringdon.

Buckinghamshire.

From Marlow to Fingeſt, and through that ſpace which is bounded by the road from London to Oxford S. and by the Thames N. one ſixth part of the land is covered with Beech Woods; which require but little attention, as the old trees ſhed a ſufficient quantity of ſeed to keep the Wood conſtantly full of young plants.

In the pariſh of Wycombe, there are ſeven hundred acres of common Beech woodland. William Lee Antonie, Eſq. has very conſiderable Beech Woods in Little

* Eleventh report of commiſſioners, 1792. * Hunter in Evelyn. * Report. * Hunter and Report, p. 9.

Little Marlow, Medmenham, &c. on the banks of the Thames. In the parish of Amersham are Woods of fine Beech; and in the beautiful park of William Drake, Esq. there is a variety of thriving timber. These are all chiefly on chalk, and land not very fit for the plough.

The heaths in the parishes of Wavendon and Brickhill, which formerly were covered with short heath, were inclosed and planted with Scotch Firs and other timber trees by colonel Moore of Egginton. They are now in a thriving state, and have made these barren tracts of greater value than any of the farming land in the same neighbourhood. They are in the possession of the Duke of Bedford, who has cut rides through them.

Waddon Chase, containing twenty-two thousand acres, is divided into several Coppices, which are shut up for nine years and then laid open for twelve. The produce, under these circumstances, cannot be estimated at above three shillings an acre; but if it were inclosed, and the underwood preserved and encouraged, it would yield a profit of sixteen shillings an acre, besides providing a valuable supply of Oak and other timber; large sticks of which have been sold from this Chase for ten pounds each: but from the custom of the deer and commoners cattle being suffered to depasture thereon without limit, the young timber is totally destroyed, and the underwood much damaged[f].

Cambridgeshire.

The quantity of timber growing in this county is small, except in the parishes adjoining to Essex and Suffolk on the south-east, and to Hertfordshire and Bedfordshire on the south-west.

In one parish three thousand trees were bought in 1791 for the dock-yards, and no likelihood of any supply for them. And in many Woods great timber trees have been cut down to encourage the growth of underwood, both on account of the increased price and quick return. Few inclosures of commons have taken place, but if they should, so little encouragement is given for raising Oak timber, that there is little probability of much being planted[g]. Lately many parishes have been inclosed, and some plantations of mixed trees have been made near Cambridge.

Chester.

Timber diminished, but perhaps less in Woods than in other places. The improvement of roads and canals has occasioned much timber to be carried to the dock-yards; but this county is not destitute of it in any parts where timber thrives well. The consumption of Oak timber for building, &c. is diminished, principally on account of the large importation of Deal timber at Liverpool, which is carried to most parts of this county, at a small expense, by canals. There are few underwoods. Oak is still much planted, and often with other trees, which are frequently cut out to make room for the Oaks'. There is abundance of Oak in the hedge-rows, particularly on the Lancashire side, to a degree which is frequently detrimental to the farms. Some gentlemen of large property have paid great attention to planting, and have considerable plantations of young thriving timber upon their estates, but quick-growing or ornamental trees have been chiefly planted, and the Oak has been too much neglected[h].

Delamere Forest is a large tract of land entirely bare of Wood, and apparently not very favourable to the growth of it. Nicholas Ashton, however, of Woolton hall, near Liverpool, in 1795 planted 133 acres of waste moor land adjoining to the forest, with 487,040 trees, of which 16,200 were Oaks; 4,800 Ash; 18,060 Beech; 7,200 Elm; 242,600 Scotch Fir; 181,200 Larch; 600 Alder; 15,000 Sycamore; and 1,200 Willow.

Cornwall.

Hedges in general do not abound with timber in this county; the growth of it any where is very partial, and the county by no means abounds with timber fit for naval uses. What plantations have been made are for the ornament of gentlemens' seats. There are few commonable Woods, and what there are belong to the dutchy of Cornwall. Coppices that sold forty years ago from 5l. to 10l. the acre, now bring from 12l. to 18l.

At Trevetho, Mr. Praed has taken much pains to raise plantations, where they are exposed both to S.W. and N. winds. He plants the Pinaster, which though not a valuable Wood, nor of a beautiful form, he has found to stand the sea air surprisingly. He places it on the highest parts, and very thick in the outer rows of his plantations; and within he plants Oak, Ash, Elm, Plane, &c. He sometimes also makes large groves entirely of Pinaster, and when they are grown to the height of twelve or fifteen feet, he cuts down the inner ones, and plants forest trees of large growth. He has found that sowing the seed of the Pinaster in spring does not answer; he therefore sows them in june, when the cones naturally drop their seeds.

Sir John St. Aubyn has also planted ninety-three acres with a great variety of Forest trees at Clowance, where there is also a great quantity of fine old trees, planted by his father and grandfather, who introduced the beautiful eastern Plane into the county, and which is here of a very large size. Sir John has also planted the Pinaster at St. Michael's mount, and it flourishes well, although exposed in winter even to the spray of the sea. At Godolphin there is a very ancient plantation near the house, and indeed there are others in so many places, that it is obvious it is not owing either to soil or climate, that there are so few trees in Cornwall[i].

Cumberland.

This county is far from being well wooded. The banks of the river Caldew have the largest proportion of old Oak timber. It does not seem to be suffered to attain a sufficient age for the purposes of ship-building. A Wood near West Ward was selling (in 1794) of more than two hundred acres, that was little more than thirty years old; the whole was cut away, without leaving any to stand.

Lately many plantations have been made near gentlemens' seats, which shew, by their vigorous growth, how well adapted the greatest part of this county is for the production of Wood. Lord Muncaster's extensive and thriving plantations near Ravenglass, show that the country along the coast need not be naked[k]. Mr. Thomas Gaitskill, of Little Braithwait, planted in 1791, on fifteen acres, 43,300 Larches.

Derbyshire.

Large Oak timber greatly diminished, and not much now left, either in Woods or hedge-rows, the grubbing of which is common. In the few Woods which remain, called Spring Woods, the fall is from eighteen to twenty years growth; upon every acre are then left a certain number of trees sixty, forty and twenty years old, a proportion of which is cut every fall. But the prevalent idea is, that it answers better to cut down the young Wood for country uses, than to let it grow into timber. Though a very large quantity of Deal is brought in by canals, scarcely any Oak timber is supposed to be carried out; partly owing to the scarcity of it, partly to the demand, in preference to deal, in that part of the county where limestone is the only material for building. The price of Oak timber has doubled within forty years, owing to the decrease of Woods, and the alteration in the mode of farming, from sheep-walks to dairy and tillage, which require large expensive buildings, in which Oak only, and some of a large scantling, must be used; any other Wood but that decaying quickly, on account of the porous damp quality of the limestone.

Little or no land is newly planted, except for ornament. Much Oak was formerly growing in almost every parish, where there are large fields called still the

[f] View of Bucks. 1794. p. 41.
[g] Idem, ibid.
[h] Eleventh report, app. N° 11.
[i] Report p. 25.
[k] Report, p. 60.
[l] Report, p. 190. 8vo. edit.

Wood. The county hall at Derby was built with ſixty-three large Oaks from Foſton Woods, where there now remains only the appearance of a Wood having once grown there. Beech, Elm, Aſh, Sycamore, Larch, and different ſorts of Firs and Pines are now chiefly planted, and are preferred to Oak, from their quick growth. There are extenſive commons, but no timber on them: and thoſe in the northern parts, which include the greateſt part, are improper for Oak [a].

Devonshire.

Woods diminiſhed. Much Oak in the hedges, and might be more if care were taken to mark the ſaplings before the hedge-wood is felled, and tenants were reſtrained from lopping maiden trees. Very little Coppice Wood; but the young ſaplings are generally left at the firſt fall, and cut down at the ſecond. The improvement of roads has brought timber dealers into the more inland parts, and by that means large ſupplies have been ſent to the dock-yards; but they will not be able to continue the ſupply. Many woodlands have been converted to tillage; but no plantations of any extent have been newly made. The commons are very extenſive, but there is no timber on them. Many of them, if incloſed, would produce good timber [b].

Dartmoor, though denominated a Foreſt, has little or no Wood. The only natural one is Wiſtman's Wood near Crockern Torr, the ſeat of the parliament of the Stannaries. It conſiſts of huge decayed ſtumps of trees amidſt looſe rocks of granite: on their decayed tops thorns, brambles, &c. are ſhooting forth, forming altogether a moſt groteſque appearance.

"Mr. Juſtice Buller planted about forty thouſand trees, Larch and Firs intermixed with other trees, but they have almoſt wholly periſhed [c].

Dorsetshire.

Though this county is extremely barren in timber and wood, there are many ſpots appropriated to the growth of underwood. The ſoil is chiefly cold and wet, and the underwood, cut at ten or twelve years growth, produces five or ſix pound an acre for faggots. As to Oak timber, there is ſome about lord Digby's at Sherburne caſtle, lord Ilcheſter's at Milbury, on that part of the vale of Blackmoor in Mr. Sturt's poſſeſſion about Bethſcombe, and in a few other ſpots; but even there the quantity is trifling, as a national conſideration. Many noblemen and gentlemen have made plantations about their places of reſidence, with great taſte and judgment, among which Mr. Portman's bank at Blandford is a moſt beautiful object. The earl of Dorcheſter's at Milton, and Mr. Frampton's at Morton, are both conſiderable. If large tracts on the tops of the higheſt hills and pooreſt lands, were incloſed and protected from game, and either ſown with a mixture of ſeeds of different foreſt trees, or planted with ſeedlings, not above two years old, they would in a few years become beautiful to the eye, and profitable to the owner. But moſt attempts of this kind have been upon too ſmall a ſcale, and no ſooner have the weſterly winds from the coaſt attacked them, than they become miſerable and unthrifty: they have alſo been planted from nurſeries, and of too large a ſize. The ſoil on the tops of the hills is well adapted to Beech, and Oak would not fail to grow, provided there was a ſufficient mixture of Firs to ſhelter them in their infancy [d].

Durham.

In this county, the banks of the rivers and brooks, in ſome places, particularly in the neighbourhood of Durham, are fringed with Wood of conſiderable growth and value; but the reſt of the country is for the moſt part naked. In an act of parliament obtained in 1773, for incloſing upwards of 18,000 acres of waſte land in the pariſh of Lancheſter, there was a clauſe to entitle the copyholders and leſſees under the biſhop of Durham to diſpoſe of the woods, underwoods and trees growing or to be planted on their allotments. In conſequence of this clauſe, ſome thouſands of acres have been covered with trees, which are thriving wonderfully on ground incapable of any other improvement. Thomas White, Eſq. of Weſt Retford, in Nottinghamſhire, purchaſed 227 a. 3 r. 24 p. for 2661; beſides 300 acres, part of the ſaid common; both freehold and tithe free [e]; and has planted in 1787, 50,000 Oaks, 35 acres with Aſh, 100,000 Scotch Firs, 15,000 Spruce Firs, 3000 Silver Firs, 13,000 Larches, two acres two roods with the occidental Plane, 10,400 Lombardy Poplars, 37,230 Alders, on thirty-one acres four perches; in 1784, 7000 Norfolk Willows [f]. Mr. White's example has been followed by many others, whoſe young Woods promiſe equal ſucceſs.

The great demand of ſmall-ſized Wood for the collieries, induces the early felling of timber; and it is too general a practice to cut down all that will turn to profit, leaving the roots to ſhoot afreſh. Much Oak has been carried to Stockton, Sunderland and Newcaſtle, for building the ſhips uſed at theſe ports. Fir timber, imported there, is chiefly uſed in building houſes. No great quantity of woodland has been converted to tillage. Many gentlemen have made extenſive plantations, in which a conſiderable quantity of Oak has been planted. It is too much the practice to plant Aſh in new hedges; but Oak ſeems well ſuited to the ſoil, as it grows very well in all parts [g].

Essex.

The Woodlands are extenſive, and would ſupply a vaſt quantity of well-grown ſtraight timber, could the proprietors be induced to ſuffer the trees to ſtand till they arrive at their full ſize; but the very diſtant proſpect of ſeeing young trees become fit for the dock-yards, the late high price of bark, and the injury they are to the underwood, which is felled every twelve, fourteen or ſixteen years, together with the increaſe of rent, preclude all hopes of keeping up a ſtock of timber, and even ſeem to threaten the deſtruction of moſt of the Woods, which are yearly leſſened to convert the lands into farms [h].

The land in Birdbrook pariſh is particularly favourable to the growth of Oak; there are ſeveral fine ſtandards in the paſtures, one of which, at five feet from the ground, meaſures eleven feet nine inches in circumference. In Baythorne Hall garden is a clump of Alders, the largeſt of which, at five feet from the ground, is ſeven feet four inches in circumference, and has from thirty to thirty-five feet in height of clear timber.

Hatfield Broad-Oak, or Takely Foreſt, is about one-half (500 acres) covered with Wood, among which, with much other valuable timber, is an Oak, that meaſures at five feet from the ground, fourteen feet in circumference, and is thought will cut to timber at ninety feet from the ground. The clear rich lands of Woodſide green, and every other part of the Foreſt, which is not uſefully employed in the growth of timber, might be materially improved, either by cultivation, or for encouraging the growth of Oak.

The great Foreſts of Epping and Henhault are an intolerable nuiſance to the farmers, on account of the depredations, committed on their crops, by the deer; and being ſo near the metropolis are the nurſery and reſort of the profligate. There is little timber in theſe Foreſts, and the dodders and underwood are of ſmall value in compariſon to what they would be if this tract of country was incloſed. Mr. Vancouver gueſſes that there may be 10,000 acres in theſe Foreſts not producing or being favourable to the growth of Oak or other valuable timber, at preſent eſtimated to produce 5 s. 8½d. per acre, which by incloſure might be eaſily increaſed to 20 s. On that part of the Foreſt, within the pariſh of Epping, conſiſting of 527 acres, the lord of the manor has, by grants from the crown, the excluſive right of all timber, underwood and buſhes. The land is well adapted in general to the growth of Wood, particularly Oak, which by the judicious management of the preſent poſſeſſor, is in a very flouriſhing ſtate.

[a] Eleventh Report, app. n. 11. [b] Idem, ibid.
[c] County Report. [d] County Report, p. 32.
[e] County Report. [f] Eleventh Report, app. n. 11.
[g] Tranſ. Arts. [h] Grigg's County Report.

In Stifted are numerous Woods, though gradually leſſened; when well attended to, the underwood produces, for hop-poles, at twelve or fourteen years growth, from 7s. to 10s. an acre per annum, and in ſome places 14s. The timber in them is in general a prejudice. It is far from growing large, forty feet, a well-grown old tree, top and bark included, the buyer falling, ſells at 2s. a foot.

At Widdington the Woods are ſmall, but well attended to: they are cut at twelve years growth, and worth at the ſtub about 8l. an acre: they conſiſt of Aſh, Sallow, Hornbeam, Hazel and Thorn.

The neighbourhood of Boreham is plentifully wooded. The Woods are cut at fifteen, ſixteen and ſeventeen years growth, and are more or leſs valuable, according to the quantity of hop-poles they produce, that being the chief article worth attention, as fire-wood is cheap: for which reaſon conſiderable portions of woodland are cleared annually, and brought under the plough.

At Dunmow the proportion of woodland is ſcarcely a fifteenth part of the whole. The underwood is uſually felled at fourteen or fifteen years growth, and the annual rent is from 10s. to 14s. or 15s. an acre [h].

Lewis Majendie, Eſq. of Caſtle Hedingham, planted there in 1786, 5,300 Oaks; in 1790, 1,900 Aſhes; again in 1793, 1,900 Aſhes on ſeven acres nine perches; in 1792 and 1793, 29,700 Spaniſh Cheſtnuts, on ten acres three roods and five perches [i].

Richard Muilman Trench Chiſwell, Eſq. planted at Debden-hall 10,579 Elms, and 11,000 Lombardy Poplars.

Gloucestershire.

Woodlands, chiefly Beech, decreaſe very much, and have doubled the price within twenty years. Plantations are much to be wiſhed for, not only for future ſupply, but becauſe bleak ſituations are very much improved by the ſhelter they afford.

Coppices are much wanted. They are chiefly compoſed of Aſh; the produce is fetched from a great diſtance for coopers, &c. and has riſen greatly in price. The chief woodlands are in the pariſhes of Chedworth, Withington and Dowdeſwell; ſmaller patches in Guiting and one or two neighbouring pariſhes: they are cut at about eighteen years growth, and produce from 30l. to 60l. per acre. There are ſome modern Coppices in the pariſhes of Wick and Slaughter, which produce from 25l. to 60l. per acre. Alder Coppices are cut at twelve years growth, and are worth from 15l. to 25l. per acre [k].

The trees planted in new incloſures, more than make amends for the old fences that have been grubbed. Very little woodland has been converted to tillage, and ſtill leſs planted. No plantations of Oak have been made lately, except in the foreſt of Dean: and theſe have been broken into by lawleſs perſons in many places. Perquiſites of office, extremely lucrative to ſurveyors and keepers, are by no means advantageous to his majeſty's rights.

On the Cotſwold hills are conſiderable tracts of cover, belonging principally to lord Chedworth, lord Bathurſt, and the biſhop of Worceſter; but very little timber in them fit for the navy, and no water-carriage near except lord Bathurſt's, whoſe Woods are chiefly Beech [l].

Hampshire.

Many parts of this county are well wooded, but there are immenſe tracts of open heath capable of improvement by cultivation or planting. On the north ſide towards Berkſhire the land is deep, and produces conſiderable quantities of Oak and Elm; in many places the Oak has been tranſplanted, yet is arrived to fine timber. Towards Rumſey the country is interſperſed with Woods and hedge-row timber. Between that and Ringwood is a conſiderable part of the New Foreſt.

This Foreſt now extends from Godſhill N. W. to the ſea S. E. about twenty miles; and from Hardley E. to Ringwood W. about fifteen miles. It contains about 92,365 acres, of which 24,797 are private property, 625 copyhold of the manor of Lyndhurſt, 1,004 acres leaſehold under the crown, 502 encroachments, 1,193 held by maſter-keepers and groom-keepers attached to their reſpective lodges, and the remaining 63,844 acres are the Woods and waſte lands of the foreſt.

The intereſts of all the inferior officers ſo claſh with that of the Foreſt, that it is in vain to expect either a preſervation of the timber now growing, or an increaſe from new plantations, whilſt the preſent ſyſtem remains, of their emoluments being derived from deer, ſale of browze wood, rabbets, and ſwine. All theſe concur in the deſtruction of young timber, and unleſs ſome means are taken to prevent theſe and other abuſes, in a few years there will be no timber worth mentioning left upon the Foreſt.

It appears from actual ſurveys how much the timber has decreaſed, and what the Foreſt was formerly capable of producing.

		No. of trees.	No. of loads.	Total loads.
1608.	Timber fit for the navy	123,927	197,405	315,477
	Dotard and decayed trees - -		118,072	
1707.	Timber fit for the navy -	12,476	19,873	19,873
	Dotard trees not ſtated.			
1764.	Timber fit for the navy -	19,836	33,662	40,497
	Defective Oaks - - -	1,743	3,835	
1783.	Timber fit for the navy -	12,447	19,827	20,830
	Defective Oaks - -	596	1,003	

From other accounts it appears that the navy has been ſupplied with about 885 loads of Oak timber yearly, for the laſt twenty years.

The crown has a right, by an act of William III. to keep 6000 acres conſtantly incloſed, for the growth of timber.

Alice Holt and Woolmer Foreſt is ſituated in the eaſt part of the county, on the borders of Surry and Suſſex. It contains about 15,493 acres, about 6,799 of which are private property. On 2,744 acres of crown lands in Alice Holt, according to a late valuation, there is growing about 60,000 pounds worth of timber. Upon Woolmer there is no timber worth mentioning. In 1608 there was a ſurvey of the timber, when there were found growing in the foreſt 1,301 Oak trees fit for the navy, and 23,934 loads of defective trees: and from a ſurvey in 1783 it appears that there remained only about 15,142 loads, including defective trees; and thoſe generally of one age, namely from 100 to 120 years growth; and that there are ſcarcely any to ſucceed them.

The foreſt of Bere is in the S. E. part of the county, on the north ſide of Portſdown, and within eight miles of Portſmouth. It contains about ſixteen thouſand acres, of which one third is incloſed, and the reſt is open foreſt land; the ſoil is good, and proper for the growth of Oak timber.

There was a ſurvey in 1608, and another in 1783, from which it appears that the timber in the latter was only a twenty-eighth part of what was growing at the former.

In the Iſle of Wight timber was formerly plentiful, but the proprietors have had ſo good a market for it at Portſmouth and other dock-yards, that little now remains. No young trees have been planted to ſupply the place of the old ones, ſo that in a few years the iſland will be entirely robbed of its timber.

Parkhurſt or Carisbrook Foreſt, lying in the centre of the iſland, is the property of the crown. It contains thirty thouſand acres, and has long been without a tree of any value. The ſoil is in many places extremely good: ſeveral large ſpots are to be found on which the Oak would thrive well, and none are ſo bad as to preclude the hope of the Larch and Scotch Fir ſucceeding on them [m].

The quantity of timber has been greatly diminiſhed within the laſt forty years: before which there was enough to build fifty ſail of the line, without going into the New Foreſt. But now by the amazing conſumption in his majeſty's dock-yards, by the great demands for Eaſt India ſhips, by the general practice of grubbing up hedge-rows, and by not encouraging the growth of young ſaplings, it is ſo diminiſhed, that it would be difficult to find a frame for a ſeventy-four gun ſhip, and as to a firſt, ſecond, or third rate, there is no ſuch timber left, except in the New Foreſt, and very little

[h] Vancouver's County Report.
[i] Tranſ. Arts.
[k] County Report.
[l] Eleventh Report, app. n. 11.
[m] County Report.

there;

there: What plantations have been made are of Fir more than Oak [a].

Herefordshire.

The river and brooks may be traced by the Wood on their banks. There is much valuable timber, moſt of it in hedge-rows; but this is greatly injured by lopping. Coppice Wood is kept under a regular ſyſtem: the ſofter Woods are cut from twelve to fourteen years, and the Oak from eighteen to twenty years growth. One ſtandard is left to each forty-nine ſquare yards; theſe are maiden trees, and left clear of incumbrance [b].

In the eleventh report of the commiſſioners of the land revenue (app. n. 11.) it is ſaid that large Oak timber is diminiſhed very much indeed; that the growth of Oak in hedge-rows is not much encouraged, that the trees are much ſtripped and lopped by the farmers, and that the principal timber for the navy now remaining is in Woods; that ſaplings are left ſome of which are cut at the ſecond fall, and others left for timber; that a very conſiderable ſupply of timber has been ſent to the dock-yards within the laſt twenty years (ſince 1772), and that parts of the county are ſo ſtripped that even common building timber is ſcarce, ſo that brick and ſtone is now employed inſtead of ſtuds; whereas forty years ago timber was a mere drug. The value of underwood is much increaſed ſince the introduction of hops; and a much larger quantity of land is converted into tillage than has been planted. No plantations indeed of any extent have been made. Variety of trees have been planted for ornament, but few of them are likely to be of ſervice to the navy. The county in general is very much incloſed. Commons of any extent are on the hills, on which no doubt trees would grow well.

Many thouſand Oaks have been planted by the truſtees of Guy's Hoſpital, on their eſtates.

Hertfordshire.

The quantity of Oak timber fit for the navy is greatly decreaſed in this county. Few Woods have any large timber in them: what there are of large ſize are chiefly in hedge-rows, and many of theſe have been grubbed up to increaſe the land in tillage. In Woods that are in the hands of occupiers few ſaplings are left; but if in owners hands, a proper ſucceſſion of timber may be found. It is however moſtly conſumed within the county for barn-floors, paling, railing, poſts, gates, &c. and many Woods have been ſtocked or grubbed up. In Woods lately planted, Firs and Poplars have been preferred to Oak and Elm, on account of their quick growth. There are few commons, and on them little or no timber. On newly incloſed fields little attention has been paid to raiſing Wood. Several thouſand acres of land in this county would anſwer better if planted with Oak, Aſh, Elm or Beech, than in tillage [c].

John Hunter, Eſq. of Gubbins, in the pariſh of North Mims, planted 40,000 Oaks on twenty-ſeven acres, in the year 1799 [d].

Huntingdonshire.

Oak timber is not much raiſed in this county, and there is very little fit for the navy; being uſually cut down when it begins to be moſt valuable for that purpoſe. Underwood is not carefully ſelected and planted. Both that and timber might frequently be planted with good ſucceſs on land of very low quality for tillage [e]. Much however has been cut down, and very little planted in its ſtead.

Kent.

The chief of the woodlands of Eaſt Kent are diſperſed between the great road from Rocheſter to Dover, and the chalk-hill that runs from Folkſtone by Charing to Detling. Theſe Woods furniſh the country with firewood, tillers for huſbandry uſes, and the dock-yards with timber; but the moſt material part of their produce, is the immenſe quantity of hop-poles.

[a] Eleventh Report. [b] County Report.
[c] Eleventh Report, app. n. 11. [d] Tranſ. Arts. [e] County Report.

The Weald was in ancient times an immenſe foreſt, but is now for the moſt part cleared and converted to tillage and paſtures. There are however ſome woodlands in their original ſtate.

On a ſurvey of the Woods through the whole county, it appears that there are about 13,290 acres, of which 1000 are waſte lands on Burham downs, free from november to march. Of the remainder, 400 acres in Stalisfield belong to the Hon. Mr. Watſon, and have been improved by planting Aſh, Cheſtnuts and Willow; 350 acres in Newenden belong to Sir Edward Knatchbull; 140 acres in Bickner and Hucking are the property of Mr. Chambers; 300 acres in Newington and Milton, 180 in Thurnham, 400 in Rainham and Newington, belong to the Earl of Aylesford; 350 in Thurnham and Stockbury, 200 in Detling and Thurnham, 500 in Chatham, 300 in Aylesford and Boxley, 50 in Boxley, belong to Mr. Beſt; 200 acres in Stockbury belong to Meſſrs. Head and Roper; 180 acres in Detling, and 300 acres in Chatham, belong to Mr. Foote; 200 acres in Aylesford and Boxley belong to Meſſrs. Read, Seager and others; 1000 acres in St. Margaret's belong to the wardens of Rocheſter bridge; 500 acres in Shawſtead and Gillingham belong to the dean and chapter of Rocheſter; 1,500 acres in Langley, Leeds, Sutton, &c. are the property of Mrs. Bouverie, Sir John Filmer, and others; 500 acres in Peckham and Mereworth, belong to Mrs. Bouverie, Sir William Twiſden and lord le Deſpencer; 600 acres in Peckham and Oſham belong to lord Le Deſpencer and William Geary, Eſq; 160 acres in Maidſtone belong to lord Romney, and 300 acres in Barming and Aylesford belong to lord Romney and Meſſrs. Amherſts; 80 acres in Yaldon and Hunton belong to Mr. John Miller; 600 acres in Feſton and Eaſt Malling belong to C. Milner, Eſq. and the Hon. Mr. Puſey; and 3000 acres in Goudhurſt, Cranbrook, Ticehurſt, &c. belong to Mr. Cartier and others. Theſe Woods produce ſome timber, hop-poles, cord-wood, fencing poles, ſtakes, ethers, hurdles, bavins for bakers and burning lime.

The Oaks are all cut in the ſlaying ſeaſon, for the bark of all ſizes. The fencing-poles are either uſed whole, or cut into gates for ſheep. The hop-poles are ſorted into three, four or five ſorts, and ſold by the hundred. The faggots or bavins are made into lengths of five feet, the beſt for bakers and houſekeepers, and on the hills they make inferior ſorts, called kiln-bruſh for burning lime. Stakes and ethers are cut out before the faggots are made. In the neighbourhood of Chatham they cut ſome ſmall bundles of bruſh and cord-wood, for the uſe of ſhipping and the metropolis [a].

Mr. David Day, of Frindſbury, planted ſixteen acres with Aſh; and afterwards ſeven acres and nine perches with 63,000 plants more.

Henry Godfrey Fauſſet, Eſq. of Lower Hardreſs, planted eight acres with 7,712 Aſh trees, in 1790.

Mr. Joſeph Mace, of Aſhford in Biddenden, planted 3000 Cheſtnut trees on ſix acres ſeventeen perches.

William Pattenſon, Eſq. of Ibornden in Biddenden, in 1785 planted a quarter of an acre; and in 1789 ſeven acres and a half, containing about 13,500 plants, of the red or upland Willow. There are ſeveral other plantations of it in that neighbourhood.

Lancashire.

Towards the middle of the county there are ſome good Woods; there is alſo a conſiderable quantity grown in hedge-rows; but as ſunſhine is generally preferred to ſhade, timber wood ſeems on the decline. In the northern part there are many acres of coppices, which are cut down every fifteen years, and burned into charcoal. There are many excellent plantations about gentlemens' ſeats, well attended to, and in a thriving ſtate. Towards the coaſt it is with great difficulty that Woods of any kind can be raiſed; yet near the ſhore at Fornſby hall, the Rev. Mr. Fornſby, has planted ſeveral acres with foreſt trees, which are in a flouriſhing ſtate. They were originally planted when very ſmall, in holes, four inches below the ſurface, and

[a] County Report, 8vo edit. 1796.

were

were ſheltered from the winds by ſods raiſed round them, till they had taken firm root. A mixture of ſea-ſlutch, rich earth and moſs was put beneath their roots. The Scotch Fir, Sycamore, Platanus or Plane, and the Aſh, ſeem moſt congenial to the ſoil, which is ſandy, and are leaſt injured by the inclemency of the climate.

The Alder is in great demand for poles to hang cotton yarn on to dry, and for the bark which ſells to the dyers at nearly one penny per pound. Alders planted on the ſide of the duke of Bridgwater's canal, to ſecure the banks, where the ſoil is of a looſe texture, have not only anſwered that purpoſe, but have proved a profitable plantation: they may be cut down every fourth or fifth year [1].

Fewer Oaks have been planted of late years than other trees. Incloſures have not increaſed the growth of timber [2].

Charles Gibſon, Eſq. Quermore Park near Lancaſter, planted in 1798 and 1799, 7,500 Oaks, 1000 Aſhes, 6,500 Beeches, 5000 Birches, 500 Cheſtnuts, 500 Horſe-Cheſtnuts, 8000 Elms, 2000 Scotch Firs, 2000 Spruce Firs, 7,500 Larches, 2000 mountain Aſhes, 7000 Sycamores.

Thomas Rawlinſon, Eſq. at Yealand, planted in 1791 and 1792, 18,910 Oaks, 20,170 Aſhes, 2,300 Beeches, 3,940 Birches, and 705 weeping Birches, 3,900 Elms, 3,650 Scotch Firs, 2,010 Spruce Firs, 2,900 Larches, 2,310 Sycamores, 300 Huntingdon Willows; in all 62,190 trees.

The Rev. Thomas Dunham Whitaker, at Holme in Whalley, planted in 1790 and 1791, 64,135 Larches [3].

Leicestershire.

There is very little timber in this county except in the hedge-rows. Burbach Wood contains about ſixty acres, with many thouſands of young thriving Oaks. Aſton Flamvile Wood, about the ſame ſize, has ſome fine young Oaks and ſmall Aſh. Theſe, and the Woods near Beaumanor, are the principal.

At Cleybrook and all that part of the county, there is much timber in the hedge-rows; but on the Melton-Mowbray ſide there is very little. They have a few coppices which are cut at about twenty years growth.

Charnwood Foreſt contains 15 or 16,000 acres. The hills might probably be planted to advantage, although they are bare of ſoil and full of rocks; ſince the Woods near Beaumanor, on the edge of the foreſt, are found to thrive very well [4].

Lincolnshire.

The Woods in the ſouth part of this county produce Oak, Aſh and Poplar.

Sir Cecil Wray's plantations, made between 1760 and 1794, conſiſt of 260 acres; principally Scotch Firs. At the beginning he alſo planted Oaks, Aſhes, Beeches, Elms, Silver Firs, Spruce Firs and Larch. The Larch, Oak, Aſh and Beech made no little progreſs during the firſt three years, and the Scotch Fir got on ſo well, that for the enſuing ten years he planted ſcarcely any other ſort. The Silver Fir grew very well, but it is ſaid will be ſhort-lived. The Spruce Fir alſo grows well and large. Having reaſon to think better of Larches, he recommenced planting them fifteen or ſixteen years ago; and now has about fifty-three acres of them growing completely well, and from the value of the Wood, promiſe to pay twice as well, at leaſt, as the Scotch Firs.

About Norton-place Mr. Harriſon has formed a large range of beautiful plantations, which ſurround and break his lawn, except where it opens to the wolds. In twenty-two years theſe have flouriſhed ſo rapidly that he has cut Larch of a conſiderable ſize, and has incloſed eight hundred acres from the thinnings.

But of all the planters in the county, lord Yarborough takes the lead: for ten years paſt he has planted 100 acres yearly, and is continuing it; but deſigns ſoon to leſſen it, the lands he had aſſigned for that purpoſe being nearly covered.

Sir Joſeph Banks's Woods have been very carefully managed ſince 1727, in a rotation of twenty-three years. Full-grown Oak-timber is taken out in the proportion of one-fourth, in Woods of the beſt quality, and of one-fifth upon inferior land. Willow, Sallow, Alder, Hazel and other bruſh are cut clean. Full-grown Aſh, Elm, &c. are cut, leaving a proportion of the beſt for the next crop; that is, ſuch as will pay for a ſecond growth of twenty-three years. Very little of the Oak has five growths, or 115 years; in general it has four growths, or ninety-two years. The produce of an acre on an average is 45l. for timber, bark, poles and bruſh. The Woods cover 805 acres.

The duke of Ancaſter has four or five hundred acres of woodland, which he cuts at eighteen years growth. The marquis of Exeter has very extenſive Woods about Bourne, &c.

Sir Cecil Wray has made ſome valuable obſervations, derived from extenſive experience.—He would always plant each ſort of tree by itſelf; at leaſt he would never plant Scotch Firs intermixed with others, as nurſes; for from their ſpreading branches, they ſoon become bad neighbours. They may be of ſervice however on the outſide of plantations, as a ſhelter where they are expoſed.—He would never plant a tree older than two year ſeedlings.—He would never put more than 2000 trees on an acre, and he thinks 1,200 fully ſufficient.—He would always trim off the ſide branches, when they are ſo ſmall as to be cut with a knife; in which caſe the wound will grow over.—Scotch Firs are valuable as growing faſt, as affording Wood of many uſes in country work, as ſupplying the poor with fuel from the cones and rotten branches, as keeping deer and ſheep in winter, particularly in ſnows, with the green boughs, and as firewood, fencings, &c. &c [5].

Middlesex.

The Woods and Coppices in this county have been decreaſing for ages, and will probably in time be annihilated. There are however ſtill a few acres ſo occupied on the north ſlopes of Hampſtead and Highgate hills; about 100 acres on the eaſt ſide of Finchley common; and about 2000 acres on the N. W. ſide of Riſlip, together with about 3,000 acres, the remains of Enfield chaſe. Rather more than half this quantity is Wood pretty well ſtocked with thriving young Oaks; the reſt is coppice [6].

Monmouthshire.

This county is well wooded, and there are many coppice Woods, which are cut from eleven to fourteen years growth. Much fine Oak timber is growing upon Tredegar and other eſtates [7]. The Woods, coppices, and plantations of Perſefield are well known.

Benjamin Waddington, Eſq. of Lanover houſe near Abergavenny, ſince 1799 planted twelve acres with Larches and other trees, and intends planting near fifty acres more with Larches.

From the eleventh report of the Commiſſioners of the Land Revenue it appears, that timber is decreaſed, that hedge-rows are commonly grubbed up, that greater quantities of timber have been felled than the county will be able to ſupply, that it is the practice to ſell them for the ſake of the underwood, and that plantations lately made, have been of ſuch trees as are not fit for naval purpoſes.

Norfolk.

This is not a woodland county. Foxley Wood, belonging to Sir John Lombe, Bart. which is 309 acres, is perhaps the largeſt. There are other conſiderable Woods in Aſhwell Thorpe, Hetherſet, Ketteringham, Hethel, Bunwell, Hempnall and Shottiſham, of 800 or 1000 acres in the whole, beſides ſeveral other ſmaller Woods in other parts.

Modern plantations for ornament have kept pace with moſt other counties. Great bodies of Firs, intermixed with a leſs number of foreſt trees, have been

[1] County Report, 8vo. ed. 1795. p. 84.
[2] Eleventh Report, app. n. 11.
[3] Tranſ. arts.
[4] County Report, 8o. 1794.
[5] County Report, 8vo. ed. 1799.
[6] County Report, 8vo. ed. 1798.
[7] County Report.

planted in parks and home grounds; but pits, corners, and ſcreens or belts have been little attended to.

Mr. Marſham of Stratton ranks firſt in priority. He might ſell ſome of the trees which he planted with his own hand for ſix or ſeven pounds each; and he has a Cheſtnut, which he ſet a nut, and afterwards tranſplanted into a poor ſandy ſoil, which runs timber fifty-eight feet, and ſquares upwards of twenty-two inches at the butt, ſo that it muſt at leaſt have eighty cubical feet of timber.

Mr. Berney of Bracon ranks next as a planter in point of date, having paid great attention to planting upwards of fifty years. In 1757 he had a ſilver medal for a large plantation of Oaks. His Cheſtnuts are very fine, many of them fourteen or fifteen inches girth, and his Larch as much: he has put the latter to almoſt all purpoſes of building, and to many cabinet uſes. He entertains the higheſt opinion of Larch Wood, and recommends it to be felled as all Firs ſhould be, in july or auguſt. But this is probably an erroneous practice.

Among modern planters, in point of quantity Mr. Coke ranks foremoſt. He has planted 480 acres, in which two-thirds of the plants are intended to be thinned out and cut down for underwood, ſo as to leave Oak, Cheſtnut and Beech only as timber. His intention is to continue planting fifty acres every year, till he has completely environed 3000 acres, which is to compoſe his park and demeſne farm.

Mr. Windham of Felbrigg is alſo a conſiderable planter. His plantations are deſigned to ornament and belt round his park, and to extend his great woodland ſcene nearer the ſea, towards which, at two miles diſtance, it forms a grand bulwark. Moſt of them have been raiſed from ſeed. One was ſown with Acorns, Cheſtnut and Beech-maſt, ſeventeen years ſince: it has been already twice thinned for hurdle Wood: the trees are moſtly thirty feet high, at regular diſtances of twelve feet, with a valuable underwood at four feet diſtance.

A belt ſixty-ſix yards wide and nine miles round, incloſes the eſtate of Mr. Galway of Tofts near Thetford. It was planted by Mr. Nelſon with a variety of trees, at ſix feet apart between 1770 and 1778.

Lord Petre's park, in the midſt of a barren dreary country, forms an agreeable ſhady retreat, covered with a pleaſant verdure, and richly ornamented with foreſt trees of large dimenſions: his Lordſhip is now conſiderably extending his plantations, to the open parts which lie on the outſide of his eſtate.

Sir William Jernigham's plantations at Coſteſey, four miles from Norwich, are large and flouriſhing, and have been made with much judgment and taſte.

The plantations upon the eſtate of Miſs Norris, at Witton, are made quite in the face of the German ocean. Having been planted very thick they have ſo flouriſhed, without any old trees to ſhelter them, that in the courſe of twenty-two years they have changed a conſiderable tract of naked land into an impervious woodland ſcene, in one of the moſt cold and expoſed ſituations in the kingdom[a].

John Morſe, Eſq. of Sprowſton, ſet twenty-five acres with acorns, in october 1788 and march 1789.

George Nelthorpe, Eſq. planted 35,000 Alders on twelve acres, at Linford, in 1794.

James Denton, Eſq. of Feltwell, ſet thirty-eight acres with acorns, in 1794.

Lord Viſcount Townſend planted 463 acres at Rainham, chiefly with Scotch Firs[b].

Northamptonshire.

There are ſeveral very extenſive tracts of woodland in this county, conſiſting of foreſts, chaſes, and purlieu Woods. The moſt conſiderable foreſt is that of Rockingham, in the northern part, beginning near Wansford, and extending near twenty miles towards the centre of the county. Whittlebury and Salcey are two other extenſive foreſts, lying towards the S. The chaſes are thoſe of Geddington and Yardly; the former in the neighbourhood of Rockingham foreſt and the latter in that of Salcey foreſt. The purlieu Woods are both extenſive and numerous, particularly towards the lower parts of the county, and upon the borders of Rockingham foreſt. Beſides theſe, there are ſeveral ſmall tracts of woodland, very advantageouſly and ornamentally ſituated, in many other parts of the county.

The underwood in the foreſts and chaſes conſiſts principally of black and white Thorn, Aſh, Sallow, Maple, and ſome Hazle. It is generally cut at from twelve to eighteen years growth. The proprietors are empowered to fence in each part as ſoon as it is cut, for four years from deer, and for ſeven years from the commoner's cattle. The depredations of theſe and of the people occaſion this underwood to be worth only about four pounds an acre on an average. It is ſold ſtanding, and the purchaſers cut and carry it at their own expenſe. It is moſtly uſed for hurdles or firewood.

A fall of Oak timber is generally made in that part where the underwood is cut. This conſiſts either of the moſt unimproving trees, or ſuch as are of a large ſize. Theſe are generally bought by contractors for the navy. But if no ſpeedy and effectual means are taken for the better preſervation and management of the foreſts, in order to procure a regular ſucceſſion of Oak timber, the navy will, in a ſhort time, be deprived of this valuable reſource.

Purlieu Woods are ſuch as are ſituated in the vicinity of the foreſt, and once formed a part of it; they have been diſforeſted by grants from the crown, and are now private property, not ſubject to the laws and regulations of the foreſt.

The average price of the underwood, from eleven to fourteen years growth, is about 6l. the ſtatute acre, but it is ſometimes ſold ſo high as 8l.

The Oak timber in theſe and in private Woods ſeldom attains to ſo large a growth as in the foreſts and chaſes, it is therefore principally bought by carpenters, wheelwrights, &c. for country uſes.

Geddington chaſe is ſuppoſed to contain about 1,400 acres, of which perhaps 1,200 are woodland, the remainder conſiſts of lawns, ridings and viſtas. The whole is the joint property of the duke of Buccleugh and earl Beaulieu, ſubject to a commonage of the adjoining townſhips from may-day to martinmas. It is divided into eighteen parts, in one of which the underwood and timber are cut every year. Theſe parts are fenced as in the foreſt. Although there is ſtill a valuable ſtock of Oak timber in this chaſe, principally of a large ſize; yet the ravages committed by deer and cattle prevent the ſmalleſt poſſibility of obtaining a regular ſucceſſion of Oak timber, and even cauſe a daily diminution in the growth of underwood. If the ſyſtem now practiſed of cutting down all ſuch timber trees as appear mature and in an unthriving ſtate be long purſued, in a few years there will not be a ſingle Oak tree left large enough for the uſe of the navy[c].

The quantity of Oak timber cut down within the laſt thirty years has been very conſiderable, and ſuch a proportion as the woodlands will not be able permanently to ſupply[d].

Northumberland.

Woods in this county are found moſtly on the banks of rivers. Of old Oak timber from 80 to 140 years growth, the probable value may be about 60,000l. of which two-thirds only are proper for building ſhips of great burden.

The demand by the collieries and lead mines for ſmall wood, has induced the proprietors on the Derwent, Tyne, &c. to cut the Oak, Aſh and Elm at twenty-five or thirty years growth; Birch, Willow and Aller (Alder) ſooner.

Plantations on an extenſive ſcale are riſing in every part of the county, and are almoſt in every inſtance doing well. The Larch riſes pre-eminent above the reſt[e]. A fourth or fifth part of the trees planted is Oak; the reſt are Scotch Firs, Larches and Aſh.

The woodlands in the N. and W. parts were ordered to be burnt in the time of queen Elizabeth, becauſe the Moſs-troopers and other banditti ſecreted themſelves in theſe Woods, and iſſuing from them committed great depredations on the neighbourhood[f].

[a] County Report, 8vo. 1796.
[b] Tranſ. Arts.
[c] County Report, 4to. 1794.
[d] County Report, 8vo. 1797.
[e] Eleventh Report, app. n. 11.
[f] Eleventh Report, app. n. 11.

NOTTINGHAMSHIRE.

The foreſt of Sherwood, is from Nottingham to near Worksop about twenty-five miles in length, and from ſeven to nine miles in breadth. The principal remains of the ancient foreſt Woods are the Hays of Birkland and Bilhagh, being an open Wood of large old Oaks, moſt of them decaying or ſtag-headed, and without underwood, except ſome Birch in one part; it extends about three miles in length, and one mile and a half in breadth. By a ſurvey taken in 1790, there were found 10,117 trees, valued at 17,147l. The land on which they grow is 1,487 acres, 2 roods, 37 perches. A part of this Wood has been taken by grant into Thoreſby park.

Harlow Wood, Thieves Wood, and the ſcattered remains of Mansfield Woods are of ſmall extent, and the timber is of inferior ſize.

In Clumber park are remains of two Woods of venerable Oaks. Since theſe have been incloſed the young trees are ſpringing ſurpriſingly from the acorns.

The ſpirit of planting has prevailed much in this county within forty years. The firſt plantations were chiefly of Firs; but it has been ſince found, that trees of all kinds, well planted and properly ſheltered, ſucceed very well.

The duke of Newcaſtle's plantations within Clumber park amount to 1,848 acres: beſides 190 acres in Martin Wood, 180 acres of Aſh and 410 of Oak, &c. The duke of Portland's in Welbeck park, Carberton, &c. about 1000 acres. The Hon. R. Lumley Savile's 1,680 acres in Morton Grange and Little Morton, part Oak Woods, the reſt Oaks, and planted with Aſhes for hop-poles. A conſiderable part of the Oak plantations were planted with Firs and Larches by the late Sir George Saville, when the acorns were ſown, about forty-four years ago. The larches now (1794) meaſure from thirty to fifty feet in length, and from twelve to forty-eight inches in girth. The Scotch Firs are from twenty to thirty feet long, and from twelve to thirty-two inches in girth.

Charles Pierrepont, Eſq. now lord viſcount Newark, has 981 acres in and about Thoreſby park, the chief part planted with Oak, Aſh, Beech, Spaniſh Cheſtnut, and Elm: 306 acres now (1794) in preparation for planting; and 381 acres, moſtly coppice or ſpring Woods, cut every fifteen years, for hop-poles, hedge-wood, &c.

F. F. Foljambe, Eſq. has 600 acres at Oſberton. In Carlton, Charles Melliſh, Eſq. has 154 acres. Taylor White, and Woolaſton White, Eſqrs. have 107 acres 3 roods, and Mr. Joſeph Cowliſhaw 15 acres one rood; Taylor White, Eſq. has alſo 28 acres 2 roods in Wallingwells.

The Duke of Norfolk, at and near Worksop Manor, has 781 acres of Woods and plantations. Jonathan Acklem, Eſq. and others, have fifty acres in Matterſey Woods, in Wiſerton twenty-five acres. Charles Melliſh, Eſq. has 1000 acres in Blyth, &c. chiefly Fir. Lord viſcount Galway has 126 acres in Scriby and Farworth. Robert Sutton, Eſq. has about 750 acres, about ſixty of Fir, the reſt Oak and Beech, in Scofton. Robert Ramſden, Eſq. at Calton, in Lindrick, 148 acres of Oak, Cheſtnut and Aſh, beſides forty-eight acres of foreſt plantations. Right Hon. Fred. Montagu, thirty-four acres of Oak, Aſh, Elm, &c. in Linby and Papplewick; beſides forty acres in preparation. Sir Richard Sutton, at Farnsfield, has ſeventeen acres. In all about 10,000 acres, chiefly planted ſince the middle of the eighteenth century.

The Woods and plantations in the clay diſtrict north of Trent amount to 3,624 acres. And thoſe in the limeſtone and coal diſtrict, to 916 acres[1].

Of the immenſe plantations lately made, Fir, Birch, Poplar, Aſh, and Elm are the principal trees, though the quantity of Oak is not inconſiderable, but bearing no proportion to the others. Theſe plantations being yet young, a long time muſt elapſe before they will be fit for public uſe[2].

Lord viſcount Newark continues his plantations at Thoreſby, and in the winter of 1801, ſowed twenty acres with acorns; his plants average 60,000 to the acre. The marquis of Tichfield alſo ſowed fifty acres with acorns in 1798 and 1799.

OXFORDSHIRE.

The Beech Woods are confined to the Chiltern country, and conſiſt of trees growing on their own ſtems, producing by the falling of the maſt; very little being permitted to grow on the old ſtools, which are generally grubbed, and ſeedling trees planted in the looſe earth. Theſe Woods are drawn occaſionally, and never felled at once, except for the purpoſe of converting land into tillage, which has been much in practice of late years. The Beech Wood is ſold for poles or billet. It requires ſome judgment to thin theſe Woods ſo that the ſtock may not overhang the ſeedlings. The ſucceſſion of young trees is much injured by admitting cattle or even ſheep. There are ſome Oak and Aſh trees diſperſed among the beech; they ſeldom grow to any great bulk, and are not very numerous. In the vicinity of Staunton St. John are Woods of timber trees with underwood. The ſoil is a ſtrong clay, well adapted to the growth of Oak. Many ſpots of Woodland of this deſcription are diſperſed about the country. Coppices do not abound; indeed there are few of any extent, except in the foreſt of Whichwood, and theſe have trees in them[1].

The Eleventh Report to the Commiſſioners of Land Revenue ſtates, that many Woods have been grubbed and converted into tillage, but not a ſingle plantation of Oak in the county, except where gentlemen have planted for ornament, trees of quick growth having been generally preferred: and that this county does not produce more timber than is ſufficient for its own conſumption.

RUTLANDSHIRE.

Oak timber not much raiſed, and little fit for the navy. The beſt is uſed for building, canals and navigations: the coarſer for fences, gates, hurdles, &c. ſold at Spalding and Peterborough fairs, and carried into the fen country.

Underwood is cut from twelve to ſixteen years growth[m].

No plantations of Oak or other trees of any conſequence have been made[n].

SHROPSHIRE.

Navy timber greatly diminiſhed, perhaps not one-fourth remaining of what there was thirty years paſt. Great quantities of timber have been taken down in conſequence of farms having been enlarged. The joining of fields has prevailed much: and the occupiers of land frequently abuſe hedge-row trees.

Coppices are generally fallen from twenty-one to twenty-five years in growth, and all the poles are barked. Kind-growing ſaplings are generally left, and if promiſing, at a ſecond fall they are ſometimes permitted to ſtand for timber. Coppices fallen at eighteen years growth are converted into cordwood for the forges and not barked. The conſumption of underwood in forges and collieries is very conſiderable; and the price of land is too high for planting. The underwoods however are ſtill of conſiderable extent, and if the young Oak plants were carefully preſerved, future groves of Oak might ſtill be raiſed. There are perhaps few counties of equal extent that have more abounded with fine Oak timber than this. Within about thirty years the ſupply for the navy and other uſes has been very great, perhaps to the amount of 200,000l. But at preſent there are very few eſtates that could furniſh timber for a ſeventy-four gun ſhip[o].

The late Rev. J. R. Lloyd, of Aſton near Oſweſtry, planted 65,440 Oaks; and in 1793 and 1794, 60,020 more. The ſame years he alſo planted 9,300 Scotch Firs.

SOMERSETSHIRE.

This county is partially wooded, and on account of the demand from the collieries, the Wood is very irre-

[1] County Report, qu. 1794. [2] Eleventh Report, app. n. 11.

[1] County Report, 4to. 1794. [2] County Report, 4to. 1794.
[m] Eleventh Report. [n] Idem.

gularly

gularly cut. Kingſwood covers about 230 acres; the timber is chiefly Oak, but it does not get to any large ſize. The underwood is cut for wreaths or faggots. The valleys are in general richly laden with Elm, which acquires a good ſize in the hedge rows; but the method of lopping off the ſide branches, to what is here called a beſom head, cannot be too much execrated. On the northern declivity of Mendip hills are ſome good coppice Woods. On the ſouthern declivity are alſo ſome coppice Woods, but being expoſed to the weſtern breezes, theſe are not ſo productive. In the eaſtern part of the county there are ſome large and productive Woods, which being near the coal-works are very valuable. Many beautiful plantations are alſo interſperſed, which are not only an ornament to the reſpective ſeats to which they belong, but are in themſelves a fertile ſource of annual profit.

The ancient foreſt of Selwood, on the verge of which Frome ſtands, appears to have comprifed a woody vale of about 20,000 acres, 18,000 of which are now converted into arable and paſture land; the remainder continues in a ſtate of coppice Wood. The timber is chiefly Oak and Aſh, which though not of large growth, are very good of their kinds, and ſell well in the neighbourhood. The underwood is moſtly Hazel, Aſh, Alder, Withy and Birch; ſome of which ſell as high as 16l. an acre.

This foreſt was diſafforeſted about the ſeventh of Charles I. and divided into three portions, one whereof was allotted to the lords of manors, another to the commoners, and a third to the crown. The latter was ſold to the adjoining landholders. No great quantity of woodland has been grubbed within the laſt forty years; but much new ground has been planted, particularly on the hills belonging to the marquis of Bath, Mr. Beckford, and Sir Richard Hoare.

Theſe woodlands are in general in a ſtate of coppice wood, with timber chiefly Oak; but the ſoil, particularly in the vallies, being of a ſtrong yellow clay, is ſo cold and retentive, that the Oak trees, though ſpringing up ſpontaneouſly in great abundance, get moſly and dead-topped, and few of them come to a large ſize: yet from the neighbourhood of good inland markets, the profit from woodland is nearly double that of the adjoining land in arable or paſture; and the profit ariſing from the new-planted hills, particularly the ſandy parts, has been, in many inſtances, near ten per cent on the original expenſe of planting and fencing *.

STAFFORDSHIRE.

This county ſtill continues well ſtocked with timber, notwithſtanding the immenſe quantity that has been lately cut down. The beſt-timbered eſtate is that of Lord Bagot near Abbot's-Bromley. The Woods extend over many hundred acres, and almoſt wholly conſiſt of Oak, a very large quantity of which is now quite mature, and ſome even decaying. Many carry timber to the length of ſixty or ſeventy feet: and in the park are many hundreds of very extraordinary bulk, containing from 200 to 400 feet of timber each. Several might be picked out worth 60 guineas a piece, and ſome even more. Some of theſe trees are mentioned by Dr. Plott as full-grown timber in 1686. It is ſaid that one hundred thouſand pounds have been offered for theſe Woods. The ſucceſſion Woods and young plantations are very conſiderable and ſtill continuing. Theſe are made ſometimes by ſowing acorns with wheat after ſummer fallow: ſometimes by ſetting out young plants, in which caſe, at the end of one or two years, they are cut off at the ſurface, the ſecond ſhoot thriving much better than the firſt, which was checked by tranſplanting. After a Wood has been cut down, ſometimes it is replanted by ſtriking in with a pick-axe acorns and other ſeeds of foreſt trees or underwood. All theſe methods have been attended with ſucceſs.

The ſecond-timbered eſtate is Chillington, the property of Thomas Giffard, Eſq. Timber to the amount of 30,000l. has been ſold within twenty years, and that remaining is thought to be worth at leaſt an equal ſum. The ſucceſſion Woods and young plantations are very extenſive, and of luxuriant growth. In theſe Oak has been particularly attended to, but there is alſo a variety of other timber trees extremely promiſing in growth.

Upon the pleaſure grounds and eſtates of lord Dudleys at and near Himley, are large quantities of well-grown timber, and very extenſive Woods and coppices of Oak.

The timber and plantations at Teddeſley park, Sir Edward Littleton's, are very conſiderable. Maufley Wood is extenſive: beſide which there are many other coppices, dingles and clumps of full grown Oak, Aſh, and other timber. The ſpring coppices and young plantations, cover at leaſt 100 acres; and in them Oak has been an object of particular attention. Theſe plantations are generally upon poor cold land; a gravelly marl or clay bottom, on which Oak ſucceeds well, and being of no great value for corn or paſture, is very properly applied to the growth of timber and underwood.

Wrotteſley eſtate, the property of Sir John Wrotteſly, Bart. contains ſome conſiderable Woods of well-grown timber: alſo extenſive plantations of more modern growth.

An Enville, lord Stamford's, the Woods and plantations are very extenſive, and well-ſtocked with timber trees and underwood, among which Oak predominates. The Woods of Upper Arley are very large, and well ſtocked with Oak of various ages. Hagley park, cloſe to the borders of this county, contains great quantities of exceeding fine timber, of a firſt rate quality. The pariſh of Harbourne is well wooded. The Biſhop's Woods, near Eccleſhall, are ſaid to contain 1,300 acres: a certain portion of them is cut down every year. Madely Woods, near Newcaſtle, are well ſtocked with Oaks; they were formerly a park.

The plantations at Fifherwick, lord Donegal's, are of little more than twenty years growth, (in 1796) but very promiſing.

Sandwell park and eſtate, the earl of Dartmouth's, is well ſtocked with all kinds of timber, particularly Oak. The Patteſhall eſtate, Sir Robert Pigot's, ſtill contains large quantities of mature timber, although conſiderable quantities have been cut lately.

Broughton pleaſure-grounds, Sir Thomas Broughton's, abounds with plantations, clumps, and ſhady ſpreading trees, particularly ſycamores. There is a promiſing coppice of Oak on the other ſide of the road.

Hilton park, belonging to Mr. Vernon, contains plenty of flouriſhing Oaks. In the pleaſure grounds are ſome very fine well-grown Oaks and a great variety of other timber trees. The rides and plantations are very extenſive, and bear evidence of the planter's vigilant attention. Many Larches and Firs of his own planting contain twenty feet or more of timber.

Burntwood, near Aſhley common, belonging to Mr. Meynell, is very extenſive, and well ſtocked with young Oak.

The eſtates of Mr. Gough, at Perry Bar, Oldfallings, near Buſhbury, and Walton Grange, near Gnoſhall are all well timbered. Perry park and neighbourhood has much ripe timber, and conſiderable young plantations of every ſtage of growth. Oldfallings eſtate and neighbourhood is plentifully ſtocked with well-grown Oak and other timber, and Walton Grange has an excellent Oak coppice, of conſiderable extent. Bentley eſtate, Mr. Anſon's, near Walſall, is extremely full of Oak, both in coppices and hedge-rows. At Great Sugnall, near Stafford, Mr. Turton's, are ſome ſmall neat plantations, among which Oak has not been forgotten. Conſiderable Woods and plantations grow on the Shutborough eſtate, Mr. Anſon's, as well as on that of Sir William Wolſeley; and alſo upon Mr. Curzon's, near Rudgeley. The eſtate of Mr. Fowler, at Pendeford, is well wooded, in hedge-rows, young plantations, ſingle trees, and clumps of very fine well-grown Oak; it has alſo a very promiſing coppice of Oak. Other ſmaller eſtates are well ſtocked with timber, particularly that of Mr. Fleeming, at the Wergs, near Tettenhall, where are ſome Oaks worth thirty guineas each. Upon the whole, the county is well timbered, and has now in it ſucceſſion growths ſufficient for the ſupply of a great length of time.

* County Report, 8vo. 1794.

Plantations have been made to a great extent, and with uncommon ſucceſs, on the ſteep moorland hills, particularly thoſe of Dillorn, Kingſley, and Oakamoor; the Dillorn Woods alone form a chain of three or four miles in length, and conſiſt of tall ſtraight Oaks and Aſhes, in general ſo well filled up with underwood, as to be cut in falls at ſeven years growth, for rods and ſtaves uſed for crates in the pottery. John Holliday, Eſq. has proved experimentally the great advantage of planting barren impracticable precipices, large tracts of which ſtill remain in the north of Staffordſhire, not worth 1s. an acre.

This gentleman, in 1789, planted 10,000 Oaks on twenty-nine acres nearly; 94,000 Beech; a few Cypreſſes, white and hemlock Spruce Firs and Ilexes; 7,900 Larches; ſome Lombardy and black Italian Poplars, and weeping Willows.

John Sneyde, Eſq. of Belmont, planted 30,000 Oaks between 1784 and 1786; and 27 acres, 2 roods, 18 perches with mixed trees: 6000 Aſhes, 14,300 Beeches, 8000 Cheſtnuts, 4,262 Elms, 44,100 Scotch Firs, 5,500 Spruce Firs; 700 Ilexes; 13,000 Larches; 5,500 Sycamores; beſides Cratægus Aria, Horſe Cheſtnut, Lime, Plane both oriental and occidental; Lombardy Poplar and Mountain Aſh, in ſmall quantities. Alſo 11,000 Larches in 1794 and 1795.

James Beech, Eſq. of Shaw, near Cheadle, in 1798 and 1799, planted 11,000 Oaks, 9000 Aſhes, 18,000 Beeches, 1,800 Elms, 3000 Larches, 17,000 Mountain Aſhes, and 9000 Sycamores.

Henry Vernon, Eſq. of Hilton park, near Wolverhampton beforementioned, planted 11,600 Oaks in 1798 and 1799, and thirty acres with other trees; in 1797 and 1798, 6240 Silver Firs[s].

Yet notwithſtanding the above account of conſiderable old Woods and new plantations, it is ſtated in the Eleventh Report of the Commiſſioners of Land Revenue, that more Wood has been cleared than planted, that the plantations which have been made are of trees not fit for the navy, and that there is but little commonable Wood except in the foreſt of Needwood, and great part of that has been cut down lately.

Suffolk.

The ſtrong loams of this county formerly contained conſiderable quantities of large Oak; theſe, as in every other part of the kingdom, have been much leſſened, and the ſucceſſion bears no proportion to the growth that preceded it. Improved cultivation is the cauſe: rough paſtures, overrun with thorns and briars, and broad hedge-rows, were nurſeries of timber; as land became valuable, theſe have been cleared: with this obvious improvement, timber has of courſe declined; a circumſtance not to be regretted, ſince corn and graſs are products much more valuable.

Underwoods are not generally productive in this county. The profit of them is leſs than that of adjoining lands under other products.

In moſt inſtances, planting has been performed more with a view to ornament than profit: how far they may be made to unite, is a ſubject worthy of attention[t].

In one of the returns to the Commiſſioners of the Land Revenue, it is ſaid that timber is decreaſed in Woods and hedge-rows, *as it ought to be*; that much timber, and the improvement of arable land, are incompatible; and that Suffolk, being a highly improved county, timber has moſt profitably decreaſed, the improvements being ten times the value of the timber. The chairman of the quarter ſeſſions at Bury returns, that the ſcarcity of timber ought never to be regretted, for it is a certain proof of national improvement, and for royal navies, countries yet barbarous are the only proper nurſeries. All this is true to a certain degree. Land that can be uſed profitably for corn or graſs ought not in general to be planted; and hedge-rows ſhould not be encumbered with trees; but yet there are in all counties ſpots better applied to this purpoſe than any other; odd corners at leaſt, and belts for ſhelter, may be introduced almoſt every where, even in the beſt cultivated counties. Every county ought to furniſh its own coppice Wood, and timber for all rural purpoſes. Naval timber ſhould be the object of the royal foreſts. I cannot think it expedient to depend wholly upon importation for this neceſſary article.

The chairman at the quarter ſeſſions at Beccles returns, that the weſtern ſide of that diviſion has had much timber on it, but that at preſent it is in a very decreaſing ſtate; that ſome large plantations have been made, in ſome of which much young Oak is growing; but that the planting bears no proportion to the decreaſe.

Samuel Kilderbee, Eſq. planted ten acres with Oak in 1793; and ſeventeen acres and a half at Badingham and Glemham in 1795 and 1796.

Job Hanmer, Eſq. planted 8,100 Oaks at Holbrook-hall near Sudbury, in 1792 and 1793.

William Wollaſton, Eſq. of Great Finborough, planted twenty acres with Aſh[u].

Surrey.

This county abounds in waſtes and commons, to the amount, as is ſaid, of 96,000 acres, all of which, that are not fit for agricultural purpoſes, might be planted for coppice Wood and timber. Norwood, near London, contains about 600 acres, 250 acres of which is an incloſed coppice Wood, full of Oak; but the trees are not ſuffered to grow up to any ſize. The remainder of Norwood is foreſt, conſiſting of ſtraggling Oak pollards. Dulwich college has the property of moſt of the incloſed Woods.

Farnham and Crookſbury heaths contain 3,700 acres of deep ſandy ſoil. The valuable plantations of Firs on theſe heaths prove to what a profitable purpoſe they may be applied. Twelve acres were planted 1776 with Scotch Firs four years old. In 1788 they were thinned out. The number at preſent (1794) ſtanding, are 18,531, valued at 573l.

Between Godſtone and Weſterham is Stafford Wood, 150 acres, part of which conſiſts of Oak, Beech, and Birch underwood, with ſome timber of a large ſize: ſeveral Oaks were cut down a few years ago containing two loads of timber in each tree. Mr. Eden, the late lord of the manor, planted a great number of trees, which have been deſtroyed for want of being protected from cattle[t].

Sussex.

This county has always been celebrated for the growth of its timber, principally Oak. It overſpreads the Weald in every direction. Large quantities of Beech are raiſed upon the chalk hills. The great demand for bark, has occaſioned large falls of Oak; and the more eaſy communication with the ſea-ports has occaſioned greater ſupplies to be ſent to the dock-yards than the country will be able to ſupply in future. The quantity now ſtanding, of a ſize fit for the royal navy, compared to what it has been within half a century, is inconſiderable; and as there is no regular ſucceſſion in reſerve, the ſupply muſt annually grow leſs.

The export coaſt-wiſe from one port in this county, from 1763 to 1767, was only 4,769 loads of timber, and 454 tons of bark; from 1788 to 1792, 19,884 loads of timber, and 2,646 tons of bark. A load of timber is fifty cubical feet.

So early as the reign of Edward VI. thirty-ſeven boys, laden with timber, went out of Rye harbour in one tide, and not one engliſh mariner among them. The whole country round was a foreſt; inſomuch that in 1591 a man was ordered to depart the town of Rye, he being a huſbandman, and the place not fit for one of his profeſſion. Even now, in ſome parts of the county, the incloſures are very ſmall for the benefit of the timber, and round each is a thick Wood ſeveral rods wide.

The underwood is uſually cut from thirteen to ſeventeen years growth, for hop-poles, faggots, and cord-wood for charcoal. Young Oaks that grow ſcrubby are felled at thirty or thirty-five years, for poſts, rails and repairs.

In a Wood well planted with timber, underwood never comes to any ſize; and more loſs is ſuſtained by

[s] County Report, 8vo. 1796. and Tranſ. Arts.
[t] County Report, 8vo. 1797.
[u] Tranſ. Arts.
[t] County Report, 4to. 1794.

this, than gain is made by the growing timber. There are ſeldom any *tellows* or ſaplings remaining; a good ſucceſſion therefore of young Oak ſeldom follows a fall of old timber. Some prefer timber from ſtubs to the growth from ſeed; the ſucceeding ſhoot ſpringing up three feet the firſt year, and very fine timber, of two loads to a tree, having been cut from ſtubs [a].

Earl Winterton planted in Shillinglee park 14,269 Oaks, and 2,613 Lombardy Poplars.

Warwickshire.

There are large Woods and much timber in this county, particularly in what was formerly the foreſt of Arden. The underwood is cut down every ten or twelve years, and converted into ſtails, faggots, brooms, hoops, &c. and wattled hurdles. The white poles, which are twenty-four years growth, are converted into rails, ladders, hoops, and various other articles by cloggers, brush-makers, turners, &c. The price of theſe Woods is from 3l. to 8l. an acre, according to the quantity of white poles and Oak timber. Thoſe Woods which grow Oak well, anſwer beſt by being gradually converted into groves, by ſetting up Oaks either from maiden plants or ſtubs, and by previouſly dibbling in acorns where wanted [b].

Westmoreland.

At Whinfield Foreſt, and at Lowther-hall, the ſeat of the Earl of Lonſdale, are very extenſive plantations, where many of the trees have grown to an uncommon ſize. Several of the Oaks at Lowther-hall have been valued at 60l. a piece. There are many ſmaller plantations through the county, where the Wood ſprings with a degree of vigour hardly to be expected in ſuch bleak and expoſed ſituations.

On the diviſion of Kendal common, part of a very high and rocky hill not capable of any other improvement, Scotch Fir, Larch, Oak, Aſh, and other trees were planted, and they are all very thriving. The banks of the lakes are adorned with very beautiful coppices.

The biſhop of Landaff has planted, on ſome high ground near Ambleſide, above 100 acres with Oak, Elm, Aſh, Beech, Sycamore, Scotch Fir and Larch. He is doubtful whether the climate be not too cold for any of them except the two laſt [c].

In 1788 he planted 3,200 Oaks; 20,000 Aſhes on eleven acres, 2,000 Beeches, 2,000 Elms, 48,500 Larches, 650 Carolina Poplars, and 2000 Sycamores.

I. C. Curwen, Eſq. ſet 500 buſhels of acorns, and planted above 50,000 Oaks on 200 acres bordering on Winander Mere, in 1795 and 1800. In October 1800 and april 1801 he alſo planted 271,420 Oaks, 229,476 Larches, 240,800 Aſhes, 23,600 Scotch Firs, 8,120 Beeches, 21,540 Birches, 10,000 Alders, and 10,000 Elms, in all 814,956.

Dr. H. Amſlie of Dover-ſtreet, London, planted on high ground between the lakes of Winander Mere and Coniſton, from 1789 to 1802, 91,800 Larches, 33,650 Scotch Firs, 11,200 Oaks, 3000 Aſhes, 1400 Elms, 700 Beeches, 100 Spruce Firs, and 100 Silver Firs [d].

Wiltshire.

This county was once well wooded. The introduction of pit-coal has very much leſſened the conſumption of Wood for fuel, and this ſlackened the attention to the preſervation of Wood. In many parts of the outſkirts there are large and valuable Woods, but in frequent inſtances much injured by being ſubject to common rights. The uſes of underwood being many, as for hurdles and hedging, ſpars for thatching, wheelrights and carpenters work, ſheep-cribs and implements in huſbandry, &c. the preſervation of it is become an object of conſequence, eſpecially ſince the late great advance in the price of coals.

Oak, Aſh, and Elm are natural to the county. The cold ſoils on the weſt ſide are favourable to Oak; the ſands of the ſouth part to Aſh; and the gravelly vallies and deep loams of various parts, to Elm; and although many parts appear to be bare of timber, yet there are ſo many others where the ſoil is peculiarly adapted to its growth, that the produce of the county is fully equal to its conſumption.

A great ſpirit of planting has for ſome years paſt been diffuſed through every part of the county. There are few parts of the kingdom where timber trees, particularly Elms in hedge-rows are better preſerved, or leſs damage done by trimming up the ſide branches, than in the county of Wilts [e].

The marquis of Bath at Longleat has planted from 50,000 to 100,000 trees yearly for twenty years: chiefly heath land at the foot of the Wiltſhire downs near Warminſter.

Worcestershire.

The extenſive Woods and Foreſts of this county, ſo very conſiderable in early times, have almoſt diſappeared. Feckenham foreſt has ſunk entirely under the continued demands of the ſalt-works at Droitwich. The Woods of Hagley and Uffmore are ſtill of conſiderable extent, and ſome idea of the former abundance may be formed ſtill, on thoſe parts which border on Herefordſhire. Through a conſiderable part ſmall tracts of woodlands are frequent, and they furniſh timber, chiefly Oak and Aſh, with ſome Beech, of excellent quality. The hedge-rows are every where crowded with Elm, and though the preſent cuſtom of lopping and pollarding muſt certainly injure their growth, they often produce timber of conſiderable dimenſions. Elm is conſidered as the principal growth, there is however in many parts as fine Oak and Aſh as the kingdom produces. The principal uſes to which underwood is applied are hop-poles and the making of charcoal for the iron-works [f].

Yorkshire.

East Riding.

There are few ſpring Woods in this riding. Timber trees, except thoſe which are within view of a houſe, or for ornament, are cut as beſt ſuits the fancy of the owner. Many new plantations, as well as thoſe of longer ſtanding, are exceedingly injured for want of draining [g].

There is very little Oak timber fit for the navy; a ſmall quantity in North Holderneſs, and ſome good in Ouſe and Derwent Wapentake.

Many new incloſures have been made in the laſt thirty years, but Aſh has been more commonly planted than Oak in the hedge-rows.

In Ouſe, on Derwent Wapentake, many Oak hedge-rows have been grubbed up, and but few planted, many however ſtill remain. In the reſt of the Riding there are ſcarcely any.

Very extenſive plantations are yearly making, but they are chiefly of Larch, Aſh, Beech and Fir; ſome Oak, but generally upon ſoils too thin for the growth of large Oak timber [h].

North Riding.

Woods comparatively ſmall, when the extent of this Riding is conſidered.

	Acres.
The coaſt	3,000
Cleveland	1,500
Vale of York, with the Howardian hills	11,000
Ryedale, with the eaſt and weſt Marſhes	6,000
Eaſtern Moorlands	3,000
Weſtern Moorlands	1,000
	25,500

There is beſides a conſiderable quantity of timber in the hedge-rows, particularly in the vale of York, the Howardian hills, and Ryedale; though far leſs than heretofore. The ſpontaneous produce of the woodlands is principally Oak, Aſh, and Broad-leaved or Witch Elm: the produce of the mountains much

[a] County Report, 4°. 1793. [b] County Report, 4°. 1794. [c] County Report, 8°. 1797. [d] Tranſ. Arts.

[e] County Report, 4to. 1794. [f] County Report, 4to. 1794. [g] County Report, 4to. 1794. [h] Eleventh Report, app. n. 11.

Birch and Alder. Few large timber trees are now to be found, except on the eſtates of C. S. Duncombe, Eſq. and lord Carliſle.

Planting has been little attended to. The late Sir Charles Turner made ſome extenſive plantations on the Eaſtern Moorlands, near Kildale; but as he died ſoon after, they were not properly attended to. One very large tract is entirely deſtroyed; of what is left however there is enough to ſhow that trees will thrive upon the higheſt, moſt expoſed and barren of the moors: the kinds chiefly planted are Scotch Fir, Spruce and Larch, with ſome Oaks and a few Beech.

The late Francis Cholmeley, Eſq. and his ſon Francis Cholmeley, Eſq. of Branſby, have made ſome conſiderable plantations, chiefly of Larches and Firs, upon the ſides of the hills, and other barren parts of their eſtates. They were begun about thirty-eight years ſince, and have been annually encreaſed from that time: ſome of the firſt-planted Larches have been cut down and meaſure from forty to fifty-five feet in length, and from three to four feet four inches in girth. Larch being ſo valuable, thriving ſo well, and being of ſuch quick growth, that is intended chiefly to be planted in future [a].

Thomas Richardſon of Handale Abbey, Eſq. planted between october 1789 and april 1791, forty acres with mixed timber trees, Oak, Aſh, Elm, Beech, Sycamore, Alder, Larch, Spruce and Scotch Fir, White Dutch and Black Carolina Poplar; in number 121,413.

The Rev. William Smith planted at Flaxton, in 1796 and 1797, 1615 Oaks, 200 Aſhes, 300 Beeches, 1200 Birches, 50 Cheſtnuts, 100 Horſe Cheſtnuts, 200 Wych Elms, 1200 Scotch Firs, 200 Spruce Firs, 3,860 Larches on eleven acres, 100 Alders, 200 Poplars, and 200 Sycamores.

John Hutton, Eſq. of Marſke near Richmond, between the firſt of october 1799, and the firſt of april 1801, planted five acres, with 4,236 Oaks, 3,959 Larches, 2,607 Spruce Firs, 3,341 Aſhes, 575 Beeches, and 424 Poplars and Birches. Alſo fourteen acres, with 5,400 Oaks, 7,300 Larches, 5,700 Scotch Firs, 4,500 Spruce Firs, 5,200 Beeches, 3,500 Sycamores, 4,500 Elms, 5,300 Aſhes, 1,600 Birches, 2000 Alders, 2000 Mountain Aſhes, and 800 Silver Firs [b].

Weſt Riding.

Much Oak and Aſh Wood are grown in this riding, and it meets with a ready market at the ſhipping and manufacturing towns: much is alſo uſed at the mines and collieries. The Duke of Norfolk has above 1,500 acres of woodland in the pariſh of Sheffield. Mr. Beaumont of Bretton-hall poſſeſſes a great deal of valuable timber. At Kirkſtall Abbey, about three miles from Leeds, is much Oak Wood [c].

John Scolefield Firth, Eſq. at Kipping near Bradford, on eight acres two roods, planted 1900 Cheſtnuts, beſides ſetting 1400 Nuts.

Richard Slater Milnes, Eſq. of Foyſton near Ferrybridge, planted in 1788 and 1789, 225 acres, with 20,000 Engliſh Elms and other trees, among which were 200,000 Larches, from two to four years old, 2000 on an acre.

The Rev. Charles Hope of Derby, planted in the chapelry of Bradfield, between 1785 and 1792 on ten acres 41,000 and on thirty-two acres about 168,000 mixed trees, Oak, Beech, Cheſtnut, Sycamore, Broad-leaved Elm, Larch, Scotch Fir, and Aſh [d].

WALES.

North Wales.

Angleſea.

Although this iſland was famous for its Woods, it is now a received opinion that trees will not grow upon it, except on the banks of the Menai, where there are fine plantations. There are however many ſmall ſpots in the neighbourhood of gentlemens' ſeats, which by being planted thick and properly protected are in a very promiſing condition.

Caernarvonſhire.

This county, once incumbered with Woods, is now left naked and bare; except around gentlemens' ſeats ſcarcely a tree is to be ſeen, and thoſe are not very numerous. They are all ſituated near the coaſt, and yet plantations thrive very well. There is no county in North Wales ſo deficient in Woods as this and Angleſey. The old foreſts have been cut down, and their places have not been ſupplied with new plantations.

Denbighſhire.

This county is pretty well wooded with old plantations. Mr. Middleton of Chirk-Caſtle has planted more trees than any gentleman in the county. The number of acres is about 700, beſides old Woods.

Flintſhire.

This county is finely interſperſed with Woods, and every gentleman's ſeat is ſurrounded with plantations. The Woods are in general old, and very few young plantations are to be ſeen.

Merionethſhire.

This county, although better wooded than Caernarvonſhire, is yet in many places very bare of trees. Oak is the principal timber raiſed, and the woodlands are frequently very little attended to.

Montgomeryſhire.

In the numerous and extenſive rich vales with which this county abounds, there are many old plantations of Oak, which ſome of the proprietors are cutting down, without ſupplying their places. Others have not altogether overlooked the rearing of young plantations. Theſe grow very well, conſiſt of different kinds of trees, and are in general better protected from the depredations of cattle than in many of the Welſh counties [e].

On account of the improvement of roads, much more timber has been felled in this and the other counties of North Wales, than they can permanently ſupply [f].

SOUTH WALES.

Brecknockſhire.

Woodlands of all other things do the moſt diſcredit to the diſtrict of the hundred of Falgarth and the vale of Uſk; being kept under no ſyſtem, nor having the ſmalleſt attention paid to their preſervation. Nothing more would be requiſite to encourage the growth of young timber, than to incloſe any ſpot of land, and the Oak and Aſh will riſe of their own accord. The former of theſe is preferable to the Engliſh.

The hundred of Builth is tolerably well wooded, notwithſtanding the great quantity that has lately been felled. In defiance of all difficulties, ſome young plants eſcape the general deſtruction made by the browſing of cattle; and every ſpot into which the plough, the cattle or the water has not found admiſſion, is covered with ſome kind of Wood, except the high hills [g].

In this county are coppices of Oak of conſiderable extent, which if ſtrictly preſerved (according to the letter of the acts of 35 Hen. 8. c. 7. and 13 Eliz. c. 25.) would furniſh more than ſufficient Oak timber for domeſtic uſes, and ſome to ſpare for the uſe of the navy, for which there is very little at preſent [h].

Cardiganſhire.

The county has little Wood, and that little is yearly leſſening, and what is left is much neglected.

Thomas Johnes, Eſq. has made very conſiderable plantations about his beautiful ſeat at Haſod. In 1797 and 1798 he planted 10,000 Oaks; in 1798 and 1799, 165,000 Oaks, beſides ſetting acorns; 25,000 Aſhes; 280,000 larches; 50,000 Alders, with Elm, Beech, Birch, Aſh, and Mountain Aſh, in all 250,000.—The total amount of trees planted between 1795 and 1801,

2,065,000

[a] County Report, 8vo. 1800.
[b] County Report, 8vo. 1795.
[c] Tranſ. arts.
[d] Tranſ. arts.
[e] County Report, 4to. 1794.
[f] Eleventh Report, app. n. 11.
[g] County Report, 4to. 1794.
[h] Eleventh Report, app. n. 11. p. 135.

3,065,000, of which 1,200,000 are Larches; beſides fifty-five acres ſown or planted with Oaks*.

Caermarthenſhire.

The prodigious havock that has been made of late years among the Woods is truly alarming. From being a well-wooded county, it is now become the reverſe. The vaſt quantities of timber which every part produced till lately, ſeems to have begot in the proprietors an indifference as to the protection of their Woods.

Foreſt trees of all ſorts thrive well, particularly on the ſlopes of hills ſheltered from the S. W. wind, and in the vales; of which the extenſive and valuable Woods about the ſeats of Lord Dynevor, Mr. Vaughan, of Golden Grove, &c. afford undeniable proof.

Glamorganſhire.

The plantations in this county are numerous, and managed in a way that does credit to the reſpective proprietors. John Morris, Eſq. of Claſemont, is one of the firſt improvers. He has been a planter above twenty-five years, in which period he has planted above 500,000 trees, principally Beech, Oak and Aſh; many Sycamores, Firs, Larches and Birches, beſides Spaniſh Cheſtnuts, Plane, Elm, and Lombardy Poplars. He has raiſed nearly all his trees from ſeed; when they are about three feet high, he plants them out at a yard diſtance; and when they nearly touch each other, they are taken out to make other plantations: ſo that every young Wood is a nurſery. The trees are examined annually, and ſuch as are not thriving are hoed round like turneps. When the ſoil is very adhetive a crop of potatoes is introduced. All ſtagnated water is carefully drained off. Open to the ſea breezes, he finds Sycamore and Elm particularly proper. This gentleman's regular courſe of planting is about 10,000 trees annually.

Pembrokeſhire.

Woods are rather ſcarce, particularly towards the weſtern coaſt. The interior part is better wooded, the growth is for the moſt part ſlow, but the Oak is remarkably full of heart. The moſt conſiderable wooded eſtate is Slibech, lying on the eaſtern branch of Milford Haven.

Lord Milford and Mr. Barlow have a conſiderable quantity of timber trees yet remaining upon their eſtates, which, with a few ſurviving groves about Slibech, form the bulk of the preſent ſtock of timber below the mountains. Some groves in Dyffryn-Gwein, belonging to Mr. Laughorn of Orlandon and others; Penſcelly Woods, belonging to Mr. Lloyd of Bronwidd, and Pfynonne Woods belonging to colonel Colby, are the moſt extenſive on the mountains. There is hardly any eſtate in the interior and eaſtern parts without ſome plantations. The ſtock however upon the whole is ſo reduced, that there is much reaſon to apprehend a few years more will bring the farmer to the neceſſity of importing Wood for the ordinary purpoſes of huſbandry.

The Eleventh Report of the Commiſſioners of the Land Revenue ſets forth, that every body cuts down, and no one plants, or encourages the growth of Oak timber in any ſhape in this county. That there have been no commons divided, except Narberth mountain, which was formerly a foreſt of Oak, but not within memory. It is now all incloſed and not one Oak planted.

Radnorſhire.

The ſoil of this county is remarkably well adapted to the growth of Oak: even in the upper diſtrict, there are ſome remarkable inſtances of its partiality to the ſoil. Some hundred acres of common hills are at preſent covered with timber, without any incloſures: they are moſtly on the ſide of hills, ſteep banks, or rocks, where the trees were in ſome meaſure protected from the browſing of cattle, during their tender age.

Not the ſmalleſt care is taken of the woodlands by the land-owners in general, but they are abandoned to the mercileſs axe of the tenants and cottagers. The whole county was probably one immenſe foreſt; and were it left to itſelf one century, would all be covered with timber again, chiefly Oak and Aſh. The Larch and the different ſpecies of Fir and Pine thrive uncommonly well here*.

SCOTLAND.

Aberdeenſhire, Banffſhire, and Moray.

The earl of Fife planted about 7000 acres of bleak and inhoſpitable moors, with riſing and flouriſhing trees, between 1757 and 1787.

He began firſt with incloſing his park at Duff Houſe, in the county of Banff; this park is about fourteen miles round, and had not a tree, nor was it believed that any Wood could thrive ſo near the coaſt. Now however there is every kind of foreſt tree in a moſt thriving ſtate.

His great plantations from 1769 to 1787, were near Innes Houſe in the county of Moray. Between February 1784 and march 31ſt, 1787, 549 acres and a half were planted with 676,566 foreſt trees of all ſorts, of which 266,600 were common Firs, 65,160 Oaks, 64,306 Beeches, 50,000 Larches, 100,000 Birches, 29,500 Mountain Aſhes, and 22,000 Cheſtnuts. Beſides theſe incloſures there are 4746 ells of hedge and belts: and about 60,000 Firs, and 100,000 Oaks, Birch, Aſh, Larch, &c. planted ſince 1784, in Aberdeen and Banff.

Between 1769 and 1774, 604 acres and a half about Innes, &c. were planted with 1,836,500 foreſt trees, of which 1,660,000 were common Firs: beſides 23,750 ells of dyke.

Between 1775 and 1778, ſeventy-eight acres about Innes were planted with 335,500 foreſt trees, of which 295,000 were common Firs.

Between 1779 and 1783, 1781 acres and a half about Innes were planted with 2,216,385 foreſt trees, of which 1,476,820 were common Firs, 98,313 Larches, and the ſame number of Oaks, Birches, Mountain Aſhes and Beeches.

The whole number of trees planted in theſe eighteen years 4,323,386, of which 3,758,420 were common or Scotch Firs, and 296,973 Oaks.

In 1795 and 1796 a large plantation was made at Rothemay in Banffſhire. Total 47,376, of all ſorts of foreſt trees; beſides flowering ſhrubs and tranſplanted trees, of which a vaſt number about the houſe, waterſide, and through all the old Woods.

In his lordſhip's Fir Woods in the foreſt of Marr, Aberdeenſhire, which are all natural, there are trees that meaſure eighteen feet.

Between 1757 and 1801, were planted in Duff-Houſe Park, and in incloſures and clumps on the ſides of the turnpike road, amounting to ſixty acres, beſides the belts on the ſides of the new road, 18,800 Larches, 3000 Aſhes, 4900 Oaks, 4900 Alders, 4000 Beeches, 4900 Birches, 2200 Poplars, and 5000 Elms.

The belts on the ſides of the new road, with different clumps amounting to forty acres, were planted, the greater part of them in 1802, and were to be finiſhed in 1803. There had been planted 20,000 Larches, 5000 Firs, 3000 Aſhes, 2000 Elms, 20 Horſe Cheſtnuts, 300 Sycamores, 5000 Oaks, 200 Birches, 200 Alders; in all, 85,500 trees, on 100 acres.

Planted at Delgaty Caſtle ſince 1799, 114 acres with 172,400 trees, of which 62,600 are Larches, 45,400 are Firs, 13,100 are Oaks, and 38,000 Birches.

On the eſtates in the pariſhes of Rothemay, Keith and Grange, ſince the year 1797, have been planted 347,800 Larches, 72,100 Oaks, 70,400 Elms, 73,490 Beeches, 205,600 Firs, 90,000 Birches, 71,600 Aſhes, 20,260 Alders, 12,000 Sycamores, 26,850 Poplars, 6000 Spruce Firs, 3,020 Laburnums, 9,080 Mountain Aſhes and 30 of lord Fife's Mountain Aſh, 7050 Norwich Maples, 20,000 Cheſtnuts, 1000 Limes, 11,000 Roans, 500 Pinaſters, and 8200 Willows of different ſorts.

There have likewiſe been planted nearly 2000 Aſh, Elm, Sycamore, Mountain Aſh and Oak, from four to

* Trans. Arts.

* County Reports, 4to. 1794.

five

five feet high, along the ſide of a natural Wood that borders on the highway.

In addition to the plantation on the hill of Inchorſie, including the belts on the ſide of the road leading to Rothemay, four acres and a half with 2500 Larch, 1000 Beech, Birch, and Fir, 100 Mountain Aſh and Poplar, and 200 Elm. Total 673½ acres, and 4,063,880 trees.

Marr Lodge in the county of Aberdeen, 300 acres incloſed, and 2000 Larches planted among the Wood naturally produced. This incloſure is now full of thriving Firs, Birch, Poplars, and Mountain Aſh. Many of the trees in the old Woods are ſix feet in diameter.

In building a bridge over the Dee, though the ſea-port of Aberdeen is not above ſix miles diſtant, yet the directors of the work were ſo conſcious of the ſuperiority of the Wood in the foreſt of Marr to foreign Wood, that they had it brought by land carriage above 100 miles, though the roads were in many places very bad.

In the county of Moray, ſince 1797, were planted twenty-ſeven acres, with 41,130 trees.

The earl of Fife has planted altogether between 11,000 and 12,000 acres.

The above account is extracted from the 6th, 15th, and 21ſt volumes of the Tranſactions of the Society of Arts, &c. where may be found many important obſervations derived from the extenſive experience of this truly patriotic nobleman.

The Earl of Breadalbane has alſo been a great planter in Scotland.

The earl of Moray, at Darnway in the county of Elgin, has planted 236,000 Oaks; 175,000 mixed trees, Aſh, Beech, Elm, Sycamore, Cheſtnut, Spruce, Fir and Larch. Between the years 1767 and 1781, 7,876,000 Scotch Firs.

George Roſs, Eſq. of Cromarty, planted 90,000 Oaks, 42,000 Aſhes, 13,000 Beeches, 4000 Cheſtnuts, 31,200 Elms, 3,005,000 Scotch Firs, 1,900 Larches, 2,100 Sycamores.

Great plantations have been made at Cullen houſe in the county of Banff, and at Monymuſk in Aberdeenſhire.

The earl of Dundonald has planted much in the moors behind Culroſs and on the Knock of Crieff in Perthſhire.

There are vaſt Fir Woods in Rannoch, beſides others in Strathſpey and elſewhere in the north of Scotland.

From Dunkeld to the caſtle of Blair, twenty miles, the proſpect is diverſified by views of extenſive Woods and plantations. From Logierait to Taymouth, and even to Killin, the extent of planting is very conſiderable, eſpecially about the Earl of Breadalbane's caſtle, and on both ſides of Loch-Tay, ſixteen miles. From the houſe of Auchtertyre, by Lawers and Comrie, to the ſource of the Earn, a variety of trees has been planted, and a great extent of waſte land covered. At Gartmore, at Callander, &c. the ingenuity of art has conſpired with the beauties of nature to ornament the country with Wood.

Argyleſhire.

Great part of this county was once covered with Wood: even ſo late as the commencement of the eighteenth century, the Woods were held to be of little value. Some time after that however they were brought into greater eſtimation, by means of two Engliſh companies who ſet up iron forges. Woods vary in value from 5s. to 20s. an acre annually: they are cut at the end of nineteen or twenty years, leaving ſuch a number of Oak ſtandards as the parties agree to ſpare: they are then incloſed for ſix or ſeven years, and after that thrown open to cattle. The extent of ground occupied by natural Woods may be about 30,000 acres, but this bears ſo ſmall a proportion to the whole county, that many large tracts of it appear naked.

Of plantations there are not many, nor any of great extent except the duke of Argyle's, which may be ranked among the greateſt in the kingdom. About his Grace's ſeat at Inverary, above a million of trees have been planted, occupying many ſquare miles. Some of his plantations are in the direct face of the ſea breezes, and in the moſt expoſed ſituations, yet all *thriving*. There are Oaks in them from eight to ten feet in circumference, Aſhes and Planes from nine to twelve, Beeches, Elms, and Cheſtnuts from twelve to fourteen, and all in a growing ſtate. The ſmaller and later plantations in every part of the county are equally thriving, where the ſize of them is not too diminutive. At Inverneil, Firs of twenty years old meaſure three feet in circumference; and at Gartnagrenach ſome of thirty-five years old, planted in a natural Wood, meaſure from five to ſix, though ſtanding on barren rocks. The ſoil, climate, and ſituation of this county are remarkably well adapted to planting and raiſing timber; the ſoil being generally dry, the climate warm and moiſt, the ſituation almoſt every where commodious for water carriage, and the ſurface ſo uneven that every part of it abounds with ſhelter. If trees be planted thick enough and in large maſſes, there is hardly any ſituation in the county ſo untoward as to prevent their growing. The grounds planted by the duke of Argyle, being moſtly a barren heath, were not worth above 5ol. a year, forty years ago. A million of trees, at 2s. 6d. each, would amount to 125,000l[7].

Clydeſdale.

There are ſcarcely any ſpontaneous coppices above the uppermoſt fall of the river; but ſome of the principal landholders, of late, have done much to adorn the country with planting. In the early part of the 18th century, except a few trees about ſome of the houſes, this part of the country was quite naked. There are now about 1800 acres planted, three-fourths of which at leaſt has been done in the laſt twenty years. The trees of various kinds, but the Scotch Pine and the Larch are the moſt prevalent. From the top of the falls downward, coppices ariſe every where, conſiſting of Oak, Aſh, Birch, Elm, Alder, Holly, Gean, or Wild Cherry, Sallow, Hazel, &c. Of theſe there are 760 acres in the lower part of the upper ward, beſides 580 acres of planted Wood, making the whole in this tract 3140 acres. In the middle ward there are 1350 acres of coppice, and 2850 acres of planted Wood. There are few coppices and little planted Wood in the nether ward. Hedgerows and narrow ſtripes ſurround the ſmall incloſures and give the country a clothed appearance, but probably the ſquare contents do not exceed 700 acres. This makes the whole of the Woods 7,990 acres; but there is reaſon to believe that there are now conſiderably above 8000 acres.

The coppice Woods are ſometimes cut in twenty-five or twenty-ſix years, but are more frequently allowed to grow thirty years. An acre is ſold at from 20l. to 30l[8].

Dumfries-ſhire.

There are many extenſive, beautiful and valuable natural Woods in this county, eſpecially in the Nithſdale diſtrict, and alſo many large and delightful plantations around the ſeats of the noblemen and gentlemen. Much attention is paid to the preſervation and rearing of the Woods by the proprietors in general. The low and ſheltered ſituation of this county, eſpecially the Nithſdale diſtrict, which is completely ſcreened from the ſea blaſt by the Galloway hills, is remarkably favourable to the growth of trees.

Many of the natural Woods have been cut within the laſt thirty years. In general the ſtools were completely fenced, the blank ſpaces filled up with young plants, and the Woods weeded (thinned) at the proper ſeaſons. In the laſt twenty-four years many extenſive and beautiful plantations have been made[9].

County of Fife.

There are ſome patches of natural Wood in Fife, but they are few and inconſiderable. The Wood growing round the manſion-houſes of proprietors is moſt aged and valuable, conſiſting of Aſh, Elm, Beech, Fir, Lime, and ſome Oak. Thoſe plantations belonging to the earls of Crawfurd and Leven are the largeſt.

[7] County Report. 8vo. 1798. [8] County Report, 8vo. 1798.
[9] County Report, 4to. 1794.

Several, leſs extenſive, have been raiſed in different parts, particularly on the north ſide by the proprietor of Rankeiler, and Mr. Gourley of Craigrothrie; and on the ſouth, on the eſtates of General Wemyſs, Sir James Sinclair Erſkine, and Mr. Ferguſon of Raith. Theſe are now in an advanced ſtate.

Several tracts of barren ground, and divided commons, have been lately planted: but as the trees are yet in an infant ſtate, they make little appearance: they conſiſt of Oak, Scotch Fir, Larch, Beech, Birch, Aſh, &c. Larch is in higheſt repute, as it agrees with almoſt any ſoil; the Wood is very valuable, and its growth rapid[1].

Eaſt Lothian.

Along the coaſt there is hardly any thing that deſerves the name of planting: but the vale of Tyne, within theſe fifty years, has become ſomewhat better clothed with Wood. In the higher diſtrict of the county, adjoining to the hills of Lammermoor, there is ſtill more planted Wood, the oldeſt of which, upon the Tweddale eſtate, conſiſting principally of Oak, is ſuppoſed to have been planted during the uſurpation of Cromwell. There are alſo ſome Woods upon that eſtate, which tradition ſays were planted about the time of the revolution, conſiſting of Oaks, Beech, Elm, Aſh, and Scotch Fir.

The Beech ſeems no where in Scotland to be of an older date than the revolution, but it thrives wonderfully.

Upon the eſtate of General Fletcher of Salton, and of Mr. Brown of Coalſton, and ſome others in that diſtrict, there are copſe-woods compoſed of the dwarf or Scotch Oak, the Hazel, Birch, and other indigenous trees, which evidently ſeem to be a remnant of that ſpecies of copſe which we are told in early times covered the greater part of the ſouth of Scotland. The only Wood, properly ſpeaking, to be found in the lower part of this county, is at Tynninghame, which was begun to be planted about the beginning of the 18th century by Thomas, the ſixth earl of Haddington; and it grows down to the ſea beach, upon a light ſandy ſoil.

The Larch has been planted in this county within theſe laſt thirty years, and is more rapid in its growth than any tree we have except the Huntingdon Willow. But the climate of the low part of this county is in general too dry for trees, and they do not grow well, unleſs the bottom is low, and has a tendency to moiſture[2].

Mid-Lothian.

There may be perhaps about 5000 acres occupied by natural Wood and plantations; the former only on the banks of a few rivulets, the latter round every gentleman's ſeat in the county. Oak in many places is very flouriſhing: Elm and Aſh never fail to thrive, and as well as Oak find a ready ſale. Beech and Plane (Sycamore) are moſt luxuriant, but not much valued as timber. The Scotch Fir is much cultivated, but neither grows large, nor is the Wood much eſteemed. The Larch ſucceeds beſt of the Fir kind, next the Silver Fir; but the Spruce Fir ſoon becomes ſtunted, and worth even leſs than the Scotch Fir. Foreſt trees planted in hedgerows come to no good. A thin belt of four or five rows will not ſtand the climate; there ſhould be twenty rows at the leaſt[3].

Perthſhire.

The Highlands of Scotland, was at one period underwood, but it was gradually baniſhed into the ſteep declivities of glens, or among rocks, &c. deemed incapable of cultivation. About the beginning of the 18th century Woods began again to claim ſome attention. For fifty or ſixty years back, the poſſeſſors of ſome eſtates in this county thought of repairing the devaſtation which had formerly been permitted or encouraged on the growing timber. Within theſe laſt thirty years plantations have increaſed rapidly both in ſize and number. In the Stormont, in Athol, in Breadalbane, in Strätherne, in Strathallan, in the Carſe of Gowrie, in the vicinity of Culroſs, in Monteath, in almoſt every corner of the county, there are thriving plantations, which conſiſt of a variety of foreſt trees, adapted to the nature of the ſoil, which do honour to the ſpirit and judgment of the owners. In former times a few favourite trees might be ſeen about the reſidence of a great man, ſome of which may have ſtood for centuries, and become venerable by their years, but the ſcale has become greatly enlarged in this part of the empire, beyond all example at any period or in any age.

The Scotch Fir is the moſt common in theſe plantations. The Larch has many years ago been introduced into this county. There are Larches at the caſtle of Blair, Athol, and Dunkeld, planted fifty years ago, which meaſure full eight feet in circumference, at five feet from the ground, and others of as luxuriant growth at Taymouth. But the largeſt in this county are at Monzie, which meaſure five feet in diameter. At Blair Drummond, Gleneagles, Roſſie, &c. are trees of a great ſize.

Natural Fir Woods are very frequent in the north of Scotland, but are rare in this county. The family of Struan Robertſon however has time immemorial drawn a conſiderable revenue from the Fir-wood on that eſtate, which grows naturally on the ſide of Loch Rannoch. Theſe Woods cover 2566 acres, and form the moſt extenſive foreſt in one continued tract, which is to be found in this county. His detached Woods of Oak, Birch and Alder cover 3869 Acres.

There was a conſiderable tract of natural Fir ſeveral years ago near Tyndrom on the eſtate of Breadalbane, but at this time there remain only a few gleanings. Natural Firs are growing in one of the parks of Finlarig on the ſame eſtate, and in ſome other parts of the county; but all theſe are on a ſmaller ſcale.

There are more Oak Woods and of greater value in this county than in all the reſt of Scotland. Oak coppices are cut once in twenty-four or twenty-ſix years. A few trees of the moſt promiſing appearance are left at proper diſtances, from one cutting to another, and ſometimes for three or four cuttings. The barbarous cuſtom of throwing them open to cattle at the expiration of five, ſix, or ſeven years is ſtill continued.

Some thouſands of acres which had been planted with Scotch Firs, upon ſuppoſition of their being incapable of cultivation, have lately been cleared, and let at a progreſſive rent, in ſome caſes amounting to 20s. the acre. Betwixt Coupar and Perth, a tract of thirteen miles, the plantations on 2000 acres, on both ſides of the public road, have been grubbed up; and the operation is ſtill going on, both there and in other places[4].

Roxburghſhire.

The natural Wood in this county is at leaſt 608 acres, and the number planted is nearly 4682; beſides hedgerows, ſtraggling trees, and tufts around villages and farm houſes. In ſeveral places, particularly at Ancrum, a number of trees were felled of a large ſize about thirty years ago; and there are now on that eſtate ſeveral trees from ten to thirteen feet in circumference. Many trees equally large ſtill remain, in different parts, untouched by the axe or the weather. From poverty of ſoil or injudicious management, ſeveral hundred acres, planted ſome time ago, chiefly with Scotch Firs, have totally failed; and nearly as many, lately planted, do not promiſe well. Of the trees commonly cultivated, the Beech, the Plane (Sycamore) and the Lime, are the moſt luxuriant and beautiful; the Aſh and Scotch Fir are the moſt profitable. A number of Larches are coming forward in different places. Fir produced in the county has been tried with ſucceſs for joiſts and ſpars. Towards the beginning of the 18th century, Sir William Bennet, Sir —— Elliot of Stobs, Mr. Douglas of Cavers, Mr. Elliot of Wells, and Mr. Bennet of Cheſters, made large plantations of Firs, from which their deſcendants have reaped great advantage. Theſe are now moſtly cut down; but others, planted only a few years after them, are now (1798) on ſale at Wells and Stewartfield; and there is

[1] County Report, 8vo. 1800. [2] County Report, 4° 1794. [3] County Report, 8vo. 1795. [4] County Report, 8vo. 1799.

every appearance of twenty or thirty acres being equally ready every year for half a century. Much land has been lately planted, and in a manner which bids fairer for ſucceſs than any that was formerly followed.

Selkirkſhire.

The greateſt part of the Wood in this county conſiſts of Scotch Firs, the largeſt half of which was planted twenty-five years ago.

Several hundred acres however are occupied by other trees more valuable though of ſlower growth, as Oaks, Aſhes, Elms, and Planes, (Sycamores); many of which have been lately planted, though not a few are of a great age and a large ſize[7].

From this very imperfect account it will be ſeen that Scotland is by no means ſo deſtitute of trees as has been repreſented by ſome prejudiced perſons; and that a great ſpirit of planting has ariſen in ſome parts which would do honour to England. The Earl of Fife has not only planted to a very conſiderable extent; but he has beſtowed his own perſonal attention upon his fine plantations; and has even ſecured them to poſterity, that they may not be immaturely deſtroyed, but felled when the trees may be of moſt advantage to the proprietor and the public.

Upon the whole it appears that a ſpirit of planting has ariſen towards the end of the 18th century in ſeveral parts of the country, which will furniſh a ſupply for all rural uſes. As to timber for the navy, little is to be expected from theſe plantations, both becauſe the proportion of Oak is ſmall in moſt of them, and it is very improbable that many of the trees will be ſuffered to arrive at an age and ſize adapted to this purpoſe. Naval timber muſt either be raiſed in the Royal Forefts, or be procured by great encouragement held forth to private perſons. Some idea may be formed of the prodigious quantity of Oak timber that is conſumed by the navy, when we conſider that a ſeventy-four gun ſhip ſwallows up 3000 loads of fifty cubical feet each; conſequently it takes 2000 large well-grown trees, of nearly two tons or forty feet each; that is the produce of fifty acres[8].

Price of Timber, Bark, Coppice Wood, &c.

Price of Oak in 1608, 10s. the load.
——— 1664, 13s. 4d. the ton in general.
——— 15s. the ton for the navy.
——— 1663 } Straight and compaſs timber
——— 1665 } for the navy, 2l. to 2l. 15s. 6d. the load.
Knee timber, 2l. 15s. to 3l. 2s. 6d.
——— 1756 Straight and compaſs timber 3l. to 4l. 5s.
Which has continued ever ſince.
Price of Bark, time of James I. 2s. the cart load.
——— now 50s. to 3l. the coppice load, weighing from 7 to 11 cwt.

Increaſe of the price of Oak Timber in 1792, within the laſt forty years.

Bedfordſhire, increaſed about 3d.
Cambridgeſhire, increaſed 20 per cent.
Cornwall, increaſed about one-third.
Derbyſhire, near double.
Eſſex, increaſed from 1s. 3d. to 1s. 8d.
Hampſhire increaſed from 30s. to 3l. a load for carpenters.
Hertfordſhire increaſed from 45s. to 65s. or 75s. a load for carpenters, who buy by round cube meaſure, and ſell by ſquare cube meaſure at 3s. gaining 120 per cent.
Kent, increaſed one-third.
Lancaſhire, double.
Lincolnſhire, increaſed 8d. for carpenters, large timber more.
Nottinghamſhire, Oxfordſhire, } increaſed at leaſt one-third.
Rutlandſhire, increaſed one-third or ſomething leſs.
Shropſhire, increaſed one-third.
Suffolk, accounts various; increaſed 100 per cent, or one-ſixth.
Suſſex, increaſed one-third; 100 per cent in twelve years.
Warwickſhire, little difference.
Worceſterſhire, increaſed at leaſt one-third.
Yorkſhire, accounts various—more than double—not much increaſed—increaſed one-fourth, or nearly one-half.
Montgomeryſhire, doubled.
Brecon, increaſed 50 per cent.—or 20s. to 40s. the ton.
Caermarthenſhire, increaſed more than three times.
Pembrokeſhire, increaſed at leaſt one-third, perhaps one-half.
Radnorſhire, increaſed at leaſt 50 per cent.
Mid-Lothian, increaſed 40 per cent within ten years[9].

Price of Timber, &c. at the end of the 18th century, from the Surveys of Counties addreſſed to the Board of Agriculture, and other authentic documents.

Bedfordſhire. See Huntingdonſhire.
Berkſhire. Large Oak, Aſh and Elm 1s. 6d. a foot; Beech and Sycamore 1s. Oak bark 6l. to 10l.
Cambridgeſhire. Oak bark rated at 25 per cent. on the value of the timber.
Devonſhire. Oak 40s. a ton for carpenters uſe, 50s. to 3l. for coopers.
Coppice Wood (1794) 15l. an acre, at twenty years growth.
Cordwood 10s. a cord (4, 4 and 8) or 6d. the hundred weight.
Dorſetſhire. Oak 1s. 6d. a foot, or 3l. 10s. a load of forty feet, including tops and bark. Elm and Aſh 9d.
Eſſex. Oak 2s. a foot, top and bark included, the buyer felling.
Coppice Woods (Aſh, Sallow, Hornbeam, Hazel, and Thorn) worth 8l. an acre at the ſtub.
Glouceſterſhire. Cordwood 10s. 6d. or 11s.
Some Coppices ſold in 1792 at 15l. an acre.
Bark 5l. 10s.
Oak 1s. 3d. a foot.
Hereford ſhire. Coppice Wood from 12l. to 22l. an acre, from twelve to fourteen years growth.
Hertfordſhire. Oak 3l. 10s. a load, worth at the yards 5l. 10s.
A good plant of thriving underwood may be averaged at 20s. an acre annually.

Huntingdonſhire.—It is cuſtomary in this county and its neighbourhood to ſell Oak timber before it is felled. The value is from 20d. to 2s. 6d. a foot, according to its quality, at the ſame time taking into account the heads, which are included in the above prices: the purchaſer pays for felling; ſo that the average price may be about 2s. 3d. a foot, including the heads.

The cuſtomary mode of ſelling Oak bark, is by ſo much money in the pound, according to the value of the timber. The average price is about 8s. in the pound.

The value of Elm timber is 14d. per foot; and if very good as high as 16d. But this price does not include the heads.

Ordinary Aſh is ſold at 19d. a foot; but if it is fit for the cooper's uſe, it is worth 20d.

The method of felling underwood is general throughout this and the adjoining counties. It is felled into dozens (meaning twelve ſquare poles) and ſold on an average for about 12s. a dozen or 1s. per pole. Some dozens are eſtimated as high as 20s.; inferior ones at 10s. and ſome as low as 6s.

Kent. Underwoods cut from ten to fourteen and eighteen years growth from 5l. to 15l. an acre, hop-poles the chief article. Winter kiln bavins 6s. a hundred; ſummer ditto 8s. or 9s.; houſehold ditto 12s. or 14s. all ſix feet long and two round. Buſhes from 7s. to 10s. a load of fifty bundles. Beech 7d. or 8d. a foot for ſellies, for axle-trees 10d. Cordwood 12s. to 16s. (14. 3. 3¼.)

[7] County Report, 8vo. 1793. [8] Marſhall's Planting, 1. 311, ed. 2. [9] Eleventh Report of the Commiſſioners of the Land Revenue, app. n. 6.

Lincolnſhire. Oak for fencing, &c. 1s. 6d. for building nearly double. Aſh and Poplar 1s. Scotch Fir 8d.

Norfolk. Oak in 1782, 3 guineas to 3l. 15s. a ton. Top-wood 7s. to 12s. each load. Timber in the rough 15d. to 20d. Aſh ſtanding, 40s. to 50s. a ton; or 9d. to 1s. a foot.

Northamptonſhire. Oak 1s. 4d. to 2s. 6d. a foot.
Aſh 10d. to 1s. 6d.
Elm 9d. to 1s. 4d.
Poplar 6d. to 1s.
Bark 7s. to 12s. in the pound of the value of the tree.
Underwood (eleven to fourteen years growth) 6l. an acre.

Northumberland. Oak 2s. to 3s. the foot.
Aſh and Elm 1s. to 2s.
Oak bark 9l. a ton, in 1793.

Rutlandſhire. Beſt Oak 2s. 6d. the foot.
Underwood, 3l. to 6l. an acre.

Shropſhire. Bark 20s. a ton.

Somerſetſhire. Oak timber from 50s. to 3l. 16s. a ton.
Aſh from 45s. to 3l.
Underwood, at eighteen or twenty years, 16l. an acre.

Suſſex. Good Oak 6l. a load.
Beech 3l. 6s. 8d.
Aſh 3l. 15s.
Elm 2l. 10s.
Bark in 1792, 19l. in 1793. 14l.

Warwickſhire. Oak 3 guineas to 3l. 10s. a ton.
—— bark 25s. to 40s. a ton.
Underwood 3l. to 8l. an acre.

Weſtmoreland. Coppice Wood (ſixteen years growth) 10l. to 15l. an acre—if Oak, 20 guineas, 6l. for charcoal, and 15l. for bark.

Wiltſhire. Oak 1s. to 1s. 6d.
Aſh 9d. to 1s. 6d.
Elm 9d. to 1s. a foot, in the rough.

Yorkſhire. Eaſt Riding. Good Oak 2s. to 2s. 6d. common 1s. to 1s. 6d.
Good Aſh 1s. to 1s. 6d. common 8d. to 1s.
North Riding. Oak 3l. a ton, or 1s. 6d. a foot delivered in the yard—for the carpenter 1s. 4d.
Aſh 1s. to 1s. 6d.
Chopt bark 10s. 6d. a quarter.

Scotland.

Clydeſdale. Coppice Woods, at twenty-five, twenty-ſix or thirty years growth, 20l. to 30l. an acre.

Fir	9d.
Oak	1s. 8d. to 2s. 0d.
Aſh	1s. 6d. to 2s. 0d.
Elm	2 0
Sycamore	2 0
Beech	1s. to 1 6
Sallow fit for mill-timber	2 6
Lime	1 4
Poplar, moſtly white	1 4
Birch	1 0
Holly for veneering, very rare	5 0
Gean tree	1 6
Pear and Apple	1 6

Roxburghſhire. Oak, Aſh, and Elm 1s. 8d. to 2 0
Beech and Plane (Sycamore) 10d. to 1 2
Fir 7d. to 1 0
Red Saugh or Sallow 1s. 6d. or 1 8

The annual growth of Trees, and ſize of Timber at different ages.

The growth of trees varies much according to the age, ſoil, and other circumſtances. Some eſtimate however may be made of it, by comparing a great number of accounts. Such as could be readily obtained are ſet down.

Mr. Barker has given a ſeries of obſervations on this ſubject in the Philoſophical Tranſactions, vol. 78, for 1788.

Oaks.

		Girth. Inches.		Girth. Inches.	Rate. Inches.		Girth. Inches.	Rate. Inches.
1.	—	—	1772	19	—	1787	41	1 .5
2.	1758	13	1772	33	1 .4	1787	55½	1 .5
3.	1758	18½	1772	46½	1 .6	1787	68	1 .2
4.	—	—	—	—	—	1787	156½	1 .3
5.	1758	41	1772	56	1 .1	1787	77½	1 .6
6.	1744	20	1772	36	1 .3	1787	74½	1 .3
7.	1758	18	1772	93½	1 .25	1787	54	1 .2
8.	1758	76	1772	147	1 .1	1787	109½	1 .1
9.	1751	124	1765	49	1 .2	1787	104½	1 .2
10.	1744	53½	1772	99	1 .1	1787	115	1 .1
11.	1744	69½	1765	43	1 .4	1787	60	0 .8
12.	1744	14	1765	99½	1 .0	1787	120½	1 .0
13.	1747	82	1765	45	1 .1	1787	64	0 .9
14.	1744	21	1772	117	1 .0	1787	130	0 .9
15.	1762	106½	1770	152	0 .8	1787	140½	1 .0
16.	1751	117	1770	131½	0 .9	1787	145	0 .8
17.	1754	114	1772	101	0 .8	1787	109	0 .5
18.	1753	84½	1765	58½	0 .8	1787	69	0 .5
19.	1744	41						

Aſh.

			1772	71	—	1787	106	2 .3
20.	—	—	1765	67	2 .2	1787	111	2 .0
21.	1745	23½	1765	55½	1 .6	1787	92	1 .7
22.	1744	22	1765	61	1 .4	1787	94½	1 .5
23.	1743	32	1765	91½	1 .4	1787	114	1 .0
24.	1744	66	1772	45	1 .25	1782	58½	0 .9
25.	1751	20	1772	64	1 .2	1787	75½	0 .9
26.	1765	55	1765	97	1 .0	1787	116½	1 .0
27.	1747	77	1772	67½	—	1787	82	1 .0
28.	—	—	1765	77½	1 .0	—	—	—
29.	1744	56	1772	67	0 .9	1787	80	0 .9
30.	1755	51½	1765	74	—	1781	89	0 .9
31.	—	—	1772	67	1 .0	1787	77	0 .7
32.	1751	45½	1765	34	0 .8	1787	52	0 .8
33.	1744	17½	1765	36½	0 .9	1787	52½	0 .7
34.	1744	17	1772	40	0 .7	—	—	—
35.	1744	20	1772	31½	0 .7	1787	41	0 .6
36.	1745	13½						

Elms.

37.	1756	0	1772	42	2 .5	1787	77	2 .3
38.	1744	28	1765	60	1 .5	1787	96	1 .6
39.	1744	37	1758	50	0 .9	1781	72	1 .0
40.	1744	46	1758	58	0 .9			
41.	1744	48	1758	69	0 .8			

Except the two firſt Aſh trees, Mr. Barker remarks, that he finds the growth of Oak and Aſh to be nearly the ſame. The common growth of both is about an inch in girth in a year; ſome thriving ones will grow an inch and half: in general the thriving ones were meaſured.

Great trees grow more timber in a year than ſmall ones; for if the annual growth be an inch, a coat of one-ſixth of an inch is laid on all round, and the timber added to the body every year in its length multiplied into the thickneſs of the coat, and into the girth, and therefore the thicker the tree is, the more timber is added. The body of No. 9. was nine feet long, the girth under the bark above thirteen feet, the thickneſs of the coat one-ſixth of an inch, or $\frac{1}{72}$ of a foot: then $9 \times 13 \times \frac{1}{72}$ is one foot and ſix-tenths of timber added in a year to the body, beſide the increaſe on all the branches, and it had a very great head; one limb ſquared twenty inches, and is itſelf equal to a moderate tree.

The hedge in which No. 4. grew was planted in 1665, probably the tree is not older than that year; it has therefore increaſed in girth about 1.3 inch every year ſince it was ſet.

The Oak No. 5, ſeems to have ſowed itſelf: Mr. Barker did not know of it till about the year 1740, when the hedge being cut, the tree was found, and might be then twenty years old or more.

The two Aſh trees No. 20 and 21, grew much faſter than any of the reſt, but were neither of them handſome growing trees. No. 20 had ſeveral ſeams where the bark parted from the Wood, and were likely to be dead ſides. No. 21 was about as thick as a walking-ſtick in 1730. It did not grow round and ſmooth, had no dead ſide, but ſeveral deep furrows in it; ſo that theſe two trees ſeemed to grow faſter than they could grow well.

In 1733 No. 23 was about as thick as a pitch-fork ſhaft.

The Elm No. 37 was planted with the quick in january 1756, and cut down to the ground as that was. It is a kind of Witch Elm, which grow faſter than the upright ones, and with great round heads. No. 38 was ſo far like a Witch Elm, that at ten feet high it parted into a great head, but it grew much ſtraighter and handſomer than that kind of tree generally does.

Planted trees at a diſtance from the hedge ſeem not to grow ſo large as ſown trees in the hedge; whether from the check the trees receive in tranſplanting, or that the trees not in hedges are more rubbed by the cattle; perhaps both cauſes concur when the trees are tranſplanted large; but trees ſet in quicks, when very ſmall, do not ſeem to be hurt by it. Some Oaks were ſet with the quick, and a row of acorns was ſome years after ſown againſt it; but in between forty and fifty years they have not overtaken the planted ones in ſize; the ſown ſeem however to be taller trees than the planted.

It is a general opinion, ſays the biſhop of Landaff, in this, and I believe in other countries, that it is more profitable to fell Oak Wood at fifty or ſixty years growth, than to let it ſtand for navy timber to eighty or one hundred. According to the price which is now paid by the Navy-board or the Eaſt India Company, the opinion ſeems founded in truth.

If profit be conſidered, a tree ought to be cut down and ſold, when the annual increaſe in value by its growth, is leſs than the annual intereſt of the money it would ſell for. This being admitted, we have only to inquire into the annual increaſe in the value of Oaks of different ages.

In the Philoſophical Tranſactions for 1759 there are ſome uſeful tables reſpecting the growth of trees by Mr. Marſham: from theſe the two following inferences may be drawn. 1. That it is highly profitable to let young thriving Oaks, which are not worth above 30s. a tree, continue ſtanding. 2. That it is not profitable to let Oaks of eighty or one hundred years growth, continue ſtanding.

Three Oaks marked in the tables No. 8. 11, 12, in april 1743, before they began to ſhoot, contained eleven and one half feet of Wood, and were altogether worth, at eighteen pence a foot, bark included, 17s. 3d.

The ſame trees, ſixteen years afterwards contained thirty-four and one-half feet, and were worth 2l. 11s. 9d. Now if 17s. 3d. had been improved at the rate of ſeven per cent. at compound intereſt for ſixteen years, it would not have amounted to 2l. 11s. 9d.; and of conſequence the proprietor, by letting ſuch Oaks ſtand, improves his property in as high a degree, as if he put out this money to intereſt at near ſeven and a half per cent.

Three Oaks, No. 2, 3, 5, in 1743 contained 102¼ feet of timber, and were worth 7l. 10s. 9d. The ſame trees ſixteen years afterwards, contained 132½ feet, and were worth 9l. 18s. 6d. Now the value of the trees in 1743, improved at the low rate of intereſt of two per cent. would, in ſixteen years, amount to a ſum exceeding 9l. 18s. 6d. The proprietor, then, by letting ſuch trees ſtand, does not improve his property at the rate of 2l. per cent.

The Oak, No. 1, in the third table, was worth 1l. 2s. 6d. in 1757, it gained in one year one foot, or 1s. 6d. in value; if it had been worth 30s. and had gained one foot, there would have been no profit in letting it ſtand, as the intereſt of 30s. at five per cent. would have produced 1s. 6d. in the year. It is for this reaſon that 30s. is fixed upon as the value of trees which ſhould be cut down. It muſt not be ſuppoſed however that great preciſion can attend this obſervation, ſince particular ſoils, or the greater or leſs thriving condition of the Wood, may render it uſeful to cut down trees before they are worth 30s. or to let them ſtand a while longer. It ought to be remarked alſo, that large trees ſell for more per foot than ſmall ones do, yet the uſual increaſe of price is not a compenſation to the proprietor for letting his timber ſtand to a great age. This may be made out from the following experiment: on the 27th of october, 1792, was meaſured, at ſix feet from the ground, the circumference of a very fine Oak of eighty-two years growth, and found to be 107 inches; on the ſame day of the month, in 1793, it meaſured 108 inches. There is not one Oak in fifty, at the age of this, which gains an inch in circumference in one year. The length of the boll of this tree was about eighteen feet; it contained about eighty-four feet of timber, and was worth, at 2s. a foot, twelve guineas. It gained in one year very little more than a foot and a half of timber, or 4s. 6d. in value; but the intereſt of twelve guineas at four per cent. amounts in one year, to above twice the value of the increaſe, even of this tree, which is a ſingularly thriving one.

I have been more particular, ſays the learned biſhop, on this ſubject, from a public conſideration. Many men are alarmed leſt our poſterity ſhould experience a ſcarcity of Oak timber for the uſe of the navy; and various means of increaſing its quantity have been recommended with great judgment. In addition to theſe means, the making a much greater than the ordinary increaſe of price on timber of a large ſcantling, might be not improperly ſubmitted to the conſideration of thoſe who are concerned in the buſineſs. If the Navy-board would give 8l. or 9l. a load for timber trees containing one hundred cubit feet or upwards, inſtead of 4l. or 5l., every man in the kingdom would have a reaſonable motive for letting his timber ſtand till it became of a ſize fit for the uſe of the navy; whereas, according to the preſent price, it is every man's intereſt to cut it down ſooner[b].

In a fall of Oak timber in lord Bagot's Woods, Mr. Marſhall counted the rings of one which was round at the butt. The number about 200; but the laſt forty or fifty years growth were ſo thin, that he could not count them with certainty, though with ſufficient accuracy to ground the following calculations.

The girt of this tree, in the girting place, was nine feet, the diameter of which is ſomewhat more than thirty-four inches. The eſtimated growth in this part is thirty inches diameter, during the firſt 150 years, and four inches (two inches thick) in the laſt fifty years. The length of the ſtem twenty-two feet. The contents of the whole 110 feet of timber. The contents of the firſt 150 year growths eighty-five feet; leaving twenty-five feet for the growth of the laſt fifty years. Therefore although the increaſe of diameter has been comparatively ſmall during the laſt fifty years, the increaſe of timber has been nearly as great as in the firſt ſtages. But ſuppoſing this tree had been taken down at 150 years old, it would, at 2s. a foot, have produced 8l. 10s.: the intereſt of which would have amounted, in the courſe of fifty years, to more than 20l.; beſide the uſe of the land, during that time. Whereas the tree, at that rate, is now worth only 11l.

Theſe calculations and inferences are not intended to excite a ſpirit of felling timber prematurely, but to aſcertain the proper age of felling; it being worſe in point of economy to ſuffer timber to ſtand too long, than to cut it down before it has attained its full growth.

The proper ages of felling appear to be—for Poplar from thirty to fifty years old; for Elm and Aſh from fifty to a hundred, and for Oak from one hundred to two hundred. Very much however depends on ſituation, as well as on the ſoil and ſubſoil in which the trees are rooted. On dry abſorbent ſoils, the Oak and Elm at leaſt are obſerved to go off much ſooner, than on ſuch as are cool and retentive[c].

Three remarkably thriving Elms, thirty years old: two of them more than two feet diameter at the butt; and meaſure at four feet high more than eighteen inches. Not bigger than eight more leſt ſtanding; meaſure forty-four feet including bark: above forty feet of ſaleable timber, worth 1s. a foot 2 0 0

16 fencing-poſts and rails, at 4d.	0	5	4
9 feet of cordwood, at 10s.	0	11	4
40 ſpray faggots	0	3	4
	£. 3	0	0

Some hedge-row Elms 110 years old, were from two and a half to three feet in diameter. Some of theſe evidently overgrown, though in a well-ſoiled cool ſitu-

[b] Agric. ſurvey of Weſtmoreland, p. 254. 8vo. edit.
[c] Midland Counties, 2. 357 to 363.

ation. Elms therefore can ſeldom ſtand, with economy, more than 100 years [a].

Elm grows with uncommon luxuriance in the vale of Gloceſter. Its progreſs is quickeſt on the ſlighter warmer lands; but here the trees ſooneſt decay, and the timber is of the leaſt value. In clay its growth is leſs rapid, but the timber is of a much better quality: the colour of iron; and in ſome inſtances almoſt as hard. The Briſtol ſhip-builders have a ſupply of keel-pieces from this quarter [b].

The rings in a full-grown Aſh, meaſuring twenty-one inches in diameter, were ninety. Of the firſt and laſt ten years the growth had been ſlow. In the intermediate years, the different thickneſſes of the rings, in different years, were ſtriking.

The number of rings in another Aſh, eighteen inches in diameter, were, very diſtinctly, 112. Thoſe Aſhes, on a cool retentive ſubſoil, were full grown, and many of them overgrown, at 100 years old. It is not ſolidity, but toughneſs, which is wanted in Aſh Timber, and toughneſs is a quality of youthful growing trees. It is probable therefore that Aſh, for the uſes of huſbandry, ſhould not ſtand 100 years. The Aſhes in this wood (Statſfold) were in general from forty to fifty feet in the ſtem.

It is a good practice to fill up the vacancy of an oak wood with Aſh; their upward growth being more rapid than that of the oak, and their ſuperiority of value conſiſting in a ſtraightneſs and length of ſtem [c].

In a common Poplar that had fifty rings, the diameter at the butt was two feet three inches, at ten feet high twenty-four inches. In the laſt ten years its increaſe had not been more than three inches in diameter, or an inch and half in the width of the rings. It had therefore grown ten inches and a half in the firſt forty years; or a quarter of an inch each year. This tree was beginning to rot at the heart: in the lower part of the ſtem, about an inch and half in diameter was entirely decayed; it had therefore ſtood too long, though to appearance it was a healthy thriving tree. Even ſuppoſing it to have fallen perfectly ſound, the increaſe for the laſt ten years was inadequate to its encumbrance, and the intereſt of its value at forty years old; at which age it would have paid well for planting and land-room. The ſoil a rich loam: the ſituation moiſt [d].

Obſervations on the growth of Trees, by E. Harries, Eſq. of Hanwood, Shropſhire.

HORTON WOOD.

Taken at five feet from the ground.

No.	May 26, 1784. f.	in.	qrs.	May 25, 1785. f.	in.	qrs.	Increaſe. in.	qrs.
1. Oak	3	8	2	3	9	2	1	0
2. Do.	3	5	0	3	5	2	0	2
4. Do.	3	7	1	3	8	1	1	0
5. Do.	3	9	0	3	9	3	0	3
6. Do.	4	8	2	4	9	3	1	1
7. Do.	4	5	0	4	5	2	0	2
8. Do.	6	1	0	6	2	0	1	0
9. Do.	4	1	3	4	3	0	1	1
10. Do.	4	4	1	4	5	0	0	3
11. Aſh	3	8	2	3	9	0	0	2

[a] Midland Counties, 2. 318, 592. [b] Marſhall's Gloceſterſhire, 1. 42. [c] Marſhall's Midl. Counties, 2. 317, 592. [d] Id. ibid. 2. 321.

HEATH WOOD.

No.	May 26. 1784. f.	in.	qrs.	May 24. 1785. f.	in.	qrs.	Increaſe. in.	qrs.
1. Oak	3	7	3	3	8	1	0	2
2. Do.	4	7	2	4	7	3	0	1
4. Do.	4	9	1	4	9	3	0	2
5. Do.	5	6	3	5	7	0	0	1
7. Do.	5	11	0	5	11	3	0	3
8. Do.	5	11	0	5	11	3	0	3
1. Poplar	4	8	0	4	9	1	1	1
2. Do.	4	9	3	4	11	2	1	3
3. Do.	4	8	2	4	10	3	2	1
Witch Elm	5	4	0	5	5	3	1	3
Worceſt. Do.	1	9	0	1	11	0	2	0

MOOLE GROVE.

1. Oak	3	10	3	3	11	2	0	3
2. Do.	3	1	2	3	2	2	1	0
3. Do.	4	3	3	4	4	2	0	3
4. Do.	3	2	2	3	3	0	0	2
5. Do.	4	1	1	4	2	0	0	3
7. Do.	4	3	2	4	4	2	1	0

Horton Wood is in a flat ſituation, the ſoil ſhallow, with a clay bottom; but very proper for the growth of oaks. It is a large wood, of about ſeventy years ſtanding; the trees tall and ſtraight, but in general not ſufficiently furniſhed with ſide branches, without which a tree ſeldom comes to any conſiderable girth. If oaks are permitted to ſtand near together, longer than is neceſſary to fit them in a fair way for attaining height, they will not puſh out thoſe arms furniſhed with leaves which are ſo eſſential to form a fine trunk. From twelve to fifteen yards is as near as they ought to remain, after the laſt thinning.

The generality of the oaks have gained from half an inch to an inch in girth. An inch gains a pretty fair profit.

Heath Wood is an indifferent ſoil, ſloping to the north. It is ſix acres, and eighty years growth.

Moole Grove is a ſound good ſoil, ſixty years growth [e].

Mr. Harries afterwards informs us, that he meaſured ſome of the trees the year following (1786) and from the prodigious quantities of inſects, which almoſt eat away the leaves of the oaks, and the uncommon drought of the ſummer till auguſt, he found that the oaks in Heath Wood had not gained, upon an average, more than a third of an inch in circumference. In another grove of oaks, that nearly eſcaped the ravages of inſects, he found the increaſe an inch upon an average. A tree four feet round, that has timber twenty feet in length, gains thus a foot of timber, worth 1s. a foot at leaſt, and pays 5l. per cent for ſtanding. His Poplars gained near two inches, and the two Elms as much.

Mr. Harries experienced the Larch to be of the quickeſt growth, and the moſt valuable wood of the reſinous trees. But unleſs there is good room for the lower branches, the trees will not arrive at any conſiderable ſize. And this, he ſays, ſhould be obſerved in the early ſtage of all trees of a pyramidical form. They may perhaps ſtand for timber at the diſtance of about ſeven yards. The Scotch Fir may be planted between them, which may be thinned out when the branches obſtruct the Larch. He meaſured ſeveral Larches that had been planted about thirty years, from four to five feet ſix inches round, at five feet from the ground; and ſpeaks of one, which in twenty years was ſix feet in circumference [f].

[e] Young's Annals, 3. 426. [f] Idem. 6. 84.

The following TABLE *of the growth of ſeveral ſorts of Trees, in 5 years, is by* ARTHUR YOUNG, *Eſq.*

No.	Apr. 26, 1779. f. in.	Apr. 26, 1780. f. in.	Apr. 26, 1781. f. in.	Apr. 26, 1783. f. in.	Apr. 26, 1785. f. in.
1. Beech 60 years	4 7 7/8	4 8 1/8	4 8 1/8	4 10	4 11
2. Oak 150 years	9 0 1/8	9 1 1/2	9 2 1/2	9 6	9 8
3. Aſh 100 years	8 8	8 9	8 10	8 11 1/2	9 1
4. Aſh 30 years	4 9 1/2	4 10	4 11	5 0	5 2
5. Aſh 12 years	2 2 1/2	2 3	2 4	2 6 1/2	
6. Aſh 4 years	0 1 1/2	0 2 1/2	0 2 1/2	0 6	0 8 1/2
Do. height	6 1	7 8	8 6	11 8	15 6
7. Aſh 8 years	0 11	1 0	1 1	1 5	
8. Elm 14 years	1 1 1/2	1 3 1/2	1 5	1 8	1 11
9. Lime 14 years	1 7 1/8	1 9 1/2	1 10 1/2	2 2	2 5
10. Spruce Fir 16 years	1 8 1/2	1 10 1/2	1 11 1/2	2 3 1/2	
11. Silver Fir 16 years	1 7 1/8	1 9 1/2	1 10	2 1	2 5
12. Scotch Fir 16 years	1 11 1/2	2 1	2 4	2 8 1/2	3 0 1/2
13. Larch 16 years	1 7	1 8 1/2	1 9	2 0	2 3
14. Beech 200 years	0 0	0 0	12 0	12 4	12 5
15. Weymouth Pine 10 years	0 7 7/8	0 9 1/2	1 0	1 3 1/2	1 7 1/2
16. Oak 200 years	9 6 1/8	9 10	10 0	10 2	10 2
17. Oak 6 years, height	6 6	8 8	10 0	10 9	17 6*
18. Oak 3 years, height	3 0	3 1	3 6	5 0	7 3
19. Lombardy Poplar, height	6 4	9 8	11 0		
20. Larch planted 2 years, height	3 3	5 2	7 0	12 9	19 6†
21. Spruce Fir, height	0 0	3 3	4 5	8 8	13 0
22. Do. - - height	0 0	2 9	4 2	8 0	11 0
23. Scotch Fir, height	0 0	2 0	3 10	7 3	

* Circumference 8 inches.

† Circumference 10 inches.

The circumference in the above table was taken at five feet from the ground. It appears that the old trees grew very differently in different years; and that 1783 and 1784 were favourable to their increaſe. The Larches, among all the trees which have been planted, amounting to near 400,000, have upon the whole ſucceeded much the beſt; have outgrown all the firs; and have done equally well in whatever ſoil they have been tried.

The Aſh No. 6. growing in good garden loam not dunged, ſix feet one inch high, and one inch and a half in circumference, april 26, 1779, was on may 21, ſeven feet eight inches high; and on june 21, ſeven feet ten inches. July 16 it was the ſame. The great growth of it therefore was in may, when it grew one foot ſeven inches; whereas in june it increaſed only two inches, and in the following month not at all. That it grew only in the ſpring, appears from the height taken april 26, 1780.

The Oak No. 17, ſix feet ſix inches in height, april 26, 1779, on may 21, was ſeven feet one inch; june 21, ſeven feet two inches; july 16, eight feet five inches. Hence the Oak has two periods of growth, the ſpring and midſummer; the latter much the moſt conſiderable [k].

Mr. Young meaſured ſeveral trees in Marquis Townſhend's extenſive plantations about Rainham: as an Oak near the houſe, of great age, that meaſured in january 1785 twelve feet eight inches and an half in circumference, at five feet from the ground, and holding its ſize very high, being large for ſixty feet. There are not leſs than eight loads of timber in it. The trunk ſeems to increaſe, though the top and branches are decayed; for Marquis Townſhend, ſeveral years ago, put a bench round it, which was quite clear of the tree, and they now join. Eight years after, Mr. Young meaſured it again, and found it to have increaſed three inches.

A beautiful Aſh, called Lady Townſhend's, not far from the Oak, was in 1785, ten feet one inch in circumference at five feet from the ground; ſtraight as an arrow, and about thirty-five feet to the firſt fork. Eight years after it meaſured ten feet ſeven inches.

Larch of ſixteen years growth, in the twelve-acre plantation, fifteen inches and a half in circumference, and fifteen to twenty feet high. In another plantation of twenty-one years growth, two feet three inches in circumference.—In one of twenty years, ſpruce fir three feet, oak two feet, larch two feet eight inches, and another of the ſame age, four feet. The firſt large larch on the right hand entering the plantation called Drozier's belt from the houſe, two feet eleven inches. Theſe meaſures were taken in 1785.

In the plantation by the bench oak, a beech one foot eleven inches; an oak one foot ten inches, another one foot ſix inches, a third two feet two inches and a half.

Three oriental Planes together, one ſeven feet, a ſecond eight feet one inch; another alone nine feet eight inches; a Sycamore by the iron gate, ten feet at four feet ſix inches above the ground, there being a knot at five feet. Theſe meaſures taken in 1793 [l].

Meaſurements taken by MARQUIS TOWNSHEND *in* 1785, *in ſome of his own plantations.*

		f.	in.
1764.	Larch	4	0
	Ditto	3	3
	Spruce Fir	2	0
	Beech	2	6
	Spaniſh Oak	1	11
	Oak	2	6
	Cheſnut	1	10
1766.	Spruce Fir	2	10
	Larch	2	10
1767.	Sycamore	2	4
1765.	Oak	1	6
ſown.	Beech	1	4
	Aſh	1	5

All taken at five feet above the ground [m].

Meaſurements taken by JOSHUA GRIGBY, *Eſq. in* 1785. *Age ſome* 22 *years, the reſt* 18 *years.*

Planted at 4 *years old.*

	at the ground. in.	at 6 feet. in.	height. f.
Larch	56 to 58	34 to 40	37 to 40
Spruce Fir	40	25 to 30	30 to 35
Silver Fir	40 to 49	26 to 32	30 to 35
Weymouth Pine	40 to 44	26 to 31	30 to 35 [n]

In the plantations made by the enlightened and reſpectable author of the Silva, about the year 1775, ſome Scotch Firs were felled, girting two feet a length of thirty feet; and there were then remaining Scotch and Weymouth Pines, Larches, and Spruce

[k] Annals 3. 429.

[l] Annals 5. 135, & 19. 464.

[m] Idem. 5. 141.

[n] Idem. 4. 301.

Firs,

Firs, containing in each tree, upwards of two loads of timber. The Spruce Firs produced as good white deal as any imported from Norway, Chriſtiana, or Gottenburgh. The beſt floor in Sir Frederick Evelyn's houſe, is laid with his own Scotch Fir. What Firs have been ſold at Wootton Place have fetched nine-pence a foot. The plantations at Payne's hill having been thinned, chiefly of unthrifty or unhandſome trees, they meeted at ten feet a tree, and ſold at ſix-pence a foot. The age of theſe was about forty years; thoſe at Sir Frederick Evelyn's 100 or 120. The value per acre at Payne's Hill cannot be eſtimated in general at more than five ſhillings.

In the ſame pariſh of Cobham, and in the ſame kind of ſoil, Thomas Ruggles, Eſq. by whom the above account is given, incloſed ſeven acres in the year 1779; he ploughed it once in the ſummer, and having deſtroyed the heath and furze, planted two acres of it in november with Scotch Pine and Larch; the plants were furniſhed by a neighbouring nurſery-man, who warranted 1200 trees on an acre alive at the end of two years: the reſt he filled up with the ſame kind of trees from his own nurſery, except about an acre in the middle, which was planted with birch only. Two acres remained unplanted till 1783, by which time the land was again completely covered with heath and weeds. Shallow holes were then opened, and the trees planted in them, without any other preparation. Of thoſe planted by contract about half died, and were replaced by the nurſeryman; of his own not a ſcore: the former were ſix year old plants, two removes from the ſeed-bed; the latter four years old, one remove from the ſeed-bed. Some of the larches in this plantation are now (1785) fifteen feet high or more; the Scotch Pines about twelve or thirteen feet. Theſe are the moſt even plants; and ſome of the larches are moſſy. In other plantations, which are a few years older, Weymouth Pines and ſome Spruce Firs are mixed; but the Larch and Scotch Pine are much the moſt thrifty plants. The ſame gentleman, who has paid an exemplary attention to planting, and various departments of agriculture, in the year 1762, planted ſeveral acres with the Scotch Pine, four years old, one remove from the ſeed-bed, on an eſtate of his at Finchingfield, in Eſſex: they were ſet about ſeven feet aſunder, in holes dug ſufficiently large, to admit the roots without turning or cramping them. Scarce a tree failed, and many of them are now (1785) in girth near the ground three feet four inches; at ſix feet high about two feet ſeven inches; and about twenty-five feet in height: the value of the ground about 12s. an acre; the ſoil a ſtiff clayey loam [s].

Lord Bathurſt's plantations, celebrated by Pope, are very extenſive. Including beech woods, bought, but not planted by him, they exceed 1000 acres, are five five miles in extent, and make a noble figure when viewed a conſiderable way in the road to Glouceſter. The revenue is ſuppoſed to be about 20s. an acre. The fineſt trees are the Elms near the houſe. Two planted very early after Lord Bathurſt had purchaſed the place, were at five feet high, one ſeven feet eleven inches in circumference, the other ſeven feet three inches; they were from thirty to forty feet high before they branched. Larger than theſe have been cut down. The wych and Dutch Elm have thriven very badly; but the ſmall-leaved Engliſh, greatly. Oak will not do on this rocky ſoil. He planted Aſh in no great quantities; but many Firs and Beech. Mr. Young meaſured a Spruce Fir, known to be planted by Lord Bathurſt's own hands, not more than forty or fifty years ago, it was four feet ſeven inches in circumference at five feet high, and very lofty [t]. This was in 1786.

Auguſt 18, 1786, Mr. Young meaſured, in Mr. Fonnereau's park at Ipſwich, a Spaniſh Cheſnut, near the houſe, on the hill by ſome walnut trees, ſeventeen feet eleven inches at five feet from the ground. Another higher up, by a row of limes, fourteen feet, ſeven inches and a half. An Oak by the park pale near the road, eleven feet one inch and a half. A Beech by the road in the middle of the park, that has loſt one great arm, ſixteen feet nine inches and a half: at two feet high, eighteen feet and a half. The Oak, by the pond near the houſe, ſeventeen feet three inches.

At Helmingham, the Earl of Dyſart's: the largeſt Oak near the houſe, twenty feet ten inches and a half: at three feet high it is twenty-three feet ten inches. It holds nearly to the former ſize for about thirty feet, and after that branches into three vaſt arms. There cannot be leſs than ſixteen loads of timber in this venerable tree, which is decaying in its top. Near it is another, which meaſures at four feet and a half (for the trunk ſwells at five) fifteen feet five inches. A moſt beautiful, ſtraight and thriving one in the thorn walk, thirteen feet. It holds its ſize for about twenty feet as ſtraight as an arrow; in which length only it contains near five loads of timber: the whole height between thirty and forty feet.

A pollard Elm meaſures ſeventeen feet two inches and a half, the body about fifteen feet high. Nothing can be more beautiful than the head, which ſpreads a thick foliage, almoſt impenetrable to a ſun-beam, over a circle of thirty-four feet diameter.

An Aſh further, by a good Oak, nine feet ſix inches and a half, and about thirty-five feet high.

Auguſt 19. An Oak belonging to John Plampin, Eſq. at Chadacre, ten feet three inches and a half: it has therefore increaſed an inch and half ſince june 1785. The rook Aſh that ſtands near it, five feet ſix inches and a half, forty feet high, and very ſtraight. An Oak in the fore-meadow on the hill, ſeven feet eleven inches.

Two fine Oaks, at Auberries, belonging to Robert Andrews, Eſq.: one in 1785 was nine feet five inches, meaſured auguſt 4, 1786, it was nine feet five inches and a half. The other, which in 1785 was nine feet eleven inches, in 1786 was nine feet eleven inches and three quarters.

A young tall Elm, in the grove leading to the bath, was four feet eight inches and a half in 1785, and four feet nine inches and a half in 1786. A young Aſh by the bath houſe in 1785 was four feet one inch, in 1786, four feet two inches [u].

Meaſure of Trees at Cavenham, by THOMAS LE BLANC, *Eſquire.*

No.	July 1785. f.	in.	July 1786. f.	in.	July 1787. f.	in.
1. Oak	0	10½	0	11½	1	0½
2. Larch	1	0½	1	3	1	4
3. Scotch Fir	1	3½	1	5½	1	7½
4. Spruce Fir	0	5½	0	6½	0	7½
5. Spaniſh Cheſnut	0	7½	0	7½	0	8
6. Elm	2	7½	2	9	2	11
7. Pinaſter	2	3½	2	4½	2	7½
8. Larch	1	5½	1	6	1	7
9. Weymouth Pine	0	5	0	6	0	7½
10. Acacia	1	2½	1	5½	1	6½
11. Beech	0	6½	0	6½	0	7½
12. Occidental Plane	0	6½	0	7½	0	8½
13. Lombardy Poplar	1	8	2	0	2	3½
14. Black Poplar	1	2½	1	4½	1	5½
15. Willow	2	9½	3	2	3	3
16. Silver Fir	0	7½	0	8½	0	9½
17. Lime	1	8½	1	10½	2	0

Meaſure of Trees belonging to the EARL *of* FIFE, *near Duff-houſe in Scotland.*

At 18 or 19 years growth. Girt at 2 feet above the ground.

	Height. f.	Girt. f.	in.
Firs	31	2	3
Larch	30	4	10
Oak	21	1	11
Birch	22	2	5

[s] Annals, 5. 180. [t] Idem. 6. 134. [u] Annals, 6. 220. [v] Idem. 8. 109.

	Height.	Girt.
	f.	f. in.
Mountain Aſh	24	2 9
Alder	26	2 5
Elm	27	3 2
Aſh	27	2 10
Willow	26	3 4
Sycamore	23	2 4
Cheſtnut	18	2 5
Silver Fir	27	2 4
Beech	20	2 1

At 25 years Growth.

	Length of ſtock.	Height.	Girt.	Soil.
	f.	f.	f. in.	
Oaks	12	25 to 30	2 9½	Loam and clay bottom.
Elms	18	30 to 35	5 4	Light black earth.
Aſh	20	35 to 40	3 9	Heavy wet ground.
Beech	14	30 to 35	3 0	Dry ſandy ſoil.
Larch	—	46	6 3	Good heavy loam.
Silver Fir	—	44½	6 8	Ditto.

At 30 years Growth.

	f. in.
Larch and Silver Fir	6 8

Girt at 3 feet high.

Larches at Blair Athol and Dunkeld, and at Tayſmouth, planted fifty years ago, full eight feet in circumference, at five feet high.

Scotch Firs planted in 1696, from two to three feet in diameter, in a century; whereas the beſt Chriſtiana deal of the ſame age is ſeldom above a foot in diameter. Theſe old Firs ſell from 1s. 6d. to 1s. 9d. a foot; and thoſe of thirty years old yield 1s. a foot.

Larches planted by Mr. Johnes of Haſod in Wales, in 1796, then eighteen inches to two feet in height; in 1802 were from ten to thirteen feet high. The medium growth there is from twenty inches to two feet in a year.

Some of my young Spruce Firs and Larches have ſhot this ſeaſon, 1805, from twenty-ſeven to thirty-one inches and near three feet.

From trunks of old trees cut down in 1777, in Adventure Bay, Captain Bligh ſaw ſhoots, in 1788, about twenty-five feet high, and 14 inches in circumference. Mr. Nelſon ſaw a tree thirty-three feet and a half in girt: and many of the foreſt trees there are full 150 feet in height.

Many of the facts regiſtered above, may aſſiſt in forming a judgment of the comparative growth of timber trees.

WOODBINE. See *Lonicera.*

WOODROOF. See *Aſperula.*

WOOD SAGE. See *Teucrium.*

WOOD SORREL. See *Oxalis.*

WOOD-WAXEN. See *Geniſta.*

WOODY-NIGHTSHADE. See *Solanum.*

WORM-GRASS. See *Spigelia.*

WORM-SEED. See *Artemiſia* and *Eryſimum.*

WORMWOOD. See *Artemiſia.*

WOUNDWORT. See *Stachys.*

WULFENIA. (*So named by Jacquin, from the Rev. Francis Xavier Wulfen, author of* Plantæ Rariores Carinthiacæ, *in Jacquin's Miſcellanea.*)

Lin. gen. Schreb. n. 34. *Jacqu. miſc.* 2. 62. *t.* 8. *f.* 1. *Smith in Linn. tranſ.* 6. 96.

Claſs. 2. 1. Diandria Monogynia.

GENERIC CHARACTER.

CAL. *Perianth* one-leafed, five-parted: *leaflets* linear-ſubulate, equal, erect, permanent.

COR. one-petalled, ringent, *tube* ſubglobular-gibbous at the baſe: *border* two-lipped; *upper lip* ſhorter, entire, ſomewhat arched, acute; *lower* longer, bent down, trifid, bearded at the aperture.

STAM. *Filaments* two, filiform, converging arch-wiſe, concealed under the upper lip, ſhorter than the corolla. *Anthers* roundiſh.

PIST. *Germ* oblong, compreſſed. *Style* filiform, very long. *Stigma* capitate, umbilicate.

PER. *Capſule* oval, obtuſe, compreſſed at the top, grooved on each ſide, two-celled, four-valved.

SEEDS numerous, round.

ESSENTIAL CHARACTER.

COR. tubular, ringent, with the upper lip ſhort, entire, the lower three-parted, with the aperture bearded. *Cal.* five-parted. *Capſ.* two-celled, four-valved.

SPECIES.

1. Wulſenia carinthiaca.
   Lin. ſyſt. 65. *ſpec. ed. Willd.* 1. 78. *Jacqu. miſc.* 2. 62. *t.* 8. *f.* 1. *ic. rar.* 1. *t.* 2. *Reiner et Hoheawarth it. bot.* 1. 73. *t.* 1.
   Pæderota Wulſenia. *Lamarck encycl. t.* 13. *f.* 2.

DESCRIPTION, *&c.*

This is a ſtemleſs plant, nearly allied to the Pæderotas. Root perennial. Leaves radical, obovate, obtuſe, groſsly crenate, ſmooth. Scape round, ſomewhat hairy, much higher than the leaves. Flowers peduncled, ſupported by a lanceolate bractæ, all directed the ſame way, blue. Native of Carinthia, on the higheſt Alps, in a very fat ſoil'.—Dr. Smith adds Pæderota Buonarota and Ageria to this genus.

WURMBEA. (*So named by Thunberg, in honour of Fredrik Baron van Wurmb, ſecretary to the Batavian ſociety.*)

Lin. gen. Schreb. n. 617. *Thunb. nov. gen.* 18.

Claſs. 6. 3. Hexandria Trigynia.

Nat. Order of *Coronariæ. Junci* Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* one-leafed, tubular, ſix-cornered, half-ſix-cleft: *ſegments* lanceolate, acute, erect or ſpreading.

COR. none.

STAM. *Filaments* ſix, filiform, erect. *Anthers* roundiſh.

PIST. *Germ* three-ſided, grooved, ſmooth, ſuperior. *Styles* three, three-ſided, awl-ſhaped, length of the ſtamens. *Stigmas* obtuſe.

PER. *Capſule* oblong, three-ſided, three-grooved, three-celled, three-parted from the middle.

SEEDS numerous, round.

ESSENTIAL CHARACTER.

Cal. none. *Cor.* ſix-parted, with a hexangular tube. *Filaments* inſerted into the throat.

SPECIES.

1. Wurmbea pumila.
   Lin. ſpec. ed. Willd. 2. 265.
   W. capenſis α. *Thunb. diſſ. nov. gen.* 1. 19. *f.* γ. *Lin. ſyſt.* 348.
   Spike three or four-flowered, tube length of the border.
2. Wurmbea campanulata.
   Lin. ſpec. ed. Willd. 2. 265.
   W. capenſis γ. *Thunb. diſſ.* 1. 19. *f.* β.
   Wurmbea *Lamarck illuſtr. gen. t.* 270. *f.* 1.
3. Melanthium ſpicatum. *Burm. cap.* 11. *Houttuyn pſt. ſyſt.* 11. 503. *t.* 85. *f.* 2.
   Spike many-flowered, length of the leaves, tube length of the border bell-ſhaped.
3. Wurmbea longiſtora.
   Lin. ſpec. ed. Willd. 2. 266.
   W. capenſis δ. *Thunb. diſſ.* 1. 19. *f.* α.
   Wurmbea *Lamarck illuſtr. gen. t.* 270. *f.* 2.
   Melanthium monopetalum. *Lin. ſuppl.* 231. *Diſſ. noſtr. n.* 10.
   M. Wurmbeum. *Thunb. prodr.* 67.
   Spike many-flowered, longer than the leaves, tube twice as long as the border.

DESCRIPTIONS, *&c.*

1. Plant an inch high. Spike ſcarcely longer than the leaves. In ſandy grounds near the Cape of Good Hope.

2. A finger's length or more. Leaves as in all the ſpecies, three lanceolate cowled ventricoſe at the baſe, but narrower than in the following ſpecies, and the ſame

[a] Willdenow.

length

with the ſpike, which is beſet with numerous flowers. On ſandy hills near the Cape of Good Hope.

3. Leaves much wider than in the preceding ſpecies. Spike more flexuoſe at the baſe, with numerous flowers more diſtant. Tube of the corolla long and narrow. Native of the Cape of Good Hope, near Groene Kloof, and elſewhere.

Thunberg after having conſtituted this genus, ſunk it in the Melanthium: but the corolla being one-petalled and having a tube; theſe are ſufficient marks of diſtinction in the Liliaceous tribe. The varieties indicated by Thunberg, are really diſtinct ſpecies[1].

X.

XANTHE. (*So named from the yellow juice which it contains.*)

Lin. gen. ed. Schreb. n. 1561. Quapoya. *Aubl. t.* 343. 344. *Juſſ.* 256.

Claſſ. 22. 14. Dioecia Syngeneſia.

GENERIC CHARACTER.

* *Male.*

CAL. *Perianth* one-leafed, five or ſix-parted: *ſegments* ſmall, imbricate, roundiſh, concave, acute: at the baſe two ſmall oppoſite ſcales.

COR. *Petals* five or ſix, roundiſh, bigger than the calyx, ſpreading.

STAM. *Filament* one, columnar, erect. *Anthers* five or ſix, two-lobed, connate in a ſcutiform head, peltate, concave in the centre, full of glue, they open beneath.

* *Female.*

CAL. as in the Male, permanent.

COR. as in the Male.

STAM. *Filament* none. *Anthers* five, priſmatic, erect, barren.

PIST. *Germ* roundiſh, five or ſix-ſtreaked, ſuperior. *Style* none. *Stigmas* five or ſix, roundiſh, thick, emarginate, placed on the germ.

PER. *Capſule* globular, ſmall, five or ſix-grooved, five or ſix-celled, five or ſix-valved, opening at the grooves: *partitions* membranaceous, adhering to the receptacle of the ſeeds.

SEEDS very many, oblong, involved in pulp, faſtened in ſingle rows to a columnar five or ſix-angled *receptacle.*

ESSENTIAL CHARACTER.

Flowers dioecious. CAL. five-ſix-parted, permanent. COR. five-ſix-petalled.

Males with one FILAMENT, bearing five ANTHERS, collected into a ſhield-ſhaped HEAD.

Females with five barren ANTHERS. CAPSULE globoſe. crowned with the STIGMA, five-ſtriated, five-valved. SEEDS very many, involved in the pulp.

SPECIES.

1. Xanthe Quapoya. *Aubl. Guian. p.* 898.
2. Xanthe Panari. *Aubl. Guian. p.* 901.

DESCRIPTIONS, *&c.*

1. A ſhrub with cylindric, knotty, ſpreading, pendent branches, leaves entire, ſeſſile, fleſhy, ſmooth, oval, pointed, oppoſite, and diſpoſed croſsways, flowers yellow, produced in ſmall heaps from the tips of the branches: native of Guiana, flowering in november. Native name *Quapoy.*
2. This differs from the former in having leſs fleſhy and ſmaller leaves, and flowers more cloſely diſpoſed on the common footſtalk: the fruit alſo is larger and more oblong. Native name *Pana-Panari.*

XANTHIUM. (*From ξανθος, yellow. A decoction of it being of a yellow colour.*)

Lin. gen. n. 1056. *Reich. n.* 1152. *Schreb. n.* 1426. *Tournef. t.* 252. *Juſſ.* 191. *Gærtn. t.* 164.

Claſſ. 21. 5. Monoecia Pentandria.

Nat. Order of *Compoſitæ Nucamentaceæ. Corymbiferæ* Juſſ.

GENERIC CHARACTER.

* *Male flowers* compound.

CAL. *Perianth Common* of many florets, many-leaved, imbricate with ſlender ſcales, length of the florets, equal.

COR. *Compound* uniform, tubular, equal, digeſted in a hemiſphere.

Proper one-petalled, tubular, funnel-ſhaped, erect, five-cleft.

STAM. *Filaments* five in a tubular cylinder. *Anthers* erect, parallel, diſtinct.

REC. *Common* ſcarcely any, ſeparating the florets by chaffs.

* *Female Flowers* below the males, on the ſame plant, doubled.

CAL. *Involucre* two-flowered, two-leaved: *leaflets* oppoſite, three-lobed, (lobes acute, the middle one more produced,) fenced by hooked prickles, covering on every ſide and faſtened to the germ: the little ſegments looſe.

COR. none.

PIST. *Germ* oval, hiſpid. *Styles* two equal, capillary. *Stigmas* ſimple.

PER. *Drupe* dry, ovate-oblong, covered all over with hooked prickles, bifid at the top.

SEED. *Nut* two-celled.

OBS. *The fruit of Xanthium is not eaſily underſtood till that of Ambroſia is well known.*

ESSENTIAL CHARACTER.

MALE. *Cal.* common imbricate. *Cor.* one-petalled, five-cleft, funnel-form. *Recept.* chaffy.

FEM. *Cal.* involucre two-leaved, two-flowered. *Cor.* none. *Drupe* dry, muricated, two-cleft. *Nucleus* two-celled.

SPECIES.

1. Xanthium ſtrumarium. *Small Burdock.*
   Lin. ſpec. 1400. *Reich.* 4. 137. *hort. cliff.* 443. *upſ.* 284. *fl. ſuec. n.* 864. *fl. zeyl. n.* 569. *mat. med.* 201. *Gærtn. fruct.* 2. 418. *Hudſ. angl.* 418. *Wither. arr. ed.* 3. 283. *Smith brit.* 1017. *Hull* 211. *Fl. dan. t.* 970. *Dalib. par.* 290. *Hall. helv. n.* 1621. *Scop. carn. n.* 1177. *Pollich pal. n.* 902. *Villars dauph.* 3. 38. *Allion. pedem. n.* 521. *Deſont. atlant.* 2. 343. *Lour. cochinch.* 563. *ed. Willd.* 689. *Regnault bot.*
   Xanthium *Fuchſ. hiſt.* 579. *Dod. pempt.* 39. *Blackw. t.* 444.
   X. s. Lappa minor. *Bauh. hiſt.* 3. 572. *Matth.* 1024. *ed. valgr.* 2. 545. *Raii hiſt.* 165. *ſyn.* 140. *Petiv. brit. t.* 1. *f.* 12.
   Bardana minor. *Ger.* 664. 2. *emac.* 809. 2.
   X. s. Bardana minor. *Park. theat.* 1223. 4.
   Lappa minor. *Tabern. ic.* 773.—s. Xanthium Dioſcoridis. *Bauh. pin.* 198.
   Stem unarmed, leaves cordate three-nerved at the baſe.
2. Xanthium orientale.
   Lin. ſpec. 1400. *ſyſt.* 852. *Reich.* 4. 137. *dec.* 33. *t.* 17. *Lepich. it.* 1. 240. *Gærtn. fruct.* 2. 418. *Thunb. jap.* 267.
   X. canadenſe. *Mill. dict. n.* 2.
   X. elatius majus americanum, fructu ſpinulis aduncis munito. *Mor. hiſt.* 3. 604. *ſ.* 15. *t.* 2. *f.* 2.
   X. majus canadenſe. *Herm. lugdb.* 635.
   Lappa canadenſis minori congener ſed procerior. *Hort. reg. par. Raii hiſt.* 165.
   Stem unarmed, leaves cruciform-ovate ſubtrilobate.
[3. Xanthium echinatum.
   Lin. ſyſt. 852. *Murr. in comm. gott.* 1784. *cum ic. Stem unarmed, fruit oval prickly, prickles hooked cluſtered echinate at the baſe.*]
4. Xanthium ſpinoſum.
   Lin. ſpec. 1400. *Reich.* 4. 138. *hort. cliff.* 443. *upſ.* 283. *Gærtn. fruct.* 2. 419. *Knipb. cent.* 2. 100. *Allion. pedun. n.* 522.
   X. ſpinoſum atriplicis folio. *Mor. hiſt.* 3. 604. *ſ.* 15. *t.* 2. *f.* 3.
   X. luſitanicum ſpinoſum. *Pluk. phyt. t.* 239. *f.* 1.

[1] Willdenow.

Herm. par. t. 246. *Magn. hort.* 208. *cum ic. Volk. norib. t.* 149.
Spines ternate, leaves three-lobed.

[5. Xanthium fruticoſum.
Lin. ſyſt. 852. *ſuppl.* 418. *L'Herit. ſtirp.* 2. *t.* 91. Ambroſia arboreſcens. *Mill. dict. n.* 5. and *Dict. noſtr. Leaves pinnatifid, ſegments gaſhed, ſtem ſhrubby.*]

DESCRIPTIONS, *&c.*

1. Stalk round, with many black ſpots, riſing in good ground two feet high, and ſending out a few ſide branches. Leaves on ſlender foot-ſtalks, near four inches long, heart-ſhaped, but ſome of the largeſt cut into three acute lobes, they are irregularly indented on their edges, end in acute points, and are of a pale green on their under ſide, but of a dark green on their upper. Peduncles axillary. Flowers in looſe ſpikes, herbaceous, collected into roundiſh heads.

[Root annual, fibrous. Leaves alternate, on long petioles, ſerrate, pubeſcent, rugged. Racemes leafy, few-flowered. Males in a branched bunch, terminating the ſtem and branches; anthers ſeparate, not united as in the claſs Syngeneſia. Female flowers immediately beneath, in the boſoms of the upper leaves. Fruits elliptic, pubeſcent, muricated all over with rigid hooked briſtles [a].

The female calyx is changed into an involucre to the ſeed; it is coriaceous, oblong, within divided by a longitudinal partition, ending at top in two horns, which at firſt are ſtraight, but afterwards curved inwards and hooked, gaping in the inner ſide by a longitudinal cleft, but not ſplitting. Seeds in each cell one, ovate-oblong, attenuated at both ends, ſtriated, convex on one ſide, flat on the other, dark brown [b].

The leaves are bitter and aſtringent. A decoction of the whole plant affords a ſhowy yellow colour; but it is better if only the flowers are uſed. Horſes and goats eat it. Cows, ſheep, and ſwine refuſe it [c].

Native of Europe, of Africa about Algiers, of China and Cochinchina, in fields and hedges common. Mr. Miller ſays he received the ſeeds from India. In England it was found by Merret in a bog beyond Peckham; Ray ſays he found it once in the road from Portſmouth to London, about three miles from the former. Tho. Williſel and Mr. Newton both obſerved it about Dulwich;] where Mr. Miller ſays he once ſaw it in the road near the College, but that of late years it has not been ſeen in the few places where it was formerly remarked.

2. The ſtalks of this are much thicker, and riſe higher than thoſe of the firſt; the leaves are not hollowed at their baſe, nor are they divided ſo deeply on their ſides; they are unequally indented on their edges, and have three ſtrong longitudinal veins. The flowers are produced in ſhorter looſer ſpikes. The fruit is much larger, and armed with ſtronger ſpines.

[It is very like that of the preceding ſpecies, but almoſt twice as big, ferruginous not pale ſtraw-colour, and ſomewhat tomentoſe about the baſe of the beaks and ſpines; not ſmooth all over, as that is. Seed of a long elliptic form, ſtriated, brown [a].

The whole plant is more rugged. Leaves ovate, wedge-ſhaped at the baſe, indiſtinctly three-lobed, or five-lobed. Fruit three times as big and longer, with two diſtant hooked beaks. The male flowers have recurved chaffs twice as long as the floret. There are linear bractes to the fruits, either ſingle or in pairs.

Native of China, Japan, Ceylon and Siberia. Linneus doubts whether the American plant be the ſame with this [b]. Cultivated 1713, by Bp. Compton [c]. It is annual, as the firſt is, but flowers later, namely in auguſt.

3. Stem a foot and half high; rough with cloſely preſſed briſtles: branches very ſhort, alternate: leaves a palm or more in length; rough, tooth-ſerrated, with unequal ſerratures, ſomewhat obtuſe, three-nerved, ſubcordate, and ſubtrilobate: footſtalks the length of the leaves, and ſpreading; rough, and purpliſh. Male flowers collected into a ſeſſile head of the ſize of a large pea: Female axillary ſeſſile, remote from the males. Native of North America [d].

4. The ſtalks of this riſe near three feet high, and ſend out many branches the whole length. Leaves oblong, indented on their edges, ending in acute points, from two to three inches long, and three quarters of an inch broad, dark green on their upper ſide, but hoary on their under, on very ſhort foot-ſtalks. The flowers come out from the ſide of the branches, two or three at each place; one of them is female, and is ſucceeded by an oblong-ovate fruit, armed with ſlender ſharp erect ſpines. The ſtalks and branches are armed with long ſtiff triple thorns on every ſide.

[The three-forked ſpines, according to Linneus, are ſtipules, one of which becomes a fruit. This is ovate-cylindrical, terminated by a ſimple awl-ſhaped ſtraight cartilaginous ſmooth beak. Prickles diſtant, horizontal, briſtle-ſhaped, rigid, with little hooks at the tip. Seeds oblong, ſemicylindrical, blackiſh [a].

Native of Portugal and the South of France.] Mr. Miller ſays Portugal and Spain. It flowers in july and auguſt; and in warm ſeaſons the ſeeds ripen in autumn. [Cultivated 1713 by Bp. Compton [b].]

Mr. Miller has another ſpecies, (*n.* 4.) which he ſays grows naturally in China, whence he has often received the ſeeds. The plants are like thoſe of the firſt ſort, but grow larger and branch more. The flowers are produced in looſe ſpikes at the top of the ſtalks. The fruit is like that, but the ſpines are ſlender, ſingle and ſtraight. This flowers about the ſame time with the *ſpinoſum*, but unleſs the autumn proves warm, the ſeeds will not ripen in England. [It is probably a variety of the firſt ſort.

5. Stem the height of a man, perennial but ſcarcely woody, erect, roundiſh, obſcure, ſomewhat hairy: branches axillary or lateral, ſhort. Leaves alternate, even or ſlightly wrinkled, petioled, pubeſcent underneath. The floral leaves and firſt leaves of the branches lanceolate, undivided, quite entire. Common leaves oblong, pinnatifid; ſegments five, oblong, acuminate, ſubſinuate or groſſly ſubſerrate. Petioles commonly ſimple, pubeſcent: on the larger leaves with membranaceous margins running down from the leaf. Male ſpike terminating. Native of Peru [a]. Cultivated in 1759, by Mr. Miller [b]: for whoſe deſcription ſee Ambroſia arboreſcens.

PROPAGATION AND CULTURE.

All theſe plants, except the laſt, are annual. The firſt will come up from the ſeeds which fall in autumn, and requires no other care but to thin the plants, and keep them clear from weeds. The ſecond ſort will do the ſame when the autumn is favourable: but it often happens with us that the ſeeds do not ripen.

The fourth ſort will alſo in ſome years perfect ſeeds on ſelf-ſown plants, but as they ſometimes fail, the ſure way is to raiſe the plants on a gentle hot-bed, and to plant them out on a warm border in a lean ſoil: for when they are planted in rich ground, they will not produce flowers till late in autumn, and the ſeeds will not ripen.

[For the culture of the fifth ſort, ſee Ambroſia arboreſcens.

XANTHORHIZA. (*From* ξανθος, *yellow, and* ριζα *a root.*)

- *Lin. gen. Schreb.* 1581. *Marſh. arbuſt.* 167.

Zanthorhiza. *L'Herit. ſtirp. t.* 38. *Juſſ.* 234.
Claſſ. 5. 7. Pentandria Polygynia.
Nat. Order of *Ranunculaceæ* Juſſ.

GENERIC CHARACTER.

CAL. none, unleſs the corolla be ſo called.
COR. *Petals* five, ovate, acute, ſpreading.
Nectaries five, truncate-two-lobed, ſpreading, inſerted into the receptacle, alternate with the petals and ſhorter than them.
STAM. *Filaments* five to ten, awl-ſhaped, very ſhort. *Anthers* roundiſh.
PIST. *Germs* ſeveral (ſeven-eleven) oblong. *Styles* awl-ſhaped, curved inwards. *Stigmas* acute.

[a] Smith brit. and Woodw. Mss. [b] Withering. [c] Gærtner. [d] Gærtner. [e] Linn. ſpec. [f] Hort. kew.
[a] Murr. in comm. gott. [b] Linn. ſuppl. [c] Gærtner. [d] Hort. kew. [e] Hort. kew.

PER. *Capſules* as many, inflated, ovate-oblong, compreſſed, bluntiſh, obliquely accuminate with the ſtyle, one-celled, bivalved, opening at the top.
SEEDS ſolitary, oblong, compreſſed, ſmall.
OBS. *Six petals are ſometimes obſerved.* The firſt *flowers are barren.* Marſhall.

ESSENTIAL CHARACTER.

Cal. none. *Petals* five. *Nect.* five, pedicelled. *Capſ.* five, one-ſeeded.

SPECIES.

1. Xanthorhiza apiifolia.
Lin. ſpec. ed. Willd. 1. 1568. *L'Herit. ſtirp.* 1. 79. *t.* 38. *Ait. kew.* 1. 399. *Willd. arb.* 414.
X. ſimpliciſſima. *Marſh. arbuſt.* 168.
Frutex Petroſelini foliis virginianus Baniſteri.
Pluk. phyt. t. 270. *f.* 4. (excl. aliis ſynon.)

DESCRIPTION, *&c.*

This is a low ſhrub, about three feet in height. The root is woody, branched, yellow without, ſaffron-coloured within, and puts forth runners. Stems from the root numerous, almoſt ſimple, erect. Branches alternate, round, marked with rings, aſh-coloured, with the inner bark yellow. Leaves alternate, unequally pinnate, two-paired, ſpreading, five or ſix inches long including the petiole, leaflets oppoſite, ſeſſile, (the end one moſtly petioled and bigger,) lanceolate, acute, gaſhed, ſmooth, bright green, of the ſame colour on both ſides, ſpreading, an inch and half long, and an inch wide. (Willdenow ſays they are ovate-wedgeform and gaſh-toothed, the end one three-lobed and gaſhed.) Petioles round, flat above, widened at the baſe and embracing. Raceme proceeding from a terminating gem, compoſed of alternate racemelets; firſt erect, but afterwards nodding, pubeſcent, bracted, blood-red, from one to ſix inches long. Racemelets compoſed of three-flowered or two-flowered peduncles. Flowers pedicelled, erect, dark or duſky purple: in the terminating one the number of ſtamens ſeems to exceed that of the germs, and the contrary in the lateral ones: the terminating flower is commonly barren, and perhaps is a male hermaphrodite[a].

Native of North America. It flowers from february to april: and was introduced about 1766 by Mr. John Buſh[b]. Bartram firſt obſerved it in Georgia. Mr. Marſhall ſays it grows naturally in Carolina, and that from the yellowneſs of its roots, it is highly probable it might be employed to good purpoſe in dyeing.]

XANTHOXYLUM. (*From* ξανθος, *yellow, and* ξυλον *wood.*)
Lin. gen. n. 1109. *Reich. n.* 1213. *Schreb. n.* 1512. *Colden. Gærtn. t.* 68. *Lamarck encycl.* 2. *p.* 38. Fagara. *Dubam. arb.* 1. 229. *t.* 97. *Juſſ.* 374.
Claſſ. twenty-two five. Dioecia Pentandria.
Nat. Order of *Hederaceæ. Terebintaceæ* Juſſ.

GENERIC CHARACTER.

* *Male.*
CAL. *Perianth* five-parted: *leaflets* oval, erect, coloured.
COR. none.
STAM. *Filaments* commonly five, awl-ſhaped, erect, longer than the calyx. *Anthers* twin, roundiſh, grooved.

* *Female.*
CAL. as in the male.
COR. none.
PIST. *Germs* two to five, roundiſh, ending in *Styles* which are ſolitary, awl-ſhaped, longer than the calyx. *Stigma* obtuſe.
PER. *Capſules* two to five, pedicelled, one-celled, two-valved, opening inwards.
SEEDS ſolitary, roundiſh, ſmooth, hanging by a thread.
OBS. *Cal. five-cleft, coloured, very ſmall. Pet. five, ovate. Stam. five, length of petals. Germ twin, roundiſh. Styles two, very ſmall: ſtigmas acute. Gron. virg.* 47. *Walt. carol.* 243.—*Cal. four, five or ſix-parted. Stam. four-ſix. Style one. Stigmas three or two-four.* Murr. Moench. *Flowers hermaphrodite.* Moench.—*Both in Xanth. Clava Herculis.* Schreb.

ESSENTIAL CHARACTER.

Cal. five-parted. *Cor.* none.
FEM. *Piſt.* five. *Caps.* five, one-ſeeded.

SPECIES.

1. Xanthoxylum Clava Herculis. *Tooth-ach Tree.*
Lin. ſpec. 1455. *ſyſt.* 884. *Reich.* 4. 247 *hort. cliff.* 487. *amoen.* 3. 16. *Brown jam.* 189. *Pluk. phyt. t.* 328. *f.* 6. *Du Roi barbar.* 2. 509. *Cateſb. car.* 1. *t.* 26.
β. X. americanum. *Mill. dict. n.* 2.
Fagara fraxini folio. *Dubam. arb.* 1. 229. *t.* 97.
X. fraxinifolium. *Marſh. arbuſt.* 167.

DESCRIPTION, *&c.*

1. This riſes to the height of fifteen or ſixteen feet. Stem woody, about a foot thick, covered with a whitiſh rough bark, and armed with ſhort thick ſpines, growing to a large ſize as the trunk increaſes in bulk, ſo as to become protuberances terminating in ſpines. Leaves in pairs, or without order, compoſed of three, four or five pairs of lanceolate leaflets placed oppoſite, and terminated by an odd one; they are of a deep green on their upper ſide, and of a yellowiſh green beneath, a little ſerrate, and on ſhort foot-ſtalks. At the end of the branches come forth the peduncles, branching out and forming a looſe panicle. Leaflets of the calyx ſmall, white. Anthers reddiſh. In the female flowers five ſtyles faſtened to the ſide of the germ. Capſule roundiſh four-cornered, containing one roundiſh, hard, ſhining ſeed. It is ſometimes called Pellitory-tree.

Mr. Miller regards this as different from the prickly yellow Wood, or yellow Hercules of Jamaica, which is one of their largeſt timber trees, with the leaves twice as big, the leaflets almoſt three inches long, and an inch and half broad, ſitting cloſe to the foot-ſtalk; and the leaves are equally pinnate. The capſules have five cells, each containing one black, ſhining, hard ſeed.

[Browne ſays it is frequent in moſt parts of Jamaica, growing to a very conſiderable ſize; riſing frequently to the height of twenty or thirty feet, and branching pretty much towards the top: that it is looked upon by many as a dye-wood, but is generally uſed in buildings, and eſteemed a good timber tree.—He deſcribes it as having a five-parted calyx, but ſo ſmall as to be ſcarcely obſervable; the corolla cut almoſt to the baſe into five ſpreading oblong-ovate ſmall-ſhaped ſegments, five ſtamens, ſtyle ſcarcely any, ſtigmas five, capſule five-lobed, divided beyond the middle, with one diſtinct cell to each lobe.

Murray remarks, that in the Gottingen garden all the flowers are hermaphrodite, heaped alternately at the ſides of the branches, on ſhort peduncles; calyx inferior, commonly five-parted, but ſometimes four or ſix-parted; corolla none; ſtamens divaricating, five, ſeldom four or ſix; ſtyle one, ſhort; ſtigmas globular-ovate, three, ſometimes two or four: the fruit did not ripen.]

β. Mr. Miller diſtinguiſhes two ſpecies, the firſt growing in South Carolina, the ſecond in Pennſylvania and Maryland. That has been deſcribed above: this he ſays has a woody ſtem, which riſes ten or twelve feet high, ſending out many branches towards the top, having a purpliſh bark, and armed with ſhort thick ſpines ſtanding by pairs. Leaves unequally pinnate, with four or five pairs of oblong-ovate leaflets, ſitting cloſe to the midrib, which is armed on the under-ſide with ſome ſmall ſpines; the leaflets are of a deep green above, and of a pale green beneath: they have a biting taſte. The bark of the tree is uſed to cure the tooth-ach, whence its name. The flowers grow in looſe panicles like the other, and are ſucceeded by fruit with five cells, each including one hard ſhining ſeed.

[Mr. Marſhall, in his American Grove, thus deſcribes it. It riſes with a pretty ſtrong ſtem to the height of ten or twelve feet, dividing into many branches covered with a purpliſh bark, and armed

[a] L'Heritier. [b] Hort. kew.

ar each bud with two ſtrong ſharp ſpines. The leaves are compoſed of four or five pairs of leaflets, terminated by an odd one; they are entire, of an oblong-ovate ſhape, oppoſite and ſitting cloſe to the common foot-ſtalk, which has a few ſpines underneath. The flowers are produced along the branches upon ſhort collected foot-ſtalks: the females are each ſucceeded for the moſt part by five diſtinct oval capſules, joined by ſhort footſtalks to the common receptacle, and ſpreading above; each containing one roundiſh ſmooth ſeed. This grows naturally in Pennſylvania and Maryland.

There is ſaid to be another ſpecies, or perhaps variety, in South Carolina, differing in having the leaflets lanceolate, ſerrate, and petioled. The bark and capſules are of a hot acrid taſte, and are uſed for eaſing the tooth-ach: a tincture of them is alſo much commended for the cure of the rheumatiſm.

It was cultivated by Mr. Miller ſome years before 1740.]

PROPAGATION AND CULTURE.

Theſe plants are generally propagated by ſeeds, but as they never ripen in this country, they muſt be procured from thoſe places where they naturally grow, or the plants muſt be propagated by layers. When the ſeeds arrive in England, they ſhould be ſown in pots filled with light earth as ſoon as poſſible, for they do not grow the firſt year; and when they are kept out of the ground till ſpring, they frequently lie two years in the ground before the plants appear; therefore the pots ſhould be plunged into the ground up to their rims, in an eaſt-aſpected border, where they may remain during the ſummer; this will prevent the earth in the pots from drying too faſt, which it is very apt to do when the pots are ſet upon the ground in the ſun. The only care to be taken of the ſeeds is, to keep the pots conſtantly clean from weeds, and in very dry weather to refreſh them now and then with water. In autumn the pots ſhould be placed under a common hot-bed frame, where they may be ſcreened from froſt, or elſe plunged into the ground in a warm border, and covered with tan to keep out the froſt, and the following ſpring they ſhould be plunged into a hot-bed, which will bring up the plants. When theſe appear, they muſt be frequently, but ſparingly watered, and kept clean from weeds; and, as the ſummer advances, thoſe of the ſecond ſort ſhould be gradually inured to bear the open air, into which they ſhould be removed in June, placing them in a ſheltered ſituation, where they may remain till autumn, when they muſt be placed in a hot-bed frame to ſhelter them in winter. The ſpring following, before the plants begin to ſhoot, they ſhould be carefully taken up, and each planted into a ſeparate ſmall pot; theſe may be plunged into a gentle hot-bed, which will forward them greatly in putting out new roots. The after care muſt be to ſhelter them for a year or two in winter, until the plants have gotten ſtrength; then in the ſpring, after the danger of froſt is over, ſome of them may be turned out of the pots, and planted in the full ground in a warm ſheltered ſituation, where the ſecond ſort will thrive very well, and reſiſt the cold; but the firſt is not ſo hardy, ſo theſe may be planted againſt a ſouth wall, where they will thrive very well. Some of the plants of this ſort had been planted in the open air, in the Chelſea Garden, ſome years paſt, where they had thriven and endured the cold without any covering, but the ſevere winter in 1740 deſtroyed them all. Theſe plants may be increaſed by cutting off ſome of their ſtrong roots, preſerving their fibres to them, and theſe planted in pots filled with light earth, plunging them into a moderate hot-bed, will cauſe them to puſh out roots and become plants; but theſe will not thrive ſo well, nor grow near ſo large as thoſe which are raiſed from ſeeds.

[Xanthoxylum trifoliatum. See *Panax*.

XERANTHEMOIDES. See *Xeranthemum*.]

XERANTHEMUM. (*From* ξηρος *dry, and* ανθος *a flower*.)

Lin. gen. n. 947. *Reich. n.* 1027. *Schreb. n.* 1283. *Tournef. t.* 284. *Dill. gen.* 8. *Vaill. act. gall.* 1718. *p.* 184. *Juſſ.* 179. *Gærtn. t.* 165. Xeranthemoides. *Dill. elth.* 322. Argyrocome. *Gærtn. t.* 167.

Claſſ. 19. 2. Syngeneſia Polygamia Superflua.

Nat. Order of *Compoſitæ Diſcoideæ*. *Corymbiferæ* Juſſ.

GENERIC CHARACTER.

CAL. *Common* imbricate: *ſcales* lanceolate; the inmoſt longer than the diſk, membranaceous, ſhining, forming a coloured ray, and crowning the compound flower.

COR. *Compound*, unequal: *Corollets* hermaphrodite numerous, tubular in the diſk. *Females* fewer, tubular in the circumference.

Proper of the Hermaphrodites funnel-form, much ſhorter than the calyx: *border* five-cleft, ſpreading. *Females* tubular, length of the hermaphrodite, five-cleft, leſs regular.

STAM. in the Hermaphrodites *Filaments* five, very ſhort. *Anther* cylindrical, tubular, almoſt the length of the corollet.

PIST. in the Hermaphrodite *Germ* ſhort. *Style* filiform, longer than the ſtamens. *Stigma* bifid. In the Females *Germ* as in the hermaphrodites. *Style* filiform, length of the hermaphrodites. *Stigma* ſimple, club-ſhaped.

PER. none. *Calyx* ſcarcely changed.

SEEDS in the Hermaphrodites oblong, crowned with a five-cleft, acute *Calycle*.

In the *Females* ſimilar to the Hermaphrodites.

REC. flattiſh, chaffy.

OBS. *In* Xeranthemum *of Tournefort, the crown of the ſeed is five-cleft and ſimple: the Receptacle chaffy.*

ESSENTIAL CHARACTER.

Cal. imbricate, rayed, with the ray coloured. *Down* briſtle-ſhaped. *Recept.* chaffy.

SPECIES.

* *Receptacle chaffy. Down five-briſtled.*

1. Xeranthemum annuum. *Annual Xeranthemum* or *Immortal Flower.*

Lin. ſpec. 1201. *ſyſt.* 749. *Reich.* 3. 762. *Willd.* 3. 1901. *hort. cliff.* 400. *Gærtn. fruct.* 2. 399. *Hall. helv. n.* 122. *Scop. carn. n.* 1096. *Jacqu. vind.* 150. *auſtr.* 4. 46. *t.* 388. *Gouan monſp.* 436. *Villars dauph.* 3. 264. *Allion. pedem. n.* 645. *Pallas it.* 3. 590. *Knipb. cent.* 4. 100. *Mill illuſtr. Mill. fig. t.* 279.

X. oleæ folio, capitulis ſimplicibus incanis non fœtens flore majore violaceo. *Mor. biſt.* 3. 43. *ſ.* 6. *t.* 21. *f.* 2.

Jacea oleæ folio, capitulis ſimplicibus. *Bauh. pin.* 272.

Ptarmica auſtriaca. *Cluſ. biſt.* 2. 11.

β. Jacea incana cyani capitulis. *Baub. pin.* 272.

Calyx-ſcales obtuſe ſcarioſe, the interior ones of the ray lanceolate obtuſe ſpreading.

2. Xeranthemum inapertum.

Lin. ſpec. ed. Willd. 3. 1902.

X. annuum β. *Lin. ſpec.* 1201. *Reich.* 3. 763. *Hall. helv. ed.* 1. 709. *t.* 23.

X. oleæ folio, capitulis ſimplicibus, incanum fœtens, flore purpuraſcente minore. *Mor. biſt.* 3. 43. *ſ.* 6. *t.* 12. *f.* 1.

Jacea oleæ folio, minore flore. *Baub. pin.* 272.

Calyx-ſcales acute membranaceous at the edge, the interior ones of the ray lanceolate acute converging.

3. Xeranthemum orientale.

Lin. ſpec. ed. Willd. 3. 1902.

X. annuum γ. *Lin. ſpec.* 1201. *Reich.* 3. 763.

X. orientale fructu maximo. *Tournef. cor.* 38.

Jacea oleæ folio, capitulis compactis. *Baub. pin.* 272.

Calyx-ſcales roundiſh ſcarioſe, the interior ones of the ray ovate acuminate erect, chaffs of the ſeed-down ovate awned longer than the calyx.

** *Receptacle naked. Down hairy.*

[4. Xeranthemum veſtitum. *Upright Xeranthemum.*

Lin. ſpec. 1201. *ſyſt.* 750. *Reich* 3. 763. *Burm. afr.* 177. *t.* 66. *f.* 1. *Raii ſuppl.* 182. *Pet. gaz. t.* 1. *f.* 9.

Elichryſum veſtitum. *Willd. ſpec.* 3. 1903.

Gnaphalium veſtitum. *Thunb. prodr.* 148.

Chryſocome ſ. Argyrocome africana ericoides, flore albo. *Seb. theſ.* 2. 45. *t.* 43. *f.* 5.

β. Gnaphalium ferrugineum. *Schrad. & Wendl. ſert. hannov.* 7. *t.* 23.

Shrubby erect, leaves ſeſſile lanceolate-linear woolly-tomentoſe ſharpiſh, the floral ones appendiculed with a membrane at the tip, branches one-flowered.

5. Xeranthemum ſpirale. *Spiral leaved Xeranthemum. Andrews repoſ. bot.* 4. *t.* 262.
Elichryſum ſpirale. *Willd. ſpec.* 3. 1903.
Shrubby erect, leaves ſeſſile lanceolate tomentoſe keeled beneath and ſpirally imbricate, branches one-flowered.]

6. Xeranthemum ſpecioſiſſimum. *Showy Xeranthemum.*
Lin. ſpec. 1202. *ſyſt.* 750. *Reich.* 3. 764. *Berg. cap.* 270. *Burm. afr.* 178. *t.* 66. *f.* 2. *Thunb. prodr.* 153.
Elichryſum ſpeciocſiſſimum. *Willd. ſpec.* 3. 1904. *Boerh. lugdb.* 1. 121. *Breyn. ic.* 27. *t.* 16. *f.* 1. *Raii ſuppl.* 182. *n.* 13.
Chryſocome ſ. Argyrocome gnaphaloides africana, ampliſſimis floribus. *Seb. theſ.* 2. 45. *t.* 43. *f.* 6.
Shrubby erect, leaves ſeſſile lanceolate-obovate acute three-nerved woolly-tomentoſe, branches one-flowered.

[7. Xeranthemum fulgidum. *Great yellow-flowered Xeranthemum.*
Lin. ſyſt. 751. *ſuppl.* 365. *Jacqu. ic. rar.* 1. *t.* 173. *Ait. kew.* 3. 180. *Thunb. prodr.* 153.
Elichryſum fulgidum. *Willd. ſpec.* 3. 1904.
Gnaphalium aureum. *Heutt. nat. biſt.* 10. 590. *t.* 67. *f.* 3.
Suffruticoſe erect, leaves embracing ovate-lanceolate pubeſcent beneath tomentoſe at the edge, branches ſubtriflorous.

8. Xeranthemum proliferum.
Lin. ſpec. 1202. *ſyſt.* 750. *Reich.* 3. 764. *mant.* 467. *Berg. cap.* 272. *Thunb. prodr.* 152.
Elichryſum proliferum. *Willd. ſpec.* 3. 1905. *Seb. muſ.* 2. *t.* 89. *f.* 8. *Breyn. ic.* 28. *t.* 17. *f.* 1.
Carduus xeranthemoides. *Raii ſuppl.* 199.
Shrubby branched diffuſed proliferous, leaves roundiſh-ovate ſmooth convex cloſely imbricate, flowers ſeſſile.

9. Xeranthemum imbricatum.
Lin. ſyſt. 750. *Reich.* 3. 764. *amoen.* 6. *afr.* 60. *Thunb. prodr.* 153. *Pet. gaz. t.* 5. *f.* 10.
X. variegatum. *Berg. cap.* 271.
Elichryſum imbricatum. *Willd. ſpec.* 3. 1905. *Breyn. prodr. t.* 18. *f.* 1.
Shrubby branched, leaves oblong-lanceolate ſilky imbricate, branches one flowered, peduncles ſcaly.

10. Xeranthemum caneſcens.
Lin. ſpec. 1202. *ſyſt.* 750. *Reich.* 3. 765. *amoen.* 6. *afr.* 20. *Thunb. prodr.* 153. *Burm. afr.* 183. *t.* 68. *f.* 1.
Elichryſum caneſcens. *Willd. ſpec.* 3. 1906.
Shrubby erect, leaves oblong obtuſe imbricate, branches one flowered, calyx-ſcales ovate.

11. Xeranthemum bellidioides.
Forſt. prodr. n. 293.
Elichryſum bellidioides. *Willd. ſpec.* 3. 1911.
Herbaceous, leaves ovate embracing ſnowy-tomentoſe beneath, branches one-flowered, peduncles naked.
* * * *Receptacle naked. Down feathered.*

12. Xeranthemum argenteum.
Thunb. prodr. 152.
Elichryſum argenteum. *Willd. ſpec.* 3. 1906.
Shrubby erect, leaves oblong ſilky recurved.

13. Xeranthemum recurvatum.
Lin. ſyſt. 751. *ſuppl.* 366. *Thunb. prodr.* 152.
Shrubby erect, leaves lanceolate tomentoſe ciliate recurved, branches one-flowered.]

14. Xeranthemum retortum. *Trailing Xeranthemum.*
Lin. ſpec. 1202. *Reich.* 3. 765. *hort. cliff.* 400. *Thunb. prodr.* 153. *Lour. cochinch.* 498. *ed. Willd.* 609.
Elichryſum retortum. *Willd. ſpec.* 3. 1905.
Argyrocome retorta. *Gærtn. fruct.* 2. 410. *t.* 167.
Xeranthemoides procumbens polii folio. *Dill. elth.* 433. *t.* 322. *f.* 415.
Shrubby branched decumbent, leaves lanceolate ſilky ſomewhat recurved, branchlets one-flowered, peduncles ſcaly.

[15. Xeranthemum ſtoloniferum.
Lin. ſyſt. 751. *ſuppl.* 366. *Thunb. prodr.* 152.
Elichryſum ſtoloniferum. *Willd. ſpec.* 3. 1907.
Herbaceous creeping, leaves lanceolate ſilky recurved-ſpreading, branches one-flowered.

16. Xeranthemum radicans.
Thunb. prodr. 153.
Elichryſum radicans. *Willd. ſpec.* 3. 1907.
Herbaceous creeping, leaves ovate obtuſe ſilky reflexed.

17. Xeranthemum frigidum.
Billard. ic. ſyr. 9. *t.* 4.
Elichryſum frigidum. *Willd. ſpec.* 3. 1908.
Herbaceous branched procumbent, leaves imbricate in four rows oblong blunt hoary, branches one-flowered, flowers ſeſſile.

18. Xeranthemum ſpinoſum.
Lin. ſpec. 1203. *Reich.* 3. 765. *Thunb. prodr.* 153. *Burm. afr.* 182. *t.* 67. *f.* 3. *Breyn. prodr.* 2. 105.
Elichryſum ſpinoſum. *Willd. ſpec.* 3. 1908.
Shrubby erect, leaves lanceolate obtuſe tomentoſe, branchlets one-flowered, calyx-ſcales mucronate-ſpiny.]

19. Xeranthemum ſeſamoides.
Lin. ſpec. 1203. *ſyſt.* 750. *Reich.* 3. 765. *Berg. cap.* 273. *Thunb. prodr.* 152. *Burm. afr.* 181. *t.* 67. *f.* 2.
Elichryſum ſeſamoides. *Willd. ſpec.* 3. 1908.

β. X. ſeſamoides, &c. *Pluk. amalth.* 213. *t.* 449. *f.* 5. *Raii ſuppl.* 239.
Chryſocome ſ. Argyrocome africana ericoides, capitis bonæ ſpei. *Seb. theſ.* 2. *t.* 43. *f.* 5.
Elichryſum afr. lanuginoſum, &c. *Breyn. ic.* 27. *t.* 16. *f.* 2.
Shrubby erect, leaves aceroſe linear keeled ſmooth preſſed cloſe, branches one-flowered, flowers ſeſſile.

20. Xeranthemum faſciculatum.
Andrews repoſ. bot. 4. *t.* 242.
X. ſquamoſum. *Thunb. prodr.* 152?
Elichryſum faſciculatum. *Willd. ſpec.* 3. 1909.

β. X. faſciculati varietas flore albo. *Andr. repoſ. bot.* 4. *t.* 279.
Shrubby erect, leaves aceroſe linear ſubcylindrical tomentoſe above, lower ſpreading, upper preſſed cloſe, branches one-flowered, peduncles ſcaly.

21. Xeranthemum virgatum.
Lin. ſyſt. 750. *Reich.* 3. 766. *mant.* 284. *Berg. cap.* 275. *Thunb. prodr.* 153.
Elichryſum virgatum. *Willd. ſpec.* 3. 1910. *Breyn. prodr.* 3. *t.* 16. *f.* 3.
Shrubby erect, leaves lanceolate tomentoſe remote ſpreading, branches one-flowered, flowers peduncled.

22. Xeranthemum ſtriatum.
Thunb. prodr. 152.
Elichryſum ſtriatum. *Willd. ſpec.* 3. 1910.
Leaves linear nerved villoſe, ſtem erect.

23. Xeranthemum lancifolium.
Thunb. prodr. 152.
Elichryſum lancifolium. *Willd. ſpec.* 3. 1910.
Leaves lanceolate acute ſilvery, peduncles ſcaly.

24. Xeranthemum Stæhelina.
Lin. ſyſt. 750. *Reich.* 3. 766. *Thunb. prodr.* 153.
Elichryſum Stæhelina. *Willd. ſpec.* 3. 1910.
Shrubby erect, leaves oblong-lanceolate attenuated at the baſe ſilky, peduncles naked one-flowered terminating.

25. Xeranthemum variegatum.
Lin. ſyſt. 750. *Reich.* 3. 766. *Thunb. prodr.* 153. *Raii ſuppl.* 181. *n.* 5.
Elichryſum variegatum. *Willd. ſpec.* 3. 1911.
Shrubby erect branched, leaves oblong tomentoſe imbricate, branches one-flowered, flowers nodding.

26. Xeranthemum paniculatum.
Lin. ſpec. 1203. *ſyſt.* 751. *Reich.* 3. 767. *Thunb. prodr.* 152. *Burm. afr.* 180. *t.* 67. *f.* 1.
Elichryſum paniculatum. *Willd. ſpec.* 3. 1911.
Shrubby erect, leaves linear-lanceolate ſilky, corymb ſimple terminating.

27. Xeranthemum chinenſe.
Lour. cochinch. 498. *ed. Willd.* 608.
Stem herbaceous quite ſimple, leaves lanceolate ſerrate.]

DESCRIPTIONS, &c.

1. Root annual. Stalk two feet high, ſlender, ſtiff and branching, covered with a white down, and chan-

nelled the whole length. Leaves lanceolate, an inch and half long, and one third of an inch broad in the middle, hoary, ſeſſile, ſpreading, alternate, diſtant. Upper part of the flowering branches naked, one-flowered. Calyx ſilvery: that and the corolla dry, and retaining their beauty a long time.

[Chaffs of the receptacle linear-acuminate, rigid, a little longer than the belly of the calyx. Seeds in the female flowers none, or if any effete, and then the germ is linear-oblong, ſtriated, ſmooth, compreſſed, bald, permanent, crowned alſo by the permanent coroſſet. In the androgynous flowers the ſeeds are oblong, acuminate downwards, compreſſed in ſhape of a rhomb or lens, having whitiſh villoſe hairs preſſed cloſe ſcattered over them, browniſh aſh-coloured, downy. Seed-down ſcarioſe, white, five-leaved: leaflets lanceolate or triangular, acuminate briſtle-ſhaped, ſcarcely longer than half the ſeed[a].]

It varies with white and purple, double and ſingle, flowers. In its natural ſtate the flowers are ſingle: the double flowers have been obtained by culture. Where the ſeeds are carefully ſaved ſeparate, theſe varieties are generally conſtant.

[Native of the South of Europe; flowering in july and auguſt. It was cultivated in the Oxford Botanic Garden in 1658[b].

2. The ſtalks of this do not riſe more than a foot high, and do not branch ſo much as the preceding. The leaves are narrower, and the whole plant is very hoary. The flowers are not half ſo large; but the ſcales of the calyx are very neat and ſilvery.

[Linneus, who conſiders theſe and the next ſpecies as one; thus diſtinguiſhes the two firſt as varieties. The firſt is a robuſt erect plant, with more and ſmaller ſeeds, a ſcarioſe calyx, entire chaffs, and a polypetalous ray. The ſecond is a narrower weak plant, with ſix or ſeven larger ſeeds, the calyx-ſcales membranaceous only at the edge, the chaffs jagged, and about ſix petals in the ray. The firſt, he ſays, is native chiefly of Auſtria; the ſecond of Italy, Switzerland and the South of France.]

3. This riſes about the ſame height as the firſt ſort. The leaves are narrower, and placed cloſer on the ſtalks to the top. The flowers are much leſs, of a paler purple colour, and have a cylindrical calyx. The ſeeds are very large, and ſeldom more than three or four in a head.

Flowers as big as thoſe of the firſt ſpecies or bigger. Seed-down many-leaved, chaffy. Chaffs ſcarioſe ſhining white ovate long-awned longer than the calyx[c].

Found in Armenia by Tournefort.

Theſe are both annual as well as the firſt; and are the only ſpecies that agree perfectly with the character of Xeranthemum, as given by Linnæus. Gærtner therefore has divided the genus into three, and refers all the ſpecies of Xeranthemum, Gnaphalium, and Filago, which have not florets diſtinct in ſex, the ſeed-down neither feathered nor pencilled, the receptacle neither villoſe nor chaffy, to the genus Elichryſum. Linneus's Xeranthema and Gnaphalia to which he attributes a feathered ſeed-down, having a naked ſmooth receptacle, androgynous and female florets mixed, and the calyx as in Xeranthemum, Gærtner names Argyrocome. Dillenius had called it Xeranthemoides.

Willdenow ranges all the following ſpecies under Elichryſum. They have a naked receptacle, and a hairy or feathered ſeed-down: whereas the true Xeranthema have a chaffy receptacle, and a ſetaceous-chaffy ſeed-down.

4. The whole plant is covered with a very thick nap, whence its trivial name. It is very diſtinct by having the floral leaves furniſhed with a lanceolate membrane at the end.

β. Differs only in having the calyx-ſcales browniſh at the tip.

Native of the Cape of Good Hope. Introduced in 1774 by Mr. Francis Maſſon[d].

5. This differs from the preceding in having lanceolate keeled leaves, the floral ones not appendicled, and ſpirally imbricate, the flowers large white and ſplendid, with the calyx-ſcales red at the tip. Native of the Cape of Good Hope[e].]

6. This riſes with a ſhrubby ſtalk three or four feet high, dividing into four or five branches, the lower parts of which have thick-pointed leaves, about two inches long and an inch broad, hoary on their under ſide, and ranged without order. The upper part of the branches are naked, and terminated by one large yellow flower.

[The ſeed-down is feathered[f]. Native of the Cape of Good Hope.—Said in the Kew catalogue to be introduced by Mr. Maſſon in 1787.

7. Stem the thickneſs of a finger, woolly, divided at the top into flowering branches. Leaves approximating, the length and breadth of a finger, erect and ſubimbricate, white and ſoft like ſome of the Gnaphaliums. Flowers like thoſe of a Xeranthemum and ſeſſile, with the herb of Gnaphalium. Calyxes the ſize of a walnut, with numerous deep yellow and very ſhining rays. Florets numerous and very ſmall. Native of the Cape of Good Hope[g]. Introduced by Maſſon in 1774.

8. Branches ſpreading, rigid. Leaves imbricate all round with leaflets, which one ſcarce knows whether to call leaves or branchlets. The flowers have a very ſhining blood-red ray. Native of the Cape of Good Hope[h].

9. Calyxes ſhining, white, rufous on the outſide in the middle. Seed-down red[i].

Native of the Cape of Good Hope.

10. Calyxes ſhining, purple: the loweſt ſomewhat teſtaceous. Seed-down white[k]. Native of the Cape of Good Hope.

11. Branches ſimple, two inches long, filiform. Leaves very ſmall, ſmooth. Peduncles tomentoſe. Flower the ſize of Bellium minutum. Native of New Zealand[l].

12. Leaves convolute, ſilvery. Native of the Cape of Good Hope[m].

13. Stem ſhrubby with pubeſcent branches. Leaves alternate, ſtiffiſh, acute, channelled, with a cloſe-preſſed pubeſcence underneath. Calyxes ſolitary, blood-red, ſmooth, acuminate, white above. Diſk yellow. Native of the Cape of Good Hope[n].]

14. Stalks ſlender, woody, trailing to three or four feet in length. Leaves ſmall, ſilvery, placed without order, ſeſſile, reflexed. Flowers axillary, ſolitary, or two or three together, with a white ray.

[Stem a foot and half long, with many twiſted diffuſed branches. Leaves oblong, ſinuate-gaſhed, tomentoſe, hoary. Flowers yellow. Receptacle almoſt naked. Seed-down hairy[o].—Dillenius ſays that it is feathered, as it certainly is.

Receptacle flat, wide, hollow-dotted ſmooth. Seeds oblong, roundiſh, ſmooth, pale: down ſnow-white, three times as long as the ſeed, with numerous rays, briſtle-ſhaped at the baſe, toothletted, pencil-feathered at the tip[p].

Native of the Cape of Good Hope, and Cochinchina. Cultivated in 1732, by James Sherard, M.D. of Eltham[q].

15. The ſtem ſeems to be herbaceous and weak, and therefore it is procumbent and rooting. The branchlets up to the flower are clothed with ſmall ſilky ſilvery leaves. The flowers are ſmall and red. The ſeed-down is feathered. Native of the Cape of Good Hope[r].

16. Stem decumbent rooting. Leaves ſilvery. Native of the Cape of Good Hope[s].

17. Root woody perennial. Stems branched diffuſed procumbent herbaceous, with the branches a finger's length. Leaves extremely ſmall, a line in length obtuſe hoary imbricate in four rows. Flowers at the ends of the branches, ſolitary, ſeſſile, the ſame ſize as in the caneſcens. Calyx ſnow-white, pubeſcent on the outſide[t].

[a] Gærtner. [b] Hort. kew. [c] Willdenow. [d] Idem. [e] Hort. kew.

[m] Willdenow. [n] Linn. ſyſt. [o] Linn. ſuppl. [p] Linn. mant. [q] Linn. ſyſt. [r] Idem. [s] Willdenow. [t] Thunberg. [u] Linn. ſuppl. [x] Loureiro. [y] Gærtner. [z] Hort. kew. [a] Linn. ſuppl. [b] Thunberg. [c] Willdenow.

Found

Found by Billardiere on the higheſt parts of Mount Libanus; alſo in Corſica.

18. This is diſtinguiſhed by its ſpiny head, which is compact and purple. Native of the Cape of Good Hope.]

19. Stem ſhrubby branching, riſing three or four feet high. Branches ſlender, like thoſe of Spaniſh Broom, but hoary. Leaves very ſmall, reſembling ſcales, ſeſſile, narrow, hoary, ending in acute points. Each branch is terminated by one large ſilvery flower.

[The calyx in ſome is white, in others purple [a]. Native of the Cape of Good Hope.

20. Stem woolly-tomentoſe, white, branched. Leaves ſubcylindrical but flatted a little above, beneath convex and ſmooth, the lower ones an inch or an inch and half long, in bundles, the upper ones and thoſe on the branches twice or thrice ſhorter, preſſed cloſe, alternate. Flowers the ſize of the preceding, on ſcaly peduncles. Calyx-ſcales lanceolate, acute, white or yellow. Native of the Cape of Good Hope [a].

21. This differs chiefly from the ſeſamoides in having the calyx yellow. David van Royen informs us that the anthers are tailed. Native of the Cape of Good Hope [b].

22. 23. Found at the Cape of Good Hope by Thunberg.

24. Stem woody, tender, panicle-branched. The whole plant white-tomentoſe. Peduncles long, terminating. Native of the Cape of Good Hope. Dav. van Royen [c].

25. A foot high or more, with a ſtout thick ſtem, abundance of leaves from top to bottom in no regular order, divided into a few branches. Leaves narrow, ſeſſile, very hoary, more than an inch in length, and one third of an inch in breadth. The ſtem and branches are terminated each by one large white flower; each ſcale of the calyx having a ferruginous ſpot at the top [a]. Native of the Cape of Good Hope.

26. Native of the Cape of Good Hope.

27. Stem round, erect, ſmooth, a foot and half high. Leaves ſmoothiſh, alternate, petioled. Flowers yellow, in a few-flowered terminating panicle. Inner calyx-ſcales reflexed at the end, longer than the florets. All the ſeeds crowned with a many-briſtled down. Receptacle with deciduous chaffs. Native of China about Canton [d].]

PROPAGATION AND CULTURE.

1, 2, 3. Sow the ſeeds in the ſpring or autumn on a border of light earth; but the latter ſeaſon is preferable, for thoſe plants which come up in autumn will flower ſooner, the flowers will be more double and much larger than thoſe which are ſown in the ſpring, and from theſe good ſeeds may be always obtained, whereas the ſpring plants many times fail in cold years, and in hot dry ſeaſons the plants do not grow to any ſize.

When the young plants are about two inches high, prick them out into another border under a warm wall, pale or hedge, at four or five inches diſtance; or into the borders of the flower garden. They will thus endure the cold of our ordinary winters extremely well, and in the ſpring will require no farther care but to keep them clear from the weeds. In June they will begin to flower, and at the beginning of July the flowers will be fit to gather for drying; but a few of the beſt and moſt double flowers ſhould be ſuffered to remain for ſeed, which muſt be ſown annually.

4, &c. The other ſorts, being moſtly ſhrubby, and not ripening their ſeeds in England, are propagated by cuttings, planted on a bed of light earth, during any of the ſummer months, and ſhaded from the ſun. When they have gotten ſufficient ſtrength, take them carefully up, and plant them in ſeparate pots filled with light earth, and place them in a ſhady ſituation till they have taken freſh root; and then remove them to a ſheltered place, where they may have more ſun, and there they may remain till autumn, when they muſt be removed into ſhelter, for they are too tender to live abroad through the winter in England, though they do not require any artificial warmth. They may be kept in a common hot-bed frame all winter, expoſing them always to the open air in mild weather, but covering them in froſt: and theſe plants will be ſtronger and flower better than thoſe which are placed in the greenhouſe, where they are apt to draw up weak, and not to flower; nor are the plants ſo handſome as thoſe which are more expoſed to the open air. In ſummer they ſhould be placed abroad in a ſheltered ſituation with other hardy exotic plants, and in dry weather they will require to be often watered, but in winter ſparingly. As theſe plants are not of long duration here, and after four or five years become unſightly, young plants ſhould be raiſed to ſucceed them.

XERANTHEMUM. See *Centaurea* and *Gnaphalium*.

XIMENIA. (*So named by Plumier, in honour of the Reverend Father Francis Ximenes, a Spaniard, author of an account of the Animals and Plants of New Spain*, 1615.

Lin. gen. n. 477. *Reich. n.* 517. *Schreb. n.* 651. *Plum.* 21. *Jacqu. amer.* 106. *Juſſ.* 259.

Claſſ. 8. 1. Octandria Monogynia.

Nat. Order of *Auruntia* Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* one-leafed, four-cleft, acuminate, very ſmall, permanent.

COR. *Petals* four, oblong, hairy within, below erected into a tube, above rolled back.

STAM. *Filaments* eight, erect, ſhort. *Anthers* linear, erect, obtuſe, length of the corolla.

PIST. *Germ* oblong. *Style* filiform, length of the ſtamens. *Stigma* obtuſe.

PER. *Drupe* ſubovate.

SEED. *Nut* roundiſh.

ESSENTIAL CHARACTER.

Cal. four-cleft. *Pet.* four, hairy, rolled back. *Drupe* one-ſeeded.

SPECIES.

1. Ximenia americana.
Lin. ſpec. 497. *Juſſ.* 361. *Reich.* 2. 160. *Willd.* 2. 339. *hort. cliff.* 1193. *Swartz obſ.* 149.
X. multiflora. *Jacq. amer.* 106. *t.* 177. *f.* 31. *pict.* 54. *t.* 107.
X. aculeata, flore villoſo, fructu luteo. *Plum. gen.* 6. *ic.* 261. *f.* 1.
Heymaſſoli ſpinoſa. *Aubl. guian.* 1. 324. *t.* 125.
Leaves oblong, peduncles many-flowered.

[2. Ximenia elliptica.
Lin. ſpec. ed. Willd. 2. 339. *Forſt. prodr. n.* 162.
Leaves elliptic-lanceolate, peduncles many-flowered.

3. Ximenia inermis.
Lin. ſpec. 497. *Reich.* 2. 160. *Willd.* 2. 339. *Brown. jam.* 209.
Leaves ovate, peduncles one-flowered.]

DESCRIPTIONS, &c.

1. This riſes with a woody ſtem twenty feet high, ſending out ſeveral branches on every ſide, armed with thorns. Leaves lanceolate, ſtanding round the branches without order. Flowers terminating. Corolla compoſed of one bell-ſhaped petal, cut almoſt to the bottom into three ſegments which are rolled back and are hairy; they are of a yellow colour within, and are ſucceeded by an oblong, oval, fleſhy fruit, ſhaped like a Plum, and including a hard nut of the ſame form.

[It is a tree or ſhrub, with the trunk and branches ſmooth; the branchlets ſpiny, round, ſtriated. Leaves in alternate cluſters, two or three together, ovate (or ovate-oblong,) ſeldom emarginate, entire, nerved, ſmooth on both ſides. Petioles roundiſh, flat above, ſmooth. Spines lateral, erect at the baſe of the petioles, longer than the petioles, thickiſh, awl-ſhaped. Peduncles axillary or from the tubercle of the petioles, ſhorter than them, bent down, round, from three to five-flowered; pedicels one-flowered.

Calyx

[a] Linn. ſyſt. [b] Willdenow. [c] Linn. mant. [d] Linn. ſyſt. [e] Ray. [f] Loureiro.

Calyx four-cornered, four-toothed, very ſmall, ſpreading. Petals four, lanceolate, converging at the baſe, reflexed, hairy within, pale, ſmooth on the outſide. Filaments eight, ſhorter than the petals. Anthers concealed within the beard of the petals. Drupe the ſize of a ſmall apple, roundiſh, yellow when ripe: containing a ſpherical pot with a white kernel in it[a].

According to Jacquin, this tree is upright, and about fifteen feet high. Leaves emarginate, two inches long, three or four together from alternate tubercles, armed at the ſide with a ſtrong ſpine, four lines in length: but theſe are ſometimes wanting on a whole branch. Peduncles ſhorter than the leaves, two three or four from the ſame tubercle, racemed, and five-flowered or thereabouts. Flowers whitiſh, having a very ſweet odour, ſomewhat like that of frankincenſe. Fruit yellow, ſhining, the ſize of a pigeon's egg, with a very thin rind, and little ſweet ſubacid pulp, which is eaten by the ſavages and children. Nut ſmoothiſh, dirty white, incloſing a kernel ſhaped ſomewhat like a nutmeg, white and of a pleaſant taſte. Plumier figured the corollas as three-petalled[b], and Mr. Miller adopted the error.

Native of the Weſt Indies; about Carthagena, St. Domingo, Hiſpaniola, &c. flowering in july according to Swartz; in ſeptember and october as ſeen by Jacquin.

Cultivated in 1759, by Mr. Miller[c].

2. This has no thorns. Native of New Caledonia[d].

3. This is a very buſhy tree, divided much towards the top, not above eight or nine feet in height. Trunk about four inches and a half in circumference. Leaves not above an inch in length, and diſpoſed very thick upon the ſmaller branches. Native of Jamaica[e].]

PROPAGATION AND CULTURE.

Theſe trees are propagated by ſeeds, which muſt be procured from the countries where they grow naturally; they ſhould be ſown in pots filled with light earth, and plunged into a good hot-bed of tanners bark. If the ſeeds are freſh, the plants will appear in ſix weeks or two months. When theſe are about three inches high, they muſt be each carefully tranſplanted into a ſeparate ſmall pot filled with light earth, and plunged into a good hot-bed of tanners bark, where they muſt be ſhaded from the ſun till they have taken new root; then they muſt be treated in the ſame manner as other tender plants from the warm countries. During the firſt ſummer they may be kept in the tan-bed under frames, where they will thrive better than in the ſtove; but in autumn, when the nights grow cool, they ſhould be removed into the ſtove, and plunged into the tan-bed; and in this they ſhould always be kept, obſerving to ſhift them into larger pots when they require it; and in ſummer, when the ſeaſon is warm, they ſhould have a large ſhare of free air admitted to them. With this management the plants will thrive well, but they cannot be expected to flower very ſoon in this country.

[XIPHIDIUM. (*From ξιφος, a ſword: from the ſhape of the leaves.*)

Lin. gen. Schreb. n. 84. *Loefling. Aubl. guian.* 33. *t.* 11. *Juſſ.* 59.[a]

Claſſ. 3. 1. Triandria Monogynia.

Nat. Order of *Enſatæ. Irides* Juſſ.

GENERIC CHARACTER.

CAL. none.

COR. *Petals* ſix, of which the three outer are larger.

STAM. *Filaments* three, oppoſite to the inner petals. *Anthers* ovate.

PIST. *Germ* ſuperior. *Style* filiform. *Stigma* ſimple, (three-cornered. *Aubl.*)

PER. *Capſule* at firſt fleſhy, then dry, roundiſh, three-grooved, three-celled.

SEED numerous, roundiſh, (inſerted into a globular receptacle.)

ESSENTIAL CHARACTER.

Cor. ſix-petalled, equal. *Capſ.* ſuperior, three-celled, many-ſeeded.

[a] Swartz. [b] Jacquin. [c] Hort. kew. [d] Forſter. [e] Browne.

SPECIES.

1. Xiphidium album.
   Lin. ſpec. ed. Willd. 1. 248.
   X. floribundum α. *Swartz prodr.* 17.
   Xiphidium. *Leſl. it.* 239.
   Leaves ſmooth, petals linear-lanceolate.
2. Xiphidium cæruleum.
   Lin. ſpec. ed. Willd. 1. 248. *Aubl. guian.* 1. 33. *t.* 11.
   X. floribundum β. *Swartz prodr.* 17.
   Leaves hirſute, petals ovate.

DESCRIPTIONS, &c.

1. Native of the Weſt Indies.

2. A perennial plant: root jointed, fibroſe: ſtem ſimple, cylindric, hairy, a foot or more in height: leaves alternate, remote, flat, ſtriated, long, acute, ſerrulated: flowers paniculated, terminal: footſtalk of each flower guarded at the baſe by a ſmall ſcale. Native of Guiana, &c.

XIPHION or *Xiphium.* See *Iris.*

XYLOCARPUS. (*From ξυλον, and καρπος a fruit. The fruit being hard, like wood.*)

Lin. gen. Schreb. n. 646. *Aubl. D. D. Koenig. Naturf.* 20. *p.* 2.

Claſſ. 8. 1. Octandria Monogynia.

GENERIC CHARACTER.

CAL. *Perianth* one-leafed, club-ſhaped, coriaceous, ſomewhat coloured, four-toothed: *teeth* rounded.

COR. *Petals* four, ovate-oblong, ſomewhat coriaceous, ſpreading very much, twice as long as the calyx.

Nectary erect, ovate-inflated, ſomewhat fleſhy: *mouth* eight-cleft.

STAM. *Filaments* the eight ſegments of the nectary, linear, obtuſe, emarginate, ſhorter than the corolla. *Anthers* eight, faſtened to the inner ſide of the filaments, linear-oblong, retuſe, length of the ſtamens.

PIST. *Germ* ovate, ſmooth, ſomewhat wrinkled at the baſe. *Style* thick, very ſhort. *Stigma* retuſe, wide, margined: *margin* grooved; *diſk* decuſſately grooved, perforated.

PER. *Drupe* large, juiceleſs, globular: *rind* thick, ſmooth on the outſide, marked with four or five grooves, within woody, fibrous.

SEED. *Nuts* eight, ten or more, angular, unequal, diſform; *rind* externally ſilky and ſoft, internally woody and fibrous: *kernel* ſomewhat woody, brittle: *heart* protuberant.

ESSENTIAL CHARACTER.

Cal. four-toothed. *Cor.* four-petalled. *Nect.* eight-cleft. *Filam.* inſerted into the nectary. *Drupe* juiceleſs, large, four or five-grooved. *Nuts* eight or ten, diſform.

SPECIES.

1. Xylocarpus Granatum.
   Lin. ſpec. ed. Willd. 2. 328. *Koenig Naturf.* 20. *p.* 2.
   Granatum littoreum. *Rumph. amb.* 3. 92. *t.* 61.
   Cadul gaha. *Cingalens.*
   Candalanga. *Tamul.*

DESCRIPTION, &c.

This is a tree of various dimenſions, commonly of a large ſize, but ſometimes only a ſhrub. Trunk erect, covered with a cloven hard duſky-cheſtnut-coloured bark, and of a middling thickneſs. Frond oblong, ſometimes ſubglobular opaque. Larger boughs ſcattered; ſmaller commonly oppoſite, covered with a duſky-aſh-coloured bark, numerous. Leaves oppoſite, ſpreading, oblong-club ſhaped, rounded, or ſometimes oblong, acute, quite entire, ſcarcely convex on the upper ſurface, ſmooth, ſhining, dark green; on the lower ſurface veined, with the midrib more prominent ſtiffiſh, a little bigger than apple leaves. Petioles ſpreading, a little curved, roundiſh, ſomewhat wrinkled, cheſtnut-coloured, ſhort. Racemes ſcattered on the branches, ſometimes axillary, ſomewhat erect, ovate-oblong, ſmall, ſhorter than the leaves, partial ones oppoſite, terminating ones commonly

trichotomous and spreading very much. Peduncles round, smooth, tough, coloured, red, naked. Pedundles shorter than the flower.

Native of the East Indies; in woods that grow in the ouze on the sea coast, among the Rhizophoras[p].

XYLOMELUM. (*From* ξυλον *wood, and* μηλον *an apple.*)

Smith in Linn. Transf. 4. 214.

Class. 4. 1. Tetrandria Monogynia, prope Bankssiam.

Nat. Order of *Proteæ* Juss.

ESSENTIAL CHARACTER.

Ament with a simple scale. *Pet.* four, staminiferous. *Stigma* club-shaped, obtuse.

DESCRIPTION, *&c.*

Habit altogether of *Brabeium*; but it has a wooden capsule, opening at the top on one side, and containing two winged seeds, not an almond-like drupe with one seed. Many of the flowers with a smaller stigma are abortive.

Native of Australasia.

This is one of twenty new genera, from the South Seas, the characters of which are given by Dr. Smith.

XYLON. See *Bombax* and *Gossypium*.

XYLOPHYLLA. (*From* ξυλον *wood, and* φυλλον *a leaf.*)

Lin. gen. Reich. n. 406. *Schreb. n.* 511. *p.* 826. *Swartz obs.* 113. *Gærtn. t.* 108. *Juss.* 387. Phyllanthus *Brown. jam.* 188.

Class. 5. 3. Pentandria Trigynia—Triandria Trigynia. f. Polygamia Monoecia. *Swartz.*

Nat. Order of *Tricoccæ*. *Euphorbiæ* Juss.

GENERIC CHARACTER.

CAL. *Perianth* five-parted, (six-parted. *Gærtn.*)

COR. none, (unless the calyx be so called:)

Nectary: six Glands at the base of the germ, or a rim surrounding the germ. *Gærtn.*

STAM. *Filaments* five very short (3 to 6 *G.*) *Anthers* shorter than the flower, biggish.

PIST. *Germ* roundish. *Styles* three, short. *Stigmas* jagged, (or bifid. *Sw.*)

PER. *Capsule* roundish, three-celled.

SEEDS two in each cell.

OBS. *It should be referred to Triandria Trigynia; but most of the species are monoicous and polygamous. It differs from Phyllanthus only in having the flowers from the notches of the leaf.*

ESSENTIAL CHARACTER.

Cal. five-parted, (six-parted, *Sw.*) coloured. *Cor.* none. *Stigmas* jagged. *Capf.* three-celled. *Seeds* two.

SPECIES.

1. Xylophylla longifolia. *Long-leaved Sea-side Laurel. Lin. fyst.* 296. *Reich.* 1. 740. *Willd.* 1. 1500. *mant.* 221. *Swartz obf.* 112. *Forst. prodr. n.* 143.

Xylophyllos ceramica. *Rumph. amb.* 7. 19. *t.* 12.

Leaves linear, branches four-cornered.

2. Xylophylla latifolia. *Broad-leaved Sea-side Laurel. Lin. fyst.* 296. *Reich.* 1. 741. *Willd.* 1. 1500. *mant.* 251. *Ait. kew.* 1. 376. *Swartz prodr.* 28. *obf.* 113.

Genesiphylla asplenifolia. *L'Herit. fert. angl.* 29. *t.* 39.

Phyllanthus 1. *Brown. jam.* 188.

Hemionitidi affinis, &c. *Pluk. phyt. t.* 36. *f.* 7.

Lonchitidis affinis, &c. *Sloan. cat.* 16. *hift.* 80.

Leaves pinnate broad-lanceolate crenate, flowers pedunded hermaphrodite fix-ftamened and females mixed.

3. Xylophylla arbuscula.

Lin. fpec. ed. Willd. 1. 1500.

Phyllanthus speciosa. *Jacqu. ic. rar.* 3. 616. *collect.* 2. 360.

Leaves pinnate lanceolate acuminate subcrenate coriaceous, flowers peduncled three-ftamened monoicous.

4. Xylophylla falcata. *Sickle leaved Sea-side Laurel. Lin. fpec. ed Willd.* 1. 1501. *Swartz prodr.* 28.

Phyllanthus americana, flores ſingulis foliorum crenis

[p] Koenig in Willd. spec.

prominens, *Comm. bort.* 1. 199. *t.* 102. *Seb. thef.* 1. 21. *f.* 2. *Cateſb. car.* 2. *t.* 26.

Ficifolia hemionitidi affinis, &c. *Pluk. phyt. t.* 247. *f.* 4.

Leaves ſcattered linear-lanceolate, ſomewhat ſickle-ſhaped crenate, flowers ſubſeſſile. Three-ſtamined monoicous.

5. Xylophylla anguſtifolia. Narrow-leaved Sea-ſide Laurel.

Lin. ſpec. ed. Willd. 1. 1501. *Swartz prodr.* 28.

X. falcata. *Ait. kew.* 1. 376.

Phyllanthus Epiphyllanthus. *Lin. ſpec.* 1392. *Brown. jam.* 188. 2. cliff. 439.

β. *linearis:* with linear leaves marked with lines and white flowers. *Swartz prodr.* 28.

Leaves pinnate linear-lanceolate marked with lines crenate, flowers peduncled hermaphrodite.

6. Xylophylla montana.

Lin. ſpec. ed. Willd. 1. 1501. *Swartz prodr.* 28.

Leaves diſtich broad-lanceolate gaſh-crenate, branches ancipital at the top, flowers ſeſſile.

7. Xylophylla ramiflora.

Lin. ſpec. ed. Willd. 1. 1502. *Ait. kew.* 1. 376.

Pharnaceum ſuffruticoſum. *Pallas it.* 3. *app.* 29. *n.* 70. *t. E. f.* 2.

Leaves elliptic, flowers axillary.

DESCRIPTION, *&c.*

1. Stem ſuffruticoſe, even. Branches quadrangular, alternate, ſtiff; the angles acute. Leaves linear, alternate (often two together,) ſtiff, even, ſomewhat keeled, longer than the interſtices, alternately and very remotely ſerrate, with the ſerratures floriferous [q].

Linneus depended upon Rumphius for this ſpecies, and never ſaw the flowers himſelf. Rumphius's deſcription by no means agrees with the character of this genus [r].

2. Stem ſhrubby, one or two feet high. Branches irregular, roundiſh-compreſſed. Leaves diſtich, alternate, ſcarcely petioled, crenate towards the end, ſmooth on both ſides, ſtiffiſh. Flowers cluſtered, peduncled, polygamous, hermaphrodite and female mixed. Females always terminating, longer pedicelled. Calyx in both ſorts ſix-parted, coloured, permanent. In the hermaphrodites ſix very ſhort filaments, with roundiſh depreſſed anthers. Germ ovate. Style erect, longer than the ſtamens, three parted, Stigmas reflexed, entire, obtuſe, yellow. Capſule three-celled: cells two-valved, two-ſeeded. Seeds ovate, flat on one ſide. In the females, ſtigmas trifid and rudiments of ſtamens faſtened to the germ. Germ, ſtyle and capſule as in the others.

Native of the Weſt Indies, on maritime calcareous rocks. Linneus made out the character of the genus from this ſpecies as given by Browne [s].

It was introduced here in 1783, by Matthew Wallen, Eſq. and flowers from auguſt to october [t].

3. A moſt elegant, evergreen plant, with a woody ſtem, about three feet high, very ſimple, and upright, and about a finger's thickneſs: bark aſh-coloured, marked with tubercles from the fallen leaves; leaves alternately ſpreading on the top of the plant; ſtrong, ſmooth, footſtalked, and pinnated with five or ſix leaflets, without an odd one; all lanceolate, ſerrulated, and coriaceous; the younger ones often purpliſh: from the notchings of the leaves proceed ſlender footſtalks of half an inch in length, each bearing a ſingle flower, which is ſmall and of a pale ſulphur-colour [u].

4. This is a ſhrub of five or ſix feet height, with many upright ſtems growing from the root: leaves generally four or five inches long; with the edges widely notched; the notches being at about three quarters of an inch diſtance from each other: from each notch grows a ſmall, monopetalous, red flower, ſucceeded by a ſmall red berry. Native of the Weſt-Indian Iſlands [x].

5. This tree grows fifteen or ſixteen feet high. The leaves come out without any order, they are five or ſix inches long, ſmooth and thick; the flowers are produced upon the edges, but eſpecially towards the upper part, where they are placed very cloſely; theſe,

[q] Linn. mant. [r] Swartz obſ. [s] Idem. [t] Hort. kew. [u] Jacquin. [x] Catesby.

together with the ſhining green colour of the leaves themſelves, make a very beautiful appearance: the leaves continue green all the year. It grows naturally upon the rocks near the ſea in the iſlands of the Weſt Indies.

[In the Kew catalogue it is ſaid to be a native of the Bahama iſlands, and to have been cultivated by Mr. Miller in 1739.] Mr. Miller himſelf ſays that there was formerly a plant of it at Hampton Court; and that he alſo ſaw one in the Amſterdam garden.

[6. Native of Jamaica.

7. Leaves elliptic quite entire petioled ſcattered. Flowers five or ſix peduncled anxillary. Native of Siberia, among the rocks of the mountains Charabon and Tſchir[x].

Introduced in 1783 by Mr. John Bell[y].

PROPAGATION AND CULTURE.

All theſe, except the laſt, being natives of the Eaſt and Weſt Indies, are tender and muſt be kept in the bark ſtove.]

Mr. Miller ſays of the fifth ſort, that it muſt be placed in a moderate ſtove in winter, and that in ſummer it may be placed in the open air, in a warm ſheltered ſituation. The roots ſtrike ſo deep into the crevices of the rocks, as to render it almoſt impoſſible to tranſplant the plants; and the ſeeds will not grow, unleſs they are ſown ſoon after they are ripe.

[XYLOPIA.

Lin. gen. n. 1027. *Reich. n.* 1116. *Schreb. n.* 946. *Aubl. t.* 601. *Gærtn. t.* 69. *Juſſ.* 284. Xylopicrum. *Brown.*

Claſſ. 13. 7. Polyandria Polygynia.

Nat. Order of *Coadunatæ. Anonæ* Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* three-leaved: *leaflets* ovate, concave, ſharpiſh, deciduous.

COR. *Petals* ſix, ſeſſile, linear-lanceolate, coriaceous; the three outer larger and thicker.

STAM. *Filaments* ſcarcely any. *Anthers* numerous, oblong, faſtened to the receptacle at the baſe of the germs.

PIST. *Germs* from two to fifteen, very ſmall, faſtened to a three-cornered receptacle. *Styles* none. *Stigma* long, very ſlender.

PER. *Capſules* two to fifteen, pedicelled, four-cornered, compreſſed, coriaceous, one or two-celled, two-valved.

SEEDS ſolitary or two together, roundiſh, ſmooth, within a ſucculent hemiſpherical aril.

ESSENTIAL CHARACTER.

Cal. three-leaved. *Pet.* ſix. *Capſules* one or two-ſeeded four-cornered two-valved. *Seeds* arilled.

SPECIES.

1. Xylopia muricata. *Smaller* or *rough-fruited Bitter-wood.*

Lin. ſpec. 1367. *Juſſ.* 826. *Reich.* 4. 66. *Willd.* 2. 1270.

Xylopicrum. *Brown. jam.* 250. *n.* 1. *t.* 5. *f.* 2.

Leaves lanceolate acuminate ſtrigoſe beneath bearded at the tip, peduncles many flowered, fruits muricate.

2. Xylopia frutescens. *Shrubby Bitter-wood.*

Lin. ſpec. ed. Willd. 2. 1270. *Aubl. guian.* 1. 602. *t.* 292. (excl. ſynon.) *Gærtn. fruct.* 1. 339.

Ibira. *Piſon. braſ.* 145.

Leaves lanceolate acuminate ſilky beneath ſmooth at the tip, peduncles one or many-flowered, fruits ſmooth.

3. Xylopia glabra. *Larger* or *ſmooth-fruited Bitter-wood.*

Lin. ſpec. 1367. *Juſſ.* 826. *Reich.* 4. 66. *Willd.* 2. 1270.

Xylopicrum. *Brown. jam.* 251. *n.* 2.

Xylopicron. *Plak. phyt. t.* 238. *f.* 4.

Leaves oblong-ovate ſmooth, peduncles one-flowered ſubgeminate, fruits ſmooth.

DESCRIPTIONS, *&c.*

1. This tree grows to the height of fifteen or ſixteen feet. Native of Jamaica. Browne found it at the foot of the mountains in Sixteen-Mile-walk[z].

2. Very like the preceding, but the leaves are narrower, whitiſh and ſilky villoſe underneath, not ſtrigoſe, ſmooth at the end not with a bundle of hairs; the fruit alſo is ſmooth; the peduncles are ſometimes one-flowered, ſometimes many-flowered. Native of Guiana and Braſil[a].

Capſules placed on the receptacle of the flower in a ſubglobular umbel, pedicelled, ovate, ſimple or twin, wrinkled, coriaceous, aromatic, two-celled, two-valved: partition membranaceous, thin, contrary to the valves. Seed one in each cell, oblong-elliptic, narrowing below into an umbilical dagger-point, plano-convex, black, ſhining. Aril incomplete, ſpongy-membranaceous, white, full of a very fragrant acrid oil, faſtened cloſely to the umbilical point, often inveſting the lower half of the ſeed[b].

3. This tree grows to a conſiderable ſize, and will ſometimes raiſe its branches to the height of fifty or ſixty feet. The wood, bark and berries have an agreeable bitter taſte, not unlike that of the orange ſeed. The wild pigeons feed much upon the latter, and owe that delicate bitteriſh flavour, ſo peculiar to them in the ſeaſon, wholly to this part of their food. Freſh gathered from the tree they are agreeable to the palate and grateful to the ſtomach. The bark is alſo richly impregnated with this juice as well as the wood; and both yield a very agreeable bitter in the mouth while freſh: but that delicacy diminiſhes greatly after they are dried. The wood is eaſily wrought, and eſteemed a good timber-wood, where it is not much expoſed to the weather[c].

The bitter quality of this tree is communicated with great facility. A handful of the ſhavings immerſed in water, and inſtantly taken out again, will render it of a very bitter taſte. Sugar ſent over in hogſheads made of this wood was ſo bitter that no perſon would purchaſe it. Bedſteads and preſſes made of it are proof againſt cockroaches and other inſects. Carpenters who work the wood perceive a bitter taſte in their mouths and throats. A decoction of it is ſaid to be of ſervice in cholics, and to create appetite[d]. Native of Barbadoes and Jamaica. Browne ſays that he met with it in the mountains at the back of Bull-bay; and that it feeds at Mr. Anderſon's mountains, near the Mine.

The common name of Bitter-wood, was tranſlated into the Greek Xylopieron or Xylopicrum, for a generic appellation, by Plukenet and Browne. Linneus ſhortened it into Xylopia, a name of no meaning.

XYLOPIORUM. See *Xylopia.*

XYLOPYRUS. See *Rhamnus.*

XYLOSMA. (*From* ξυλον *wood, and* οσμη *a ſweet ſmell.*)

Lin. gen. Schreb. n. 1548. *Forſt. flor.* 72. Myroxyloni. *Forſt. gen.* 63.

Claſſ. 22. 12. Dioecia Polyandria.

* *Male.*

CAL. *Perianth* four or five-parted: leaflets roundiſh, minute, ſpreading.

COR. none.

Nectary very ſmall, annular, crenulate, ſurrounding the ſtamens.

STAM. *Filaments* numerous (20—50) capillary, twice as long as the calyx. *Anthers* roundiſh, ſmall.

* *Female.*

CAL. and COR. and NECT. as in the Males.

PIST. *Germ* ovate-globular. *Style* ſcarcely any, cylindrical. *Stigma* obtuſe, flat, indiſtinctly trifid.

PER. *Berry?* dry, oblong, ſubbilocular.

SEEDS two, three-ſided, convex on the back, flat on the ſides. *Partition* incomplete in the bottom of the berry.

ESSENTIAL CHARACTER.

Cal. four or five-parted. *Cor.* none: but a ſmall annular crenulate nectary ſurrounding the ſtamens.

MALE. *Stam.* twenty to fifty.

FEM. *Style* ſcarcely any. *Stigma* trifid. *Berry* dry, ſubbilocular. *Seeds* two, three-ſided.

[x] Willdenow. [y] Hort. kew. [z] Browne. [a] Gærtner. [b] Long. 819. [c] Browne.

SPECIES.

1. Xyloſma ſuaveolens.
Forſt. prodr. n. 380.
Myroxylon ſuaveolens. *Forſt. gen.* 126. *t.* 63. *n.* 1.
Leaves ovate ſerrate.
2. Xyloſma orbiculatum.
Forſt prodr. n. 381.
Myroxylon orbiculatum. *Forſt. gen.* 126. *t.* 63. *n.* 2.
Leaves roundiſh quite entire.

The firſt of theſe is a native of the Society iſles; the ſecond of Savage iſland.

Forſter firſt named this genus Myroxylon, becauſe the natives uſe the wood to perfume the Coco-nut oil, with which they anoint their air: but he changed it afterwards, to avoid its being confounded with the tree which yields the Balſam of Peru, and which had before been named Myroxylon.

XYLOSTEUM. See *Lonicera.*

XYRIS. (ξυρὸς *of Dioſcorides,* ξυρὶς *of Theophraſtus,* Xyris *of Pliny. Derivation unknown.*)
Lin. gen. n. 64. *Reich. n.* 70. *Schreb. n.* 89. *Gronov. Gærtn. t.* 15. *Juſſ.* 44.
Claſſ. 3. 1. Triandria Monogynia.
Nat. Order of *Enſatæ. Junci* Juſſ.

GENERIC CHARACTER.

CAL. *Spike* roundiſh: *ſcales* roundiſh, concave, imbricate, ſeparating the flowers. *Glume* two-valved, ſmall: *valves* boat-ſhaped, compreſſed, bowed, acute, converging.
COR. *Petals* three, flat, ſpreading, large, crenate: *claws* narrow, length of the calyx.
STAM. *Filaments* three, filiform, ſhorter than the corolla. *Anthers* erect, oblong.
PIST. *Germ* ſuperior, roundiſh. *Style* filiform. *Stigma* triple.
PER. *Capſule* roundiſh, one-celled, three-valved, opening by a cleft at the corners.
SEEDS numerous, very ſmall, adhering to a raiſed rib in the middle of each valve.

ESSENTIAL CHARACTER.

Cor. three-petalled, equal, crenate.* *Glumes* two-valved in a head. *Capſ.* ſuperior.

SPECIES.

1. Xyris indica.
Lin. ſpec. 62. *Reich.* 1. 116. *Willd.* 1. 254. *phytog.* 1. 2. *n.* 6. *Gron. virg.* 11. *Fl. zeyl. n.* 35. *Gærtn. fruct.* 1. 52. *Vahl. ſymb.* 3. 7. *Pluk. phyt. t.* 416. *f.* 4. *Mor. hiſt.* 3. 229. *ſ.* 8. *t.* 9. *f.* 28.
Katsjiletti-pullu. *Rheed. mal.* 9. 139. *t.* 71.
Leaves enſiform ſheathing the ſcape, head globular, ſcales roundiſh.
2. Xyris pauciflora.
Willd. ſpec. 1. 255. *phytog.* 1. 2. *n.* 7. *t.* 1. *f.* 1.
Leaves linear-ſubulate ſheathing the ſcape, head oblong, ſcales ovate obtuſe.
3. Xyris americana.
Willd. ſpec. 1. 255. *Vahl. ſymb.* 3. 8. *Aubl. guian.* 1. 40. *t.* 14.
Jupicai *Piſon. braſ.* 238.
Leaves three-ſided linear-ſubulate diſtinct at the baſe, head oblong, ſcales lanceolate acute.
4. Xyris capenſis.
Willd. ſpec. 1. 255. *Thunb. prodr.* 12.
Leaves linear very ſhort, head ovate acute, ſcales obtuſe.

DESCRIPTIONS, *&c.*

1. Scapes ſeveral, a foot high. Leaves ſometimes almoſt the length of the ſcape or a little ſhorter. Anthers linear, emarginate, with a pencil at the baſe on each ſide[t]. Vahl remarks, that he never obſerved the leaves to be ſo wide as they are repreſented in Rheede's figure.

Capſule obovate, three-cornered, opening at the corners, but cohering at top and bottom, and not ſeparating into valves. Seeds ovate-globular, ſtriated longitudinally, ſlightly pointed at both ends and theſe dark brown, in other parts ruſeſcent or elſe pale with the ſtreaks only ruſeſcent[t].

* Vahl. [t] Gærtner.

Vahl deſcribes a plant ſent from the Eaſt Indies by Koenig, which differs from this in having narrower ſhorter leaves, a ſmooth ancipital ſcape, and three-toothed anthers. It agrees with the third ſpecies in leaves and ſcape, but differs in height. He ſuſpects that the petals are not diſtinct, but cohere at bottom, not having been able to ſeparate them in his ſpecimens without tearing.

2. Native of Malabar.

3. Leaves linear, ſtiffiſh, ſhorter by half than the ſcape. Scape not ſtriated, as in the firſt ſpecies, compreſſed above. Scales of the head oblong, concave, with a thinner membranaceous margin, emarginate at the tip with a ſomewhat callous browniſh point in the middle, but never attenuated as in Aublet's figure, which is not a good one[t]. Native of South America.

4. Native of the Cape of Good Hope, where it was found by Thunberg.

Y.

YAM. See *Dioſcorea.*
YARROW. See *Achillea.*
YARUMA. See *Cecropia.*
YCOTLI. See *Cerbera.*
YELLOW RATTLE. See *Rhinanthus.*
YELLOW ROOT. See *Hydraſtis.*
YELLOW SUCCORY. See *Picris.*
YELLOW-WEED. See *Reſeda.*
YELLOW-WORT. See *Chlora.*
YERVAMORA. See *Boſea.*]
YEW TREE. See *Taxus.*
YUCCA. (*The Indian name.*)
Lin. gen. n. 429. *Reich. n.* 463. *Schreb. n.* 580. *p.* 827. *Gærtn. t.* 85. *Juſſ.* 49. *Dill. gen.* 5. Cordyline *Roy. lugdb.* 22.
Claſſ. 6. 1. Hexandria Monogynia.
Nat. Order of *Coronariæ. Lilia* Juſſ.

GENERIC CHARACTER.

CAL. none.
COR. bell-ſhaped, ſix-parted, cohering by the claws: *ſegments* ovate, very large, ſpreading.
STAM. *Filaments* ſix, very ſhort, thicker above, reflexed. *Anthers* very ſmall.
PIST. *Germ* oblong, bluntly three-ſided, longer than the ſtamens. *Style* none. *Stigma* three-grooved, obtuſe, with bifid ſegments, pervious.
PER. *Berry* oblong, obſcurely ſix-cornered, fleſhy, punched with a little hole between the ſtigmas, ſix-celled: *partitions* three thicker, and three thinner, and membranaceous diaphragms forming cells for each ſeed.
SEEDS flattiſh, incumbent, faſtened to the inner angle of each cell.

ESSENTIAL CHARACTER.

Cor. bell-ſhaped, ſpreading. *Style* none. *Capſ.* three-celled.

SPECIES.

1. Yucca glorioſa. *Superb Adam's Needle.*
Lin. ſpec. 456. *Reich.* 2. 83. *Willd.* 2. 183. *vir. cliff.* 29. *hort. cliff.* 130. *upſ.* 88. *Kniph. cent.* 1. *n.* 100.
Y. foliis aloes. *Bauh. pin.* 91.
Y. indica fol. aloes. *Barr. rar.* 70. *t.* 1194.
Yucca ſ. Jucca peruana. *Ger.* 1359. *emac.* 1543. *Raii hiſt.* 1201. *Park. parad.* 434. *t.* 435. *f.* 1.
Y. nova glorioſe elata & opinata planta. *Lob. adv.* 2. 507.
Leaves quite entire.
2. Yucca aloifolia. *Aloe-leaved Adam's Needle.*
Lin. ſpec. 457. *Reich.* 2. 83. *Willd.* 2. 184. *vir. cliff.* 29. *hort. cliff.* 130. *a.*

‡ Vahl.

Y. arboreſcens, fol. rigidioribus rectis ſerratis. *Dill. elth.* 435. *t.* 323. *f.* 416.
Aloe yuccæ foliis, cauleſcens. *Pluk. alm.* 19. *t.* 256. *f.* 4.
A. americana, yuccæ foliis arboreſcens. *Comm. præl.* 64. *t.* 14.
Leaves crenulate ſtriat.
3. Yucca draconis. *Drooping-leaved Adam's Needle.*
Lin. ſpec. 457. *Reich.* 2. 84. *Willd.* 2. 184. *hort. cliff.* 130. β. *upſ.* 88. *Gærtn. fruct.* 2. 34.
Y. draconis folio ſerrato reflexo. *Dill. elth.* 437. *t.* 324. *f.* 417. *Comm. præl.* 42. 67. *t.* 16.
Draconi arbori affinis americana. *Bauh. pin.* 506.
Tacori folia Draconi arboris ſimilia. *Bauh. hiſt.* 1. 1. 405.
Leaves crenate nodding.
4. Yucca filamentoſa. *Thready Adam's Needle.*
Lin. ſpec. 457. *Reich.* 2. 84. *Willd.* 2. 184. *Gron. virg.* 152. *Trew. Ehret. t.* 37.
Y. foliis filamentoſis. *Mor. hiſt.* 2. 419.
Y. virginiana, fol. per marginem apprime filatis. *Pluk. alm.* 396.
Leaves ſerrate-thready.

DESCRIPTIONS, *&c.*

1. This ſeldom riſes with a ſtem above two feet and a half or three feet high, which has leaves almoſt to the ground. Theſe are broad, ſtiff, and have the appearance of thoſe of the Aloe, but are narrower; they are of a dark green colour, and end in a ſharp black ſpine. It frequently produces its panicles of flowers from the centre of the leaves. The flower-ſtalk is three feet high, branching out on every ſide to a conſiderable diſtance, but the flowers are placed very ſparedly on the ſtalk, which renders it leſs beautiful than the other ſorts. The flowers are white within, but each petal is marked with a purple ſtripe on the outſide: they are bell-ſhaped and hang downward. They appear in auguſt and ſeptember, but are not ſucceeded by ſeeds in England.

Native of Virginia and other parts of North America.

[Firſt cultivated in Europe by John Gerarde, who had it from the Weſt Indies, "by a ſervant of a "learned and ſkilful Apothecare of Exceſter, named "Maſter Thomas Edwards [b]."

Parkinſon adds, that Gerarde kept it to his death, but that it periſhed with him who got it from his widow, intending to ſend it to his country houſe. Gerarde ſent it to Robin at Paris, and Veſpaſian the ſon of old Robin ſent it to Maſter John de Franqueville, which plant was flouriſhing in Parkinſon's garden, when he publiſhed his Paradiſus in 1629[i].

Johnſon, the editor of Gerarde's herbal, ſays that he once ſaw it in flower in the garden of Mr. Wilmot at Bow, but never ſince, though it hath been kept for ſundry years in many other gardens as with Mr. Parkinſon and Mr. Tuggy.]

2. This riſes with a thick tough fleſhy ſtalk, to the height of ten or twelve feet, having a head or tuft of the leaves at the top; theſe are narrower and ſtiffer than thoſe of the former ſort, and are of a lighter green colour; their edges are ſlightly ſerrate, and their points end in ſharp thorns. The flower-ſtalk riſes in the centre of the leaves, and is from two to three feet long, branching out into a pyramidal form. The flowers grow cloſe on the branches, and form a regular ſpike; they are of a bright purple colour on the outſide, and white within, making a fine appearance. They appear at the ſame time with thoſe of the former, but not ſo often; and whenever they appear the head decays, but one or two young heads come out from the ſide of the ſtalk below the old one.

[Native of South America. Cultivated 1696, in the Royal Garden at Hampton Court [k].]

3. Stalks three or four feet high. Leaves narrow, dark green, hanging down, ſerrate, and ending in acute ſpines.

[The plant which flowered in auguſt 1729 at Hamburgh in the garden of Jo. Henr. de Sprekelſen, at twenty years of age, was eight feet high, and the flower-ſtem two feet and a half. The flowers pendulous, milk-white, with a ſtrong unpleaſant ſmell, about 150 in a thyrſe. Seed veſſel three-celled. Seeds horny, wrinkled, blackiſh when ripe.

The plants cultivated in the Eltham garden in 1732 were about three feet high, and had longer, narrower, and more tender leaves than the ſecond ſpecies, bending downwards from about the middle, ſhining, darker green, leſs concave, terminating in a longer ſlenderer ſpine, about an inch wide, and two feet or more in length [l].

Gærtner deſcribes the fruit as a fleſhy oblong berry, contracted at the top, with a narrow aperture between the ſeſſile ſtigmas, obſcurely ſix-cornered, and ſix-celled: cuticle very thin, not ſeparating: pulp firm of a dark duſky blood-red colour: three of the partitions thicker and three thinner; all longitudinal: between theſe are tranſverſe, membranaceous, very thin, white diaphragms, forming partial cells for each of the ſeeds. Receptacle none, except the central angle of the cells, to which the ſeeds are faſtened horizontally in a ſingle longitudinal row. Seeds numerous, ſpherically triangular, flattiſh on both ſides, dark but not ſhining.] Native of South Carolina: whence Mr. Miller ſays that he received the ſeeds by the title of Oil-ſeed.

4. The ſtalk and leaves are like thoſe of the firſt ſort, but the leaves are obtuſe, and have no ſpines at their ends. The flower-ſtalk riſes five or ſix feet high, and is generally covered with flowers moſt of its length. The flowers are larger and whiter than thoſe of the other ſpecies, and ſit cloſe to the ſtalk. From the ſide of the leaves come out long threads which hang down.

[Moriſon obſerved three-ſided, three-celled capſules, in the garden of George Crook at Waterſtock, ſix miles from Oxford, in 1675: and adds that William Walker had poſſeſſed abundance of the plants for many years, in his ſuburban garden in the village of St. James, but that he never ſaw it flowering with him.]

Native of Virginia.

PROPAGATION AND CULTURE.

All theſe plants are either propagated by ſeed, when obtained from abroad, or elſe from offſets or heads taken from the old plants, after the manner of Aloes.

When they are raiſed from ſeeds, they ſhould be ſown in pots filled with light freſh earth, and plunged into a moderate hot-bed, where the plants will come up in five or ſix weeks after; and when they are two or three inches high, they ſhould be tranſplanted each into a ſeparate ſmall pot filled with light freſh earth, and plunged into a hot-bed, where the plants ſhould have air and water in proportion to the warmth of the ſeaſon, and the bed wherein they are placed.

In july they ſhould be inured by degrees to bear the open air, into which they muſt be removed, to harden them before winter, placing them in a well ſheltered ſituation, where they may remain until the beginning of october, when they muſt be removed into the green-houſe, where they may be ranged amongſt the hardier ſort of Aloes, and ſhould be treated in the ſame manner as hath been already directed for them; to which the reader is deſired to turn, for further inſtructions.

When theſe plants have acquired ſtrength, thoſe of the common ſort, and alſo the threaded, may be afterwards turned out into a warm border, where they will endure the cold of our ordinary winters very well, but the other ſorts muſt be kept in pots, that they may be ſheltered in winter; and if they are treated in the ſame way as the large American Aloe, they will do very well.

The offſets taken from the old plants ſhould be laid in a dry place, for a week or ten days before they are planted, that their wounds may heal, otherwiſe they will be ſubject to rot with moiſture.

As the ſecond and third ſorts do not put out offſets ſo plentifully as the firſt and fourth, ſo in order to propagate them, the heads of the plants may be cut off in june; and after the wounded part is dry, the heads

[b] Gerarde's herbal, p. 1359.
[i] Park. par. p. 434.
[k] Hort. kew.
[l] Dill. elth.

may be planted, which will ſoon take root, provided the pots are plunged into a moderate hot-bed; and this cutting off the heads will occaſion the ſtems to put out ſuckers, which they ſeldom do without until they flower; ſo that by this method, the plants may be obtained in plenty.

Z.

[ZACINTHA. See *Lapſana*.
ZADIRACH. See *Melia*.
ZALCIA. See *Trianthema*.
ZALUZIANSKIA. See *Marſilea*.
ZAMIA.
Lin. gen. Reich. n. 1286. *Schreb. n.* 1700. *ſuppl.* 68. *Gartn. t.* 3. *Juſſ.* 16.
Claſſ. 25. 1. Appendix Palmæ. (Dioecia Polyandria.)
Nat. Order of *Palmæ. Filices* Juſſ. &c.

GENERIC CHARACTER.

* *Male.*

CAL. *Ament* ſtrobile-ſhaped, ovate, obtuſe. *Scales* horizontal, peltate, obovate, very blunt, one-flowered, thickened at the top, permanent.
COR. none.
STAM. *Filaments* none. *Anthers* ſubglobular, cluſtered, accumulated in the lower ſurface of the ſcales, ſeſſile, two-valved, opening above by a longitudinal cleft. *Pollen* farinaceous.

* *Female.*

CAL. *Ament* ſtrobile-ſhaped, larger, ovate, imbricate. *Scales* pedicelled, peltate, angular, finally diſtant, permanent.
COR. none.
PIST. *Germs* two, irregular, angular, inſerted into the margin under the pelta of the ſcales, ſolitary on each ſide, nodding. *Style* none. *Stigma* obtuſe, obſcurely cloven at the ſide.
PER. *Berries* to each ſcale two, ovate, barked at the baſe, fleſhy, one-celled.
SEED one in each berry, ovate.
OBS. *Concerning the anthers and pollen conſult Jacquin coll. auſtr.* 3. 264. *This and Cycas were referred, both by the elder and younger Linnæus to the Filices*S.

ESSENTIAL CHARACTER.

MALE. *Ament* ſtrobile-ſhaped, ſcales covered with pollen underneath.
FEM. *Ament* ſtrobile-ſhaped, with ſcales at each margin. *Berry* ſolitary.

SPECIES.

1. Zamia furfuracea. *Broad-leaved Zamia.*
Lin. fil. Ait. kew. 3. 477.]
Palma americana, &c. *Pluk. phyt. t.* 103. *f.* 2. and 309. *f.* 5. *Herm. par. t.* 210.
P. fructu clavato polypyreno. *Mill. dict. n.* 9.
Palmifolia femina. *Trew. Ehret.* 5. *t.* 26.
[*Leaflets wedge-ſhaped ſtraight very ſmooth from the middle to the tip ſerrate ſcurfy underneath, ſtipe ſpiny.*
2. Zamia integrifolia. Dwarf Zamia.
Linn. fil. Ait. kew. 3. 478.
Z. pumila. *Lin. ſpec.* 1659. (*excl. ſynonymis.*)
Leaflets moſtly quite entire bluntiſh awnleſs ſtraight ſhining, ſtipe unarmed.
3. Zamia debilis. *Long-leaved Zamia.*
Linn. fil. Ait. kew. 3. 478.
Palma prunifera humilis, &c. *Comm. hort.* 1. 111. *t.* 58.
Leaflets linear awnleſs ſerrulate at the tip from ſpreading recurved longer than the channelled rachis, ſtipe three-ſided compreſſed unarmed.

4. Zamia pungens. *Needle Zamia.*
Linn. fil. Ait. kew. 3. 478.
Palma ſoboliſera, &c. *Till. piſ.* 129. *t.* 45.
Leaflets awl-ſhaped ſpreading ſtrict rigid mucronate, the outer margin of the baſe rounded, ſtipe roundiſh unarmed.
5. Zamia Cycadis. *Narrow-leaved Zamia.*
Lin. ſyſt. 926. *ſuppl.* 443. *Ait. kew.* 3. 478.
Z. caffra (villoſa.) *Gartn. fruct.* 1. 15.
Cycas caffra. *Thunb. in nov. act. upſ.* 2. 283. *t.* 5.
α. with one-ſpined leaves. *Entire narrow-leaved Zamia.*
β. with leaves two or three-ſpined at the end. *Trifid narrow-leaved Zamia.*
Leaflets oblique linear-lanceolate awl-ſhaped hairy curved one two or three-ſpined at the tip, ſtipe unarmed.]

DESCRIPTIONS, *&c.*

1. Stem thick, ſeldom riſing more than two feet high. The leaves come out round the upper part of the ſtem upon footſtalks eighteen inches long; they are pinnate, the leaflets about five inches in length, and an inch and half in breadth in the middle, drawing to a point at both ends; they are ſtiff, ſmooth, and entire except a few ſmall indentures at their points, are placed alternately, and are of a pale green colour; there are fourteen or fifteen of theſe leaflets ranged along the midrib. The fruit riſes up from the ſide of the ſtem upon a ſhort thick footſtalk, ſtanding upright, and ſhaped like a club, having many red ſeeds about the ſize of large peaſe, placed in ſeparate cells round the central footſtalk, to which they adhere. All the plants which have flowered in England had male flowers only.

It was diſcovered by Dr. Houſtoun in the ſands near Old Vera Cruz in America. The firſt time he ſaw it growing the plants were in full leaf, but on his return three months after, the fruit was ripe, and all the leaves were fallen off. He obſerved the ſame in the following ſeaſon.

[It appears from Plukenet, that it was cultivated in 1691, in the Royal Garden at Hampton Court[m].

2. The ſpadix is divided into florets after the manner of the fruit of the Cypreſs[n].

Native of Eaſt Florida. Introduced in 1768 by John Ellis, Eſq.[o]

3. Native of the Weſt Indies. Introduced in 1777 by Meſſrs. Kennedy and Lee.

4. Native of the Cape of Good Hope. Introduced in 1775, by Mr. Francis Maſſon[p].

5. Stem ſwelled out like a bulb above ground, tomentoſe, imbricate. Leaves pinnate, radical or on the bulb, very like thoſe of Cycas, but not in a ring, nor with the lower pinnas ſpineſcent. The male flowers as in Cycas circinalis, but the females are like the males, and under each ſcale there are two berries, as in the ſecond ſpecies[q].

The fruit is ovate-oblong, about a foot in length, pedunculed. Scales peltate, on long petioles, the petiole widening outwards, three-ſided: peltæ rhomboidal, acuminate both ways, ſuberous-coriaceous, on the outſide rugged, wrinkled, brown, within next the petiole marked on both ſides with a round pale area, and augmented near the end with a lamella turned inwards. The two berries under each pelta ovate very obſcurely three-cornered, fleſhy, ſmooth, one-celled: cuticle thin, in the old fruit pale ſtraw-coloured; pulp ſoft, fungous, moderately thick. Seed large, ovate-globular, inverted, having a knob at the end, pale[r].

Native of the Cape of Good Hope. Introduced by Mr. Francis Maſſon in 1775[s].

ZANNICHELLIA. (*So named by Micheli, in honour of Giov. Jeronymo Zannichelli, an Apothecary at Venice. Author of* Laboratorium Zannichellianum Chymicum, 1701. 8vo.—De Ferro ejuique nivis præparatione, 1713. 8vo.—De Myriophyllo pelagico, 1714. 8vo. —De Lithographia duorum montium Veronenſium, 1721. 8vo.—De quodam Inſecto aquatili, 1727. 8vo.

[m] Hort. kew. [n] Linn. ſpec. [o] Hort. kew.
[p] Hort. kew. [q] Linn. ſuppl. [r] Gartner. [s] Hort. kew.

—De Ruſco, 1727. 8vo.—Opuſcula Botanica, 1730. —Hiſtoria Plantarum Venetarum, 1735. *He travelled with Micheli along the ſhores of the Adriatic, and was particularly verſed in marine plants and animals.*)

Lin. gen. n. 1034. *Reich. n.* 1124. *Schreb. n.* 1391. *Mich. t.* 34. *Gærtn. t.* 19. *Mill. illuſtr.* 77. *Juſſ.* 19.

Algoides. *Vaill. act. gall.* 1719. *t.* 1. *f.* 1. Aponogeton. *Pont. anth.* Graminifolia. *Dill. gen.* 169.

Claſſ. 21. 1. *Monoecia Monandria.*

Nat. Order of *Inundatæ. Naiades* Juſſ.

GENERIC CHARACTER.

* *Male Flower.*

CAL. none.

COR. none.

STAM. *Filament* one, ſimple, long, erect. *Anthers* ſagittate, (ovate) erect.

* *Female* next the male flower.

CAL. *Perianth* one-leafed, ventricoſe, three-toothed.

COR. none.

PIST. *Germs* four to eight, horned, converging. *Styles* as many, ſimple, ſpreading a little. *Stigmas* ovate, flat, ſpreading outwards.

PER. *Capſules* as many, ſubfalcate, from erect-ſpreading, beaked with a reclining ſtyle, tubercled at the back, cruſty-coriaceous, compreſſed, one-celled, valveleſs.

SEEDS ſolitary, oblong, gibbous on one ſide.

* *Male* flowers ſolitary, ſcattered.

CAL. *Perianth* one-leafed, with the mouth oblique, ſharp behind, quite entire.

ESSENTIAL CHARACTER.

MALE. *Cal.* none. *Cor.* none.

FEM. *Cal.* one-leafed. *Cor.* none. *Germs* four or more. *Seeds* as many, pedicelled. *Stigmas* peltate.

SPECIES.

1. Zannichellia paluſtris. *Horned Pondweed.*

Lin. ſpec. 1375. *ſyſt.* 838. *Reich.* 4. 88. *fl. lapp. n.* 321. *ſuec. n.* 824. *hort. cliff.* 437. *Mich. gen.* 71. *t.* 34. *f.* 1. *Gærtn. fruct.* 1. 77. *Hudſ. angl.* 397. *Wither. arr. ed.* 3. 6. *Smith brit.* 955. *Hull.* 202. *Relh. cant. ed.* 2. *n. Sibth. oxon n.* 5. *Fl. dan. t.* 67. *Hall. helv. n.* 1604. *Pollich pal. n.* 866. *Villars dauph.* 2. 5. *Allion. pedem. n.* 2108. *Gron. virg.* 143. *Mill. illuſtr. t.* 77.

Graminifolia. *Dill. giſſ. app.* 168.

Algoides vulgaris. *Vaill. act.* 1719. *p.* 15. *t.* 1. *f.* 1.

Potamogeton capillaceum, capitulis ad alas triſidis. *Bauh. pin.* 193. *prodr.* 101.

Potamogeto ſimilis graminifolia ramoſa, ad genicula polyceratos. *Pluk. phyt. t.* 102. *f.* 7.

Aponogeton aquaticum graminifolium, ſtaminibus ſingularibus. *Raii ſyn.* 135. *Petiv. brit. t.* 6. *f.* 2.

Potamogit. affinis graminifolia aquatica. *Raii. hiſt.* 190.

DESCRIPTION, &c.

1. Root annual, fibrous, very ſlender. It has the habit of a Potamogeiton, ſlender and much branched, the ſtem leafy and ſmooth. Leaves ſomewhat whorled, growing two, three, or four out of the ſame ſheathing ſtipule, linear, quite entire, acute, graſs-like. Bractæ axillary, tubular, membranaceous. Flowers two together within each bractæ, one male, the other female. Stamen at the baſe of the pedicel of the female flower, capillary, very long: anther yellow, four-celled. Female flower pedicelled, with a bell-ſhaped calyx, unequally toothed at the mouth. Germs four or five, pedicelled, oblong, compreſſed, for the moſt part toothed or corrugated on the outſide. Styles ſhort. Stigmas large, ovate, peltate, quite entire or ſcarcely repand at the edge, by no means toothed. Seeds of the ſame form with the germs: ſomewhat compreſſed, with a dentated ridge on each ſide, and an awl-ſhaped termination, giving them the appearance of a bird's claw *. Gærtner ſays that the capſules are from four to eight, ſhaped as deſcribed in the generic character, with one ſeed in each, the ſhape and ſize of the cavity of the capſule, and pale-coloured.

Native of Europe and Virginia; flowering in june and july. Ditches and ſtagnant waters, near Pancras church; Bungay in Suffolk, Cherry-Hinton, &c. Cambridgeſhire; between Headington and the Wick in Oxfordſhire, &c.

Dr. Smith thinks that the plant figured by Micheli, *t.* 34. *f.* 2. may be a different ſpecies, not found, as far as he knows, in England.

In Withering this is referred to as our common ſort; and a deſcription by Dr. Stokes is referred to Micheli's *f.* 1.—Dr. Stokes obſerves, that the uncommon breadth of the ſummits (ſtigmas) is the moſt remarkable peculiarity of this plant; and whether they float upon the ſurface of the water, or are ſunk beneath it, they are equally calculated to receive the pollen, from the anthers which ſtand above them.

ZANONIA. (*So named by Linnæus, in memory of Giacomo Zanoni, preſect of the botanic garden at Bologna. Author of* Hiſtoria Plantarum. Bol. 1675. fol. *Edited in latin by Monti*, 1742. *He died in* 1682, *aged* 67.) *Lin. gen. n.* 1117. *Reich. n.* 1222. *Schreb. n.* 1524. *Juſſ.* 397.

Claſſ. 22. 5. Dioecia Pentandria.

Nat. Order of *Cucurbitaceæ* Juſſ.

GENERIC CHARACTER.

* *Male.*

CAL. *Perianth* three-leaved: *leaflets* ovate, ſpreading, ſhorter than the corolla.

COR. one-petalled, five-parted, ſpreading: *ſegments* acuminate, bent in, equal.

STAM. *Filaments* five, ſpreading, length of the calyx. *Anthers* ſimple.

* *Female* on a diſtinct plant.

CAL. *Perianth* as in the male, placed on the germ.

COR. as in the male.

PIST. *Germ* oblong, inferior. *Styles* three, ſpreading, conical, bent back, permanent. *Stigmas* bifid, curled.

PER. *Berry* long, very large, truncate, attenuated at the baſe, ſurrounded with a curled future towards the top, three-celled.

SEEDS two in each cell, oblong-round, flat in the centre of a lanceolate ſcale.

ESSENTIAL CHARACTER.

CAL. three-leaved. *Cor.* five-parted.

FEM. *Styles* three. *Berry* three-celled, inferior. *Seeds* two in each cell.

SPECIES.

1. Zanonia indica.

Lin. ſpec. 1457. *Reich.* 2. 252.

Penar-valli. *Rheed. mal.* 8. 31. *t.* 47, 48. *fem.* 31. *t.* 49. *male.*

Native of Malabar.

ZANONIA. See *Commelina.*

ZANTHORRIZA. See *Xanthorhiza.*

ZANTHOXYLUM. See *Xanthoxylum.*

ZAPOTA and ZAPOTILLA. See *Achras.*

ZATARHENDI. See *Origanum ægyptiacum.*]

ZEA (*of Pliny*: ζεια *of Dioſcorides. Derivation unknown.*) *Lin. gen. n.* 1042. *Reich. n.* 1133. *Schreb. n.* 1403. *Juſſ.* 33. Mays *Tournef. t.* 303—305. *Gærtn. t.* 1.

Claſſ. 21. 3. Monoecia Triandria.

Nat. Order of *Gramina. Graminea* Juſſ. *Graſſes.*

GENERIC CHARACTER.

* *Male Flowers* diſpoſed in diſtinct looſe ſpikes.

CAL. *Glume* two-flowered, two-valved: valves ovate-oblong, ventricoſe, awnleſs, acuminate; outer a little longer.

COR. *Glume* two-valved: valves oblong, awnleſs almoſt the length of the calyx; outer ventricoſe obtuſe; inner two-toothed at the tip.

Nectary two-leaved: *leaflets* fleſhy, wider above, truncate, grooved at the top, very ſhort.

STAM. *Filaments* three, capillary. *Anthers* ſubpriſmatic, bifid, opening at the top.

* *Females* in a very cloſe ſpike below the males, on the ſame plant, covered with leaves.

CAL. *Glume* one-flowered, two-valved, permanent: valves

* Smith brit. and Woodw. Mſs.

valves roundiſh, thick, membranaceous at the edge, ciliate; outer thicker.

Cor. *Glume* four-valved: valves unequal, membranaceous, hyaline, wide, ſhort, permanent.

Pist. *Germ* very ſmall. *Style* filiform, longeſt of all, pendulous. *Stigma* ſimple, pubeſcent towards the tip.

Per. none. *Common Receptacle* very large, long, five-cornered, marked with five rows of tranſverſe excavations, in each of which two fruits are immerſed, ſurrounded with their proper calyx and corolla.

Seeds ſolitary, roundiſh, angular at the baſe, compreſſed, longer than the glumes, pedicelled.

Obs. *Of the four valves of the female corolla two ſeem to have a barren flower.*

ESSENTIAL CHARACTER.

Males in diſtinct ſpikes. *Cal.* Glume two-flowered, awnleſs. *Cor.* Glume two-flowered, awnleſs.

Fem. *Cal.* Glume one-flowered, two-valved. *Cor.* Glume four-valved. *Style* one, filiform, pendulous. *Seeds* ſolitary, immerſed in an oblong receptacle.

SPECIES.

1. Zea Mays. *Indian Corn* or *Maize.*
Lin. ſpec. 1378. *Reich. a.* 97. *hort. cliff.* 437. *upſ.* 281. *Villars dauph.* 2. 180. *Deſfont. Atlant.* 2. 334. *Tbunb. jap.* 37. *Lour. cochinch.* 550. *ed. Willd.* 672.
Mays Zea. *Gærtn. fruct.* 1. 6.
Triticum indicum. *Bauh. hiſt.* *Raii hiſt.* 1249.
Frumentum indicum Mays dictum. *Bauh. pin.* 25. *theat.* 490—499. *Camer. epit.* 186.
F. turcicum & indicum. *Ger.* 75, 76. *f.* 1—3. *emac.* 81, 82. *t.* 1—6.
F. turcicum. *Dod. pempt.* 509. *Mor. hiſt. ſ.* 8. *t.* 13. *f.* 1, 2, 3.
Turcicum frumentum. *Fuchſ. hiſt.* 826.
Milium indicum maximum Mays dictum, & Frumentum Indicum. Park.

a. Zea americana. *Mill. dict. n.* 1.
Mays granis aureis. *Tournef. inſt.* 531.

β. Zea alba. *Mill. dict. n.* 2.
Mays granis albicantibus. *Tournef. inſt.* 531.

γ. Zea vulgaris. *Mill. dict. n.* 3.
Mays ſpica aurea & alba. *Tournef. inſt.* 531.

DESCRIPTION, &c.

The firſt of theſe grows naturally in the iſlands of the Weſt Indies; and has a very large ſtrong ſtalk, riſing the height of about ten or twelve feet. The leaves are long, broad, hang downward, and have a broad white midrib. The male flowers come out in branching ſpikes at the upper part of the ſtalks; theſe are eight or ten inches long. The female flowers come out from the bottom of the leaves on the ſide of the ſtalk; they are diſpoſed in a cloſe long thick ſpike, and are covered cloſely with thin ſpathes or ſheaths; out of the end of theſe covers hangs a ſmall long bunch of threads. When the ſeeds are ripe, the ſpikes or ears are nine or ten inches long, and ſometimes a foot; but theſe rarely ripen in England.

Mr. Miller ſays he has not ſeen any variety of colours in this, but that it is very probable there are the ſame varieties in the grain as in the others. This being leſs common in Europe, we are not ſo well acquainted with it.

The ſecond is cultivated in Italy, Spain and Portugal. The ſtalks are more ſlender, and ſeldom more than ſix or ſeven feet high. The leaves are narrower, and hollowed like the keel of a boat, and their tops hang downwards. The ſpikes of male flowers are ſhorter, and the ears of grain are ſlenderer, and not more than ſix or ſeven inches long. The grain does not come to maturity in England, unleſs the ſeaſon prove very warm, and it is ſown early in a warm ſoil and ſituation.

The third is cultivated in North America and Germany. The ſtalks are ſlender, and ſeldom riſe more than four feet high. The leaves are ſhorter and narrower than either of the former; they are hollowed like the keel of a boat, and their tops hang down. The ſpikes of male flowers are ſhort, and the ears of grain are ſeldom more than five or ſix inches long. This ripens its grain perfectly well in England, in as little time as Barley.

There are ſeveral varieties of the two laſt, differing in the colour of the grain. The moſt common colour is a yellowiſh white; but there are ſome with deep yellow, others with purple, and ſome with blue grains; and when the different colours are planted near each other, the farina will mix, and the ears will have grains of ſeveral colours intermixed on the ſame ſpike; but when the grains of the different varieties are planted at a proper diſtance from each other, the produce will be the ſame with the grains which were ſown. From long experience, ſays Mr. Miller, I can affirm, that theſe three are different, and do not alter by culture.

Maize is ſeldom cultivated in England for uſe; but in Italy, Germany, and North America it is the food of the poor inhabitants.

[We may add the South of France, Barbary, China, Cochinchina and Japan. It is much cultivated in the Weſt Indies: in Jamaica in all parts, among the young canes. The grain is reckoned a wholeſome hearty food, and is much uſed by the negroes, who make it into various meſſes. It is there given to horſes, and is the principal ſupport of poultry and ſmall ſtock, of which the people raiſe great quantities [1].

Mr. Miller thinks that Maize might be cultivated in England to advantage. But it can ſcarcely be expected to be grown here for the grain, except in favourable ſeaſons, and warm ſoils and ſituations. Yet as a fodder it might be of conſiderable ſervice, if it were cut when juſt opening into ear, and given freſh to the cattle every day.

This plant is an annual; native of America; and was cultivated here in 1562. As appears from Turner's herbal, part 2. fol. 58 [2].]

PROPAGATION AND CULTURE.

In North America it is treated in the following manner. They firſt dig the ground well in the ſpring, and having made it level, they draw a line croſs the whole piece; then they raiſe little hills at about three or four feet diſtance, into each of which they put two or three good ſeeds, covering them about an inch thick with earth. The rows are four feet aſunder, and the hills three or four feet diſtant from each other. Six quarts of ſeed is allowed to an acre, which, if the ſoil be good, will produce fifty buſhels of corn.

There is nothing more obſerved in the culture of this grain, but only to keep it clear from weeds, by frequent hoeing the ground; and when the ſtems are advanced, to draw the earth up in a hill about each plant, which, if done, will greatly ſtrengthen them, and preſerve the ground about their roots moiſt for a conſiderable time.

When the Corn is ripe they cut off the ſtalks cloſe to the ground, and after having gathered the ſpikes of grain, they ſpread the ſtalks in the ſun to harden and dry, which they afterward uſe in the ſame manner as Reeds in England for making fences, covering ſheds, &c. for which purpoſe they are very uſeful to the inhabitants of warm countries; and when there is a ſcarcity of forage, they feed their cattle with them green, as faſt as the Corn is gathered off.

The Corn is ground to flour, and the pooreſt ſort of people in America, and alſo in Italy and Germany, make their bread of this flour; and in many of the warmer countries, the inhabitants roaſt the whole ſpikes, and dreſs them many different ways, making ſeveral diſhes of them; but this grain ſeldom agrees with thoſe who have not been accuſtomed to eat it; however, in times of ſcarcity of other grain, this would be a better ſubſtitute for the poor than Bean flour, or other ſorts, which have been uſed in England; and at all times will be found a hearty food for cattle, hogs, and poultry; ſo that in light ſandy lands, where Beans ſucceed not well, this grain may be cultivated to anſwer both purpoſes to advantage.

If this grain is cultivated by the horſe-hoeing huſbandry, it may be done at leſs expenſe than in any other method; for this is one of the plants which is

[1] Brown. jam. 335. [2] Hort. kew.

more

more particularly adapted to this husbandry: therefore I shall here give an account of the method in which it has been cultivated by the horse-hoe, and has succeeded beyond expectation.

The land was very light and sandy, and far from being rich; this was ploughed deep before winter, and laid up in high ridges till the spring, when it was well harrowed to break it fine, and the beginning of april the ground was again ploughed, laid level, and well harrowed to make the surface smooth; then the seeds were sown in drills, which were made four feet asunder, into which the seeds were dropped at about a foot distance. When the plants were come up three inches high, where any of them were too close, they were cut up with a hand hoe, and the intervals between the rows were ploughed shallow, to destroy the young weeds. But when the stems were advanced, the ground in the intervals was ploughed deeper, and the earth laid up to the plants on both sides; and when the weeds began to grow again, the ground was a third time ploughed to destroy them; this kept the ground pretty clean from weeds till the grain was ripe, as the season was not wet, but otherwise it would have required a fourth ploughing to answer this purpose. The stalks of these plants produced from three to six spikes of grain each, which was a great increase.

The time for sowing this Corn, is about the same as for Barley; in light warm land it may be sown the latter end of march or the beginning of april, but in cold ground, the middle or end of april will be early enough, for the grain is subject to rot in cold land, especially if the season proves wet. When the large sorts are planted in a garden for curiosity, their seeds should be sown upon a moderate hot-bed the beginning of march; and when the plants are fit to remove, they should be transplanted on another moderate hot-bed to bring them forward; but they must not be kept too closely covered, for that will draw them up weak; therefore, when the weather is mild, they should be inured to bear the open air; and the beginning of may they should be taken up with balls of earth to their roots, and transplanted into a warm border at three or four feet distance, carefully watering them if the weather proves dry, until they have taken new root, after which they will require no other care but to keep them clean from weeds. If the season should prove warm, these plants will ripen their grain in the autumn.

[ZEA. See *Triticum Spelta*.
ZEDOARIA. See *Kæmpferia*.
ZEOCRITON. See *Hordeum*.
ZEOPHTHALMUM. See *Dolichos uréns*.
ZERUMBET. See *Amomum*.
ZEUGITES. See *Apluda*.
ZIA-RAEK. See *Asclepias gigantea*.
ZIERIA. (*So named by Dr. Smith, in memory of John Zier, fellow of the Linnean society, an indefatigable botanist.*)
Linn. Transf. 4. 217.
Class. 4. 1. Tetrandria Monogynia, *near* Fagara.
Nat. Order of *Rutaceæ* Juss.

ESSENTIAL CHARACTER.

Cal. four-parted. *Pet.* four. *Stam.* smooth, placed on glands. *Styles* simple. *Stigma* four-lobed. *Capf.* four, united. *Seeds* arilled.

This is one of the twenty new genera from the South Seas, the characters of which are given by Dr. J. E. Smith. It is distinguished by having each of the stamens inserted into a large gland: and consists of shrubs with opposite, ternate leaves, and white flowers.

ZIETANIA. See *Stachys*.
ZILLA. See *Bunias*.
ZINGI. See *Illicium*.
ZINZIBER. See *Amomum* and *Costus*.]
ZINNIA. (*So named by Linneus, in honour of John Godofr. Zinn, pupil of Haller, and professor of botany at Goettingen after him. Author of* Hortus Goettingensis. 1757.
Lin. gen. n. 974. *Reich.* n. 1046. *Schreb.* n. 1305. *Gærtn. t.* 172. *Juss.* 188.
Class. 19. 2. Syngenesia Polygamia Superflua.
Nat. Order of *Compositæ Oppositifoliæ. Corymbiferæ* Juss.

GENERIC CHARACTER.

CAL. *Common* ovate-cylindrical, even, imbricate: *scales* numerous, obtuse, erect, permanent.
COR. *Compound*, radiate: *Corollets* hermaphrodite several in a raised disk. *Females* five to ten, in a ray.
Proper of the Hermaphrodite funnel-form, five-cleft, villose within.
Female ligulate, roundish, retuse, larger than the disk, permanent.
STAM. in the Hermaphrodites: *Filaments* five, very short. *Anther* cylindrical, tubular.
PIST. in the Hermaphrodites: *Germ* oblong, awned, one awn longer than the other. *Style* filiform, semibifid. *Stigmas* two, erect, obtuse.
In the Females: *Germ* oblong, three-sided, awnless. Style capillary, semibifid. Stigmas two, recurved.
PER. none. *Calyx* unchanged.
SEEDS in the Hermaphrodite solitary, oblong, four-cornered-ancipital. *Down* with two points, one of them awned.—In the Females solitary, awnless, crowned with the permanent petal.
REC. chaffy: *chaffs* tongue-shaped, channelled, length of the calyx, deciduous.

ESSENTIAL CHARACTER.

Cal. ovate-cylindrical, imbricate. *Florets* of the ray five, permanent, entire. *Seed-down* with two erect awns. *Receptacle* chaffy.

SPECIES.

1. Zinnia pauciflora. *Yellow Zinnia.*
Lin. spec. 1269. *Syst.* 771. *Reich.* 3. 842. *Willd.* 3. 2139. *Knipb. cent.* 7. *n.* 100.
2. Z. lutea. *Gærtn. fruct.* 459.
Chrysogonum peruvianum. *Lin. spec. ed.* 1. 920.
Verbesina foliis oppositis ovatis acutis integerrimis scabris. *Act. petrop.* 1763. *p.* 325. *t.* 13.
Bidens calyce oblongo, seminibus radii corolla non decidua coronatis. *Jussieu. Mill. fig.* 43. *t.* 64. *Dict. ed.* 7. *n.* 4.
Rudbeckia fol. oppositis. *Linn. goett.* 409. *t.* 1.
Lenica. *Hill. exot. n.* 29.
Craffina. *Scopin. diss. acad.*
Flowers sessile, leaves opposite cordate-lanceolate embracing sessile.
2. Zinnia multiflora. *Red Zinnia.*
Lin. spec. 1269. *Syst.* 771. *Reich.* 3. 842. *Willd.* 3. 2139. *dec.* 23. *t.* 12. *Knipb. cent.* 12. *n.* 100. *Curt. magaz. t.* 149. *Jacqu. obs.* 2. 19. *t.* 40.
Z. caule pilofo. *Nov. act. nat. cur.* 6. 173.
Flowers peduncled, leaves opposite ovate-lanceolate subpetioled.
[3. Zinnia verticillata. *Whorl-leaved Zinnia.*
Willd. spec. 3. 2140. *Andrews repof.* 3. *t.* 189.
Flowers peduncled, leaves in whorls ovate-lanceolate petioled, ray double.
4. Zinnia elegans. *Purple Zinnia.*
Willd. spec. 3. 2140. *Jacqu. ic. rar.* 3. *t.* 589. *collect.* 5. 152. *Curt. magaz. t.* 527.
Z. violacea. *Cavan. ic.* 1. 57. *t.* 81. *Andrews repof.* 1. *t.* 55.
Flowers peduncled, leaves opposite cordate-ovate sessile embracing, stem rough-haired, chaffs of the corolla serrate.
5. Zinnia tenuiflora. *Slender-flowered Zinnia.*
Willd. spec. 3. 2140. *Jacqu. ic. rar.* 3. *t.* 590. *collect.* 5. 153. *Curt. magaz. t.* 555.
Z. revolutа. *Cavan. ic.* 3. 26. *t.* 251.
Flowers peduncled, leaves opposite cordate-lanceolate petioled, ray linear-lanceolate reflexed.]

DESCRIPTIONS, &c.

1. This rises to the height of four feet. The stalks become hard and woody, and divide into many branches. Leaves oblong, smooth, entire. Flowers terminating, solitary, with smaller leaves on the peduncle close to the calyx. When blown they are as large as those of the common Marygold, and of a yellow colour. They do not fall off, only changing

their colour, and adhere ſo cloſely to the ſeeds as to render it difficult to part them [x].

[Root annual. Stem round, erect, compound. Leaves ſmooth, three-nerved, quite entire, rugged at the edge. Calyx terminating, ſeſſile, ſolitary, ſmooth, cylindrical. Corolla yellow, permanent. Branches from the wings of the leaves, not next the flower, like the ſtem and higher [y].

Receptacle ovate-conical, covered below with the ſcales of the calyx, above with chaffs, hollow within. Chaffs oblong, keeled, longer than the ſeed. Seeds uniform, oblong, triangular or rhomb-compreſſed, ſtriated, pale. Down diſſorm: of the ray none, but inſtead of it the ſhrivelled permanent female corolla; of the diſk awned: awns awl-ſhaped, ſpiny, ſtraight, unequal, ſingle or two together, very ſeldom three [z].

Native of Peru, whence the ſeeds were ſent to the Royal Garden at Paris. The plants produced ripe ſeeds there, ſome of which were ſent to Mr. Miller in 1753; and the following ſummer the plants flowered, and produced good ſeeds in the Cheliea garden [a].

In the ſeventh folio edition of the Dictionary it may be found under the name of Bidens; but both this and the ſecond ſpecies are omitted in the eighth edition. They are both in the fifth and ſixth quarto editions, under their proper name of Zinnia.]

2. Root annual. Stalk and branches more erect, covered with ſoft hairs and channelled. Leaves three-nerved, hairy. Flowers terminating: ray of a deep gold-colour on the upper ſide when firſt open, but afterwards changing to a dark copper; on the outſide pale ſtraw-colour. Theſe are permanent like the former.

[Stem rough-haired. Leaves petioled. Ray of the corolla red [b]. It varies with the corolla red and yellow [c].

This differs from the former, to which it is ſo nearly allied as to be almoſt regarded as a variety, in being only about half the ſize; the ſtem round, not angular or grooved, but hirſute with very ſpreading hairs; the leaves more petioled; the flowers on long naked peduncles, in greater abundance, ſmaller, with a red (not yellow) ray; the calyx-ſcales oblong not orbicular. When in full flower, the corolla is purple powdered with gold, like Amaryllis formoſiſſima, and yellowiſh-green underneath: afterwards it becomes of a duller colour, red mixed with yellow, and green underneath. It is particular in having the florets of the diſk hirſute [d].

This ſpecies is deſcribed in detail by Jacquin, in his obſervations. The ray of the corolla is compoſed of from fifteen to thirty florets, of a deep ſhining ſcarlet above, and of a duſky yellowiſh colour beneath, both finally changing to brown. Chaffs in the diſk membranaceous, brown at the tip, converging ſo as to incloſe the whole floret laterally, except the border: ſeed-down has a ſingle awn oppoſite to the chaff. The radical florets have neither chaff nor down.

Native of North America. Miller and others ſay Louiſiana. The younger Linnæus concludes it to be a native of Braſil, becauſe it came from France to Holland under the name of *Calthe de Breſil*, but that is probably erroneous. He ſays that ſeeds of it were firſt ſent to the botanic garden at Upſal by Nicol. Laur. Burman, M. D. and afterwards by Philip Miller, *horti Cheiſeani Cuſtode, Hortulanorumque Principe.* Jacquin informs us, that ſeeds ſent to Vienna from Schemnitz in Hungary, and ſown in may, flowered from the end of july to november, and bore ripe ſeeds in october.

According to the Kew catalogue it was introduced about 1771. But Mr. Miller has deſcribed it, and given its culture in the fifth quarto edition of his Dictionary, publiſhed in 1763.

Mr. Curtis remarks, that there is a variety with yellow flowers, in our gardens, nearly as common as the red.

[x] Mill. ſp. [y] Linn. ſpec. [z] Gærtner.
[a] Mill. ſp. [b] Linn. ſyſt. [c] Willdenow.
[d] Linn. dec.

3. This reſembles the firſt ſpecies; but the leaves are always in whorls, three, four, or five together; and the ray of the corolla is red and double.

Native of Mexico [e].

4. Root annual. Stem erect, round, rough, ſix feet high, putting forth upright branches the whole length. Leaves acute, quite entire, rough on both ſides, appearing ciliate to the magnifier, veined, the larger ſeven-nerved and five inches long, the ſmaller five-nerved; the nerves rough-haired. Peduncles terminating, one-flowered, thickened at top, hollow, rough-haired, erect, from one to five inches long. Flowers handſome, but without ſcent. Calyxes at firſt ovate, but afterwards more bell-ſhaped; ſcales oblong, rounded, ſmooth, marked with lines, pale green with a dark edge, ciliate a little below. Corollets in the ray from twelve to twenty, emarginate or quite entire, more than an inch long, at firſt red above but afterwards violet, beneath of a dirty pale colour. Florets in the diſk yellow, villoſe within. Chaffs white, with a red top. Seeds obovate, flat, very ſhortly and equally two-pointed, brown.

Native of Mexico.

5. Root annual. Stem three feet high, erect, round, rugged, hirſute, branched, the thickneſs of a reed. Leaves acute, quite entire, rugged on both ſides, ſeſſile, appearing to the magnifier ciliate at the edges, three or five-nerved, hirſute on the nerves beneath, about two inches in length. Peduncles terminating, one-flowered, hirſute, thickened and fiſtular at the top, erect. Calyx cylindrical, about half an inch long; ſcales oblong, rounded, ſmooth, green with a dark edge. Corollets in the ray from eight to fifteen, quite entire or two-toothed, red-orange above, beneath dirty-pale. Florets in the diſk yellow within, duſky without. Germ three-ſided, hirſute, with an awn at one corner as long as the corollet, and at the two other corners a ſhort toothlet. Chaffs whitiſh with a ſooty tip [f].

To Jacquin's deſcription Mr. Curtis adds, that the florets of the ray are ſharp-pointed, very rough to the touch, and of a lively pale green underneath, not a dingy white, as he deſcribes them. Probably native of South America. Firſt raiſed here in the garden of Edward Woodford, Eſq. at Vauxhall, from ſeed ſent by Monſ. Thouin.]

PROPAGATION AND CULTURE.

1. 2. Sow the ſeeds upon a moderate hot-bed in march. When the plants come up, raiſe the lights to give them air, whenever the weather is not too cold, otherwiſe the plants will draw up weak. When they are about an inch high, plant them on another hot-bed, but do not treat them too tenderly, for they are very ſubject to grow too luxuriant in branches. The firſt ſort will not produce many flowers, if the plants are not ſtinted in their growth while young, which may be effected by planting them in ſmall pots to confine their roots; otherwiſe the ſeeds will not ripen in England.

The ſecond ſort is much more proliſic of flowers, and may be treated with leſs care. When the plants have been brought forward on the hotbed, inure them gradually to bear the open air in may, and in june tranſplant them into the borders of the flower-garden, where they will continue flowering all the ſummer, and will perfect their ſeeds very well: but the plants of the firſt ſort ſhould be placed in a ſtove or under a glaſs caſe, to obtain good ſeeds.

[3. 4. Sow the ſeeds on a hot-bed, as before, and about the end of may plant them in large pots or in the open border, where they will continue to flower till deſtroyed by the froſt.

5. Sow it on a common hot-bed with balſams and other tender annuals, and ſet out the plants in the open border at the end of may, where they will continue to flower for ſome months, and produce ripe ſeeds in favourable ſeaſons.

ZANZIBER. See *Amomum.*

ZIZANIA. (*Plural of ζιζανιον, which ſome interpret lolium; in our tranſlation of the New Teſtament it is*

[e] Willdenow. [f] Jacquin.

Tares, *but very erroneouſly. A variety of fanciful etymologies may be ſeen in Voſſius and others.*]
Lin. gen. n. 1062. *Reich. n.* 1459. *Schreb. n.* 1433. *Gronovii. Gærtn. t.* 82. *Juſſ.* 33. Elymus. *Mitch.* 7. *Schreb. gram.* 2. *t.* 29.
Claſſ. 21. 6. Monoecia Hexandria.
Nat. Order of *Gramina. Graminæ* Juſſ. *Graſſes.*

GENERIC CHARACTER.

* *Male* Flowers below the females.
CAL. none.
COR. *Glume* two-valved: *valves* lanceolate, awnleſs, membranaceous, nerved, embracing: the outer bigger. *Nectary* two-leaved: leaflets ovate, obtuſe.
STAM. *Filaments* ſix, capillary, very ſhort. *Anthers* linear, bifid, ſcarcely the length of the corolla.
* *Female* Flowers in the ſame panicle, bigger.
CAL. none.
COR. *Glume* two-valved, cloſed, gaping only above the germ: *outer valve* bigger, hollow, long, ſtraight, embracing the inner on both ſides, rigid, ending in a long ſtraight *awn*: *inner* narrower, lanceolate. *Nectary* two-leafed: *leaflets* ovate, rounded.
STAM. *Filaments* ſix? minute. *Anthers* ſmall, barren.
PIST. *Germ* ovate. *Styles* two, very ſmall. *Stigmas* feathered, eminent.
PER. none. *Glume* cloſed, permanent.
SEED ſingle, oblong, equal, ſhining, naked.

ESSENTIAL CHARACTER.

MALE. *Cal.* none. COR. *Glume* two-valved, awnleſs, mixed with the females.
FEM. *Cal.* none. *Cor.* Glume two-valved, cowled, awned. *Style* two-parted. *Seed* one, clothed with the plaited corolla.

SPECIES.

1. Zizania aquatica.
Lin. ſpec. 1408. *Reich.* 4. 150. *Gron. virg.* 189, 148. *Lambert in Linn. tranſ.* 7. 264. *t.* 13.
Z. paluſtris. *Lin. ſyſt.* 855. *mant.* 295. *Schreb. gram.* 2. 54. *t.* 29. *Gærtn. fruct.* 2. 11. *Scheuch. alim. farin. ic.*
Elymus. *Mitch. gen.* 210. *n.* 7.
Panicle racemed below, ſpiked above.
2. Zizania terreſtris.
Lin. ſpec. 1408. *Reich.* 4. 151.
Katou-Tsjolam. *Rheed. mal.* 12. 113. *t.* 60.
Panicle ſubracemed.

DESCRIPTIONS.

1. Root annual. Culm two feet high, obliquely erect, covered all over with the ſheaths of leaves. Branches two oppoſite, from the baſe of the culm, flower-bearing. Leaves five or ſix, even, wider than thoſe of the common Reed, with ſmooth ſheaths. Panicle below looſe and male, above ſpiked and female. Lower branches capillary, ſimply racemed, ſpreading horizontally, bearing two or three ſeſſile flowers. Spike terminating, erect, with the flowers ſubſeſſile, approximating to the rachis, female. Flowers deſcribed in the generic character. It is ſingular, that the inner valve involves the lateral margins, and the outer revolves them, and thus one embraces the other cloſely in the female flowers[a]. Seed oblong, roundiſh, a little narrower below, black or brown ruſt-colour, on one ſide convex with a ſtreak, on the other marked with a ſhallow groove[b].

Native of North America: in great abundance in the lakes of Canada. Mr. Lambert is perſuaded that it might be ſown with ſome advantage where no other grain will grow, in many ſhallow pieces of water in Great Britain and Ireland, eſpecially in the latter country, where there are many extenſive lakes which appear well ſuited for the purpoſe. In a pond at Spring grove, Sir Joſeph Banks has a great quantity of this plant, growing annually, ripening its ſeeds, and ſowing itſelf round the edges. The ſeeds for a long time were received from America, yet none of them grew. At length Dr. Nooth, by the deſire of Sir Joſeph Banks, ſent them from Canada, put up in jars of water. As ſoon as they arrived they were ſown in a proper ſituation, where they came up in a few days, and the plants ripened their ſeeds extremely well in the autumn. Theſe ſeeds, which are as large as oats, and perhaps as nutritive, are uſed by the Indians for food[k].

They have a pleaſant taſte, and make a pudding equal to Rice or Millet. Carver[l] ſays that this grain, which grows in great plenty throughout the interior parts of North America, is the moſt valuable of all the ſpontaneous productions of that country. Beſides its utility as a ſupply of food for the human ſpecies, obtained without any other trouble than that of gathering it in, it attracts an infinite number of wild fowl of various kinds, which become very fat and delicious by this rich repaſt. It might be of great ſervice to an infant colony, as it would afford a preſent ſupport without much labour, until by cultivation other ſupplies could be produced: firſt ſettlers, even in a temperate climate and on a good ſoil, being often expoſed to great hardſhips for want of an immediate ſupply of neceſſary food. This uſeful grain grows commonly where the water is about two feet deep, and where it finds a rich muddy ſoil. The ſtalks, which are full of joints, riſe more than eight feet above the water. Nearly about the time that the grain begins to turn from its milky ſtate and to ripen, the natives run their canoes into the midſt of it, and tying bunches of it together, juſt below the ears, with bark, leave it in this ſituation three or four weeks longer, until it is perfectly ripe. About the end of ſeptember they return, when each family having its ſeparate allotment, diſtinguiſhed by the manner of faſtening the ſheaves, gather in the portion that belongs to them.

As a ſubſtitute for Rice in our new ſettlements in the ſouthern hemiſphere, where the climate may be too cold for that grain, it ſhould ſeem to be a very deſirable acquiſition, and might be ſowed in the moraſſes and ſtagnated waters that always abound in thinly inhabited countries, and which require more labour to drain than new eſtabliſhments can afford[k].

The French in Canada call it *Folle Avoine*, the Engliſh, *Wild Rice*, and the Germans *Riſave*. What could induce Linneus, as Mr. White obſerves, to degrade this highly beneficial grain, with the name of that pernicious weed, which the enemy ſowed among the wheat, does not eaſily appear. He might not however be fully acquainted with its great utility, when he firſt impoſed the name upon it: and was perhaps influenced by its general reſemblance to that deſtructive weed the Wild Oat. The word *Zizania* not being found in any Greek author except St. Matthew, Mr. White deems it now impoſſible to aſcertain what plant the Evangeliſt intended. But ſurely a botaniſt who ſhould be *in Paleſtine* during the time that the Wheat crop was growing, might at leaſt make a ſhrewd gueſs at it. Haſſelquiſt has not made any mention of this weed.

Zizania paluſtris of Linneus's mantiſſa, is the ſame with what he had deſcribed in both editions of the Species Plantarum, under the name of Z. aquatica; as the original ſpecimen in his herbarium ſhews. It ſeems however that he latterly intended Sloane's plant, (hiſt. Jam. t. 67.) to remain as the *aquatica*; conceiving that, on account of its great ſpreading panicle, to be a different plant. Probably Browne's ſynonym belongs rather to Sloane's plant[l].

Sir Hans deſcribes it as putting forth roots from every joint, and ſending up round, hollow culms, jointed at every two inches diſtance, of a clay colour, and about the bigneſs of one's little finger. The ſheath of the leaf covers the whole internode; and the leaf is near half an inch broad at the baſe, tapers for more than a foot in length, and ends in a point of a blueiſh green colour. The ſtalks riſe fourteen or fifteen feet high; the top is a panicle of a foot in length, branched out into many rough ſpikes. He

[a] Linn. mant. [b] Gærtner.
[k] Lambert in Linn. tranſ. [l] Travels. 522.
[k] Tho. White, Eſq. in Gent. Mag. for 1789. vol. 59. p. 128. See Young's annals, 6. 390 to 396.
[l] Linn. tranſ. vol. 7.

calls it the Trumpet Reed; and ſays that it grows in the Laguna near Paſſage Fort very plentifully.

2. This is a native of Malabar, not in water, but on dry ground. Linnæus notes in his manuſcript, that it ſhould be examined, in order to be diſtinguiſhed from the other the ſpecific character[a].]

ZIZIPHORA. (Moris. Zizi Indis. *Linn.*)

Lin. gen. n. 36. *Reich. n.* 39. *Schreb. n.* 47. *Gærtn. t.* 66. *Juſſ.* 111.

Claſſ. 2. 1. Diandria Monogynia.

Nat. Order of *Verticillatæ*. *Labiatæ* Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* one-leafed, tubular, cylindrical, very long, ſtriated, hiſpid; with a very ſmall, five-toothed mouth, and a bearded throat.

COR. one-petalled, ringent: *tube* cylindrical, length of the calyx: *border* very ſmall: *upper lip* ovate, reflexed, entire; *lower* ſpreading, wider, trifid, *ſegments* rounded, equal.

STAM. *Filaments* two, ſimple, ſpreading, almoſt the length of the corolla. *Anthers* oblong, diſtant.

PIST. *Germ* four-cleft. *Style* briſtle-ſhaped, length of the corolla. *Stigma* acuminate, bent in.

PER. none. *Calyx* unchanged.

SEEDS four, far ſhorter than the calyx, oblong, obtuſe, on one ſide gibbous, on the other angular.

ESSENTIAL CHARACTER.

Cal. filiform. *Cor.* ringent, with the upper lip bent back and entire. *Seeds* four.

SPECIES.

1. Ziziphora capitata. *Ovate-leaved Ziziphora.*

Lin. ſpec. 31. *Juſſ.* 67. *Reich.* 1. 58. *Willd.* 1. 123. *mant.* 317. *hort. cliff.* 305. *Gærtn. fruct.* 1. 316. *Pallas it.* 2. 522. *Deſfont. atlant.* 1. 18. *Kniph. orig. cent.* 8. *n.* 100. *Lamarck illuſtr. n.* 566. *t.* 18. *f.* 3. *Pluk. phyt. t.* 164. *f.* 4. *Mor. hiſt. ſ.* 11. *t.* 8. *f.* 5. (Clinopodium.) *Buxb. cent.* 3. 28. *t.* 51. *f.* 1. (Thymus.)

Faſcicles terminating, leaves ovate.

[2. Ziziphora hiſpanica. *Spaniſh Ziziphora.*

Lin. ſpec. 31. *Reich.* 1. 58. *Willd.* 1. 124. *amoen.* 4. 263.

Leaves ovate, flowers raceme ſpiked, bractes ovate nerved acute.]

3. Ziziphora tenuior. *Spear-leaved Ziziphora.*

Lin. ſpec. 31. *Reich.* 1. 58. *Willd.* 1. 124. *hort. cliff.* 305. *upſ.* 9. *Deſfont. atlant.* 1. 18. *Lamarck illuſtr. n.* 568. *t.* 18. *f.* 2.

Acinos ſyriaca folio tenuiore, capſulis hirtis. *Mor. hiſt.* 3. 404. *ſ.* 11. *t.* 19. *f.* 4.

Clinopodium orient. hirſutum, foliis inferioribus Ocymum, ſuperioribus Hyſſopum referentibus. *Tournef. cor.* 12.

Flowers lateral, leaves lanceolate.

[4. Ziziphora acinoides. *Thyme-leaved Ziziphora.*

Lin. ſpec. 31. *Reich.* 1. 58. *Willd.* 1. 124.

Clinopodium ſupinum incanum. *Amm. ruth. n.* 66.

Flowers lateral, leaves ovate.]

DESCRIPTIONS, *&c.*

1. Root annual. Stem four-cornered, about four inches high, ſending out oppoſite ſide-branches from the bottom. Theſe are terminated by a cluſter of ſmall flowers ſurrounded by ovate leaves ending in acute points. Flowers purple, juſt emerging from the ſlender calyx.

[Seeds ovate, narrower towards the baſe, ſmooth, of a bay-ruſſet colour[a].

Flowers all terminating in bundles. Corolla without any ſpot on the palate, ſuch as may be ſeen in Z. tenuior[b]. From which this differs in having the flowers in a head, as the trivial name implies; and four ovate, acute bractes, ſurrounding the head[c].

Native of Syria, Armenia, Barbary, Siberia. Cultivated by Mr. Miller, in 1752[d].] It flowers in june, july, and auguſt; and the ſeeds ripen about ſix weeks after.

[a] Linn. tranſ. vol. 7. [b] Gærtner. [c] Linn. mant. [c] Deſfontaines. [d] Hort. kew.

2. Native of Spain.—Mr. Miller has a ſpecies under this name, which he ſays that he] received from Dr. Ruſſel, who procured the ſeeds from Aleppo. He deſcribes the flowers as diſpoſed in whorls; and the plant as ſmelling like Pennyroyal.

3. This ſends up many ſlender woody ſtalks, near a foot high. Leaves about the ſize of thoſe of Summer Savory, with a ſcent like them. Flowers in whorls, reſembling thoſe of the firſt ſort, and appearing at the ſame ſeaſon.

[Root annual. Plant branched, erect. Stems four-cornered, thickening above, pubeſcent. Leaves ciliate, toothletted or quite entire, running down into the petiole, with oblique nerves beneath. Flowers whorled, ſpiked; each pedicelled. Tube of the corolla a little longer than the calyx. Bractes lanceolate, oppoſite, longer than the flowers. Two of the ſtamens are fertile, and two barren[e]. Native of the Levant and Barbary.—Cultivated in 1752, by Mr. Miller. It flowers in june and july[f].

4. This has the habit of Thymus Acinos; but all the parts are five times as big. It has the leaves of the firſt ſpecies, and lateral flowers as in the third, but more abundant. The calyxes are hiſpid as in that; and the ſtamens thruſt out beyond the tube of the corolla. Native of Siberia[f]. Introduced in 1786, by William Pitcairn, M. D. It flowers in july and auguſt; and is perennial[g].]

PROPAGATION AND CULTURE.

Sow the ſeeds in a border of light earth, where they are to remain, either in ſpring or autumn. Thoſe plants which come up in autumn will abide through the winter, and grow much larger than thoſe which come up in the ſpring: their ſeeds will be ripe in july or auguſt; but thoſe of the ſpring plants will not ripen till the end of auguſt, or the beginning of ſeptember; when, if the ſeeds are permitted to ſcatter, the plants will come up, and require no farther care but to clear them from weeds, and thin them where they are too cloſe.

[ZIZYPHUS. See *Elæagnus*, and *Rhamnus*.

ZOEGEA. (*So named by Linnæus, from Johann Zoega, M. D. Author of* Flora Iſlandica, 1772 and 1775. 4to. &c.

Lin. gen. Reich. n. 1065. *Schreb. n.* 1330. *Juſſ.* 174.

Claſſ. 19. 3. Syngeneſia Polygamia Fruſtranea.

Nat. Order of *Compoſitæ Capitatæ*, *Cinarocephalæ* Juſſ.

GENERIC CHARACTER.

CAL. *Common* ovate, imbricate: *ſcales* lanceolate, ciliate: the inmoſt ſcarioſe, lanceolate, longer.

COR. *Common* radiate. *Corollets hermaphrodite* numerous in the diſk. *Females* fewer in the ray. *Proper* of the Hermaphrodite one-petalled: *tube* filiform; *border* five-parted; *ſegments* lanceolate, erect. *Female* one-petalled, ligulate, flat, ſlightly five-toothed.

STAM. in the Hermaphrodites. *Filaments* five, ſhort. *Anther* cylindric.

PIST. in the Hermaphrodites. *Germ* ſhort. *Style* capillary, very long, erect. *Stigma* ſhort, bifid. In the Females *Germ* ſhort. *Style* none. *Stigma* none.

PER. none. *Calyx* unchanged, converging.

SEEDS in the *Hermaphrodites* ſolitary. *Down* none. In the *Females* none.

REC. Briſtly.

OBS. *This genus bears a great affinity to Centaurea, but the ray of the flower is flat.*

ESSENTIAL CHARACTER.

Cal. imbricate. *Cor.* of the ray ligulate. *Down* briſtle-ſhaped. *Recept.* briſtly.

SPECIES.

1. Zoegea Leptaurea.

Lin. ſyſt. 784. *Reich.* 3. 895. *Willd.* 3. 2276. *mant.* 117. *Gærtn. fruct.* 2. 452. *L'Herit. ſtirp.* 57. *t.* 29.

[e] Deſfontaines. [f] Hort. kew. [g] Linn. ſpec.

Zoegea aleppica. *Jacqu. ic. 1. t. 177. collect. 1. 89.*

DESCRIPTION, *&c.*

This is an annual plant, with the ſtem branched, almoſt upright, round, ſcarcely ſtriated, ſquallid, about eighteen inches in height, ſcarcely as thick as a reed. Branches and branchlets alternate, diffuſed, angular, ſtriated, ſomewhat rugged. Leaves alternate, petioled, ſpreading. The radical and lower ſtem leaves pinnatifid, with two or three pairs of ſegments, which are moſtly oppoſite, remote, ovate or oblong, one-nerved, bluntiſh or ſharply acuminate, (the lower ones gradually leſs, the outmoſt very large, lanceolate, ſomewhat toothed,) villoſe, ſquallid, ſomewhat rugged, pale, three inches long, and two wide. The branch-leaves ſubſeſſile, lanceolate, bluntiſh with a ſharp point, almoſt entire, three-nerved, reclining, gradually leſs to the tip. Petioles widiſh, keeled, running into the leaf, widened at the baſe, much ſhorter than the leaf, very ſhort even on the branch-leaves. Flowers terminating, ſolitary, erect, yellow, on elongated peduncles, which are thickened at the top, ſtriated, ſquallid, bracted or naked, two inches in length. Bracte (when there is one) towards the middle of the peduncle, ſeſſile, linear, ciliate at the tip; and ſome of the ſame ſhape now and then ſcattered at the apex of the peduncle*.

Linnæus deſcribes the ſtem as a palm only in height; the leaves ſeſſile, remote, quite entire and rugged; the peduncles naked and one-flowered; the flowers like thoſe in the genus Centaurea, with a ciliate calyx, the ciliæ teſtaceous; and the corolla like that of Calendula or Marygold, of a ſulvous or tawny yellow colour. He refers to a ſpecies of Centaurea in Gmelin's Linn. 1. 126. t. 20. as being perhaps the ſame with this†.

It was found by Andr. Michaux, in the Levant, and is rather a handſome plant, flowering in ſummer and autumn, and ripening a few ſeeds*.

ZOOPHTHALMUM. See *Dolichos.*

ZOSTERA. (*From ζωστηρ, cingulum, a belt.*)

Lin. gen. n. 1032. *Reich. n.* 1123. *Schreb. n.* 1390. *Gærtn. t.* 19. *Juſſ.* 24. *Engl. bot. t.* 467. Alga *Raii angl. ed.* 3. 52. Ruppia *Mochr. act. ang.* 1741. *p.* 217.

Claſſ. 1. 1. Monandria Monogynia. *Smith.*—Polyandria Polygynia. *Thunb.* and *Withering.*—Gynandria Polyandria. *Lin. gen.* and *ſyſt.* Monoecia Monandria. *Schreb. gen.*

Nat. Order of *Inundatæ. Arideæ* Juſſ.

GENERIC CHARACTER.

CAL. *Spathe* none, except the ſheathing baſe of the leaf, converging longitudinally, emarginate on both ſides above, incloſing the ſpadix.

Spadix linear, flat, furniſhed on one ſide with ſtamens above, and piſtils below. *Perianth* none.

COR. none.

STAM. *Filaments* alternate, very ſhort (or none) inſerted above the germ into the ſpadix. *Anther* ovate-oblong, nodding, obtuſe, retroſubulate upwards, curved in.

PIST. *Germs* alternate, ovate, compreſſed, ancipital, ſubpedicelled, faſtened by the apex, nodding. *Style* ſimple. *Stigmas* two, capillary or linear.

PER. *Capſule* ovate, beaked, terminated by the ſtyle, ſomewhat compreſſed, membranaceous, diaphanous, one-celled, valveleſs.

SEED ſingle, elliptic, compreſſed, ſtriated.

ESSENTIAL CHARACTER.

Spadix linear, within the ſheath of the leaves, flower-bearing on one ſide. *Cal.* none. *Cor.* none. *Anther* ſeſſile, oppoſite to the germ. *Stigmas* two, linear. *Capſ.* one-ſeeded.

SPECIES.

1. Zoſtera marina. *Graſs-wrack.*

Lin. ſpec. 1374. *ſyſt.* 829. *Reich.* 4. 77. *it. wgoth.* 166. *t.* 4. *f.* 1. *Huſſ. angl.* 395. *Wither. arr. ed.* 3. 496. *Smith. brit.* 7. *engl. bot. t.* 467. *Fl. dan. t.* 15. *Scop. carn. n.* 1140. *Gron. virg.* 142.

Z. maritima. *Gærtn. fruct.* 1. 76.

Alga. *Raii ſyn.* 52.

β. Fucus marinus, ſ. Alga marina graminea, minor. *Raii ſyn.* 52.

Algoides. *Mich. ic. ined. t.* 60. *f.* 2.

γ. Fucus ſ. Alga marina graminea anguſtifolia ſeminifera ramoſior. *Raii ſyn.* 52.

Algoides. *Mich. ic. ined. t.* 59.

δ. Potamogeiton marinum in utriculis epiphylloſpermon minus. *Raii ſyn.* 53.

ε. Alga anguſtifolia vitrariorum. *Raii ſyn.* 53.

DESCRIPTION, &c.

Root fibrous, ſeemingly perennial, throwing out roots from the joints of its long, round, ſmooth, branching ſtem; which at the baſe is decumbent, but above floating, leafy, and compreſſed a little. Leaves alternate, petioled, very long, linear, flaccid and tender, bluntiſh, quite entire, ſmooth, a little above the baſe opening by a longitudinal fiſſure, and putting forth a flat, linear ſpadix, bearing flowers on one ſide. The flowers are completely protected from the ſalt water, under which they grow, by this ſheathing baſe of the leaf, which cloſely enfolds them.

Linnæus placed this genus in the claſs Gynandria, conſidering its ſpadix as the common receptacle of one flower, compoſed of many anthers, ranged alternately with many piſtils. Thunberg and Withering, aboliſhing that claſs, have referred it to Polyandria Polygynia. The flowers are by no means gynandrous, as the ſtamens cannot in any ſenſe be underſtood to grow out of the piſtils; neither are they ſimply polyandrous, as in every ſuch flower, the male organs are invariably collected round the central females. Nor will the analogy of Arum, however we may underſtand that flower, at all help us to comprehend this, they having no real affinity. Zoſtera is eaſier underſtood as a ſimple unilateral ſpike of naked flowers diſpoſed in two ranks. The anther of each is ſeſſile, oblong, a little curved. By its ſide is affixed an oblong germ, with a ſhort ſtyle, having two long linear pointed ſtigmas. Theſe are arranged along the ſpike alternately, ſo that each anther may perhaps impregnate the germ of the flower below it.

Native of the ſea coaſt, in eſtuaries and ſalt water ditches, as about Yarmouth; flowering in auguſt and ſeptember*.

It is thrown on the ſhore by the tide in great plenty, and mounds are made with it to oppoſe the encroachment of the ſea. Buildings are thatched with the green leaves, and this covering will endure upwards of a century. Expoſure to the weather bleaches it white. It is uſed by the inhabitants of Gothland as a manure, and alſo for ſtuffing beds in preference to hay, as being ſofter. Horſes and ſwine eat it. Cows are not fond of it*.

Dr. Smith has reduced Ray's varieties to one ſpecies, till experience ſhall have informed us better; he has alſo collated the inedited figures of Micheli, in his own and Sir Joſeph Banks's libraries.—Zoſtera oceanica of Linnæus, a plant of a peculiar genus, is not found on our ſhores. The fructification of it has been illuſtrated by Filippo Cavoſini, in Ulteri annal. bot. faſc. 9. and by Micheli in ic. ined. t. 58*.

ZUZYGIUM. See *Calyptranthes.*

ZWINGERA. (*From Theodorus Zuinger, profeſſor of anatomy and botany at Baſil, author of* Theatrum Botanicum, Baſel 1696. *fol. and ſeveral academical diſſertations. Born* 1657. *Died* 1724.)

Lin. gen. Schreb. n. 1752. *p.* 802. Simaba. *Aubl. t.* 153. *Juſſ.* 373.

Claſſ. 10. 1. Decandria Monogynia.

Nat. Order of *Terebintaceæ* Juſſ.

GENERIC CHARACTER.

CAL. *Perianth* five-parted, ſmall; *ſegments* ovate acute.

COR. *Petals* five, oblong, obtuſe, ſpreading.

STAM. *Filaments* ten, capillary, wider at the baſe, hairy, ſhorter than the corolla. *Anthers* ovate.

PIST. *Germ* roundiſh, divided by five deep grooves,

* L'Heritier. † Mant. * L'Heritier.

* Smith brit. & engl. bot. * Withering. * Smith brit.

calyx. Scales of the nectary hirſute, in the upper filaments gradually larger, in the uppermoſt very large. Stamens converging. Germ attenuated at the baſe into a long thick five-grooved pedicel. Capſule with five very large membranaceous wings. This tree has a very beautiful appearance when in flower. The natives call it *Guayacan*, but they give that name to all hard woods. They have a notion that if it be buried in the ground, it will be converted into ſtone.

Native of Carthagena in Spaniſh America, in woody vallies; and common in ſandy woods on the coaſt: flowering in july [a].]

PROPAGATION AND CULTURE.

The third ſort is only propagated by ſeeds, which ripen very well in England in warm ſeaſons; theſe may be either ſown upon a moderate hot-bed in the ſpring, or on a warm border of light ground; thoſe which are ſown upon the hot-bed will come up in three weeks or a month, and about a month after, the plants will be fit to remove, when they ſhould be each planted in a ſeparate ſmall pot filled with freſh light earth, and plunged into a gentle hot-bed to promote their taking root, and ſhaded from the ſun in the day time; afterward they muſt be gradually hardened to bear the open air, to which they ſhould be expoſed all the ſummer; but in autumn, when their ſtalks begin to decay, they ſhould be placed in a hot-bed frame to ſhelter them from the froſt in winter, for while they are young, they are a little tender. The ſpring following they may be turned out of the pots, and planted in a ſouth border cloſe to the wall, in a dry rubbiſhy ſoil, where they will endure the cold without covering. There is a plant of this kind in the Chelſea Garden, which is more than fifty years old, and has reſiſted the ſevereſt cold without any covering, and produces great plenty of flowers and fruit annually.

Thoſe plants which come up in the full ground will require no other care but to keep them clean from weeds, and thin them where they come up too cloſe, giving them room to grow the firſt year; and when their ſtalks decay in autumn, the ſurface of the ground ſhould be covered with tan to prevent the froſt from penetrating to the roots, or in froſty weather, they may be covered with ſtraw or Peas haulm, which will anſwer the ſame purpoſe, the young plants being ſomewhat tender; and in the ſpring, the roots ſhould be carefully taken up, planting them cloſe to a warm wall, as before directed.

The other ſorts are too tender to live through the winter in the open air in this country, ſo they muſt be kept in pots, and houſed in autumn. Theſe plants may be propagated either by ſeeds or cuttings.

The tenth ſort ripens its ſeeds pretty well in England, and may be propagated by ſowing them on a moderate hot-bed in the ſpring; when the plants are about an inch high, they ſhould be each tranſplanted into a ſmall pot filled with light earth, and plunged into a moderate hot-bed, ſhading them from the ſun till they have taken root; then as the ſeaſon advances, they ſhould be gradually hardened to bear the open air, into which they ſhould be removed the latter end of may, placing them in a warm ſheltered ſituation, where they may remain till autumn, when they ſhould be placed in a dry airy glaſs-caſe, where they will ſucceed better than in a green-houſe; for they require a large ſhare of air in mild weather, otherwiſe their ſhoots are apt to be weak and tender, ſo are often injured by damp air in winter, but they do not require any artificial heat. If they are ſcreened from the froſt, and have plenty of air, they will thrive very well.

The eighth ſort ſeldom produces good ſeeds in England, ſo is propagated by cuttings, and the tenth is generally increaſed in the gardens the ſame way, that method being very expeditious, though the ſeedling plants grow ſtronger, and riſe to a greater height. Theſe cuttings may be planted in a bed of light earth during any of the ſummer months; if theſe are covered cloſe down with bell or hand-glaſſes, and ſhaded from the ſun, they will put out roots in five or ſix weeks, and then may be taken up carefully and potted, placing them in the ſhade till they have taken new root; after which they may be removed to a warm ſheltered ſituation, and treated in the ſame way as thoſe plants raiſed from ſeeds.

[a] Jacquin.

FINIS.

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